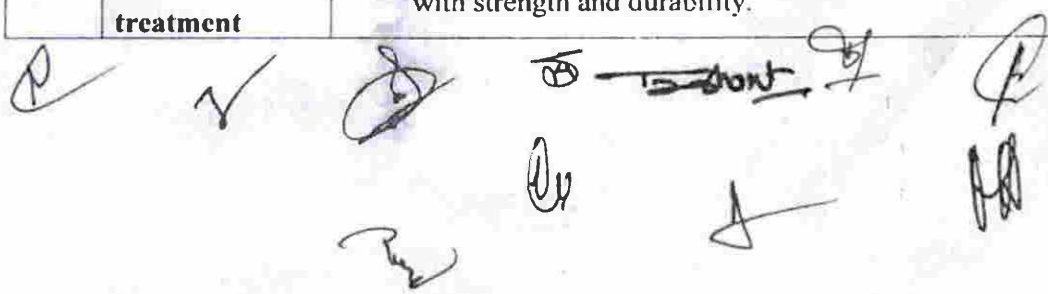


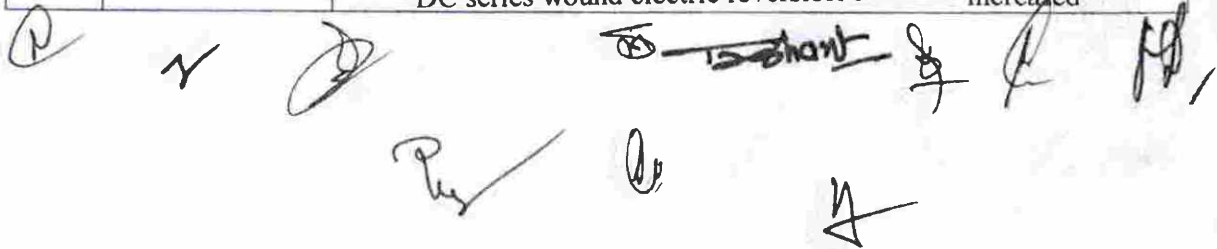
**QUALITATIVE REQUIREMENTS (QRs) OF
EMERGENCY RESCUE TENDER AS PER BIS : 949-2012**

Sl	Specification	Qualitative requirements (QRs)
1	Purpose	<p>The Multifunctional Emergency Rescue Tender shall be designed specifically for the purpose of use at fires which requires special equipment, rescue and other special service calls such as:</p> <p>1.1 Large special fires in Cities, Towns and in industries requiring the use of Breathing Apparatus, special equipment, illumination equipment etc.</p> <p>1.2 Lift, goods transport, railway or machine accidents for which special equipment are required. Major leakages of toxic or dangerous Liquids or gases.</p> <p>1.3 To fulfil the above duties, the Rescue Tender shall be comprehensively equipped with an electric generator, lifting, cutting, breaking, pulling, pushing gears, oxy-acetylene cutting equipment, portable electrical tools, hydraulic rescue tools, lighting equipment and power driven winch.</p> <p>1.4 The Rescue Tender shall be fast on road and easily manoeuvrable in crowded streets and normal sharp corners. The overall dimensions shall not exceed the limit specified herein.</p>
2	General requirements	<p>Design construction features, materials and equipment and interpretation of Terminology of specification of Emergency Rescue tender shall be in accordance with IS : 949-2012.</p> <p>2.1 The appliance shall be designed to carry the equipment listed in Annex "A". The equipment shall be arranged on a manner to allow the crewmembers to get ready in vehicle itself.</p> <p>2.2 The appliance shall be suitable geared to provide a road speed of 70 km/h on a level ground. The acceleration shall be such that with a warm running engine, the fully laden appliance shall attain a speed of 64 km/h in 55 sec. from a standing start, through the gears.</p> <p>2.2.1 The appliance shall also be capable of being started from rest up a gradient of 1 in 4 when laden.</p>
3	Material selections and treatment	<p>3.1 The choice of materials to be used in the construction of the appliance shall be made with a view to combining lightness with strength and durability.</p>



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		<p>d) Below the crew seat, two lockers shall be provided, one for storage of batteries and another for keeping accessories. The extra length of battery cable shall be provided if required.</p> <p>e) The super structure of the cabin shall be constructed out of 14-gauge M.S. 45 x 45 x 20 mm-pressed "TOP HAT" sections. The super structure shall be strengthened specifically on the members with the lockers doors frames are to be fitted and the other members by providing brackets and gussets of 14-gauge M.S. plate securely welded.</p> <p>The details of super structure are as follows:</p> <ol style="list-style-type: none"> i. Under frame cross members : 100 x 50 x 5 mm ii. Floor longitudinal members : 50 x 50x 6 mm iii. Vertical members on even side : 45 x 45 x 20 mm iv. Skirt member : 45 x 45 x 20 mm v. Waist member : 45 x 45 x 20 mm vi. Top deck longitudinal : 45 x 45 x 20 mm <p>f) The cab and lockers should be of composite construction with sufficient rigidity and reinforcement and shall be kept as light as possible.</p> <p>g) The structure/frame work shall be of welded constructions and made from 2mm thick MS pressed sections and square tubes.</p> <p>h) The Angles and channels used shall be of min. 3mm thickness. ZINC PLATING shall treat for the complete Structure material for anti-corrosion.</p> <p>i) The plating thickness shall not be less than 20 microns. Two coats of Epoxy paint shall be applied to the completely welded structure.</p> <p>j) The structure shall be so designed to avoid any vibration / ratting / deformation in the intended usage of the vehicle.</p> <p>k) The interior panelling shall be done from 1.22mm thick aluminium sheets & the exterior panelling shall be done from 1.60mm thick aluminium sheets.</p>
4.6.3	Cable Winch	<p>a) An electrically operated cable winch of 6-ton capacity should be provided.</p> <p>b) The winch unit should be complete with minimum 5.5 HP, 2v DC series wound electric reversible motor for increased</p>



		pulling power rope drum, and 90 ft heavy duty galvanized E PS wire rope with replaceable self-coupling clevis hook and shall be mounted on the front bumper of the vehicle with suitable strong supports.
4.6.4	Telescopic Light Mast:	<p>a) A compact, low profile, roof mounted lighting system, fitted with 4 X 200 watts LED lights, vertically elevated pneumatically up to 15 feet (4.6m) shall be installed on the roof of the vehicle.</p> <p>b) Lighting shall be provided by a 12V or 24V DC with REMOTE CONTROL, directional lighting system with rotation & tilt lamps to provide total coverage.</p> <p>c) The remote control unit shall allow a person to operate all the functions of the light mast & accurately aim for complete directional positioning. In addition Auto-show, a one button command, automatically retracts, turnout the lights and stows the entire system to the compact transport position shall also be included in the remote controller.</p> <p>d) The complete unit should comprise of handheld remote control with cable, rotation & tilt positioned, mounting frame with built in tilt system.</p>
4.6.5	Miscellaneous	<p>a) A suitable bumper shall be provided at the rear rigidly fixed to the super structural members by means of nuts and bolts, fabricated from 100 x 50 x 5 mm M.S. channel.</p> <p>b) Two Cat ladders made out of Stainless steel round or square pipe of 1" dia shall be provided</p> <p>c) Two no of 1" dia aluminium pipe railing with sufficient number of aluminium double socket brackets shall be provided to the rear body over the deck.</p> <p>d) A heavy-duty towing hook shall be provided and fitted with the rear bumper by means of nuts and bolts;</p> <p>e) Quick removable type wire mesh guard made from 1" X 1" size MS wire mesh of 16 SWG covered in MS angle frame shall be provided to all the glasses of driver-cum-crew cabin.</p> <p>f) An illuminated 'FIRE AND RESCUE' sign shall also be fitted to the outer centre front of the cab.</p> <p>g) The bodywork shall be designed to enclose as much as possible of the appliance without interfering with necessary accessibility but at the same time, shall have clear lines.</p>
4.6.6	Lockers:	a) The lockers shall be provided for storage of all equipment listed

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		<p>m) This should be of the self-locking type so that while the vehicle is moving, the shutters do not open accidentally during movement of vehicle.</p> <p>n) Roller shutters shall be made of hollow rectangular shaped aluminium links which shall be inter connected with rubber /plastic/ PVC profiles sealing the roller shutter watertight when closed.</p> <p>o) These roller shutters should be durable, maintenance free, weather and corrosion resistant.</p> <p>p) All lockers shall be fitted with internal lighting which shall be capable of being automatically switched 'ON' and 'OFF' by the opening and closing of the roller shutters.</p> <p>q) A master switch for isolating the locker lighting circuit shall also be provided.</p>
4.6.7	Access to the roof of the vehicle.	Grab-rails and non-slip steps be provided wherever necessary. A ladder made out of S.S. round or square pipe of 1" dia shall be provided at the rear of the appliance to provide easy access to the roof of the vehicle.
4.6.8	Trussed type extension ladder	A 10.5m aluminium TRUSSED TYPE extension ladder shall be mounted on suitable gallows fitted with rollers and designed to facilitate easy and quick removal of the ladder from the rear of the appliance.
4.6.9	Stretcher-Ladders	<p>In addition, two stretcher-ladders shall be mounted separately on the appliance in such a way that they shall be removed easily, quickly and independently, when required. Specification of the stretcher-ladders shall be as follows:</p> <p>a) Stretcher ladder- Main ladder section shall be manufactured from aluminium alloy and shall have following requirements:</p> <p>b) Overall length not less than 2.0 m</p> <p>c) Overall width not less than 600 mm</p> <p>d) Centre of rungs 210 mm approximately</p>
4.7	Stability	The stability of the appliance shall be such that when under fully equipped and loaded conditions (but excluding crew). If the surface on which the appliance stands is tilted to either side, the point at which overturning occurs is not passed at an angle of $27 \frac{1}{2}^{\circ}$ from the horizontal.
5	Workmanship and finish	5.1 The standard of workmanship and finish of all mechanical and

		<p>of throwing revolving beams of light round 360 ° with beams inclined upward, horizontally and downward. These shall be mounted on the cab-roof and second on roof at rear and shall be operated from the vehicle battery;</p> <p>f) Wind screen wipers (electrically operated) - of approved design - two;</p> <p>g) Tools- All tools required for normal routine maintenance of the appliance, which are not included in the kit for the chassis;</p> <p>h) Search light- two, adjustable to give flood or beam light and shall be mounted in convenient position on the appliance but at the same time, shall be capable of being readily removed and mounted on tripods away from the appliance. These shall each be supplied complete with tripod and not less than 30 m of TRS cable on reel mounted on the appliance;</p> <p>i) Spot light- two, adjustable and shall be mounted in convenient position on the roof of the appliance; and</p> <p>j) One, 12 volts battery operated siren shall be mounted in a convenient position.</p>
8.	Marking	<p>Each appliance shall be clearly and permanently marked with the following information:</p> <p>a) Manufacturer's name or trade-mark, if any; and</p> <p>b) Year of manufacture.</p>
9.	Equipment for Emergency Rescue Tender:-	List of mandatory equipment for users is enclosed. However the list is not exhaustive, new inventions can also be added according to user requirements.

a) List of Mandatory equipment of reputed company make and confirming to relate BIS or EN standard for users:-

Sl.	DESCRIPTIONS	QTY	UNIT
1	Compressed Air Carbon Composite Breathing Apparatus set positive pressure 45 min duration complete with 4 spare cylinder as per EN 137.	4	Sets

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2	Portable smoke exhauster/ ventilator should be light weight with weight less than 45 kgs., compact having fan size 16" with minimum 10 blades capable of airflow output of minimum 40,000 cu. M/ hr with minimum 5 h.p. petrol engine. Ventilator set should be supplied complete with collapsible duct (5 m), 10 deg tilt accessory and water mist adaptor.	1	Set
3	Pulling & Lifting Machine, lifting or Pulling 5 tons complete with wire rope & hook.	1	sets
4	Chain saw wood cutting (electrical) single phase AC/DC Voltage 220-250, guide bar min 50-60 cm. cutting capacity 50 - 60 cm, along with spare chain.	1	No
4.a	Rotary circular saws, petrol engine operated with 14" diamond blade and 5 different types of abrasive blades, with spare blades for all types of blades. Weight within 15 kg.	1	No.
5	Portable Rotary Electric Hammer Drill with spare bits. Voltage 220-250 V, power 620 W approx., impact rate 0.2000 per min., rotary Drill Bit of 300 mm long - 2 Nos.	1	Set
6	Fire Hook as per BIS	5	Nos.
7	Long line 100 m size 50mm circumferences (Polypropylene)	2	Length
8	Safety Belt - full body Harness with carabina hook & rope	2	Nos.
9	Hammer - 10 Kg.	6	Nos.
10	Rubber Gloves in container tested with 10,000 V as per BIS	10	Pairs
11	Shears, bolt cutter large with insulated handle of 600mm	2	Nos.
12	Spreader for iron railings, double screw type 125 to 175mm travel	2	Nos.
13	Water Proof rechargeable torch: The torch shall be water proof. There shall be 3 point toggle switch with intensity halogen bi-pin type 8 watt bulb two ultra-bright blue LED on the back side. The min run time of the torch shall be 3 hours with steady mode with halogen bulb and 6 hours with LED. The torch shall have rechargeable type lead acid/Ni-Cd battery of 6 volts, 4.5 Ah capacity. The approx. weight of the torch shall be 1.5 kgs. and shall be supplied with quick release strap and charging accessories. The torch shall be in accordance with all applicable safety standards and shall be brand new and of reputed make.	2	Nos

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22	<p>Hydraulic Electrical-Hydraulically operated spreader complete with chain set; The minimum spreading force on the open arm – 20 tons Minimum spreading distance – 600 mm Minimum spreading force at closed arm – 34-110 Kn Minimum pulling distance – 495 mm Minimum pulling force – 28 kN Weight not more than 20 kgs. The equipment shall be completely independent from any external hydraulic power unit or hoses and shall be operated independently from each other by an electric power cable with tool adapter attached on the tool with back up of a rechargeable high capacity LI / Ion integrated Battery. To be supplied with battery charger, Power supply cable, 20m extension cable reel. Accessories: Pulling chains, chain adaptors. The design of the tool shall be based on EN 13204 with type test certificate. The tools shall be of reputed make. Operation and maintenance manual shall be supplied.</p>	1	Set
23	<p>HYDRAULIC ELCTRO-HYDRAULIC CUTTER Min. blade opening : 150 mm Weight not more than - 20 kgs Cutting capacity - 30mm min. Cutting force - 600 kN min. The equipment shall be completely independent from any external hydraulic power unit or hoses and shall be operated independently from each other by an electric power cable with tool adapter attached on the tool with back up of a rechargeable high capacity LI / Ion integrated Battery. To be supplied with battery charger, Power supply cable, 20m extension cable reel. The design of the tool shall be based on EN 13204 with type test certificate. The tools shall be of reputed make. Operation and maintenance manual should be supplied. The design of the tool shall be based on EN 13204 with type test certificate. The tools shall be of reputed make Operation and maintenance manual Tool kit with spare set (pair) of cutting blades</p>	1	set

27	Operational and maintenance manual shall be provided Safety goggles as per EN standard	6	Nos
28	Multi / 5 gas detection with volatile organic compounds (VOCs) The instrument shall be compact and light weight. The instrument shall be capable of measuring five gases including combustible gas, oxygen, CO, Ammonia and chlorine. The device shall comply with all the safety standards stipulated under EN/NFPA applicable to the gas detection equipment.	1	No
29	Combi-Tool (With pulling chain and adapter) Combi-tool shall be as per EN 13204, NFPA 1936 or equivalent. Working Pressure -not less than 700 bar, Spreading Force - Not less than 590 KN, Spreading Distance - Not less than 250 mm, Pulling Distance - Not less than 250 mm, Highest Pulling Force - Not less than 34 KN, Weight including battery - Not more than 20 Kg, Material of Cutter Blade - Dropped-Forged Special Steel Alloy, Material of Hinges, Pin, Levers - Corrosion Heat Treated Tool Steel, Type of Battery - Lithium Ion Based Rechargeable, Charging Time of Battery - not more than 120 min, Connector shall be provided to connect the tool to any 220 V Power source.	1	Set

b) List of equipment as Per operational requirement of the users: -

Sl.	Descriptions	Qty	Unit
1	Wet Suit: the wet suit shall be one piece design overall with hood and zipper made from 3 mm reflective neoprene rubber. The wrist, ankle, and face seal shall be water tight. The suit shall be supplied with pair of 5 fingered heat reflective gloves made from 3 mm reflective neoprene rubber with double lining. The suit shall also be supplied with a pair of boots which are made from heat reflective 5 mm neoprene rubber lining, non-slip sole and nylon side zipper. Suitable fins should also be supplied along with half/full face mask	4	Sets
2	Encapsulating Chemical Protective Gas tight and splash protection Suit with gloves and boot as per NFPA1 994-2007 certified including for Chemical/Bio terrorist use (NBC Type Suit)	2	Set
3	First Aid Medical Outfit for 50 persons	2	Sets
4	Blanket Woolen in box 1 60x225 cm standard make	6	Nos.
5	Blanket Asbestos 2 x 2 mtrs in box	1	No.
6	Chain lifting 3 tons complete with endrings & shackles of 6 Meter	1	Sets
7	Pulling & Lifting Machine, lifting 1.5 tonnes or Pulling 3 tons complete with wire rope & hook	1	Sets
8	Portable Concrete cutting chain saw with liquid bar and diamond chain	1	Nos.

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29	Proppings - 20 ft. length for propping at house collapse (escape)	2	Nos.
30	Water Proof suits (rain coat)	2	Nos.
31	Rollers for moving heavy objects (6" dia x 4')	2	Nos.
32	Nylon ropes three strand Hawser laid size 50mm circumference 30 m with breaking load 5.3 ton (\$14272)	4	Nos.
33	Chokes - metal for vehicles	4	Nos.
34	Insulated plier (12" size) screw driver (14" size) fuse remover, electrical tester	1	Set
35	Salvage sheets 2' x 2' & 6' x 4' - each	1	Set
36	Parachute knot complete for lowering purpose	1	No.
37	Inflatable Rubber boat - 5 persons (beach type) with hand pump rubber dinghy without board motor 25 HP	1	No.
38	Angle cutter (electric rescue saw) voltage 220-250V Wattage approx 2500 w RPM min 4000 disc diameter max 250 mm (12"). Arbor size 20 mm with diamond tip blade 2 Nos and composite blade 5 Nos	1	Set
39	Night vision OWL optics binoculars, focused ranged 25" field of view 596 at 1000 yards with storage case	1	Set
40	Rechargeable light for search & rescue operations: Rechargeable battery of lead acid type having 10 AH capacity, high intensity halogen 20 watt bulb, 400 lumens minimum 100000 candle power, made from high impact ABS thermoplastic housing with rubberized impact bumpers, and scratched resistant lens cushion grip handle, up to 9 hours continuous run time, approx. size L 11.5" x W 5.1" x H 7", approx weight 7.4 lbs with AC & DC charger with mounted rack. Orange or yellow colour, CE approved.	2	Nos.
41	SINGLE ACTING COMPACT HYDRAULIC DOOR OPENER. The door opener same company is essential and door opener shall be hydraulically operated with two toes, one fixed and one moving and it shall be suitable to force open doors of building that open to the inside and that can be reinforced or blocked.	1	No
42	Rescue saw for laminated glass, metal and wood with charger and replaceable spare blades: Strokes per minute: 0-2000 Stroke Length: 1 inch / 25 mm Battery: rechargeable li-ion 18V, 2 Ah Weight: within 5 kg	1	No
43	Self-rescue automatic escape standard size	2	Nos.
44	Shovel	6	Nos.

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45	Asbestos Gloves	6	Nos.
46	Safety belt with hook as per BIS	6	Nos.
47	Video Location Unit (Search camera) with colour LCD screen Monitor display with communication system with accessories/ attachments/ extension cable for search underwater mini up to a depth of 0.1m (CE marked) EN certificate to be submitted with the offer	1	No
48	Thermal Imaging Camera: The camera shall have LCD screen display core/detector (uncooled micro bolometer with digital processing with 4 hour rechargeable battery with spare battery AC/DC battery charger, wireless transmitter / receiver & other accessories meeting MIL-STD-883C-E standard. It should have colored temperature pallets (3 types) with zoom feature. The camera shall be reputed imported make. EN certificate to be submitted with the offer	1	No.
49	Temperature Measuring Device - Infrared portable temperature measuring device	1	No.
50	Ascender & Descender device with 100 mtrs rope, ascending & locking handle with hook & rescue triangle/ rescue evacuation harness with parapet wall anchor - CE approved.	1	Set
51	Vehicle Stabilization Kit - Quick strut 122-200 cm - 2 nos Capacity of strut: 1000 kg Adjustment wrenches - 2 nos. Cluster hooks - 2 nos Straps - 2 nos Sleeves - 2 nos Total weight: within 35 kgs Above should be supplied in carrying bag / case	1	No

