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Government of India
Ministry of Home Affairs

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26, Man Singh Road, Jaisalmer House,
New Delhi, 25.2.2011


To
The DG:ITBP

Issued. P.B. No 13/07
on dt. 28.2/11.

Subject:- Technical Specifications/QRs. for Composite Indoor Shooting Range
Target System specific to ITBP.

Sir,

The Technical Specifications/QRs for the Composite Indoor Shooting Range
Target System specific to ITBP have been approved by the Competent Authority in
the MHA and the same are enclosed for information and Record.



(S.B.Nanda)

Under Secretary to the Govt. of India

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Encls: 4 sheets

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QRs. FOR COMPOSITE INDOOR SHOOTING RANGE TARGET SYSTEM
(meeting the requirement of ITBP)

1. General

CISR should be able to withstand fire of all the following types of weapons:-

- a) 9mm Pistol Browning/Glock,
- b) 9mmCM/MP 5,
- c) 5.56mm Rifle Insas,
- d) 5.56mm LMG Insas,
- e) 7.62mm AK-47/56 Rifle
- f) and other such small arms.

2. Dimension

The CISR should provide firing range of 50 mtrs. The required space for one lane of the shooting range is 1.5m as per the safety norms. In addition, space of appx 2m is required on both sides of the range between the first and last lane and the wall. Depending upon the space available as per the dimension of the range, number of lanes can be decided. A Central Control Room behind the line of firers with glass panels overlooking the firers/shooting gallery and the targets should be there. However, the minimum requirement is of 6 lane and the width required for 6 lane range is 6x1.5 (9mtrs) plus 2 meter set off distance on either side of first and last lane (Total 13 meters).

3. Number of lanes/targets:-

Taking in consideration the safety norms, minimum distance between two firers should be 1.5m depending upon the space available, number of firing lanes/number of targets may be worked out. Number of targets/lanes preferably should be eight but not be less than six to make the CISR useful and cost effective.

4. Firing practices and targets:-

All targets should react to bullet strikes. The targets should be of suitable material to enable it to withstand the rigorous movement, bullet hit and should not flutter or writ. Different types of suggestive firing practices and recommended targets for these practices are as follows:-

Sl	Firing Practice	Target Type	Description
1.	Grouping and application fire/ hostage situation /vital parts fire	Precision Targets:- Targets of Hit Indication Facility and Self Sealing or enable repeated firing of atleast 100 rounds at one go.	Hit indicator must provide number of hits. Group diameter or group size. The hit indicator at the firer and instructor end should have zoom in facility. These targets are required for Zeroing grouping and application fire. These targets should be static with facility of hit indication and able to measurement shot group. Type of targets can either be of box, LOMAH or any other type, but it must be able to indicate the

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			hits as well as measurement of shot fired from any of the weapons mentioned in Para-1 of the QR.
2.	Snap shooting	Two-way turning targets:- Targets having flip/turning facility, Pop up/drop targets self-sealing or enable repeated of atleast 100 rounds at one go.	Targets having flip / turning facility, pop up/drop targets should be able to be pre-programmed. Programming should be adjustable remotely. System should enable mounting of fig 11.12 and rubia targets. The motor and electric controls of the targets must be powerful enough to bear the load of the moving targets.
3.	Moving target fire, fire from vehicle	Horizontal moving targets:- Targets having horizontally moving (L-R) facility, self-sealing of enable repeated firing of atleast 100 rounds at one go.	Targets having horizontally moving (L-R) facility and should be able to be pre-programmed. Programming should be adjustable remotely and from control room. The motor and electric controls of the targets must be powerful enough to bear the load of the moving targets.
4.	Fire on Advancing and receding targets	Forward and backward moving targets:- Roof or floor mounted targets for each firing lane with facility for variable speed and stopping the target enroute.	The speed should be able to be pre-programmed. The system should enable mounting of Fig 11.12, Rubia targets and other such targets. The motor and electric controls of the targets must be powerful enough to bear the load of the moving targets.

*Overall backup for light and target should be designed for solar power backup so that uninterrupted supply is given to the targets. This backup should be designed keeping in view the power of motors attached to each target and other electric instruments/light points provided in indoor short firing range

5. **Control Room and Control System**

- a) Target control system must be easy to use and user friendly.
- b) Must be able to modify with new software and applications
- c) Easy computer programming to be involved for easy usage.
- d) Connected wireless or with wires with the targets.
- e) The control system must be user friendly so that it can be controlled by instructor, it must be portable also with good battery backup.

The Centralized control computer should be placed in the control room. The instructor should be able to control the targets and shooting program using a remote control.

Butt:-

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- a) A suitable system of Firing Butt to trap the bullets at the far inside end of the CISR. The Firing Butt should enable recovery of the bullets rather than the bullet getting embedded to minimise the risk of lead contamination within CISR. The firing butt should cover the area behind the targets in a manner that if absorbs all hits fired including on the target configuration given in the Target Specifications.
- b) The Firing Butt should be able to sustain extensive/daily firing of upto 2000 rounds.
- c) The Butt should have the capacity of stopping/absorbing trapping bullets of muzzle velocity of upto 985m/sec (This includes rounds from SG 551, 5.56mm INSAS Rifles).

7. **Side Walls/Roof/Floor:-**

Suitable non-ricochet proofing of sidewalls, roof and floor to prevent accidental fire/hit/ ricochet.

8. **Protection of the target system equipment and rails:-** Exposed equipment of the target system and the rails including roof-mounted rail should have suitable bullet protection to prevent damage by direct bullet hit or ricochet.

9. **Ventilation System:-**

- a) A suitable non-AC weatherproof ventilation system to pump in fresh air and flush out gases to avoid lead poisoning as well and maintain cool/fresh atmosphere within the indoor range.
- b) This would also include necessary wiring/fuse MCB from the nearest electric point to the system.
- c) The system should have dual controls one in the Control Room and another with the instructor at the firers end.

* a). This aspect will be covered under civil works of the range. However, the firm has to calculate and intimate the requirement of air conditioning for CISR, based on the expected quantity of emission of gases in the range, if six firers are simulateneously firing with any of the weapon mentioned in Q.R.

10. **Lighting System:-** The firing range should have the following lighting facilities:-

- a) The light arrangements should be such that it could simulate all the lighting conditions such as morning, day, dusk and night.
- b) It should be able to simulate the night fire conditions.
- c) It should be able to simulate the effect of illumination created by pyro-techniques, tip flares and illuminating bombs of mortar etc during night fire.
- d) It should have the facility to illuminate/focus on the target for distant firing at night.

11. **Acoustic reduction system:-** There should be suitable sound absorbing panelling of the range interiors to minimize the sound of gunfire. In addition to panelling noise reduction ear plugs and flexible ear muffles should also provided.

12. **Firing Bays (optional):-**

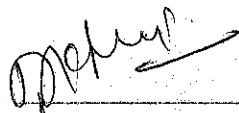
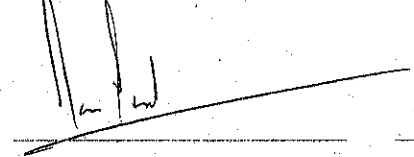


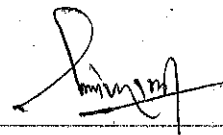
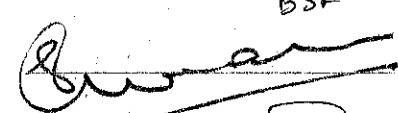
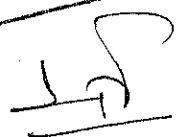
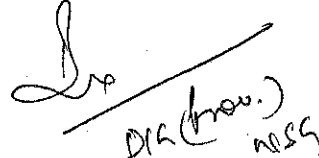
- a) The inter firer partition panels should be bullet proof, see through panels.
- b) Adequate space for firing from standing, kneeling, lying and CQB mode.

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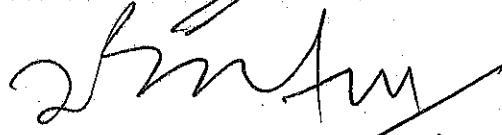
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- e) Provision for mounting individual firer display monitors for hit and score indication with zoom in facility for firers viewing.
 - d) Suitable assembly/fitment for communication system for each lane as voice interface between the firer and the instructor.
13. **Control Room-** The control room should have all facilities for:-
- a) Score controlling of all targets being installed in the range.
 - b) Master control for the ventilation system.
 - c) Communication system for interface with individual firer and with the group which should also double as central announcement system.
 - d) One master computer for shot analysis, capable of giving feedback for each target along with a heavy-duty printer with spare computer. In addition, LCD/TFT monitors for instructor to watch all the firers and targets simultaneously with facility to zoom in on to the target.
 - e) **The power backup system should be such that it should cater for all the requirements like operation of ventilation, lighting and control of target etc. in case of power cut and fluctuations. It is also to support target and control room power requirement for all its operations. The power backup system will be part of civil/electric work of CISR, but the firm should spell out its power requirement for the operation of control room.**
 - f) Master control of the electronic precision cum zeroing target with the facility to view all or individual targets in real time with zoom in facility.

  	 CS Bhudani, DCL (row), NSG	 Manoj Kr Rai AC BSA    DRA (row.) NSG
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Approved/Not Approved


 (RK Medhekar)
 Director General, NSG
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