

PERFORMANCE CRITERIA
FOR

SECTION 11 50 00

EDUCATION AND SCIENTIFIC EQUIPMENT

09/21

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GENERAL

This performance criteria (PC) specifies the requirements for educational and scientific equipment, including the coordination, provision, installation, commissioning, testing, instruction, and warranties for display systems. provide plant, materials, equipment, transport, and labor necessary to accomplish this, resulting in a complete and proper system.

1.1 REFERENCE

1.1.1 Unified Facilities Criteria (UFC)

Contractor must comply with the following:

- A. UFC 1-200-01 General Building Requirements
- B. UFC 1-200-02 High Performance and Sustainable Building Requirements
- C. UFC 3-580-01 Telecommunications Interior Infrastructure Planning and Design
- D. UFC 4-510-01 Design: Military Medical Facilities

1.1.2 Military Standard

- A. MIL-STD 1691 Construction and Material Schedule for Medical, Dental, Veterinary and Medical Research Laboratories

1.1.3 National Fire Protection Association (NFPA)

- A. NFPA 99 Healthcare Facilities Code
- B. NFPA 101 Life Safety Code

1.1.4 Military Health Services Standards

- A. Reserved for future

1.1.5 American Society of Testing and Materials (ASTM)

- A. ASTM E1110-06, Standard Classification for Determination of Articulation Class

1.1.6 American National Standards Institute (ANSI)

- A. ANSI/INFOCOMM 2M Standard Guide for Audiovisual Design and Coordination Processes
- B. ANSI/INFOCOMM 4 Audiovisual Systems Energy Management
- C. ANSI/INFOCOMM 10 Audiovisual Systems Performance Verification

1.1.7 Underwriters Laboratories (UL)

- A. UL 60065 Standard for Audio, Video and Similar Electronic Apparatus – Safety Requirements

1.1.8 Other Standards

- A. Reserved for future

2.1 DESCRIPTION & MATERIALS

All requirements within the MIL-STD 1691 JSN descriptions must be met as well as the performance guidelines listed in the following descriptions.

2.1.1 All JSN'S

- A. Finishes will be selected from the manufacturer's standard options for the specified model unless noted otherwise.
- B. All product finishes must meet industry standards for infection control and performance.
- C. All product finishes must be capable of maintaining sheen and color through warranty period when using industry standard cleaning and disinfection solutions.
- D. All display panel surfaces must maintain clarity through warranty period when using industry standard cleaning and disinfection solutions.
- E. Electrified equipment must be 110-120 Volt AC, unless noted otherwise. Equipment supply voltage and frequency shall match prevailing site conditions.
- F. All products that have interoperability capable hardware (i.e. internal storage, data transmission via wireless, Ethernet, LAN, or USB to PC or server connectivity) must meet Cybersecurity requirements in accordance with DoDI 8510.01 Risk Management Framework.
- G. For Television Displays:
 - a. Install the displays specified within.
 - b. Confirm with the Owner that all display mounting conditions are ABA compliant.
 - c. Provide the manufacturer's remote control supplied with the display for control.
 - d. Displays will have tuning capabilities as well as non-tuning capabilities
- H. Product: New, free from defects and listed by UL or other acceptable testing agencies acceptable to local authorities with jurisdiction. Provide product of a given type from one manufacturer.
- I. Regardless of the length or completeness of the descriptive paragraph herein, provide product complying with the specified manufacturer's published criteria.
- J. Provide product not specifically specified commensurate with the quality and standards established by the specified product. Product variations are acceptable due to the evolution of new technology
- K. When installing power and data connections, install cabling in a manner that will conceal them from view.
- L. DoDI 8510.01 applies to all DoD IT (medical devices included) that receive, process, store, display, or transmit DoD information. These technologies are broadly grouped as DoD IS, platform IT (PIT), IT services, and IT products. This includes IT supporting research, development, test and evaluation (T&E), and DoD-controlled IT operated by a contractor or other entity on behalf of the DoD.

2.2 M0435, M0500, M0505, M0512, M0515, F2280 TELEVISION DISPLAYS

- A. M0435_9" Display (Type 1):
 - 1. HD TV Display
 - 2. Brightness 350 cd/m2
 - 3. Native Resolution 1920 x 1080
 - 4. HDMI Input
 - 5. Aux Input/Output
 - 6. Integrated Tuner
 - 7. USB Input
 - 8. Mounting:
 - a. Wall (VESA 75mm)
 - b. Flush (Mounting Strips)
 - c. Stand (Adjustable and Detachable)

- B. M0505 16" Display (Type 2)
 - 1. HD LED TV Display
 - 2. Brightness 250 cd/m2
 - 3. Native Resolution 1920 x 1080
 - 4. HDMI Input
 - 5. Ethernet Input
 - 6. RF Antenna Input
 - 7. Aux Input/Output
 - 8. USB Input

9. Pillow Speaker
 10. Mounting: Swivel Arm
- C. M0500_20" Display (Type 3):
1. Ultra HD LED TV Display
 2. Brightness 250 cd/m²
 3. Native Resolution 1920 x 1080
 4. HDMI Inputs
 5. Ethernet Input
 6. RF Antenna Input
 7. Composite Video Input
 8. Aux Input/Output
 9. Integrated Tuner
 10. USB Input
 11. Mounting:
 - a. Wall (VESA 100mm x 100mm)
 - b. Flush (Mounting Strips)
 - c. Stand (Adjustable and Detachable)
- D. F2280, M0506_32" Display (Type 4):
1. Ultra HD LED TV Display
 2. Brightness 420 cd/m²
 3. Native Resolution 1920 x 1080
 4. Integrated ATSC Tuner
 5. HDMI Input
 6. Analog Audio Input
 7. Digital Audio Output
 8. Aux Input/Output
 9. PC Input
 10. USB Input
 11. Mounting:
 - a. Wall (VESA Compatible)
 - b. Flush (Mounting Strips)
 - c. Stand (Adjustable and Detachable)
- E. M0515_40" Display (Type 5):
1. Ultra HD LED 4K TV Display
 2. Brightness 400 cd/m²
 3. Native Resolution 3840 x 2160
 4. ATSC/Clear QAM Tuner
 5. HDMI Input
 6. Analog Audio Input
 7. Digital Audio Output
 8. Aux Input/Output
 9. PC Input
 10. USB Input
 11. Mounting:
 - a. Wall (VESA Compatible)
 - b. Flush (Mounting Strips)
 - c. Stand (Adjustable and Detachable)
- F. M0512_60" Display (Type 6):
1. Ultra HD LED 4K TV Display
 2. Brightness 400 cd/m²
 3. Native Resolution 3840 x 2160
 4. ATSC/Clear QAM Tuner
 5. HDMI Input
 6. Analog Audio Input
 7. Digital Audio Output
 8. Ethernet (LAN) Input
 9. RF Input
 10. USB Input
 11. Mounting:

- a. Wall (VESA Compatible)
- b. Flush (Mounting Strips)
- c. Stand (Adjustable and Detachable)

2.3 DIGITAL MESSAGE BOARD

- A. A1095 – Message Board, Digital
 - 1. Provide [UHD 4K] [Full HD] LCD Display Panel with LED [Backlit] [Edgelit]. Include the following:
 - a. Brightness [350] [1000] nit (cd/m²)
 - b. Native Resolution to be [3840 x 2160] [1920 x 1080]
 - c. Contrast Ratio [3000:1] [4000:1]
 - d. Orientation: [Landscape] [Portrait]
 - e. HDMI Input, USB Input
 - f. Integrated Wi-Fi
 - g. [Integrated Media Player]
 - h. Analog Audio Input, Digital Audio Output, Ethernet (LAN) Input, RF Input Storage Capacity: 8GB (Internal)
 - i. Power Supply: AC 100-240V ~ 50/60Hz
 - j. [Fanless Thermal Management System]
 - k. IP5X rated for protection from dust and debris
 - l. Cabinet color to be [clear aluminum] [black]
 - m. Mounting:
 - 2. Wall (VESA Compatible)
 - 2. Flush (Mounting Strips)
 - 3. Stand (Adjustable and Detachable)

2.4 MICROFILM/ MICROFICHE READER SCANNER

- A. F0910 – Reader, Microfilm
 - 1. Provide microfilm reader/projector for roll film (35mm, 16mm) and flat film (microfiche, super-fiche, micro-jackets and aperture cards)
 - 2. High-resolution glass microfilm screen
 - 3. 100-200 DPI output resolutions
 - 4. 16/256 levels of gray and scale to gray function
 - 5. Auto Speckle Removal
 - 6. Low Contrast Film Enhancement
- B. F0915 – Reader/ Printer/ Scanner, Microfilm
 - 1. Provide desktop digital microfilm reader, printer and scanner with capability to scan, read and print. Units must have PC and network connectivity. Units to function as reader/printer using PC independent application software.
 - 2. Scanning capability must allow for digital conversion of film archives and provide digital files and connectivity for outputting to printers, electronic storage or other use.
 - 3. Anti-glare viewing screen
 - 4. Must accept microfiche, jackets, aperture cards, 16mm and 35mm roll film and 16mm film cartridges.
 - 5. 300 dpi high resolution PC scanning
 - 6. 16/256 levels of gray and scale to gray function
 - 7. [Provide film roll attachments to accommodate 16mm and 35mm film rolls and cartridges.]
 - 8. [Provide aperture card carrier]
 - 9. [Provide fiche carrier.]
 - 10. [Provide connectivity for PC monitor viewing.]
 - 11. [Provide desktop laser printer.]
 - 12. Power supply: 110-240 VAC 50/60 Hz

2.5 TELEVISION BRACKETS

- A. A5210 - Bracket, Television, Wall Mounted, w/ Adjustable Arm
 - 1. Provide pivot wall bracket for 22" to 43" TV displays. Must have adjustable range from 2.78(70mm) to 7.43(189mm), locking tilt capability and up to 90 degree of pivot.
 - 2. Provide integrated cable management system.
 - 3. Mounting: [100 x 100mm] [200 x 100mm] [200 x 200mm] VESA mounting patterns.
 - 4. Provide Scratch Resistant, [Fused Epoxy Finish] [Powder Coat]. Color to be Black.
 - 5. Design must be UL listed.
- B. A5212 – Bracket, Television, Wall Mounted, Tilt/Angle

1. Provide wall mounted, low profile, tilt/ angled TV bracket for 37" to 80" displays. Mount must be VESA compliant with a load capacity of up to 130 pounds.
 2. Tilt feature must accommodate 0 degrees, +5 degrees or +10 degrees
 3. Provide integrated cable management system.
 4. Mounting: 200 x 200mm to 600 x 400mm, Universal and VESA compliant
 5. Provide Scratch Resistant, [Fused Epoxy Finish] [Powder Coat]. Color to be Black.
 6. Design must be UL listed.
- C. A5215 – Bracket, Television, Ceiling Mounted
1. Provide ceiling mount TV bracket for flat panel displays of varying sizes. Bracket must be universal style mount with a load capacity of 150 - 200 pounds.
 2. Bracket must accommodate adjustments of 0-15-degree tilt and 360-degree swivel.
 3. Provide integrated cable management system.
 4. Provide [telescoping mast] [manufacturer's extension kit]
 5. Mounting: up to 600 x 400mm, Universal and VESA compliant
 6. Provide Scratch Resistant, Powder Coat Finish. Color to be Black.
 7. Design must be UL listed.
- D. A5220 – Bracket, Television, Wall Backing
1. Provide wall mounted TV bracket backing which provides additional support and strength for the installation of the television bracket. Load capacity must be 80 pounds.
 2. Provide [interior plate] [exterior plate] sized for [16 inch] [24 inch] stud spacing.
 3. Provide Scratch Resistant, [Fused Epoxy Finish] [Powder Coat]. Color to be Black.
 4. Design to be UL listed.
- E. A5225 – Bracket, Dual Computer Monitor, Desk-Mounted
1. Provide desk-mounted bracket that supports two (2) computer monitors. Bracket must extend up to 25 inches, with an adjustment range of 18 inches.
 2. Desk clamp must accommodate 2.6-inch thickness.
 3. Maximum combined weight supported must not exceed 50 pounds.
 4. Mounting: [75 x75mm] [100 x 100mm] VESA compliant
 5. Color to be [Polished Aluminum] [White] [Black].

2.6 PROJECTORS

- A. M0385, M0440 - Video/Multimedia:
1. Brightness – up to 4500 ANSI Lumens
 2. Contrast Ratio – up to 1000:1
 3. Resolution and Aspect Ratio – XGA (1024x768), 4x3
 4. LAN Port – RJ45
 5. Computer Inputs in Pixel – up to 1600x1200 (4:3), 1920x1200 (16:10)
 6. Analog Inputs – UXGA, SXGA+, SXGA, XGA, SVGA, VGA, MAC
 7. Video Inputs Analog – 480i/p, 575i/p, 720p, 1035i, 1080i
 8. Image Signal – Computer and S-Video
 9. Power – 100-120V AC
- B. F2225 - Overhead:
1. Brightness – 2000 Lumens
 2. Cord Length – 15ft
 3. Lens Type – Singlet
 4. Projection Distance – 22.5ft (maximum)

2.7 M0507 - VIDEO TELECONFERENCE SYSTEM

- A. Main Unit:
1. Communication Method – SIP
 2. Video Compression Method – High Profile, Baseline Profile, Mainstream and Reception
 3. Dual Stream:
 - a. Method – BFCP (SIP)
 - b. Multi-Monitor – 3 displays
 - c. No. of Applicable Resolution Frames – Max 1080p, 30 frames/second
 4. I/O Terminals:
 - a. Video Input – Camera (HDMI); PC (RGB/HDMI)
 - b. Video Output – HDMI

- c. Network – RJ45
- d. External Control – RS-232C
- 5. Power Input – 100-240V AC
- B. Camera:
 - 1. Remote Camera Control – Zoom/Pan/Tilt/Zoom
 - 2. Video:
 - a. Compatible Resolution
 - b. No. of Frames – Max 60 frames/second
 - c. Screen Display – Full Screen, Picture in Picture, Picture with Picture, Side by Side
 - d. Camera Control Terminal – USB
 - 3. Resolution: 1920 x 1080p
- C. Audio:
 - 1. Echo canceller, Auto gain control, Stationary noise reduction, Lip synch, Equalizer, Mic mute
 - 2. Audio Input – Digital Boundary Microphone, Analogue Boundary Microphone, HDMI
 - 3. Audio Output – HDMI/RCA

2.8 VOICE RECORDER

- A. F2050 - Digital/Voice:
 - 1. High-fidelity microphones
 - 2. 8GB built-in memory
 - 3. Memory card slot – allows for unlimited recording
 - 4. Extra-long battery life
 - 5. Automatic transcription – 99% accuracy
 - 6. Audio Formats – MP3, WAV, WMA
 - 7. Interfaces/Ports – USB, Headphone

2.9 F2455 - TRANSCRIPTION UNIT (STANDALONE)

- A. Standalone:
 - 1. Recording System – 4-track, 2-channel
 - 2. Tape Speed – 2.4cm/sec or 1.2cm/sec
 - 3. Frequency Response – 200-6000Hz, 200-4000Hz
 - 4. Fast-Forward/Rewind Time – Approx. 1 min 50 sec with MC-60BM Cassette
 - 5. Power Requirements – AC Adapter, 120V AC
 - 6. Supplied Accessories – Foot Control, Listening Device, AC Adapter

2.10 M0430 - VIDEO RECORDER

- A. Player, Digital, Video, DVD:
 - 1. Recording Video Format – MPEG-4 AVC
 - 2. Recording Audio Format – AAC LC
 - 3. Recording File Format – MP4
 - 4. Recording Media:
 - a. Internal HDD (2TB)
 - b. External USB Storage
 - c. Network (CIFS)
 - d. DVD-R
 - e. BD-R SL/BD-R DL
 - f. BD-R SL/BD-RE DL
 - 5. Recording Bit Rates (HD)
 - a. 1080p: 24Mbps (Best), 18Mbps (High), 12Mbps (Standard)
 - b. 1080i/720p: 20Mbps (Best), 12.5Mbps (High), 6Mbps (Standard)
 - 6. Recording Bit Rate (SD)
 - a. NT/PAL: 6Mbps (Best), 4Mbps (High), 2Mbps (Standard)
 - 7. 3D Recording
 - a. Side by Side, Top and Bottom
 - b. Input 3D Signals: Side by Side, Line by Line, Dual Stream
 - 8. Power Requirements: 100-240V AC
- B. Connectors:
 - 1. Input Connectors
 - a. 3G/HD/SD-SI (BNC type)
 - b. DVI-D (Single link)
 - c. S-VIDEO (Mini DIN 4-pin type)
 - d. VIDEO (BNC type)

- e. RGB (Mini D-Sub 15-pin)
- d. AUDIO (Stereo mini jack)
- e. MIC (Stereo mini jack)
- f. AC Inlet (3-pin)
- 2. Output Connectors
 - a. 3G/HD/SD-SI (BNC type)
 - b. DVI-D (Single link)
 - c. S-VIDEO (Mini DIN 4-pin type)
 - d. VIDEO (BNC type)
 - e. AUDIO (Stereo mini jack)

2.11 F2250 - CAMCORDER – HANDHELD HD

A. Sensors

- 1. Image Sensor 1/2.3" BSI MOS Sensor
- 2. Total Pixels 12.76 megapixels
- 3. Effective Pixels (Motion Image) 6.03 megapixels 16:9
- 4. Effective Pixels (Still Image) [5.21 megapixels 3:2], [6.03 megapixels 16:9], [4.72 megapixels 4:3]
- 5. Image Sensor

B. Lens

- 1. F Value F1.8 (WIDE) / F3.6 (TELE)
- 2. Optical Zoom [20x], [40x]
- 3. Focal Length 4.08-81.6mm
- 4. 35mm Film Camera Equivalent (Motion Image) 29.5 – 612mm 16:9
- 5. 35mm Film Camera Equivalent (Still Image) [33.5 – 669.9mm 3:2], [29.5 – 612mm 16:9], [36.2 – 724.6mm 4:3]
- 5. Filter Diameter 49mm

C. Camera

- 1. Standard Illumination 1400lx
- 2. Minimum Illumination 2lx (Scene Mode Low Light 1/30), 1lx (Night Mode (Color))
- 3. Focus Auto / Manual
- 4. White Balance Auto / White Set / Sunny / Cloudy / Indoor 1 / Indoor 2
- 5. Iris Auto / Manual
- 6. Image Stabilizer HYBRID O.I.S.+ with Active Mode, O.I.S. Lock, Level Shot Function
- 7. Creative Control Miniature Effect, Silent Movie, 8mm Movie, Time Lapse Rec
- 8. Intelligent Zoom ON 50x / OFF 20x
- 9. Digital Zoom 60x / 1500x
- 10. Motion Image 60p / 60i
- 11. Motion Image Auto Slow Shutter ON: 1/30 – 1/8000, OFF: 1/60 – 1/8000
- 12. Still Image 1/2 – 1/2000

D. Recording

- 1. Recording Media SD/SDHC/SDXC Memory Card
- 2. Recording Format AVCHD Progressive
- 3. Recording Format iFrame / MP4
- 4. Compression Method MPEG-4 AVC
- 5. Recording / Playback Mode
 - a. 1080/60p (28Mbps / VBR), (1920 x 1080/60p)
 - b. PH (24Mbps / VBR), (1920 x 1080/60i)
 - c. HA (17Mbps / VBR), (1920 x 1080/60i)
 - d. HG (13Mbps / VBR), (1920 x 1080/60i)
 - e. HE (5Mbps / VBR), (1920 x 1080/60i)
 - f. MP4/1080p (50M) (50Mbps / VBR), (1920 x 1080/60p)
 - g. MP4/1080p (28M) (28Mbps / VBR), (1920 x 1080/60p)
 - h. MP4/720p (9M) (9Mbps / VBR), (1280 x 720/30p)
 - i. iFrame (28Mbps / VBR), (960 x 540/30p)
- 6. Actual Recordable Time with supplied Battery
 - a. Approx. 50 min (60p mode)
 - b. Approx. 50 min (PH mode)
 - c. Approx. 50 min (HA mode)
 - d. Approx. 50 min (HG mode)
 - e. Approx. 50 min (HE mode)

- f. Approx. 50 min (MP4 50M)
 - g. Approx. 50 min (MP4 28M)
 - h. Approx. 55 min (MP4 720p)
 - i. Approx. 55 min (iFrame)
 - 7. Thumbnail Display 20 thumbnails
 - 8. Audio Recording System AVCHD: Dolby Digital (5.1ch / 2ch)
 - 9. Audio Recording System iFrame, MP4: AAC (2ch)
 - 10. Microphone 5.1ch Surround, Zoom, Focus and Stereo Microphone
 - 11. Speaker Dynamic type
- E. Still Image
- 1. Recording Format JPEG (DCP/Exif2.2)
 - 2. Flash
 - 3. Still Image 16:9 24 megapixels (6528 x 3672), 12.6 megapixels (4736 x 2664), 2.1 megapixels (1920 x 1080)
 - 4. Still Image 3:2 20 megapixels (5472 x 3648), 10.6 megapixels (3984 x 2656), 2.0 megapixels (1728 x 1152)
 - 5. Still Image 4:3 18 megapixels (4896 x 3672), 8 megapixels (3264 x 2448), 0.3 megapixels (640 x 480)
 - 6. Simultaneous Recording 16:9 12.6 megapixels (4736 x 2664), 2.1 megapixels (1920 x 1080)
- F. General
- 1. Power Supply 3.6V (Battery) / 5.0V (AC Adapter)
 - 2. LCD Monitor 3.0" Wide LCD monitor (460,800 dots)

2.12 M0495 - ENTERTAINMENT SYSTEM

- A. Gaming
- 1. Xbox – Series X
 - a. Storage Capacity – 1 TB
 - b. Video Resolution – 2160p (4K)
 - c. HDMI Outputs – 1
 - d. USB Ports – 3
 - e. External Memory Compatibility – micro SDHC, micro SDXC
 - 2. Play Station – Series 5
 - a. Storage Capacity – 825 GB
 - b. Video Resolution – 4320p (4K)
 - c. HDMI Outputs – 1
 - d. USB Ports – 2
 - e. External Memory Compatibility – micro SDHC, micro SDXC
 - 3. Nintendo Switch – E3 Series
 - a. Storage Capacity – 32 GB
 - b. Video Resolution – 1080p
 - c. HDMI Outputs – 1
 - d. USB Ports – 1
 - e. External Memory Compatibility – micro SDHC, micro SDXC

3.1 SUBMITTALS

3.1.1 Submittals required for government review

- A. Submittal requirements are outlined in [Division 01] [PWS SOW] []**
- B.** [Product Information must include manufacturer's installation instructions, sizing (including required clearance for access and maintenance), utility requirements, isometric drawings, tagged floorplans showing placement for count accountability and accessories/options/consumables lists.]
- C. All submittals require Government approval prior to procurement. Submit all listed items herein, with information sufficient to show full compliance with the criteria. Submit all product selections for review and approval, including but not limited to materials, finishes, colors, options, accessories, and complimentary products. Provide for review all warranties and service contracts and any available extended warranty or service options.**
- D.** Samples: Furnish material samples and full range of color selection options for all items that offer material and color selections.
- E.** Submit and highlight all applicable options for Government review for all items which optional accessories are provided.
- F.** [Joint Interoperability Test Command (JTIC) Approval Documentation.]

3.2 QUALITY ASSURANCE

3.2.1 Materials and Equipment

A. Materials and equipment must be standard products of a manufacturer regularly engaged in the manufacture of products which are of a similar material, design, and workmanship and are offered for sale on the commercial market through advertisements, manufacturer's catalogs, or sales brochures. The products must have been in commercial or industrial use under similar circumstances and of similar size for 2 years prior to selection for approval/procurement. Products must be supportable for at least three years after government acceptance.

3.2.2 Alternative Service Record

A. Products having less than a 2-year field service record will be acceptable if a certified record of the manufacturer's factory or laboratory tests demonstrating performance compliance is provided to the Contracting Officer.

3.2.3 Service Support

A. Equipment items must be supported by service organizations located near the equipment installation, able to service the equipment on a regular basis and respond to emergency calls throughout the warranty period.

3.2.4 Manufacturer's Nameplate

A. Each item of equipment must have an attached nameplate that is securely affixed in a conspicuous space. A nameplate listing only the name of the distributing agent is not acceptable. The nameplate must contain the following fields in English:

1. Manufacturer's name and address
2. Model and Serial Number
3. Item's utility ranges and/or capacities
4. Voltage, amperage, and applicable Underwriters Laboratory (UL) or Conformité Européenne (CE) rating if electrically powered
5. Date of manufacture

3.2.5 Factory Inspection

A. Arrange and perform all quality control and quality assurance inspections required by the technical sections of the criteria, unless otherwise specified. Report these inspections in the daily report to the Government inspector.

3.2.6 Product Qualifications

A. The products specified in the technical sections of this criteria establish standards for each item.

3.2.7 Design Parameters

A. It is not the intention of this Criteria to limit consideration to products of specific manufacturers. The product standards establish the characteristics for which submitted items of equipment will be reviewed and approved by the Government. Equipment furnished must meet each of the following parameters specified in the technical sections:

1. Size of equipment
2. Function of equipment
3. Standard and listed accessories and options
4. Equipment controls and performance of equipment
5. Construction of equipment
6. Finish

3.3 STANDARDS DEVIATIONS

3.3.1 Reporting and Submission for Approval

A. Submit for approval a record of deviations from the standards listed in section (3.2.7.A.) established for each specified product, before ordering equipment.

3.4 DELIVERY, STORAGE AND PROTECTION

3.4.1 Packaging and Transporting

- A. Each unit of equipment must be placed in a substantial shipping container or crate for safe transportation to final destination. The shipping container or crate for heavy equipment must be on skid construction to facilitate handling by lift equipment.

3.4.2 Packing List

- A. Clearly and legibly indicate on exterior of each container or crate the shipping address and a brief description of contents. Fasten to outside of container a packing list and complete instructions for uncrating equipment and setting it in place. Protect such information in a weatherproof envelope.

3.4.3 Protection

- A. Properly protect all materials and equipment from injury and damage during storage, installation, and acceptance.

3.5 INSTALLATION, VERIFICATION AND ACCEPTANCE TESTING

3.5.1 Qualifications of Installers and Inspectors

- A. If required by product warranty, use installers that are approved and licensed by the manufacturer. When required to complete installation, all electricians and plumbers used must be bonded and licensed in the project's jurisdiction.
- B. [Company specializing in installing the products specified in this section must have a minimum 5 years of documented experience.]
- C. [Company specializing in installing the products specified in this section must be within 200 miles or 4 hours travel time.]

3.5.2 Installation, Operation, Testing and Certification

- A. Products must be delivered in manufacturer's original packaging with manufacturer's installation instructions. Include clearly marked project reference.
- B. Prior to installation, thoroughly examine the equipment, materials, and components for both visual defects and conformance with criteria.
- C. Install all equipment in compliance with manufacturer's written instructions and installation procedures.
- D. After installation, the equipment must be inspected and tested under operating conditions. If the equipment fails an inspection or test, such defects/failures must be corrected. Upon correction of defects/failures, inspect and retest all affected functions related directly and indirectly to the defect or failure. Corrections, replacement, and retesting must be made at no additional expense to the Government.
- E. Provide all items necessary to make equipment fully functional.
- F. Provide appropriately trained personnel to energize, commission, inspect, electrical safety check, calibrate, certify, and provide all required technical testing for equipment and systems. Contractor must provide documentation, test reports and certification documentation attesting that the equipment is properly installed, functional, safe, calibrated, and ready for its intended use.
- G. An equipment item will be considered defective if it cannot be made to meet all established criteria consistent with the activities listed in section (F).
- H. Provide two sets of special tools, software, and any other item/s for each equipment [item] [item type] if required for maintenance and/or future reconfiguration of the item.
- I. Contractor to supply all start-up supplies for medical equipment for a fully operational installation. Contractor must supply to the Government a listing of all needed supplies for ongoing equipment operation for each item of equipment requiring additional supplies for operation.
- J. Engage a factory-authorized service representative to train Government's staff and maintenance personnel to adjust, operate, and maintain medical equipment.
- K. [Confirm functionality of required interfaces to other systems and networks.]

3.6 WARRANTY

3.6.1 Minimum Requirements

- A. Warranty requirements are outlined in [Division 01] [PWS SOW] [____].
- B. [Provide manufacturer's written warranty for all items listed. Provide warranty for a minimum of (1) year against defects in materials and workmanship. Warranty must provide for material, labor and all associated replacement

and/or repair costs required to provide for a fully operational equipment replacement or repair. Submit manufacturers and installers standard service contract beyond the warranty period for Government review. Warranty must be transferrable to the final owner without risk of being voided. All warranty certification and documentation must be provided to the final owner after date of acceptance.]

- C. Provide routine warranty service in accordance with manufacturer's warranty requirements, for a period of [12 months (minimum)] [____] after the open for business date. Perform work during regular working hours. Perform service only by factory trained personnel. Maintain a maintenance log of all service orders performed during the warranty period.

3.7 OPERATIONS AND MAINTENANCE (O & M)

3.7.1 Provide the following to the final owner

- A. Provide O & M data for all FFE-LVS as outlined in [Division 01] [PWS SOW] [____].
- B. Upon completion of equipment installation, furnish [two (2)] copies of operators/service/maintenance manuals for each type of equipment which will require service or maintenance
- C. Each manual must contain operating instructions and information required for performing periodic maintenance on the equipment. Each service manual must include an illustrated parts breakdown which identifies each part of the unit with manufacturer's part number, wiring diagrams, and a list of necessary service parts, tools, and equipment needed to support maintenance requirements.
- D. Accessory Catalogs: Upon completion of the Project, furnish two copies of the manufacturer's catalogs containing optional accessory items available for all equipment relative to the procured equipment/system delivered herein.
- E. Provide instruction video for cleaning and maintenance, when available.
- F. Provide cleaning requirements for all items to prevent void of warranty.
- G. [Provide contact information for Repair Technician or Emergency Repair Company]
- H. Provide contact information to [Logistics, Pharmacy, Laboratory, and Biomedical Equipment Services.]
- I. Train designated staff in the operation and maintenance of the provided equipment/system. Provide two training sessions for equipment/system users and two training sessions for maintenance personnel scheduled to accommodate shift work. [Provide training certificates that can be executed up to eleven months after the system is installed, in order to provide a refresher course for each group of trainees.] Provide DVD copy of the training with the O & M data.

--End of Section--