

SECTION 34 71 13.19

ACTIVE VEHICLE BARRIERS AND CONTROLS

02/20

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
(AASHTO)

AASHTO GDHS-5 (2011, Errata 2012) A Policy on Geometric Design of Highways and Streets

AASHTO LTS (2013; Errata 2013) Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals

AASHTO RSDG-4 (2011; Errata 1 2012; Errata 2 2015) Roadside Design Guide

AMERICAN WELDING SOCIETY (AWS)

AWS D1.1/D1.1M (2015; Errata 1 2015; Errata 2 2016) Structural Welding Code - Steel

ASTM INTERNATIONAL (ASTM)

ASTM A106/A106M (2019a) Standard Specification for Seamless Carbon Steel Pipe for High-Temperature Service

ASTM D4956 (2013) Standard Specification for Retroreflective Sheeting for Traffic Control

ASTM F2656/F2656M (2018) Standard Test Method for Crash Testing of Vehicle Security Barriers

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)

IEEE 142 (2007; Errata 2014) Recommended Practice for Grounding of Industrial and Commercial Power Systems - IEEE Green Book

IEEE C37.90 (2005; R 2011) Standard for Relays and Relay Systems Associated With Electric Power Apparatus

- IEEE C37.90.1 (2013) Standard for Surge Withstand Capability (SWC) Tests for Relays and Relay Systems Associated with Electric Power Apparatus
- IEEE C62.41.1 (2002; R 2008) Guide on the Surges Environment in Low-Voltage (1000 V and Less) AC Power Circuits
- IEEE C62.41.2 (2002) Recommended Practice on Characterization of Surges in Low-Voltage (1000 V and Less) AC Power Circuits

INTERNATIONAL ELECTROTECHNICAL COMMISSION (IEC)

- IEC 60068-2-27 (2008; ED 4.0) Environmental Testing - Part 2-27: Tests - Test Ea and Guidance: Shock
- IEC 60068-2-30 (2005; ED 3.0) Environmental Testing - Part 2-30: Tests - Test Db: Damp Heat, Cyclic (12 H + 12 H Cycle)
- IEC 61000-4-5 (2017) Electromagnetic Compatibility (EMC) - Part 4-5: Testing and Measurement Techniques - Surge Immunity Test
- IEC 61131-3 (2013) Programmable Controllers - Part 3: Programming Languages

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION (ISO)

- ISO ISO/IEC 17025 (2017) General Requirements for the Competence of Testing and Calibration Laboratories

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

- NEMA 250 (2018) Enclosures for Electrical Equipment (1000 Volts Maximum)
- NEMA ICS 1 (2000; R 2015) Standard for Industrial Control and Systems: General Requirements
- NEMA ICS 2 (2000; R 2005; Errata 2008) Industrial Control and Systems Controllers, Contactors, and Overload Relays Rated 600 V
- NEMA ICS 4 (2015) Application Guideline for Terminal Blocks
- NEMA MG 1 (2018) Motors and Generators
- NEMA TC 2 (2013) Standard for Electrical Polyvinyl Chloride (PVC) Conduit
- NEMA TS-1 (1989; R 2005) Traffic Control Systems

(not recommended for new designs)

NEMA TS-2 (2016) Traffic Controller Assemblies with
NTCIP Requirements - Version 03.07

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 70 (2017; ERTA 1-2 2017; TIA 17-1; TIA 17-2;
TIA 17-3; TIA 17-4; TIA 17-5; TIA 17-6;
TIA 17-7; TIA 17-8; TIA 17-9; TIA 17-10;
TIA 17-11; TIA 17-12; TIA 17-13; TIA
17-14; TIA 17-15; TIA 17-16; TIA 17-17)
National Electrical Code

SOCIETY OF AUTOMOTIVE ENGINEERS INTERNATIONAL (SAE)

SAE J517 (2017) Hydraulic Hose

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1 (2014) Safety and Health Requirements
Manual

U.S. DEPARTMENT OF DEFENSE (DOD)

DOD 8500.01 (2014; Change 1-2019) Cybersecurity

DOD 8510.01 (2014; Change 1-2016; Change 2-2017) Risk
Management Framework (RMF) for DoD
Information Technology (IT)

U.S. FEDERAL HIGHWAY ADMINISTRATION (FHWA)

MUTCD (2015) Manual on Uniform Traffic Control
Devices

NCHRP 350 (1993) Recommended Procedures for the
Safety Performance Evaluation of Highway
Features

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

21 CFR 1040 Performance Standards for Light-Emitting
Products

29 CFR 1910 Occupational Safety and Health Standards

47 CFR 15 Radio Frequency Devices

UNDERWRITERS LABORATORIES (UL)

UL 486A-486B (2018) UL Standard for Safety Wire
Connectors

UL 508 (2018) UL Standard for Safety Industrial
Control Equipment

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| UL 651 | (2011; Reprint Nov 2018) UL Standard for Safety Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings |
| UL 796 | (2016) UL Standard for Safety Printed-Wiring Boards |
| UL 1059 | (2001; Reprint Dec 2017) UL Standard for Safety Terminal Blocks |
| UL 1076 | (2018) UL Standard for Safety Proprietary Burglar Alarm Units and Systems |

1.2 ABBREVIATIONS & DEFINITIONS

1.2.1 Definitions

Command & Control. Command & Control function refers to location the main guard will be located to oversee the activity at the ECF/ACP. This is typically the Gatehouse, but not in all cases.

Crash-rated active vehicle barrier. Crash-rated active vehicle barrier and active vehicle barrier in this specification refer to a vehicle barrier that has been tested to impede or stop a vehicle of a specific weight and speed. The barrier is operable either manually or through electrical controls.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for [Contractor Quality Control approval.][information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government.] Submittals with an "S" are for inclusion in the Sustainability eNotebook, in conformance with Section 01 33 29 SUSTAINABILITY REPORTING. Submit in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Point to Point Wiring Information; G[, [_____]]

TRAFFIC CONTROL PLANS; G[, [_____]]

SD-03 Product Data

Major Components; G[, [_____]]

Data Package; G[, [_____]]

SD-10 Operation and Maintenance Data

Operation and Maintenance Manuals; G[, [_____]]

Submit operation and maintenance data in accordance with Section 01 78 23 OPERATION AND MAINTENANCE DATA, Controls O&M Data Package and the requirements herein.

1.4 INSTALLATION PACKAGE

Submit Installation package 30 days after receipt of the Notice to Proceed. The installation package consists of the overall system drawings, major components and data package.

1.4.1 Point to Point Wiring Information

Final point-to-point wiring diagram of complete interconnected system including database listing of wire numbers, to and from designations, and wire characteristics.

1.4.2 Major Components

Submit the following for approval:

- a. Active Vehicle Barrier Controls to include pushbuttons, indicating lights, switches and panels.
- b. Programmable Logic Controller.
- c. Traffic Signs: powered and unpowered.
- d. Traffic signals and traffic signal supports.
- e. Warning Beacons (wig-wags).
- g. Alarm display panels.
- i. Cable and wiring used for the data transmission.
- j. Surge protection device.
- k. Cabinets and other main components needed to make a complete system.
- l. Tamper switches.
- n. Touch screens, if allowed.
- o. Equipment used for presence detection.

1.4.3 Data Package

1.4.3.1 Active Vehicle Barrier Controls

Describe operation of the different barrier control operating modes to include normal and emergency operation, barrier control switches, traffic signals, warning beacons, and vehicle presence detectors. Include description of security strategy for defeating a threat vehicle and the SDDC approved barrier safety scheme for protecting innocent vehicles from barrier operations.

1.5 TRAFFIC CONTROL PLANS

1.5.1 Traffic Control Plan for the maintenance of traffic during construction

Provide a Traffic Control Plan for maintenance of traffic during construction.

1.6 OPERATION AND MAINTENANCE MANUALS

Submit finalized manuals within 30 days after completing the Verification Test. Update the draft copy used during site testing with any changes required prior to final delivery of the manuals.

1.6.1 Maintenance Manual

Include descriptions of maintenance for all equipment including inspection, periodic prevention maintenance (include specific time intervals for each recommended preventative maintenance tasks), fault diagnosis, and repair or replacement of defective components in the maintenance manual.

1.6.2 Final System Drawings

Maintain a separate set of drawings (including site, civil, electrical, mechanical, structural, and details) of the system to be used for final system drawings. This set is to be accurately kept up-to-date with all changes and additions to the AVBCS and to be delivered to the Government with the final verification test report. In addition to being complete and accurate, this set of drawings is to be kept neat and not be used for installation purposes.

1.7 DELIVERY, STORAGE, AND HANDLING

Protect components delivered to site and/or placed in storage from the weather, humidity (and humidity variation), temperature (and temperature variation), dirt and dust, or other contaminants. Store structural materials on sleepers or pallets and protect them from rust and objectionable materials such as dirt, grease, or oil. Handle all components to protect finish and coatings from scuffs, abrasions or other damage. Excessive damage to factory applied finishes and coatings is cause for rejection. Provide all other delivery, storage and handling protections as recommended by the manufacturer.

1.8 PROJECT/SITE CONDITIONS

1.8.1 Exterior Conditions

House all components mounted in locations exposed to weather in corrosion-resistant enclosures with appropriate environmental protection. Improper housing design is not to cause a degradation in component performance.

Provide components (those installed outside or in an enclosure exposed outside) that meet the following ambient conditions:

- a. Temperature: [-25 to 140]degrees F;

1.8.2 Site Power Supply

Power supply at the site will be [120V AC] [1 phase] and is located] as shown on the drawings.20 A service minimum. Extreme Cold temperatures may require an additional 20A service for heat trace.

1.9 MAINTENANCE AND SERVICE

1.9.1 Description of Work

The adjustment and repair of the system includes all vehicle barriers and systems installed under this specification. Provide and perform all repair, calibration, and other work in accordance with the manufacturer's documentation and instruction. Responsibility is limited to Contractor installed equipment.

1.9.2 Schedule of Work

Perform quarterly inspection of barrier system to include inspection of all major components, functionality test of the barrier system (including deployment from all operator stations), and report any maintenance needed including cleaning of barrier system..

1.9.3 Operation

The applicable portion or portions from the performance verification test procedures are to be used after all scheduled maintenance and repair activities to verify proper component and system operation.

1.9.4 Records and Logs

Maintain records and logs of each performed task and organize cumulative records for each component and for the complete system chronologically resulting in a continuous log to be maintained for all devices. Provide a log that contains all initial settings. Ensure logs are kept and available for inspection onsite, demonstrating that planned and systematic adjustments and repairs have been accomplished for the system.

1.9.5 System Modifications

Make any recommendations for system modification in writing to the Government. Prior approval of the Government is required before any system modifications are made. Updating of the operation and maintenance manuals as well as any other documentation affected is required after any modification is made to the system.

1.10 WARRANTY

Provide all labor, equipment, and materials required to maintain the entire system in an operational state as specified, for a period of [one year] after formal written acceptance of the performance verification test.

PART 2 PRODUCTS

2.1 SYSTEM DESCRIPTION

Furnish and install a complete and functional permanent or Mobile tire shredding system for the ACP/ECF including active vehicle barriers, active vehicle barrier controls, traffic signals, traffic signal controls, traffic warning signals, traffic signs and pavement markings.

2.2 POWER UNIT

2.2.1 ELECTRIC POWER UNIT ENCLOSURE

All Systems (Including Permanent and Mobile are fully battery (DC voltage) operated to ensure continued operation during loss of line power. An AC powered battery charger is standard. Optional solar charging systems are available.

2.3 HEATER

Optional Heater system available to ensure proper barrier operation is maintained down to an ambient temperature of minus 40 degrees F.

2.4 FINISH AND MARKINGS

Provide signs and markings that meet retroreflectivity requirements as contained in the MUTCD under Part 2 Signs sections on 'Retroreflectivity', 'Maintaining Minimum Retroreflectivity', and 'Shapes' plus ensure all state and local retroreflectivity requirements are satisfied. Paint surfaces in accordance with requirements of Section 09 90 00 PAINTS AND COATINGS.

Motor drive unit standard finish is powdercoat color to match site specification. Galvanized finish available on request. Permanent blade pads are constructed of stainless steel. Mobile blade pads consist of 80 durometer rubber with UV stabilizer. Tactical mobile blade pads consist of stainless steel diamond plate.

2.5 ACTIVE VEHICLE BARRIER CONTROL SYSTEM (AVBCS)

2.5.1 General Requirements

Standard Control components for the system include a Master Control Panel (MCP) typically located in guard house. Secondary Control Panels (SCP) can be included for remote operation of the system. Emergency Operator buttons can be included for emergency deployment of the system. System reset and lowering must be completed at the MCP after deployment. Wireless radio Controls can be included as required.

2.5.2 System Integration

System shall be capable of integration with active vehicle barrier control system for other active vehicle barriers (existing and new installations) & overspeed & wrong way detection systems (existing & new installations).

2.5.3 AVBCS Processor

The system shall utilize a programmable relay controller or PLC to provide a sufficient barrier control system including operator panels, signals, & safety devices including vehicle detection to meet project requirements.

- a. A programmable logic controller (PLC) meeting the requirements listed herein. Provide the PLC or PLCs with the latest software version. This is the main overall controller for the AVBCS.

2.5.4 VOLTAGE

[The control circuit operates from a [120] [_____] volt supply.][Provide control circuits that have a voltage rating of [24] [12] [_____] [dc] for

all external control panels.]

2.5.5 Control Panel Components and Construction

2.5.5.1 Enclosures

Each control panel enclosure is to conform to the requirements of NEMA 250 for the types specified. Provide the manufacturer's standard finish color, unless otherwise indicated. Repair and refinish damaged using original type finish. Provide Type [1][4][12] enclosures for installation in equipment rooms; those for installation in clean, dry indoor occupied space may be Type 1; other locations are as otherwise specified or shown.

[Provide Type 4 or as shown, enclosures for equipment installed outdoors.]

[Provide Type 4X enclosures for installation in corrosive environment and construct of [stainless steel] [fiberglass] [polymer plastic]. Painted steel is not be allowed for use in a corrosive environment.] Provide enclosure with a single, continuously hinged exterior door with print pocket, 3-point latching mechanism and key lock and a single, continuously hinged interior door. Provide panels that are mounted on flat horizontal surface with a top that is tilted at 45 degrees or 60 degrees (unless a panel is wall mounted) to ensure easy viewing of the controls. Secure the control panel to the surface it is mounted.

2.5.5.2 Controllers

Provide controllers per paragraph programmable logic controller (PLC).

2.5.5.3 Standard Indicator Light

Provide indicator lights that comply with NEMA ICS 1, NEMA ICS 2, and UL 508. Provide lights that are heavy-duty, round and mount in a 22.5 mm 0.875 inch mounting hole for alarm indicator, crash rated active vehicle barrier position indicator and EFO activation. Provide lights of the same size and type indicated for alarm indicator or provide round and mount in a 12.7 mm 0.5 inch mounting hole for all other indicators. Provide long-life LED type indicator lights that operate at 120 VAC or 24 VDC. Provide indicator light with a legend plate labeled as shown on the drawings. Provide the indicated lens color as shown on the drawings or specified herein. Provide panels with an overall "Push to Test" pushbutton or provide lights that are push to test (lamp) type. It is allowed to provide illuminated pushbuttons instead of a separate visual indicator.

2.5.5.4 Push Buttons

Push buttons must comply with NEMA ICS 1, NEMA ICS 2 and UL 508. Provide push buttons that are heavy duty, round and mount in a 22.5 mm 0.875 inch mounting hole. Provide the number and type of contacts as indicated on the drawings or required by the Sequence of Control. Provide push buttons that are rated for 600 volts, 10 amperes continuous. Provide push buttons with a legend plate labeled as shown on the drawings.

2.5.5.5 Terminal Blocks

Terminal blocks must comply with NEMA ICS 4 and UL 1059. Provide terminal blocks for conductors exiting control panels that are two-way type with double terminals, one for internal wiring connections and the other for external wiring connections. Provide terminal blocks made of Bakelite or

other suitable insulating material with full deep barriers between each pair of terminals. Provide a terminal identification strip that forms part of the terminal block and each terminal must be identified by a number in accordance with the numbering scheme on the approved wiring diagrams.

2.6 MATERIALS AND COMPONENTS

2.6.1 Materials and Equipment

Units of equipment that perform identical, specified functions are to be products of a single manufacturer. Provide all material and equipment that is new and currently in production.

2.6.2 Single Manufacturer Active Vehicle Barriers

Provide all parts, components, accessories fittings and fasteners by a single manufacturer as required by manufacturer's written requirements, installation instructions and written warranty, unless otherwise noted in this specification.

2.6.3 Field Enclosures

2.6.3.1 Exterior Sensors

Provide sensors used in an exterior environment with a housing that provides protection against windblown dust, rain and splashing water, and hose directed water. Provide sensors that remain undamaged by the formation of ice on the enclosure.

2.6.3.2 Exterior Electronics

Provide systems electronics used in an exterior environment with enclosures which meet the requirements of NEMA 250, Type 3R, 4, or 4X.

2.6.3.3 Corrosion Resistant

System electronics to be used in a corrosive environment as defined in NEMA 250 are to be housed in non-metallic non-corrosive enclosures which meet the requirements of NEMA 250, Type 4X.

2.6.4 Above Ground Components

All above ground metal components are to be [shop primed and site painted] [or] [hot dipped galvanized] [or] [powder coated] unless otherwise specified.

2.6.5 Below Ground Components

All below ground metal components are to be [shop primed and site painted] [or] [hot dipped galvanized] [or] [powder coated] unless otherwise specified.

2.6.6 Nameplates

2.6.6.1 Components

Provide a nameplate for major components of the system. Nameplates will

not be required for devices smaller than 25 by 75 mm1 by 3 inch. Provide corrosion-resistant metal plates that have at least the following data legibly marked:

- a. Manufacturer's name.
- b. Manufacturer's address.
- c. Type, Style or Model number.
- d. Serial number.

2.7 ELECTRICAL WORK

Submit detail drawings containing complete wiring and schematic diagrams, and any other details required to demonstrate that the system has been coordinated and will properly function as a unit. Provide motors, manual or automatic motor control equipment [,except where installed in motor control centers] and protective or signal devices required for the operation specified herein in accordance with Section 26 20 00 INTERIOR DISTRIBUTION SYSTEM. Provide all field wiring for induction loop detectors, communication lines, and power circuits with surge protection. Provide any wiring required for the operation specified herein, but not shown on the electrical plans, or specified herein, under this section in accordance with Sections 26 20 00 INTERIOR DISTRIBUTION SYSTEM and 33 71 02 UNDERGROUND ELECTRICAL DISTRIBUTION.

2.8 WIRE AND CABLE

Provide all wire, cable, and conduit connecting all Contractor furnished and, where indicated on the drawings, Government furnished equipment. Provide wiring in accordance with NFPA 70. Provide wiring that is fiber optic or copper cable in accordance with the manufacturers' requirements. Copper signaling line circuits and initiating device circuit field wiring must be No. [20][18][_____] AWG size conductors at a minimum. Ensure wire size is sufficient to prevent voltage drop problems. Circuits operating at 24 VDC must not operate at less than 21.6 volts. Circuits operating at any other voltage are to ensure the voltage drop does not exceed 5 percent of nominal voltage.

2.9 CONCRETE

Provide concrete that conforms to Section 03 30 00 CAST-IN-PLACE CONCRETE.

2.10 ACCESSORIES

Supply all accessories as required for a complete and finished system. Provide, at a minimum, all accessories as required by manufacturer's instructions.

2.11 FABRICATION

Shop assembly the vehicle barrier systems to the greatest extent possible.

2.12 TEST, INSPECTIONS AND VERIFICATIONS

Submit a Verification of Performance certificate stating that the

construction, materials, and methods used will meet performance standards described in this section for this project

PART 3 EXECUTION

3.1 EXAMINATION

After becoming familiar with all details of the work, verify that site conditions are in agreement with the contract drawings in accordance with paragraph "Current Site Conditions".

3.2 INSTALLATION

Perform installation in accordance with manufacturers instructions and in the presence of a representative of the manufacturer. Manufacturer's representative must be experienced in the installation, adjustment, and operation of the equipment provided. The representative is to be present during adjustment and testing of the equipment. Show on the drawings proposed layout and anchorage of equipment and appurtenances, and equipment relationship to other parts of the work including foundation and clearances for maintenance and operation.

3.2.1 Installation Schedule

Before beginning any site work, provide a schedule of all installation and testing activities. Arrange project activities in the proposed schedule in chronological order. Coordinate all installation and testing activities, specifically those requiring ACP/ECF outages, with the Contracting Officer. There must be a Contracting Officer approved schedule before any site work is performed.

3.2.2 Incidental Infrastructure

Provide all incidental construction as indicated. Design construct, and install incidental construction in accordance with local/state DOT requirements, AASHTO GDHS-5, AASHTO RSDG-4, NCHRP 350, and the MUTCD.

3.2.3 Concrete Placement

Provide concrete test reports per Section 03 30 00 CAST-IN-PLACE CONCRETE. After placement of the crash rated active vehicle barrier(s), replace the pavement sections to match the section and depth of the surrounding pavement unless a thicker pavement section is required for the tested condition of the crash rated active vehicle barrier. Warp pavement to match the elevations of existing pavement.

3.3 DRAINAGE

3.3.1 Pit Drainage

Provide a drain connection in each barrier that requires pit/vault type construction. Provide a minimum drainage line of 3 inches.

3.3.2 Surface Drainage

Install crash rated active vehicle barrier per the test conditions for the crash rated active vehicle barrier. Ensure placement of the barrier provides positive drainage away from the barrier.

3.4 ELECTRICAL

Furnish and install all cables and conduits for all wiring interconnecting contractor furnished, and where indicated, Government furnished equipment. Install all wiring per Section 26 20 00 INTERIOR DISTRIBUTION SYSTEM and Section 33 71 02 UNDERGROUND ELECTRICAL DISTRIBUTION.

3.4.1 Grounding

Provide adequate grounding system for the following: Traffic signal supports, warning signal supports, AVBCS enclosure, crash rated active Vehicle Barrier frames. Test installed ground rods as specified in IEEE 142. Provide a #6 AWG ground wire from crash rated active vehicle barrier frame to the crash rated active vehicle barrier control enclosure.

3.5 OPERATING AND MAINTENANCE INSTRUCTIONS

Submit written Operations and Maintenance Instructions. As part of the Operations and Maintenance Instructions, provide:

- a. Periodic inspection and testing recommendations for daily, weekly, monthly and yearly intervals.

3.6 REPAIR

Repair damage to galvanized, coated, painted finishes in accordance with manufacturers written instructions. Submit Manufacturer Repair of Coatings Instructions. In the case where the manufacturer does not have written instructions, Submit recommended repair instructions (referencing published standards) for approval.

3.7 CONTRACTOR VERIFICATION TEST

Submit test plan for the Contractor Verification Test. Test plans are to include a test schedule, a minimum of [30] days before the scheduled start of the Contractor Field Tests. See paragraph "TEST PLANS" for information required in a test plan. Calibrate and test all equipment, verify communications links between all subsystem components and between subsystems, place the integrated system in service, and test the integrated system using the approved test procedures for the contractor verification test. Submit the contractor verification test report no more than 1 week after the completion of each test. Deliver a report certifying that the installed complete system has been calibrated, tested, and is ready to begin performance verification testing.

3.8 FINAL SYSTEM ACCEPTANCE

3.8.1 General

Final system acceptance consists of successfully completing the Performance Verification Test and completion of the commissioning, the training of Installation security and maintenance personnel.

3.8.2 Training

3.8.2.1 General Requirements

Conduct training courses for designated personnel in the operation and maintenance of the AVBCS. Orient the training to the specific system being installed. Do not provide training until the performance verification test has been successfully completed.

-- End of Section --