

2.0 SCOPE

2.1. LIVE FIRE EXERCISE SHOOTHOUSE (LFSH)

Provide the Live Fire Exercise Shoothouse (LFSH) as defined by standard Range criteria and the Project Definition Matrix (PDM). This project type is to provide the leader with a facility to train and evaluate the unit during a live fire exercise. Units are trained and evaluated on their ability to move tactically (enter and clear a room; enter and clear a building), engage targets, conduct breaches and practice target discrimination. The targetry system will be Government Furnished and Government Installed (GFGI).

3.0 LIVE FIRE EXERCISE SHOOTHOUSE (LFSH)

3.1. GENERAL REQUIREMENTS:

(1) The controlling documents for this range project are the current approved DD1391 Military Construction Project Data and the CEHNC 1110-1-23 Live Fire Exercise Shoothouse (LFSH) Design Volume. The Design Volume can be found at www.hnd.usace.army.mil/rdg/intertemplate.aspx under the title (LFSH) Live Fire Exercise Shoothouse.

(2) The information in the Design Volume and this document is based on Training Circular (TC) 25-8 Training Range dated 2010, Facility Category Code (FCC) 17879.

(3) The designer/constructor of this range is strongly urged to coordinate closely with the customer's live-fire range training subject matter experts so that he can understand the training objectives of this type of facility. Even though the engineering and construction techniques in this type of range are not extremely complex, the objectives of the project are unique to live-fire training. The designer/constructor is required to have a live-fire range training subject matter expert on his team to ensure that all military training issues are understood.

(4) A separate contractor will enter the project after construction is complete to install Cameras, speakers, targetry and the targetry and AAR control systems. They will be installing this equipment using the interface points established during this design-build contract. Therefore, deviation from standards depicted in the Design Volume is prohibited.

(5) The designer/constructor of this range must be aware of and comply with the Construction Compliance Inspection (CCI) and Target Interface Inspection (TII) sections of the Design Volume.

(6) Unexploded Ordnance (UXO): The potential for UXO always exists on military property and is a potentially serious problem on all range projects. Special restrictions on construction operations are specified in Paragraph 6 of this section.

(7) LEED: Horizontal construction projects, such as ranges, roads and airfields, will be scored using LEED-NC and incorporate sustainable design features to the maximum extent possible, but will be exempt from the minimum score that applies to new construction. Climate-controlled buildings included in horizontal construction projects are not included in this exemption and shall achieve the minimum LEED-NC rating.

3.2. FUNCTIONAL AND OPERATIONAL REQUIREMENTS

3.2.1. General

The range's functional layout and adjacency requirements are as indicated on drawings contained in the Design Volume and, if applicable, as depicted in Appendix J. The extent to which the drawings represent required or preferred layouts and the allowable latitude for changes to them is as noted on the drawings. The layout of the Range Operations and Control Area is dependent on the user's training objectives and the facilities' terrain. Construct the downrange area to meet the functional and training standards outlined in the current Design Volume.

3.2.2 Functional Areas

The LFSH is comprised of the Range Operations and Control Area (ROCA) and the Downrange Area.

(1) Range Operations and Control Area – Small Arms. The Range Operations and Control Area (ROCA) is the center for overall control and operation of the range, training exercises, administrative services, and support facilities. From the range operations and control area, downrange target and simulation

equipment are operated and activities are monitored for scoring and performance data review. The data is collected and distributed to the participants for an after action review. The location of the buildings is critical for the command and control during training operations on the range; therefore, coordination with the installation user is mandatory for the placement of the ROCA buildings on the construction site. The ROCA is comprised of multiple vertical construction components which are defined in the Project Specific Matrix. The command & control system and targetry equipment will be Government Furnished and Government Installed (GFGI).

(2) Downrange Area. The Downrange Area consists of the actual Shoothouse and support equipment that provide the user the capability to meet current army training standards. In conjunction with this, each site-specific project may include necessary site amenities, such as site improvements, vehicle parking area, access roads, service trails, and exterior utilities. The command & control system and targetry equipment will be Government Furnished and Government Installed (GFGI).

(3) Surface Danger Zone (SDZ). An SDZ for the layout depicted in Appendix J has been validated by the Installation safety office. Any changes made to the layout during design development that may affect the validated SDZ shall be approved by the Installation safety office.

3.3. TECHNICAL REQUIREMENTS

3.3.1. Site Design

Site design requirements are identified in the Design Volume. Special attention must be given to the Surface Danger Zone (SDZ) verification and site drainage issues. Provide the SDZ verification in the design package.

3.3.2 Architectural Design

(1) Architectural design requirements are identified in the Design Volume.

(2) Coordinate with the installation's Public Works office for the exterior and interior color finishes if not specified in the RFP Appendices.

3.3.3 Shoothouse Wall Material

3.3.3.1 Supplied System Qualifications: Provide systems and materials which are the standard products of a manufacturer regularly engaged in the manufacture of such products and that essentially duplicate items that have been successfully installed in 5 military applications and in satisfactory use for at least 2 years prior to RFP **as the main bullet stopping/absorbing wall system.**

3.3.3.2 Installation: Install the shoothouse wall material/system as indicated and in accordance with manufacturer's instructions. A manufacturer's representative experienced in installation of this type of facility, shall supervise the erection.

3.3.4 Fire Detection and Alarm

Fire detection and alarm systems are seldom used in Army training ranges due to the low volume of personnel in any facility at any given time. If the project dictates, in the PDM, a fire detection and/or a response system, the Design/Constructor must coordinate directly with the Installation's Fire Department for specific requirements.

3.3.5 Fire Extinguisher Cabinets and Brackets

Provide Fire Extinguisher cabinets and brackets in all occupied buildings in accordance with NFPA 10. Provide cabinets in finished areas and brackets in non-finished areas (such as utility rooms, and storage rooms). Fire extinguishers are not included in this contract.

3.3.6 Plumbing

Water and Sewer service to a range project is a rare occurrence, the remoteness of most ranges from the Installation's existing infrastructure makes their use impractical. However, if water or sewer hookup is specified in the PDM, refer to Paragraph 6 and Appendix C for utility connection information.

3.3.6 Heating, Ventilating, and Air Conditioning

Heating, Ventilating and Air Conditioning (HVAC) requirements are identified in the Design Volume. HVAC requirements are addressed on a building-by-building basis.

3.3.7 Electrical and Communications

Electrical power, lighting and telecommunications shall be provided to the facilities and downrange area as specified below; all IEEE Standards (including Recommended Practice) where the scope is applicable to this design effort; all UL Standards where the UL scope is applicable to this design effort and where itemized in the combined interdisciplinary areas cited.

- (1) Perform a short circuit study as an integral part of selecting and sizing electrical distribution components (all equipment shall be fully rated; that is, do not use series-combination rated equipment).
- (2) For Ranges being provided power through Government owned utility systems, perform a coordination study to ensure that protective device settings are appropriate for the expected range of conditions (depending on the design and construction schedule, it is acceptable to design adequate protective devices with adjustable features, followed by a coordination study required during construction to specify the correct settings.)
- (3) Circuit breakers, disconnect switches, and other devices that meet the OSHA definition of energy-isolating device must be lockable.
- (4) Allowable Facility Voltage Drop: For transformer located exterior to the facility, limit the combined voltage drop for service conductors, feeders, and branch circuits to 5 percent. Individual voltage drop on branch circuits should not exceed 3 percent.
- (5) Allowable Downrange Voltage Drop: Voltage available to each target shall be no less than 95 percent of the target's rated operating voltage.
- (6) Medium voltage (MV) surge arrestors shall be provided on all riser poles, within each MV sectionalizer enclosures, within each pad mounted transformer, and wherever the medium voltage rises above grade.
- (7) Night Operations Lighting: Where separate switching standard and red lighting is required, identify each switch with a label and provide the standard lighting switch with a locking tab that will permit the standard lighting to be locked "off" during night operations.
- (8) Refer to Paragraph 6 and Appendix C for utility connection information.

- (9) The Design Volume contains design submittal and construction submittal requirements that are in addition to those identified by Section 01 33 16 Design After Award and Section 01 78 02.00 10 Closeout Submittals. Project submittal register shall specifically include all submittals required by the Design Volume.

- (10) There shall be a clear delineation between the down range communications infrastructure and the facility telecommunication infrastructure. Each communication system enters the ROC Tower, but shall be terminated and housed in separate enclosures and backboards. The downrange communications infrastructure shall be installed in accordance with the Design Volume and the facility telecommunications infrastructure shall be installed in accordance with I3A.

3.3.8 Telecommunication

(1) If telephone service is included in the Scope of this project, coordination with the local NEC is required to ensure Installation compatibility and acceptance.

(2) Refer to Paragraph 6 and Appendix C for utility connection information.

3.3.9 Range Signage.

Signage as described in the Design Volume is required for this range. Refer to the Design Volume. In addition, refer to installation specific requirements in Paragraph 6 of this section or Appendix H.

3.3.10 Furniture Systems

Furnishings, other than installed equipment, are Government-furnished and Government-installed (GFGI) unless otherwise specified in this document.

3.4 Facility Specific Submittal Requirements

In addition to submittals specified in other parts of this RFP, submit the following:

3.4.1 Design Submittals

- Placement details – Electrical
- Complete riser diagram indicating routing of data cables
- Voltage drop calculations

3.4.2 Construction Submittals

- Complete riser diagram indicating as-built routing of data cables

3.4.3 Shoothouse Wall Materials

- Qualification and experience of the manufacturer
- Wall material shop drawings and specs