

## CONSTRUCTION/TARGET INTERFACE QUALITY ASSURANCE

### For Small Arms and Armor Ranges

This Range Project Construction Checklist is provided for use by personnel involved in the construction quality oversight, specifically for assurance of target equipment and instrumentation interface. It is a checklist of common items which should be verified during construction phase of a range project. Two inspections are mandated by AR 350-19; a Construction Compliance Inspection (CCI) when construction is approximately 50% complete, and a Target Interface Inspection (TII) when all target and instrumentation equipment interface points have been completed (approximately 95% construction completion). Use this checklist in conjunction with the Standard Equipment List also provided in this section.

**DESIGN PHASE:** The construction contractor must be made aware of the impending inspections. It is advised that they be discussed at the preconstruction conference with provision of the CCI/TII checklist. The inspections should also be included in a Division 1 section of the construction contract specifications. The Quality Control section is the recommended location; however a separate specification section may be inserted to address other Government inspection and quality assurance issues. Suggested CCI/TII specification verbiage is provided below:

#### 3.1 CONSTRUCTION COMPLIANCE INSPECTION (CCI)

*The Government will perform a Construction Compliance Inspection (CCI) to assess construction progress and to identify problem areas with target interface items early to avoid costly and extensive corrective actions and project delays at the Target Interface Inspection (TII). Target interface items include all portions of construction that physically connect to the target equipment or provide for the protection of the equipment. The US Army TRADOC Program Integration Office (TPIO-Live) will schedule the CCI in conjunction with the RTLP MCX (HNC), the applicable Corps of Engineers District, PEO-STRICOM, TACOM-RI, the installation, and the Major Command (MACOM) when construction has reached the point that the following items can be checked (usually about midpoint of construction). A minimum of one of each type of target emplacement shall be complete, including the installation of all electrical power equipment, all data equipment including power and data cables and conduits. In all cases, the data termination racks and samples of the power and data cables and associated connectors shall be on site and available for inspection, but they do not have to be installed. Space shall be shown for the master data panel(s) and cable trays or wireways for routing cables to range operating system(s). A CCI Checklist has been developed to conduct this inspection. Any "required" items noted during the CCI shall be corrected prior to continuing to the next phase all other items shall be corrected in a timely manner.*

#### 3.2 TARGET INTERFACE INSPECTION (TII)

*The Government will perform a Target Interface Inspection (TII) when all target equipment interface points are completed and ready for inspection (usually around 90 – 95 percent construction completion or about 30 days prior to the end of construction). The US Army*

*TRADOC Program Integration Office (TPIO-Live) will schedule the TII in conjunction with the RTLP MCX (HNC), the applicable Corps of Engineers District, the installation, the MACOM, PEO-STRICOM, TACOM-RI, and the target installation contractor. All target emplacements shall be complete, including the installation of all electrical power equipment, and all data equipment including power and data cables and conduits. Power cables shall be connected to all associated electrical equipment and tested. At the target emplacements, data cables shall be terminated/ connected in the MTDP (Master Target Data Panel) and tested. At the range operations center, data cables shall be terminated/connected in the data termination rack (DTR) and tested. Cable tray(s) or wireway(s) for routing cables to range operating system(s) shall be installed. 120/240V, 20A circuits shall be installed in junction boxes near the master data panel or the data termination rack. A TII Checklist has been developed to conduct this inspection. Any items noted during the TII shall be corrected prior to closeout of the construction contract.*

**INSPECTION CHECKLIST AND PROCEDURES:** Each checklist item is marked preferred (P) or required (R) on the checklist. The checklist user should mark the “YES” or “NO” block after each item and write clarifying remarks in the “NOTES” column when appropriate. Required items marked “NO” must be corrected or resolved prior to project continuation to the next phase.

Proposed users of the Construction checklist are identified but not limited to those shown below:

<i>Purpose:</i>	<i>Users:</i>
Construction Compliance	COE and Subcontractors/Inspection Contractors
Construction Compliance	TPIO-L Personnel
Construction Compliance	PEO-STRI
Construction Compliance	TACOM-RI and Supplier/Contractor
Target Interface	COE and Subcontractors/Inspection Contractors
Target Interface	TPIO-L Personnel
Target Interface	PEO-STRI and Supplier/Contractor
Target Interface	MACOM
Target Interface	TACOM-RI and Supplier/Contractor

The checklist is designed to be a quality assurance guide only and is not intended to replace Army publications (ARs, TCs, FMs CEHNC 1110-1-23) which address key aspects of the Sustainable Range Program. TPIO-L personnel will use this checklist in conjunction with the construction phase of assigned range projects. A copy will be used and attached to the formal MFR Target Interface Inspection Deficiencies List which results from all interface inspections. Designated post/installation personnel are encouraged to use it throughout the developmental cycle of each approved range project.

TPIO-L schedules the Construction Compliance Inspection (CCI) and the Target Interface Inspection (TII) during the construction phase of an RTLP project. Guidance for determining when these inspections should be scheduled is as follows:

- a. CCI: The inspection should take place when construction has reached the point that the a minimum of one of each type of target emplacement shall be complete, including the installation of all electrical power equipment, all data equipment including power and data cables

and conduits. In all cases, the data termination racks and samples of the power and data cables and associated connectors shall be on site and available for inspection, but they do not have to be installed. Space shall be shown for the master data panel(s) and cable trays or wireways for routing cables to range operating system(s).

b. TII: The range is ready for the TII when all targetry and instrumentation interface points are complete and ready inspection (usually around 90-95 percent construction completion or about 30 days prior to the end of construction).

Targetry Installation. A range is ready for targetry installation when all deficiencies noted during the TII have been corrected and TPIO-L has been notified. The installation contractor must have unrestricted access to the range during installation

The accompanying Range Standard Equipment Lists (RSEL) outline the type/quantities of targetry and instrumentation equipment associated with each standard range. Each RSEL, by type range, has spaces provided for the checklist user to indicate the actual quantity of equipment to be installed on the range project next to the normal quantity requirements. The completed project RSEL provides a verification of target quantities to project managers at various agencies throughout the planning, design, and construction phases of the project.