



# ARF & ARF Plus Rifle Qualification Ranges



## RANGE DESIGN GUIDE



RANGE AND TRAINING LAND PROGRAM – MANDATORY CENTER OF EXPERTISE

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## General

This document contains information specific to the standard Army Rifle Qualification Ranges, specifically the Automated Record Fire (ARF) and Automated Record Fire Plus (ARF+). It describes the design and construction information that is specific to these ranges. The general sections of the RDG provide information on range features that are generic to multiple range types. Use both for complete range requirements.

Facility Category Codes are 17805 for the ARF and 17530 for the ARF+. Refer to TC 25-8 for additional information.

Two ranges, the Automated Field Fire (AFF) and Modified Record Fire (MRF), are no longer standard facilities, though many are still in use. The MRF target locations meet the rifle qualification distances and can still be used. The AFF targets no longer meet standard training or qualification requirements.

## Purpose

Both the ARF and ARF+ are lane based with targets out to 300 Meters, 600 Meters for the ARF+. Both present targets for the Soldier to detect, identify, and engage. The firing lines have an area for standing, kneeling, and prone firing and have a barricade for supported firing. Both the ARF and ARF+ can be used for standard Rifle qualification. The ARF+ adds MITs at 100M intervals to 600M which are used for the Next Generation Squad Weapons.

## Primary Features

The primary features of the ranges are divided into two categories: the Range and the Range Operations and Control Area (ROCA).

### Range

The following drawings show the standard layouts. They are included at the end of this document.

- [ARF-C-01](#)
- [ARFP-C-01](#)

The drawings for the AFF and MRF are included as well for reference

### Layout

Use the standard layouts referenced above as the basis for the range.

The ARF and ARF+ each have 16 firing lanes; each lane is 20 meters wide. The ARF is 300 meters long, the ARF+ is 600 meters. The ARF has 7 SIT targets per lane, the ARF+ has 4 SITs and 6 MITs. Each target is equipped with a night muzzle flash simulator, used at the determination of the trainer.

The target emplacement count is shown in the following table.

NUMBER	FEATURE	RDG SECTION
ARF - 112	Stationary Infantry Target	Stationary Infantry Targets
ARF+ - 64		

ARF - 0 ARF+ - 96	Moving Infantry Target	Moving Infantry Targets
ARF - 16 ARF+ - 16	Zero Target Boots	Target Boots
ARF - 16 ARF+ - 16	1-Man Fighting Position	

### Firing Line

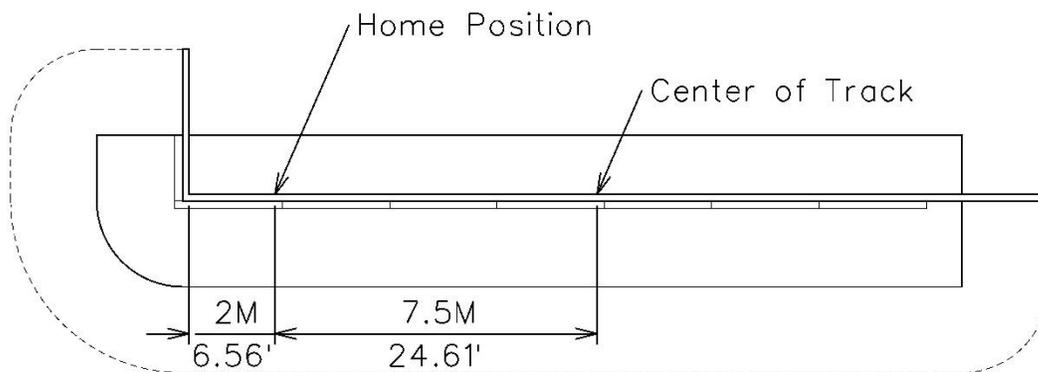
The standard firing lines are the same for both ranges. Each lane has a flat area and a barricade. Firing positions should be on slightly elevated ground for drainage with numbered markers. Refer to the standard Civil Details for details of the firing positions.

### Down Range

Target emplacement locations must conform as closely as possible to the established distances. With the approval of the installation, locations may vary by  $\pm 5$  meters to avoid undesirable locations such as depressions or drainage. All targets at each distance should be the same in all lanes.

For the ARF, the targets should be placed within the lane as shown on the standard drawing. The layout is designed to be standard across the Army with targets out of each other's beaten zone. Moving targets left or right within a lane is possible but should be avoided. The distance is measured from the center of the front wall of the SIT emplacements.

For the ARF+, the targets should be placed within the lane as shown on the standard drawing. The SITs are sited the same as the ARF. The 100-, 200-, and 300-Meter MITs are sited so that the home position of the lifter is at the same location as the SIT on the ARF. The MIT home position is 2 meters from the end of the wall, see figure below. The 400-, 500-, and 600-Meter MITs are sited with the center of the MIT at the correct distance and centered within the lane.



### Line of sight

Refer to the [Line of Sight](#) (LoS) section of the RDG for LoS requirements, procedures, and submittal requirements.

The ranges are lane-based, requiring line of sight from the firing positions to each target within that lane. The limit markers also need to be visible from each firing position.

The control tower must have an unobstructed view of the entire firing line.

### Targetry

The ranges use fully automated targets with event-specific, computer-driven target scenarios and scoring. The targetry computer in the Control Tower controls the targets through the target data network. The target data network can be either hard-wired or Radio Frequency (RF), refer to the Electrical Range Design Section of the RDG for further information. The computer captures the scoring data, which is then available to the unit for after action review (AAR).

### ROCA

Refer to the ROCA section of the RDG for general design information for each specific structure. Both ranges have the same ROCA requirements based on the standard Small Arms ROCA.

The Control Tower must have an unrestricted view of the firing line. Range operators in the tower should be able to see most of the target area.

For some initial entry training or schoolhouse installations, several ROCA facilities are larger to accommodate the larger unit sizes. Refer to the individual ROCA building Sections of the RDG for details.

NAME	SIZE	UoM	RDG SECTION
Control Tower – Small Arms	1	EA	<a href="#">Control Tower</a>
Operations/Storage Building, Standard	800	SF	<a href="#">Operations and Storage Buildings</a>
Classroom Facility	800	SF	<a href="#">Classroom and AAR Facilities</a>
Latrine: Vault (Latrine: Water)	330 (550)	SF	<a href="#">Latrines</a>
Bleacher Enclosure	1	EA	<a href="#">Bleacher Enclosure</a>
Covered Mess	800	SF	<a href="#">Covered Mess</a>
Ammunition Breakdown Building	185	SF	<a href="#">Ammunition Breakdown Building</a>

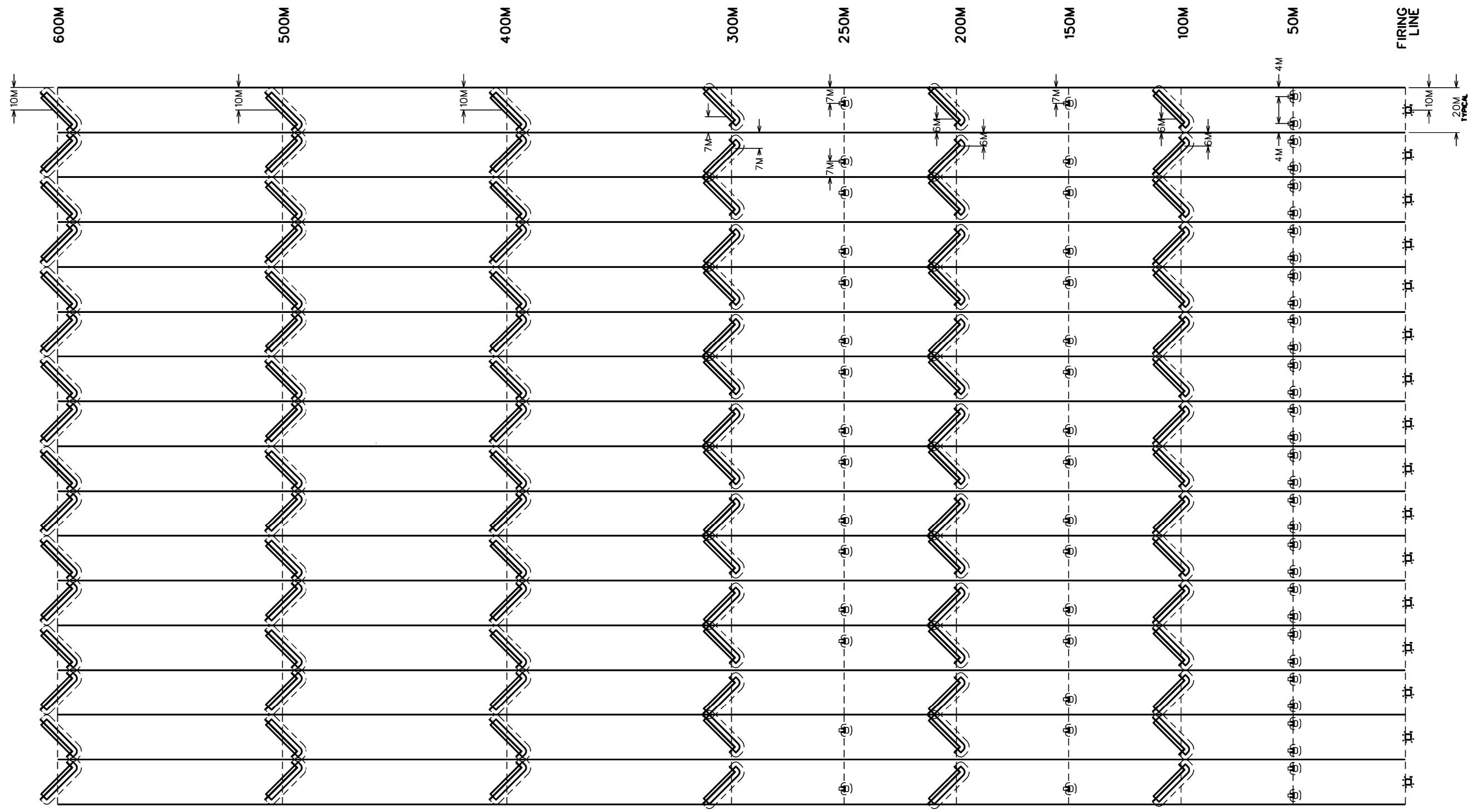
## Requirement Documents

Refer to Training Circular TC 25-8, Training Ranges, for additional information and references to the FMs, ARTEPs, TCs, etc. that describe and require the training on this type of range. The latest TC 25-8 is available at Army Knowledge Online ([www.us.army.mil](http://www.us.army.mil)) and the General Dennis J. Reimer Training and Doctrine Digital Library ([www.train.army.mil](http://www.train.army.mil)).

## Additional Information

Night firing is accomplished in the same process as the day qualification. All targets should be thermal capable. Unassisted night-fire is accomplished from the baseline, firing at the 50m targets. One of the 50m F-type silhouettes should be replaced with an E-type silhouette during Unassisted Night Fire (UNF). The 50m target emplacements are equipped with Night Muzzle Flash Simulators (NMFS) to facilitate unassisted night fire requirements.



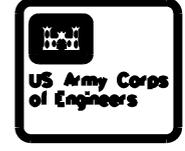


**LEGEND:**

-  SIT (STATIONARY INFANTRY TARGET)
-  MIT (MOVING INFANTRY TARGET)
-  FIRING POSITION

**NOTES:**

1. REFER TO NARRATIVE DESCRIPTION FOR ADDITIONAL DETAILS
2. SUPPORT FACILITIES TO BE SITE ADAPTED TO MEET LOCAL REQUIREMENTS.



Rev.	Description	Date	Approved

Designed by:	Date:	Rev.:
Drawn by:	Design file no.:	
Reviewed by:	Drawn code:	
Submitted by:	File name:	
	Rev. code:	
	Plot code:	
	Plot scale:	
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