मुख्यालय राष्ट्रीय सुरक्षा गारद
गृह मंत्रालय (भारत सरकार)
सम्भरण शाखा (आयुद्ध अनुभाग)
मेहरम नगर, पालम, नई दिल्ली-37

कम्पोजिट इन्डोर शुटिंग रेन्ज ऑन टर्नकी बेसिस (COMPOSITE INDOOR SHOOTING RANGE ON TURNKEY BASIS) के परिशोधित गुणात्मक आवश्यकता (क्यू0आर0) और परीक्षण निर्देशों (टी0डी0) के मसौदे को गृह मंत्रालय की वेबसाइट पर डालना

1. कृपया गृह मंत्रालय, पीएम डिविजन के पत्र सं. IV-24011/12/2011-Prov.I दिनांक 05 अक्तूबर 2016, पत्र सं. IV-24011/12/2011-Prov.I दिनांक 13 जून, 2012 और पत्र सं. 11012/ 02/2009-Fin-I/ Prov-I-17 दिनांक 02 जनवरी, 2018 का संदर्भ लें।

2. कम्पोजिट इन्डोर शुटिंग रेन्ज ऑन टर्नकी बेसिस के परिशोधित गुणात्मक आवश्यकता (क्यू0आर0) और परीक्षण निर्देशों (टी0डी0) में संशोधन के लिए तकनीकी विशेषज्ञों के उप समूह की बैठक मुख्यालय राष्ट्रीय सुरक्षा गारद में दिनांक 13 अक्टूबर 2026 को 1500 बजे आयोजित हुई।

3. बैठक के दौरान उप समूह ने कहा कि विक्रेताओं की टिप्पणियों/सुझावों को आमंत्रित करने के लिए कम्पोजिट इन्डोर शुटिंग रेन्ज ऑन टर्नकी बेसिस (Composite Indoor Shooting Range on Turnkey Basis) के परिशोधित गुणात्मक आवश्यकता (क्यू0आर0) और परीक्षण निर्देशों (टी0डी0) के मसौदे को 15 दिनों के लिए राष्ट्रीय सुरक्षा गारद के साथ-साथ गृह मंत्रालय की वेबसाइट पर डाला जाए ।

4. पीएम डिवीजन के उपर्युक्त संदर्भित पत्रों के अनुसार कम्पोजिट इन्डोर शुटिंग रेन्ज ऑन टर्नकी बेसिस (Composite Indoor Shooting Range on Turnkey Basis) के परिशोधित गुणात्मक आवश्यकता (क्यू0आर0) और परीक्षण निर्देशों (टी0डी0) का मसौदा संलग्न परिशिष्ट के अनुसार गृह मंत्रालय की वेबसाइट पर डालने हेतु प्रिटेंड कॉपी तथा सॉफ्ट कॉपी में भेजा जा रहा है।

(राजेश रंजन)
ग्रुप कमांडर (क्रय)
फोन- 011-25663100
ईमेल- gcproc@nsg.gov.in

संलग्नक : उपर्युक्त

अनुभाग अधिकारी, (IT Cell), एनआईसी, नार्थ ब्लॉक, नई दिल्ली
Email : soit@nic.in

No. P/604/389/26/CISR Rev/ मु0रा0सु0गा0/ संभरण (ऑर्डनेंस)/ 1799 दिनांक : 9th नवम्बर 2026

कम्पोजिट इन्डोर शुटिंग रेन्ज ऑन टर्नकी बेसिस (COMPOSITE INDOOR SHOOTING RANGE ON TURNKEY BASIS) के परिशोधित गुणात्मक आवश्यकता (क्यू0आर0)/ परीक्षण निर्देशों (टी0डी0) के मसौदे पर विक्रेताओं की टिप्पणियों का आमंत्रण

1. आपको सूचित किया जाता है कि कम्पोजिट इन्डोर शुटिंग रेन्ज ऑन टर्नकी बेसिस (Composite Indoor Shooting Range on Turnkey Basis) के परिशोधित गुणात्मक आवश्यकता (क्यू0आर0) और परीक्षण निर्देशों (टीडी) के मसौदे पर फर्मों/विक्रेताओं की टिप्पणियां आमंत्रित है। सभी फर्मों से निवेदन है कि नीचे दिए गए प्रारूप में वे अपनी टिप्पणियां भरकर ई-मेल पता **scord@nsg.gov.in** या **gcproc@nsg.gov.in** पर भेजें।

गुणात्मक आवश्यकता (क्यूआर)	परीक्षण निर्देश (टीडी)	फर्म द्वारा टिप्पणियां

2. आपसे अनुरोध है कि वेबसाइट पर प्रदर्शित होने की तारीख से 15 दिनों के भीतर अपनी टिप्पणियां भेजें। उप समूह कमेटी की बैठक में उपर्युक्त हथियार के गुणात्मक आवश्यकताओं/परीक्षण निर्देशों को अंतिम रूप देने पर विचार किया जा रहा है।

(राजेश रंजन)
ग्रुप कमांडर (क्रय)
फोन- 011-25663100
ईमेल- gcproc@nsg.gov.in

दिनांक : 09 नवम्बर 2026

REVISED DRAFT QRs AND TDs OF COMPOSITE INDOOR SHOOTING RANGE (CISR) ON TURNKEY BASIS

OPTION 'A'- RANGE SUB SYSTEM

S. No	QRs	Trial Directives
General		
1.	The CISR should be safe, durable, Cost-effective, seepage-resistant, termite-resistant, rust-resistant and weather/coastal weatherproof to meet requirements of CAPFs. **Note** Wherever Plywood is used it should be anti-termite and Boiling Water Proof conforming to IS 710. For other parameters namely fire resistance, durability, termite resistance and moisture resistance, relevant certification must be provided by the firm. Additional certification if any, will be specified by user at the time of bidding.	A Board of Officers (BOO) from user department along with reps from Engineering Branch will monitor the project. **Before work**: - Verify approved site survey, drawings, statutory approvals. **During Acceptance** Inspect material certificates, weather proofing, Drainage, earthing & corrosion functionality. Record defects and close them before handover.
2.	The target system will encompass various types of target (moving axially and horizontally, turning, pop up and static) firing bays, ricochet proofing, lighting, sound ballistics, interactive audio interface, shot analysis component and ventilation in addition to setting up the control room **(as per user requirement)**. CISR will have feedback and monitoring systems installed for continuous monitoring of **lead concentration with data logging and extraction facility for periodic assessment and calibration of instruments.**	BOO will physically check the same. OEM/ firm will demonstrate operating mode & alarm, conduct air sampling and noise assessment under a representative live fire.
CISR Dimensions		
3.	The CISR has been designed for firing in 7.62x51 mm Assault rifle, 5.56x39mm/45mm of range 25 to 100 mtr **(user to specify)**. User defined 06 to 10 stalls for firers standing alongside to simultaneously engage targets ahead. The design should encompass a central control room and firing positions without exposing personal or equipment to an unsafe line of fire.	Weapons (7.62x51 mm and 5.56x39mm/45mm caliber Rifles), one main and one reserve, of the latest vintage alongwith commensurate amount of ammunition will be set aside. Ammunition of one lot will be set aside by the user and shall be used for trials.

Shivendra Mohan Sharma
AC MOD CRPF

Maj Ronak Mishra
52 SAG, NSG

Paramjeet Kaur
DC, CISF

Vijay Chhari, Ac
ITBP

Maj Lalit Kumar
SC WE, NSG

(Through Vc)
Rahul Khasa, DC
SSB

(Through Vc)
Lt Col. Krishna Kr.
Assam Rifles

Through (Vc)
Reji Joseph, AC
27 SG NSG

Through (Vc)
Amit Rai, Scientist 'F'
TBRL Chandigarh

Ankit
Maj Ankit Sharma
SC Ord NSG

Rajesh Ranjan
Gc Doc NSG

S No	QRs	Trial Directives
4.	**Target Specification:-**All targets mentioned below can be summed up in one projection based solution to avoid any repair or change of target and procurement of new target.	
	The user will specify one or more of the following target systems as per requirement at the time of bidding: - **(a) Virtual Target System (VTS).** (i) VTS should have full width target screen as per dimensions of range. (ii) VTS must offer firing on moving targets and wind with correct effect of wind drift and movement as per bullet ballistics. Bullet hit should be shown correctly as per respective lane for moving target and scenario target. It should be possible to vary speed and direction. (iii) VTS should detect live fire bullet hit on a projected target screen with a accuracy of 5mm or better. (iv) VTS should offer tactically relevant interactive computer generated videos like counter terrorist, hijack, shoot-out, drone, car etc by day and night with correct scoring per respective firing lanes. (v) The VTS shall facilitate the conduct of all firing practices prescribed in Annual Range Course for applicable weapons including reflex shooting and engagement of pop-up, moving and fleeting targets. The system shall simulate the external ballistic characteristics of respective weapons and ammunition and also automatically register, display and score each shot in accordance with prescribed Annual Range Course scoring criteria. (vi) VTS should have video base scenarios and it should give lane wise scoring when all firers are engaged single target. (vii) VTS should have the cross fire detection facility. (viii) The target screen in lane shall remain functional after sustaining a minimum of 1000 rifle bullet impacts distributed uniformly over the designated target area, using specified rifle calibre and ammunition under prescribed test conditions. (ix) VTS must have scenario builder and instructor station software to enable building custom scenarios by user. **(b) Precision Target- Self Sealing.** **(c) To and From Target- Cardboard/self sealing/plywood (For enabling shift)** **(d) Horizontal Move Target- self sealing/ Steel.** **(e) Pop up and Turning Target - Steel or self sealing.** User to specify target board/ backer types	(i) The OEM/ vendor will show each type of target as mentioned in the QR to the Board of Officers. The Board of Officers will select one or more targets to be fired upon each lane. The shot display will be checked at the time of firing. Firing will be carried out in each lane/ bay. (ii) Installation of the targets to be checked by BOOs during On Site Acceptance Test (OSAT). (iii) BOO will visit the OEM specified facility for the functional demonstration to include live fire with weapons specified by user. Alternately user forces can liaise with nearest Army / CAPF facility to carry out subject trials. (iv) Samples of following important ingredients will be provided by OEM at the time of functional demonstration: - - AR500 Steel. - Acoustic Tiles. - Anti ricochet rubber tiles. - Earmuffs. For remaining items, OEM will provide certificate as and wherever mentioned in this QR/ TDs. (v) All other parameters to be checked during functional demonstration. **For QR (a) (viii)** The test shall be conducted using the specified rifle caliber and ammunition for the system. The designated target area shall be divided into 100 equal area sections with 10 bullet impacts delivered within each section. A total of 1000 bullets impacts will be made within each lane. The target **screen** shall be considered compliant if it continues to meet shot detection, **shift** location and accuracy after 1000 bullet impacts without replacement of screen.

CRPF | 52-SAG, NSG | CISF | ITBP | WE | SSB

VC | VC | VC | | | |

AL | 27 SAG, NSG | TRL | SC O/o DG NSG | GC Bde NSG | |

S. No	QRs				Trial Directives	
	Target Type	Qty		Target Description	Remarks	
		Installed	Reserve			
(a)	**Static Target**				Test procedure as per OSAT **Annexure 'I'**.	
	Precision/ zeroing Target **Target Description** User to specify. Requirement of additional targets (as reserve) over and above ten to be specified by the user as per requirement.	Upto 10 (one each for one firing lane)	Upto 10 (one each for one firing lane)	Electronic precision target with facility for hit indication and fall of hits at each firer end and also at the control room. The target should be self-sealing or enable repeated firing of at least 100 rounds without repair.	(i) A suitable timer mechanism to enable pre programmed timed practices should also be provided. The hit indicator at firer end should give number of hits, Group diameter or Group size. The hit indicator at the firer and instructor end should have zoom in facility. (ii) Timer gadgets for displaying time between each shot and total time taken to complete a particular firing practice. (iii) Installation of the targets to be checked by BOOs during OSAT.	
(b)	**Moving Target**				Test procedure as per OSAT **Annexure 'I'**.	
(i)	To and from (Advancing and receding targets)	Upto 10 (one each for one firing lane)	Upto 10 one each for one firing lane	**User to specify** – Ceiling mounted targets for each firing lane with facility for variable speed and stopping the target enroute both singly or in groups in various combinations. These should be controlled from the control room. They may have turning and pop up facility while in static mode.	The speed should be able to be preprogrammed. The system should allow mounting of Fig 11, 12 and Rubia Targets. The system should have Hit indication facility which can be displayed at firer end and in control room and facility of customization of final score of the firer.	
(ii)	Horizontal movement Target (Friend and Foe Targets)	2 sets	2 sets	Each set having two pair of targets, one moving left to right and other right to left with facility for variable speed to be controlled from the Control Room.	Hit indication to be displayed at the each firing point in the firing stalls and also at control room.	
(iii)	Pop up and Turning Targets (360 and 90 degrees Fig 11)	Upto 10 (1 for each firer at different ranges in one lane) & One reserve per lane	One reserve per lane	The target sub system should enable popping up/turning in variable time and controlled individually or in combination.	Hit indication to be displayed at the each firing point in the firing stalls and also in control room. The system must be easy to program and should have preprogrammed set.	

CRDE	NSG	CISF	ITBP	NE	SSB	
VC	VC	VC	Anlit			
AR	27 SCG NSG	TBRL	Sc Ord NSG	Sc Proc NSG		

S.No	QRs	Trial Directives
Firing Bays/ Stalls		
5.	The inter firer partition panels should be rugged, bullet proof, see through panels with provisions for the followings:-	
	(a) Pull up/ pull down/ side hinged/ fixed suitable supporters for lying, unsupported and lying supported fire and facilitating left shoulder or right shoulder fire.	(a) The inter firer partition panels should conform to NIJ level III or any equivalent standards Ballistic protection for the glass/ transparent portion. The side walls (frame) should be made from non transparent mild steel (IS 2062). (b) The BOO will check the certifications from any national/ International accredited labs for the following:- (i) Inter firer glass partition panel for NIJ level III / Class R2 for BS 5051 1988 / FB6 for EN 1522 or equivalent. (ii) Non transparent Side wall mild steel frame confirming to grade S275 or better. (c) Noise level reduction may be checked after installation by BOO during OSAT. (d) The OSAT procedure is attached as **Annexure 'II'**.
	(b) Provision for firing from standing, kneeling, lying and CQB mode.	
	(c) Provision for mounting individual firer display monitors for hit and score indication with zoom in facility.	
	(d) Headphones (wireless) in each stall and control room should have inbuilt speakers/microphones to pass /hear clear instructions. Headphones should electronically reduce the noise level to NRR (Noise Reduction Rating)25- 30db.	
6.	The partition panel's material should be of Acrylic, Prospex or toughened glass. All mountings and panels and material used should be sea weather, termite, rust proof and decay proof.	A copy of certificate from an accredited lab regarding material and bullet proof nature of panel will be provided by OEM and should not be older than 03 years from date of publishing of tender and should be valid at the time of OSAT or else fresh certificate to be provided and will be checked by the BOO.

CRPF	NSG	CISF		NE	SSB
VC	VC	VC			
AR	27 SCG NSG	TBRL	SCOord) NSG	GC BOC NSG	

S. No	QRs		Trial Directives
Bullet Proofing			
7.	**Butt** Type of butt required to be specified by the user at the time of tender.		The OEM/ vendor will show a sample of minimum single lane Butt as mentioned in the QR to the Board of Officers. During STEC, BOO will conduct a firing test by firing 10 rounds each of 9x19mm parabellum, 5.56x45 mm and 7.62x39mm **(HSC) & 7.62x51mm**. (**Pistol/ SMG/ Assault Rifle)**
	(a)	There should be 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 by the user and prevent bullets getting embedded to minimize the risk of lead contamination within the CISR. The firing butt should cover the area behind the targets in a manner that it absorbs all hits fired including the target configuration given in the "Target Specifications".	Test procedure will be as per OSATs att at **Annexure 'III'**. The lab certificates for qualities specified in the OSAT will be checked by the BOO.
	(b)	The 'Firing Butt' should be able to sustain extensive/ daily firing of upto an average 3000 rounds daily (100 firers in 10 details firing 10 round each, thrice).	Apart from the ammunition used for firing, a total of 2000 rounds will be fired at the time of OSAT. **OSAT Firing Test** : The proposed OSAT firing test may be retained to verify the structural integrity and bullet-stopping performance of the **Impact Plate.**
	(c)	The Firing Butt shall be suitably designed and rated to safely stop, absorb and contain projectiles from all approved weapons and ammunition specified for use in the CISR, without unacceptable penetration, ricochet or projectile escape. The system shall be suitable for the specified firing conditions and shall maintain its structural and ballistic integrity during the prescribed OSAT firing test.	A test certificate **from lab/ test report from a National/international accredited lab/ NABL/ ISO 17025** that the firing butt has the capacity to Stop/ absorb bullets of muzzle velocity **up to 950 meters** per second will also be provided by the firm. The certificate should not be older than 03 years from date of publishing of tender and should be valid at the time of OSAT or else fresh certificate to be provided and will be checked by the BOO

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Through VC
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SC Ord NSG

GC Ord NSG

S. No	QRs	Trial Directives
8.	**Side Walls/ Roof/ Floor**. Suitable non ricochet proofing of side walls, roof and floor to prevent accidental fire hit/ ricochet. **Note** Wherever **Plywood** is used, it should be anti-termite and **Boiling Water Proof (BWP) conforming to IS 710.** User may specify any other material as per geoclimatic conditions of the area. Certificates for fire resistance, durability, termite resistance, and moisture resistance must be provided by the firm. OEM certifications for a minimum ten years of shelf life and **IS 303 (Moisture Resistant/ Boiling Water Resistant Grade)** certifications will be accepted wherever applicable as specified by user during bidding.	**Side Walls/ Roof/ Floor**. The complete floor, side walls ceiling and baffles including those near the bullet trap will be provided with non ricochet solution/ tiles/ arrangement. In addition to this the side wall should have 6mm thick AR 500 steel plates. **Side walls thickness should be minimum 40 mm and Floor thickness should be minimum 20 mm.** (a) The tiles/ arrangement used should be of a tensile strength 01 N/ mm^2 at least. A copy of the laboratory test report in terms of ASTM 412 or DIN EN ISO 1798 2008-4 **or better** should be provided. (i) The tiles must conform to at least Flame Spread rating 3 and Smoke Spread rating 84 as per ASTM E84 (Class 1) or Class B2 of DIN 4102 or Class 3 of BS 476 : Part 7 : 1997 or better. (b) Baffle plates wherever used and installed should utilize 10 mm thick AR 500 steel plate with turning and rubber facing with an air gap. The BHN of the steel should be **490-530** tested as per ENISO 6506 or **better**. The rubber face should be minimum **40mm** thick rubber tiles. One such panel will be displayed to the BOO for STEC and OSAT. (c) OSAT for side walls/ roof/ floor are att at **Annexure 'IV'**. (d) Durability performance of Ballistic and Acoustic Panels/Material Test performance In Humid Environment to be as per JSS 0256-01. (e) Sample of one complete Baffle Plate (size 500x500 mm) shall be submitted during BOO and the same will be tested by BOO against 05 rounds of each ammunition of 9x19mm, 5.56x45mm, 7.62x39 (HSC) & 7.62x51 mm at single point. **No perforation/ bulge will be accepted at BFS.**
9.	**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. Tensile strength and thickness of wire used for operating target system should be of requisite strength.	To be physically checked by the Board of Officers. Smooth breakage free operation to be ensured.

CRPF | NSG | CISF | ITBP | WE | SSB

VC AR | VC 2 SCG NSG | VC TBRL | SC Ord NSG | GC Proc NSG

S No	QRs		Trial Directives
10	**Ventilation System**		
	(a)	A suitable non AC weather proof ventilation system to pump in fresh air and flush out indoor air to ensure lead poisoning is within laid down permissible limit and maintain cool/ fresh atmosphere within the indoor range.	**Ventilation System**. The values of Lead-In-Air and Air Flow are given below. The On Site Acceptance Test (OSAT) of the ventilation system to be performed by the Board of Officers (BOO) is given at **Annexure-'V'**. (a) **Lead**. The Lead-In-Air Assessment should be less than the Permissible Exposure Limit i.e. 50 microgram (mg) of Lead per meter cube of air (50 mg/ m^3) based on an eight hour Time Weighted Average (TWA)-in accordance with NIOSH (US National Institute of Occupational Health and Safety, April 2009) **or better.** (b) **Air Flow**. The system should provide 100% outside air. The air flow of the range will be based on a laminar pattern with exhausted air to exceed inlet air by at least a factor of 10% (as per US NIOSH, 1975 **or better**). The air flow at the firing line should be at least 50 feet per minute (0.254 meters per second) and air flow down range should be maintained at a minimum of 30 feet per minute, (as per US NIOSH, April 2009) over the cross sectional area at the firing line. The exhaust discharge must be separate from the supply air intake. Filtration of the exhaust air will be done by High Efficiency Particulate Filters (HEPA) A suitable mechanism or meter will be provided to indicate when filter change is required. The range will be maintained at a negative pressure of 0-0.04± 0.02 inches water gauge. The Air flow shall be evenly distributed across the width of the firing range. The OEM/vendor will also provide a copy of certificate about the capability of the ventilation system from a national/international accredited laboratory. The certificate should bring out the capability of system to provide lead in air levels and negative pressure as given above. (c) The ventilation system will include equipment pads, structural engineering and supports, roof patching and supports if the equipment is located on the roof. Cutting and patching as required will be carried out Control conduits air locks and vault ventilators will be provided as required. All cutting/patching of building will be carried out. Control conduits, air locks and vault ventilators will be provided as required. All cutting/ patching of building will be carried out by the vendor. All doors to the negative pressure area should have air locks. (d) The capability of ventilation may be checked by board during the OSAT.
	(b)	This would also include necessary wiring/ fuse MCB from the nearest electric point to the system.	
	(c)	The ventilation system shall have **dual control provisions,** comprising **software-based control from the Control Room** and a manual over-ride system for manual operation near the software based control system. Key parameters such as **airflow, temperature and humidity** shall be monitored and displayed at the Control Room.	
	(d)	Lead content sensor needs to be installed at 25 mtr and 50 mtr.	

CEPA | S2 SAG NSG | CISF | ITBP | MHE | SSB

VC AR | VC 27 SCG NSG | VC TBRL | Ankit SC Ord NSG | SC PDC NSG |

S.No	QRs	Trial Directives
11.	**Acoustic Reduction System**. A suitable sound absorbing paneling of the range interiors to minimize the sound of gun fire. 50 **Units** of noise reduction earmuffs with adjustable left and right arm and flexible ear muffles to be provided by the vendor. One noise monitoring system/sensor with noise level display should be placed.	**Noise abatement shall be provided by suitable acoustic panel on baffles, side walls and ceiling systems. The finish shall be smooth, joints-free and suitable for frequent cleaning and wet scrubbing for removal of lead dust and unburnt propellant residues. The materials shall be suitable for humid/coastal conditions, resistant to termite and microbial / fungal growth, securely fixed and durable during the intended service life.** (a) On an eight hour Time Weighted Average (TWA) noise level in the range should not be greater than 80 db **or lower**. The reverberation time of sound waves inside the range should be less than 0.2 seconds. Test for ambient noise, noise during firing, reverberations will be carried out as per On Site Acceptance Test (OSAT) attached at **Annexure-'VI'**. (b) Characteristics of the Noise Reduction Panels/ Tiles which are used should be:- (i) Fire Retardant rating Class A (as per ASTME84) or better- A copy of certification from an accredited national/ international lab that the eqpt is class A will be checked. (ii) **Noise Reduction Coefficient (NRC)**. The NRC should be **as per ASTM C423 test method** – Certification from an accredited national/ international lab regarding compliance with NRC value in terms of the ASTM mentioned will be checked. (iii) Flame spread Rating 3 to 5 (as per ASTME84) or better – Certification from an accredited national/ international lab regarding Flame Spread in terms of the ASTM mentioned will be checked. (iv) Smoke spread level 94 to 90 (As per ASTME84) or better– Certification from the accredited national/ international lab regarding Smoke spread in terms of the ASTM mentioned will be checked.

CRPF | 52 SAG NSG | CISF | ITBP | NE | SSB

VC AR | VC 275 CG NSG | VC TBRL | Arbit SC Ord NSG | BC Pool NSG |

S.No	QRs	Trial Directives
		(v) **Resistant to**:- (aa) **Microbial Growth**. Should pass UL 181, Section 11 (resistance of synthetic polymers to fungi) **or better** – Certification from an accredited national/ international lab regarding compliance of the product to the rating specified under ASTM G 21 will be checked. (ab) **Fungal Growth**. (Rating No 0) as per ASTM G21 **or better** – Certification from an accredited national/ international lab regarding compliance of the product to the rating specified under ASTM G 21 will be checked (ac) **Earmuffs**. These should be able to bring down noise levels by NRR 25- 30db for the wearer. The technical specification sheet of the product should certify the NRR sound which clearly brings out that the ear muffs will bring the sound level by NRR 25-30db. (ad) In case Steel Butt Trap is used, the vendor will also provide a damping layer on the outer side of the collection 'cone' of the butt trap. (vi) Cyclic environment test durability performance of Ballistic and Acoustic Panels/Material to be as per JSS 0256-01 **or better.**

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S.No		QRs	Trial Directives
Control Room			
12.	The control should have all facilities for:-		
	(a)	Real time score controlling all targets being installed in the range in the manner indicated in the 'Target Specifications individually and jointly.	All control room attributes will be checked physically by the Board of Officers.
	(b)	Master control for ventilation system	
	(c)	Communication system to provide interface between individual firer and control room. Also the system should double as central announcement system (The speakers being installed in the firing stall area should be of appropriate wattage **(To be specified by the user)**.	
	(d)	(i) One master computer for shot analysis capable of giving feedback for each target alongwith a heavy duty printer with spare computer. In addition four 27 inch LCD/ TFT monitors for instructor to watch all the firers and the target simultaneously with facility to zoom in on to the target. A complete backup system for same to be also installed to cater for redundancy. (ii) Number and specifications of computers and printers required with their sizes should be specified by the user and may be checked by board during OSAT.	
	(e)	Master control of the electronic precision cum zeroing target. Also the facility to view all or individual targets in real time with zoom in facility.	
	(f)	(i) Provision for Recording, Analysing, Maintaining and Storing of firing data for firers to be provided by vendor in control room. Also record for total rounds fired on daily basis to be maintained in database of master computer. (ii) User to specify the number and technical specifications of computers required.	

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S.No	QRs		Trial Directives
13.	**Post installation Warranty and Maintenance**		
	(a)	Post installation comprehensive warranty of at least 2 year.	OEM/firm to provide undertaking required to be given to the Board of Officers are:- (a) Firm will provide Uninterrupted product support for min 10 years (b) Maximum time to repair shall not exceed 15 days from the date of intimation by any communication means to make the system functional during the guarantee period. Further Mean time between failure (MTBF) shall not be less than 30 days for the same equipment. (c) Commencement of project within the stipulated time. (d) Replacement of target system due to failure of "Target system/ Target System Protection". (e) Type/ Make and design of ventilation system should adequately suit the requirement of the international dimensions of the CISR. (f) Make of the partition panel material must be bullet-resistant. (g) The following equipment will be supplied by the firm:- (i) One explosion proof vacuum cleaner will be supplied by the firm. (ii) In case a **Granulated Rubber Bullet Trap** is provided, a suitable vacuum cleaner/ recovery system shall be supplied for removal of rubber granulate and recovery of fired bullets.
	(b)	Fortnightly, Monthly and quarterly maintenance commitment for duration of warranty period should be incorporated in the bid including uninterrupted supply/ replacement of electronic targets and target carrier mechanism. Commitment to supply the following quality targets/per year for five years as consumable:- (i) Precision Target- One each for number of lanes. (ii) To and Fro Target- One each for number of lanes. (iii) Horizontal Move Target- 2 sets. (iv) Pop up and turning target- One each for number of lanes.	
	(c)	MTTR and MTBF should be clearly committed for in the tender.	
Miscellaneous			
14.	The system should have latest licensed WINDOWS OS and software being supplied should be compatible to OS.		To be physically checked by the board of officers.
15.	The IT hardware including peripherals and monitors should from a reputed company readily available in India like HP, HCL, Lenovo, LG etc.		To be physically checked by the board of officers.

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S.No	QRs	Trial Directives
16.	Computer chairs from reputed national manufactures numbering six will also be provided for the control room.	To be physically checked by the board of officers.
17.	OEM/firm should provide 01x sealed sample of each items/material required to be installed in CISR and requires certification from National/International accredited lab for technical evaluation.	BOO to physically check the same.
18.	A copy of all certificates from a national/ international accredited lab provided by OEM should not be older than 03 years from date of publishing of tender and should be valid at the time of OSAT or else fresh certificate to be provided and will be checked by the BOO.	BOO to physically check the same.
19.	Requirement of Furniture, ACs for control room, CCTVs and fire extinguishers, etc. to be specified by the user.	To be physically checked by the board of officers.
20.	**Lighting**. All cabling/ wiring with check joints every 10 meters at appropriate place should be concealed and laid in a cable tray. In addition, facility for night firing in all static targets with dimmer lighting should be provided. The software computer controller dimming system should have minimum 4 pre-sets (to be controlled from the control room). Or as specified by the user.	To be physically checked by the board of officers.
21.	**Power Backup** A silent generator **for the entire range** and UPS backup for **control room and lighting system (minimum 30 minutes backup)** as specified by the user from reputed OEM that could take the operational load of the entire CISR is required to be installed.	To be physically checked by the board of officers.

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OPTION 'B'- RANGE SUB SYSTEM ALONGWITH BUILDING STRUCTURE

It will include Range Sub system (Option A) along with infrastructure(as per user requirement) as elaborated below:-

S.No	QRs	Trial Directives
1.	The **Detailed Project Report (DPR) for CISR Building designs will be provided by the user during tender stage**. However, some special requirements of CISR are as under :- (a) The CISR width should cater for 06 to 10 lanes with 25 to 100mtr firing range.(**As per user requirement**).	(i) The BOO will also act as the Project Management Group (PMG). A detailed presentation by vendor on all aspects of QR and TDs and showcasing the final project in 3D or model based system should be shown highlighting all the customization done as per user requirements along with all the relevant certificates from ILAC/NABL accredited Lab. Detailed structural and architectural design to be provided by vendor as per DPR and to be approved by user. This will bring user and vendor on same page and minor details can be discussed prior to award of work. (ii) The presence of firing bays and control room will be physically checked. A set of average firers will be provided to the Board of Officers by the Force/ Trg Centre for the firing practices.
	(b) CISR must ensure proper aeration to maintain air inflow and out flow to cater for 06 to 10 lane firing range.	
	(c) Special provisions needs to be kept in design of roof and structures to avoid ricochet of all bullets of 9x19mm, 7.62x51 mm Assault rifle, 5.56x39mm/ 45mm.	
	(d) There should be provision of store room, waiting area, Amn bay, Wpn bay, space for visitors to witness firing, Toilets (gents & ladies both), simulation room or any other requirement of user in the building complex.	
	(e) Special provision required to arrest seepage, termite control, rust proofing and sea weather proofing. The building should be protected from Microbial growth and fungal growth.	
	(f) The design of roof should deny sticking of fired cases in to the roof and any other surface.	

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S.No	QRs	Trial Directives
	(g) Provisions of overhanging baffles, acoustics linings, arrestor butt wall and floor linings, firing booths and air ventilators/filtrations system should be catered in the vendor technology.	
	(h) Provision of site development / approach road and drainage system to be incorporated.	
	(i) Adequate fire fighting equipment shall be provisioned. The fire detection system shall be provided within the building connected with the fire alarm system. The vendor will ensure compliance with applicable national/international safety standards.	
	(k) The vendor will ensure compliance with applicable national/international standards of safety signs.	
	(l) Range status lighting to be provided at all ingress and egress points.	
	CISR will be executed as a turnkey project and handed over as a fully operational facility to User.	

NOTE: The user as per their requirement can Opt for either **Option 'A'** or **Option 'B'**.

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VC AR | VC 97 SCG NSG | VC TBRL | SC Ood NSG | CC Pooc NSG |

S. No	QRs	Trial Directives	Comments by Firms				Comments by Sub Group
			ZEN Tech. Ltd.	AIMTREX	AAN Eng.	Global Eng.	
		Force/ Trg Centre for the firing practices.					
	(g) Provisions of overhanging baffles, acoustics linings, arrestor butt wall and floor linings, firing booths and air ventilators/filtrations system should be catered in the vendor technology.		No Change	Complied	Yes	Yes	No change
	(h) Provision of site development / approach road and drainage system to be incorporated.		No Change	Complied	Yes	Yes	No change
	(i) Adequate fire fighting equipment shall be provisioned. The fire detection system shall be provided within the building connected with the fire alarm system. The vendor will ensure compliance with applicable national/international safety standards.		No Change	Complied	Yes	Yes	No change
	(k) The vendor will ensure compliance with applicable national/international standards of safety signs.		No Change	Complied	Yes	Yes	No change
	(l) Range status lighting to be provided at all ingress and egress points.		No Change	Complied	Yes	Yes	No change
	CISR will be executed as a turnkey project and handed over as a fully operational facility to User.		No Change	Complied	Yes	Yes	No change

NOTE: The user as per their requirement can opt for either **Option 'A'** or **Option 'B'**.

Shivendra Mohan Sharma AC MOD CRPF (Through VC)

Lt Col. Krishna Kumar Assam Rifles

Maj Rishabh Mishra TC SD SAG NSG (Through VC)

Raj Joseph, AC 27 SEG NSG

Parminder Kaur SC CISF (Through VC)

Amit Rai Scientist 'F' TBRL Chandigarh

Vijay Chhani AC ITBP

Maj Ankit Sharma SCOord, NSG

Maj. Lalit Kumar SC WE NSG

Rajesh Ranjan SC Proc CNSG

(Through VC) SSB