



ଓଡ଼ିଶା ସରକାର  
ରାଜସ୍ୱ ଓ ବିପର୍ଯ୍ୟୟ ପରିଚାଳନା ବିଭାଗ  
(ବିପର୍ଯ୍ୟୟ ପରିଚାଳନା)  
GOVERNMENT OF ODISHA  
REVENUE & DISASTER MANAGEMENT DEPARTMENT  
(DISASTER MANAGEMENT)

By Fax/e-mail/Post  
ରାଜୀବ ଭାବନ, ଭୁବନେଶ୍ୱର-୭୫୧୦୦୧  
RAJIV BHAWAN, BHUBANESWAR-751001

Fax : 0674 – 2534176  
Ph. No. 0674-2534177  
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**TENDER CALL NOTICE**

**No. 5061 / RDM (DM) DT.14.08.2019**

1. Sealed tenders are invited from the original equipment manufacturer (OEM) or their authorized agent/ dealer for purchase of different types of equipment as follows.

Sl.	Name of the item	Appropriate quantity (in nos.)
1	Life Jacket (Working)	300
2	Collapsed Structure Search Rescue (CSSR) tools, Equipment and Accessories	35
3	Log carrier	200
4	Spine board short with strap	100
5	HD video Camera	20
6	Thermal Imaging camera	20
7	Battery charger	19
8	Rescue Tender	1
9	Tractor Trailer (Hydraulic)	3
10	RCC Equipment Set	3
11	Chain Saw one man operated	200
12	Back-hoe Loader cum excavator with rock breaker & Accessories	10
13	Plasma Cutter including 20 KVA DG Set & Air Compressor	10
14	Portable Telescopic Tower Light	100
15	Portable Inflatable Tower Light	100

2. The tender document with detailed technical specification may be seen from the official website of the Government of Odisha [www.odisha.gov.in](http://www.odisha.gov.in). The tender document may be obtained by depositing Rs.2000/- (Rupees two thousand) only between 11.00 A.M to 5.00 P.M on working days from the office of the undersigned at the address given below or downloading from the website and should be submitted duly signed in each page of the tender document with seal in token of having read understood and accepted the terms and conditions of the contract in the address given below. The tender should accompany a Demand Draft (A/C payee) of Rs.2000/- (Rupees two thousand) only payable at Bhubaneswar in favour of Special Relief Commissioner, Odisha, Bhubaneswar, towards the cost of tender paper in

case of firms submitting the tender by downloading the tender document from the website. The authorities shall not be responsible for postal or any other delay.

3. Bids submitted other than the manner prescribed in the tender document shall be rejected.
4. The Tender Calling Authority has right to accept or reject the tender(s) without assigning any reason thereof. The bidder should drop the sealed tender packet in the "Tender Box" available in the office of the undersigned by the stipulated date and time at his own risk and responsibilities.
5. Schedule of receipt and processing of tender:  
Sale of tender document:- . : **16.08.2019**  
Last date for receipt of tender document : **06.09.2019**  
Pre-bid doubt clearing meeting:- : **20.08.2019 (only for plasma cutter)**  
Date for opening of tenders/Technical Bids:-: **07.09.2019**
6. The bidders are required to depute their representatives to remain present during opening of Tender/ Technical Bid and evaluation of samples by the Technical Committee as per dates mentioned above. If there is any change in the schedule for opening of tenders/Technical Bids or meeting of the Technical Committee for evaluation of samples, the same will be intimated to the bidders.
7. The tenders received after the stipulated date shall not be taken in to consideration and shall be summarily rejected.
8. The tender calling authority has the right to cancel or alter quantity of any of above item without assigning any reason thereof.
9. **Address of the Tender Calling Authority.**  
O/O State Port Engineer  
Special Relief Commissioner &  
Commissioner -cum- Secretary to the Government,  
(Disaster Management),  
Revenue & Disaster Management Department,  
Ground floor,Rajiv Bhawan,  
Bhubaneswar-751001  
FAX-0674-2534177  
E-mail:- [srcodishagov@gmail.com](mailto:srcodishagov@gmail.com)

**Signature of the Bidder**

-Sd/-

**with seal**

Joint Secretary to govt.



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GOVERNMENT OF ODISHA  
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**TENDER CALL NOTICE**

**No.5061 /RDM (DM) DT.14.08.2019**

**Tender Document for procurement of different types of equipment for ODRAF/**

**Odisha Fire Striking Force during the year 2018-19**

1. Sale of tender document : **16.08.2019**
2. Last date for receipt of tender document : **06.09.2019**
3. Pre-bid doubt clearing meeting:- : **20.08.2019 (only for plasma cutter)**
4. Date for opening of tenders/Technical Bids: **07.09.2019**

**A.GENERAL CONDITIONS OF THE CONTRACT.**

1. The bidder/supplier should either be an Original Equipment Manufacturer (OEM) or their authorized agent /dealers authorized to sell, supply and service their products. The latest authenticated documentary proof of this shall be submitted. The proof submitted earlier in some other context shall not be treated as valid and sufficient.

**NOTE:** *As a proof of authorized dealer the bidder should furnish the copy of agreement made with OEM in that respect or a Tender specific authorization from the OEM stating clearly that the authorized dealer/supplier/agent will fulfil all the obligations as per tender terms & condition if selected for placing of supply orders.*

2. All the information as called for in the tender document should be submitted truly, clearly, legibly, transparently, unambiguously and without the use of abbreviations. It shall be submitted in English.
3. All the crucial figures, like, rates and amount should written in figures followed by words in a bracket. When there is a difference between the rates in figures and in words then the rate quoted by the bidders in words shall be taken into account.
4. There shall be no over writing in the tender document and other papers submitted. All the addition, alterations, deletions and cuttings should be initialled

with rubber stamp (or seal) by the same person, who signs the tender document. Failing so, the tender may be rejected.

5. The tenders (also call bids) not submitted in prescribed format in the prescribed manner, shall be rejected at the risk and responsibility of the bidder.
6. All the rates and amounts shall be quoted in Indian Rupees (INR) and shall be presumed to be in Indian Rupees unless specifically permitted to be quoted otherwise in these tender documents. .
7. The rates quoted shall be valid for a period of one year counted from last date of receipt of bids/tenders.
8. Each page of this tender document should be signed by the bidder with seal in token having read, understood and accepted the terms and conditions of this contract.
9. For the Companies/firms and Corporation making the bids, the tender document shall be signed by the Managing Director. If it is otherwise, the authority to sign the tender papers on behalf of the company/firms/Corporation shall be enclosed. In case of partnership Firm, it shall be signed by the active partner. In case of a Proprietary Firm, the tender document shall be signed by the proprietor.
10. "Legal Status" of a bidder shall mean either proprietorship or partnership of Private/Public limited Company or otherwise (to be specified) as the case may be.
11. All the documents and papers submitted with the bid should either be in English or in Oriya and shall be authenticated under the seal and signature of the bidder unless specified otherwise in this tender document. If the documents are in any other language, a true translation in English, duly certified by an independent person of repute, shall be submitted.
12. All the promotional and technical literature of the products intended to be supplied should be submitted for proper appreciation of the bid, whether or not specifically call for in this tender documents. This literature should also be in English.
13. Submission of more than one competitive bid by the same firm in response to the tender call notice is prohibited. All such bids, except one, will be cancelled

at the discretion of the authority calling the bids. A bidder may, however, offer in his bid more than one product of the same Original Equipment Manufacturer (OEM) if in his opinion, all such products meet the prescribed technical specifications. In that case, he should submit "Technical Bid" of all such products separately but in the same prescribed format, in the same sealed single cover. Separate "Financial Bids" should also be submitted similarly in the same sealed single cover (see below for the meaning of sealed cover).

**NOTE-** A bidder cannot bid the same item for more than one OEM firm.

14. The bidder may use separate piece of paper, where the space provided in the formats in this tender document for submission of information, is not sufficient. The information in the separate sheet of paper shall be as per prescribed format and each page should be serial numbered and duly authenticated.
15. All the information submitted or supplied in the formats in this tender document shall be presumed to be true to the best of knowledge of the bidder.
16. The firms not having the GST Registration shall not be eligible for submitting the bids, Firms blacklisted shall also not be eligible for participating in the Bid.
17. The GST Registration certificate / proof for filing return on GST (last month/last quarter) and Income Tax Clearance Certificate (ITCC) shall be submitted for the current financial year duly attested by a Gazetted Officer.
18. Earnest Money Deposit (EMD) shall be in the form of Demand Draft of a scheduled Bank payable at Bhubaneswar in favour of Special Relief Commissioner, Odisha, Bhubaneswar. EMD shall be returned immediately after the rejection of a Bid. The Demand Draft shall be returned in original with or without reverse endorsement as required for the refund. EMD of the successful bidders shall be retained till the materials / articles are successfully delivered as ordered. After that it shall be returned in the same manner as in the case of unsuccessful bidders, NSIC & OSIC guidelines in this regard will be honoured.
19. This tender document has prescribed a two bid format for submitting the offers. It contains the "TECHNICAL" and 'FINANCIAL' bid formats. Both the bids shall be submitted in separate sealed cover identified as 'TEHCNICAL' or 'FINANCIAL' bid after detaching their formats from this tender document. Both the sealed covers, the remaining part of this tender document and all the other papers/documents should be put inside a bigger sealed cover and shall be

delivered as per conditions published in the tender call notice. All the sealed covers shall have boldly written with the name of the supplier/bidder, the tender call notice number and the last date for submission.

20. The tenders or the bids can be sent by post or courier as well. However, the authorities shall not be responsible for the postal and other delays in receipt of bids.
21. If the last date for submission of the tender/bid turns out to be a holiday, it will automatically be extended to next working day.
22. The tender calling authority shall make arrangements in his office for issuing a written acknowledgement, under proper seal and signature of the filled in tenders, provided those are submitted on or before the due date. The acknowledgement receipt shall mention, among others, the tender call notice number.
23. A bid submitted cannot be withdrawn. The bidder or his authorized representative (one person only) will be allowed to be present at the time of opening of tenders. They will not participate in the discussions. Clarifications sought, if any, may be provided by them.
24. All or any of the tenders (or bid) submitted can be rejected without assigning any reason thereof. No claim, whatsoever, shall be admissible for; the alleged loss/damage suffered by the bidders on account of such rejections.
25. The sealed Tenders and Technical Bids shall be opened by the Technical Committee in 1<sup>st</sup> stage. The documents like EMDs, GST Registration/Clearance certificate/Income tax clearance certificate e.t.c. shall be verified to ensure that the bidders have fulfilled all the prescribed criteria and conditions of this tender document other than technical specifications of the products.
26. All the products, failing to fulfil the prescribed technical specifications, will be rejected. Decision of the Technical Committee in this respect shall be final and binding.
27. Notwithstanding an offered product meeting the prescribed technical specifications, it may be rejected, if the bidder fails to successful demonstration before the Technical Committee.

28. 'Financial Bids' shall be opened only in those cases, where one or more of the offered products have fulfilled the prescribed technical specifications. No preference or extra payment shall be admissible for the superior technical specifications or quality of the like if any.
29. All the prices quoted shall be FOR Destination basis. The list for the FOR destinations (tentative) of the equipment are given at Annexure-B. This means that the prices shall include the cost of delivery at Destination point. Final list of FOR destinations shall be communicated along with the order of supply. No additional cost for change in FOR destination shall be entertained.
30. The authorities are not bound to accept the lowest Financial Bid.
31. The order for supply may be placed on the successful bidders but the technical specifications (or quality requirements) for the purpose of supply shall be those, which were offered and accepted by the Technical Committee and not those specified in the tender document.
32. On delivery, the supplies or products shall be inspected to verify the quantity and to see whether those are in accordance with the technical specifications (or quality requirements) for which the order was placed. If it turns out to be otherwise the acceptance of delivery shall be refused at the risk and responsibility of the supplier. Further, the articles found damaged shall not be counted as accepted until repaired or replaced to the satisfaction of the authority.
33. Short deliveries may not be accepted. All the items ordered must be supplied in full for claiming even the part payment.
34. All the transit risks shall be the responsibility of the supplier. The supplier would make suitable arrangement on his own for passing the border, check gates of Odisha.
35. User manuals of the product shall be supplied without being asked for or even if it is not mentioned in the supply order. Moreover, it should be in English.
36. Failure to supply the order in full within the stipulated period or supply of substandard goods may lead to forfeiture of EMD and blacklisting of the suppliers.

37. The supplier shall submit an undertaking (in the form of affidavit ) given by him or the OEM committing to supply spare parts for the maintenance of the supplied items for a period at least **24** months from the expiry of warranty period.
38. The supplier shall give a performance warranty for a minimum period mentioned in the special condition or two year from the supply of the equipment and successful demonstration / installation. 10% of the amount of the order (excluding taxes) as mentioned in the special conditions of the contract shall be deposited in shape of Demand Draft, Bank Guarantee or Fixed Deposits duly pledged in favour of Special Relief Commissioner, Odisha, Bhubaneswar and shall be returned after the performance warranty period is over. The said amount may be forfeited partially or fully for failure to fulfil the terms and conditions of supply and post sales commitment / obligations. The Bank Guarantee should be enforceable and payable at Bhubaneswar. No interest will be accrued on the Performance security amount.
39. The bidder must submit in a separate paper mentioning “complied or not complied” against each column of the Tender Specification given in the Tender document.
40. Terms and conditions of this tender document cannot be negotiated for variation without obtaining the prior approval of the Govt.
41. All the clarifications sought from the bidders/suppliers on technical specifications of the products or otherwise shall be promptly submitted in a transparent and unambiguous manner.
42. Entire tender document duly filled in shall be treated as part of the contract agreement for supplies in case of the successful bidders.
43. All the disputes shall be subject to jurisdiction of Civil Courts situated at Bhubaneswar.
44. The bidder shall submit all required documents along with tender. Under no circumstances a bidder would be allowed to make any addition/ alteration if any, related to tender or to submit required documents after receipt of the tender by the tender calling authority.

-Sd/-

Joint Secretary to govt

Signature of the Bidder with seal



**TECHNICAL BID**

SL. NO.	NAME OF THE ITEMS	WHETHER PRODUCTS OFFERED FULFILLS THE DETAILED TECHNICAL SPECIFICATIONS KINDELY ANSWER YES OR NO ONLY.	OFFERED SPECIFICATIONS AND DETAILS OF VARIATIONS IF ANY.
1	2	3	4

**Signature & Seal of the Bidder**

**FINANCIAL BID**

TENDER CALL NOTICE NO.-.....

NAME OF THE ITEMS .....

(PRICE PER UNIT IN INDIAN RUPEES)

1. Basic Price :
2. Central GST :
3. State GST :
4. Other charges (To be specified) :
5. Total Unit price of the Item :
6. Total amount payable for supply of entire quantity of the item mentioned in the tender document. :
7. Name of the Original Manufacturers and brand name or trademark of the item :

**Signature & Seal of the Bidder.**

## **GENERAL BID FORM**

(TENDER CALL NOTICE NO.-.....)

1.	Name, Full Address, Fax No. Telephone no. & E-Mail of the firm.		
2.	Legal status of the firm		
3.	Items for which you have submitted the Bid		
4.	For which of the items above you are the ORIGINAL EQUIPMENT MANUFACTURER (OEM)		
5.	Give the location and Address of your Factory.		
6.	For the items listed at (3) above where you have submitted the bid but you are not the O.E.M., indicate against each the names of the O.E.M		
7.	Kindly confirm by writing 'yes' or 'no' only that you have been authorized by the respective O.E.Ms either as dealer or as sale, supply and servicing agent in respect of the items you are not the OEM		
8.	Which of the items, you have submitted the bids for, will be fully or substantially imported. Indicate the country to be imported from.		
9.	Have you enclosed the EMD? If yes, mention the amount and its identifying details.		
10.	Have you enclosed all the documents and papers called for in this tender document? Kindly enclose a list(use a		

	separate sheet of paper)		
11.	If the answer to (10) above is ' No' which is the documents/document have not been enclosed.(Kindly enclose a list of such documents/papers).Use a separate sheet of paper if necessary.		
12.	Do you have a post sales servicing, centre in Odisha? If yes, give its name, full address, Fax and Telephone numbers.		

Seal & Signature of the Bidder

**TENDER CALL NOTICE NO:-.....**

**SPECIAL CONDITION OF THE CONTRACT**

1. The Special Conditions given here shall prevail over the General Conditions.
2. The tender document shall accompany with Earnest Money Deposit (EMD) at the rate quoted at Col-6, of the statement under Para-3 without which tender shall be rejected. The EMD deposited instrument should be available outside the sealed covers of "Technical" and "Financial" Bid. (EMDs available in the Technical Bid also be accepted)
3. Sealed Bids in this tender document have been invited for the supply of the items listed below. The approximate quantity required and time for supply has been mentioned against each. The detailed technical specifications of each item are available in the Annexure - 'A'.

Sl.	Name of the Equipment	Appropriate quantity (in nos.)	Technical specification	Time period for supply	EMD Value (in Rs)
1	2	3	4	5	6
1	Life Jacket (Working)	300	Technical Specification as Annexure-A	90 days from receipt of supply order	18000
2	Collapsed Structure Search Rescue (CSSR) tools, Equipment and Accessories	35	Technical Specification as Annexure-A	120 days from receipt of supply order	1400000
3	Log carrier	200	Technical Specification as Annexure-A	120 days from receipt of supply order	20000
4	Spine board short with strap	100	Technical Specification as Annexure-A	90 days from receipt of supply order	10000
5	HD Video Camera	20	Technical Specification as Annexure-A	120 days from receipt of supply order	10000
6	Thermal Imaging camera	20	Technical Specification as Annexure-A	120 days from receipt of supply order	75000
7	Battery charger	19	Technical Specification as Annexure-A	90 days from receipt of supply order	9500
8	Rescue Tender	1	Technical Specification as Annexure-A	120 days from receipt of supply order	200000
9	Tractor Trailer (Hydraulic)	3	Technical	90 days from	36000

			Specification as Annexure-A	receipt of supply order	
10	RCC Equipment Set	3	Technical Specification as Annexure-A	90 days from receipt of supply order	28500
11	Chain Saw one man operated	200	Technical Specification as Annexure-B	90 days from receipt of supply order	250000
12	Back-hoe Loader cum excavator with rock breaker & Accessories	10	Technical Specification as Annexure-B	90 days from receipt of supply order	250000
13	Plasma Cutter including 20 KVA DG Set & Air Compressor	10	Technical Specification as Annexure-B	90 days from receipt of supply order	80000
14	Portable Telescopic Tower Light	100	Technical Specification as Annexure-B	90 days from receipt of supply order	250000
15	Portable Inflatable Tower Light	100	Technical Specification as Annexure-B	90 days from receipt of supply order	150000

4. The quantities mentioned above are subject to variations. The rates quoted per Unit shall continue to be valid even if the quantities of items mentioned above are varied.
5. It shall not be necessary to bid for all the items above.
6. The bidder shall submit along with this tender document a list of names, complete address, Telephone/FAX number of the customers to whom, the item, for which the bid has been submitted, have been supplied and installed in last three years in India/Globally, if any. A clear, unambiguous statement shall be made if an item has not been sold anywhere in India/globally so far.
7. The selected firm should supply the order in full within the stipulated period as detailed at Col-5, Para-3 above. Failure to supply the order in full or supply of substandard goods may lead to forfeiture of EMD and blacklisting of the suppliers. If at all the delivery is allowed to be accepted after the due date, Liquidated Damages (LD) @ 0.5% of the total amount of order (excluding

taxes) per week or part thereof shall be charged from the supplier, however, that the L.D. shall not exceed 5% of the amount of order.

8. The supplies shall be delivered at destination detailed at Annexure C.
9. Pre-delivery inspection is required for the equipment listed at "Annexure D". The selected firm shall arrange pre-delivery inspection of the equipments by representative of the Tender calling Authority at his own cost before despatch. The travelling and accommodation cost shall be borne by the selected firm..It is obligatory to the supplier to provide all the assistance and equipment for the inspection of the equipment.
10. The supplier shall also at his own cost arrange for checking of items at delivery point by demonstrating operations and making arrangements to establish genuineness and compliance of items with required technical specification stated in Annexure A. The supplier shall obtain a certificate from the consignee (authorized representative of Tender calling Authority) regarding date of commissioning of the items and date of delivery of the equipment.
11. All the supplies made shall be subject to a minimum period of two year warrantee or manufacturer warranty period whichever is more. If during the warranty period the equipment required major repair then it shall be replaced by new one of same model or higher.
12. The supplier shall repair or replace at his own cost any component of the supplies that may go out of order during the warrantee period. The repair and replacement shall as far as possible be carried within the premises, where the equipment has been kept. If, however, it is necessary to take the equipments to the workshop of the supplier, it must be repaired and reinstalled successfully in its premises within a period of 15 days. Failing so, replacement equipment in working condition shall be supplied till the return of the equipment. The cost of transportation including loading and unloading shall be borne by the supplier.
13. Other things being equal, preference shall be given to a bidder, who has opened his sale and service centre in Odisha.
14. If an equipment or supply goes out of order within the warranty period and the supplier is informed about it, it must be attended to within 48 hours counted from the time the service call is placed.

15. No advance shall be paid. 100% of the payment will be made on delivery of supplies after successful installation and demonstration.
16. The firms located outside the State of Odisha should include their transportation charges with the basic price.
17. For evaluation of technical bid and demonstration the bidder shall be required to submit sample of the equipment as per Annexure-E. The date for submission of sample /demonstration of the equipment shall be intimated in due course. the offer without sample will be not taken into consideration.
18. Before undertaking the final contract the successful tenders will have to enter into an agreement with the department at their own cost in Govt. stamp paper.

Seal & Signature of the Bidder

-Sd/-

Joint Secretary to govt

**ANNEXURE-A**

### (Technical Specification)

SI	SI number in the Annexure-A	Name of the Equipment	Revised Specification
1	1	Life Jacket (Working)	<p>US Coast Guard Certification, through testing by Underwater Laboratories (UL) Type V Personal Floatation Device (PFD).minimum of 10 kg of flotation, Front Zip with adjustable strap to fit chest sizes from 30 to 58 inches. with box-stitched stress points, reinforced shoulder straps and a 500 denier Cordura shell,</p> <ul style="list-style-type: none"> <li>• Minimum One huge front pockets stretch to hold anything from a GPS to VHF. Quick release buckles with adjustable nylon webbing secure the pockets shut.</li> <li>• Quick-release rescue belt, with stainless steel ring, for swift water rescue techniques.</li> <li>• Three lash tabs on the front for a knife, whistle. On the back there's an additional lash tab for a strobe, and a chemical light holder, for visibility in low light and night operations.</li> <li>• Long strips of reflective tape on the front and back of the jacket increase visibility.</li> <li>• Webbing loops for leg straps add extra security. Universal Plus sizing will fit chest sizes between 30 and 58 inches, with 8 adjustment points to be ensures a secure fit.</li> </ul>
2	2	Collapsed Structure Search and Rescue (CSSR) Tools, Equipment and accessories	<p>One CSSR set comprises of the following Tools , Equipment and Accessories</p> <p><b><u>Generator Portable, 3 KVA Self Start: 1 no</u></b></p> <ul style="list-style-type: none"> <li>▪ Inverter Technology, AC and many other appliances output, ultra silent, portable, compact, with road clearance wheels</li> <li>▪ Max. output- 3000 VA</li> <li>▪ Rated output 230v/ 50 HZ- 2800 VA</li> <li>▪ Reputed make single cylinder Engine Air cooled</li> <li>▪ Engine throttle- electronic governor (Load sensitive), 1500 rpm minimum</li> <li>▪ Choke- Auto</li> <li>▪ Engine control panel display- i- monitor equipped</li> <li>▪ Starting- electric/ recoil start</li> <li>▪ Fuel type- Petrol</li> <li>▪ Fuel tank capacity (Ltrs.)- 12.5</li> <li>▪ Continuous operating hours- 6.9</li> <li>▪ Oil alert system</li> <li>▪ AC circuit protection Device with Pilot Lamp</li> </ul> <p><b><u>Chipping Hammer :2 nos</u></b></p> <ul style="list-style-type: none"> <li>▪ With adjustable bits.</li> <li>▪ Chiseling impact rate-900-1800 per min or more.</li> <li>▪ It shall be single impact force: 5j-25j</li> <li>▪ Power input. 1000W-1900W</li> </ul>



			<ul style="list-style-type: none"> <li>▪ Light in weight, shock proof body with required accessories, lubricants and electrical cord of not less than 3 meters in length with 10 amp three/two pin plug.</li> <li>▪ Voltage require: 220V-240V.</li> <li>▪ Rated current: Not less than 6.5 AMP</li> <li>▪ Weight: 10-12 kg.</li> <li>▪ Noise level: not more than 120 db.</li> <li>▪ Bits: pointed &amp; flat type with suitable protective carry case.</li> <li>▪ Vibration-Shall not be more than 12 m/s<sup>2</sup></li> </ul> <p>Specifications of chipping hammer bit flat qualitative requirements</p> <p>Bit length- 28 cm to 41 cm.</p> <p>Bit diameter- 18 mm</p> <p>Material- High tensile steel with minimum 55% carbon, SDS type.</p> <p><b>Accessories:-</b></p> <ul style="list-style-type: none"> <li>• Flat Bit nos. 4</li> <li>• Pointed Bit 4</li> </ul> <p><b><u>Rotary Rescue saw with Diamond tipped Blade: 2 nos</u></b></p> <ul style="list-style-type: none"> <li>▪ Minimum 60 CC, 2 stroke petrol driven engine.</li> <li>▪ Air cooled engine. 3</li> <li>▪ Minimum Output Power up to 4 HP at 9000 Motor RPM.</li> <li>▪ With Adjustable blade guard.</li> <li>▪ RPM above 4000-5500</li> <li>▪ Provision of wet cutting of materials by providing connection with water line.</li> <li>▪ Accelerator lock is preferable for continuous use and safety inter lock must be provided.</li> <li>▪ It should be capable of running minimum 14" Dia blade.</li> <li>▪ Minimum cutting depth = 100mm.</li> <li>▪ Fuel tank capacity =0.8 ltr to 1.2 ltr.</li> <li>▪ Should be capable of cold manual pull cord start.</li> <li>▪ Noise level should be less than 120 db in one Mtr. around the equipment.</li> <li>▪ Ignition=Electronic type.</li> <li>▪ Should be provided with choke arrangement.</li> <li>▪ Machine holding handle should be rubber coated/robust cutting providing cushion for getting good grip.</li> <li>▪ Weight not more than 20 kgs with blade and full tank fuel.</li> <li>▪ With rugged protective carry case.</li> <li>▪ Rust Proof 19 International certificate on product quality.</li> </ul> <p><b>Accessories.</b></p> <ul style="list-style-type: none"> <li>▪ Diamond Tipped blades (Spare) carbadite type blade and abrasive blade. (For concrete 4 nos and for metal 4 nos.)</li> <li>▪ 5 liter fuel container.</li> <li>▪ Spare air filter.</li> <li>▪ Pressure water tank with capacity of minimum 8 ltr along with 5 mtr rubber pipe.</li> </ul>
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- Complete tool kit.

**Angle Cutter: 2 nos**

- Electric Motor operating in range of 230 volts  $\pm 10\%$  power rating with a maximum no load speed of 4900 rpm  $\pm 10\%$  and full load speed up to 30000rpm  $\pm 10\%$ .
- 15 Ampere three core electrical cord of 5 meter length with three pin plug will be provided.
- The saw is to mount replaceable 12" (300mm) diameter diamond tipped or tungsten carbide tipped blade with a 25 mm arbor.
- The saw should be able to cut to a minimum depth of 100 mm. one tungsten carbide tipped blade will be provided as an integral component of the equipment
- It should be possible to adjust the position of the tool body through a minimum of 70 degrees independently of the cutting depth. It should also be possible to remove the tool base for cutting closer to walls and should be provided with guide wheels on the tool guard to ensure smooth travel over the surface material.
- A vacuum port for removal of the dust and debris as well as a shield for keeping debris away from the operator will be provided.
- A system for disengaging gears from motor to minimize effect of kickbacks will be provided to ensure operator safety.
- A lock on button for continues operation after start up will be provided.
- A rubberized wrap around handle will be provided.

**Accessories**

- Two spare tungsten carbide tipped blade and Four continuous rim diamond tipped blades.
- Carrying case.
- Tool kit
- Operation and Maintenance Manual

**Reciprocating Saw: 2 nos**

- Rated power:- Not less than 900 watt at 220-240 volts
- Stroke rate (at no load): Not less than 2700/Min
- Stroke length : Not less than 28 mm
- Cutting depth(wood): above 165 mm
- Cutting depth(Steel sheet):More than 20mm
- With required accessories and electrical cord of minimum 05 meters length with 5 amp three/two pin
- Plug along with an extension cord of 10 meters.
- Rate current: Not more than 6 amp.
- Noise level < 100db 10 Spare blades for metal & wood cutting
- Nos with suitable protective carry case.
- Weight: Not more than 5kg with blade.
- The starting current drawn by the motor should be limited to prevent the electric supply fuse blowing. This also prevents the tool starting with a jolt.
- Air cooled.
- Rust proof.

			<ul style="list-style-type: none"> <li>▪ Internationally certified on standards. Saw must be capable of cutting a variety of materials: all kind of wood and metal.</li> </ul> <p><b>Blade type:</b></p> <ul style="list-style-type: none"> <li>▪ Metal blade of bi-metal blades have a teeth of high speed steel and body material</li> <li>▪ Out of high carbon steel used for metal cutting</li> <li>▪ Blade length: not less than 1500mm</li> <li>▪ Compatibility: Compatible with reciprocating saw equipment</li> <li>▪ TP I: not less than 09 tooth per 2.54 cms</li> <li>▪ Blade width: Not less than 16mm</li> <li>▪ Thickness : Not more than 1,6mm</li> <li>▪ Material: The low alloy cold rolled steel strips in hardened, tempered and polished condition having carbon, silicon, manganese, chromium, nickel sulphur and phosphorus. Tooth Setting: The provision of the rake setting of the tooth shall be at the discretion of the manufacturer</li> <li>▪ Rust proof. 10</li> <li>▪ Marking: The saw blades shall be marked with the size and manufacturers name and trade mark at equal spaced intervals over the bands. 1</li> <li>▪ Internationally certified on quality standards.</li> </ul> <p><b>Blade type:</b></p> <ul style="list-style-type: none"> <li>▪ Metal (high carbon steel) Blade used for wood cutting.</li> <li>▪ Blade length -230mm(minimum)</li> <li>▪ Compatibility: Compatible with reciprocating saw equipment</li> <li>▪ PTI:- Not less than 05 tooth per 2.54 cms</li> <li>▪ Blade width: Not less than 19mm</li> <li>▪ Thickness: Not less than 1.20mm</li> <li>▪ Material: Low ally cold rolled steel strips in hardened, tempered and polished condition 16 having carbon, silicon, manganese, chromium, nickel, sulphur and phosphorous</li> <li>▪ Rust proof.</li> <li>▪ Marking: The saw blades shall be marked with the size and manufacturers name and trade mark at equal spaced intervals over the bands.</li> <li>▪ Internationally certified on quality standards</li> </ul> <p><b>Note: The Firm will provide 10 nos. each (for Wood &amp; Metal) of the blade type.</b></p> <p><b><u>Circular saw: 2 nos</u></b></p> <ul style="list-style-type: none"> <li>▪ Electrically powered motor operating in 100 to 250 volts with power consumption between 1600 to 2500 watts. 15 ampere three core electrical cord of 5 meter length with three pin plug will be provided.</li> <li>▪ Idling speed of motor up to 2000 to 3000 rpm with a maximum load rpm of 1200 to 1500 rpm. The motor should have a minimum endurance for continuous operation up to 60 minutes</li> <li>▪ Should incorporate easily locatable push button start and an electric brake for quick stoppage.</li> <li>▪ Size of blade: More than 12 inches diameter with an arbor not exceeding 3.2cm (1,25inches) the blade provided will be carbide tipped blade with minimum 32 teeth.</li> </ul>
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- The cutting capacity of the blade should exceed 125mm at 90 degrees and 82mm at 45 degrees. The saw should enable stable blade rotation and depth adjustment lever. A shaft lock will be provided for effecting blade changes.
- The weight of the saw with blade should not more than 17kg.
- Rubberized wrap around saw and support handles with protection arrangement for shielding operator from debris and kickbacks will be provided.
- Noise level during operation at full load should not exceed 100 Db at a distance of one meter.

**Accessories**

The following accessories will be provided with each set:-

- Two Spare carbide tipped blades
- Tool kit.
- Carrying case.
- Operation and Maintenance Manual.

**Electric Drill Machine: 4 nos**

- Input power: - 450 W, No load speed: variable 0-3000 RPM. Light Weight
- Shock proof body with different sizes of bits for both metal & wood.
- Electric drill bit Set (Complete set of 19 bits) Bits used for wood & metal cutting, Bit Diameter: 1mm-10 mm, compatible with drill machine, Material; High speed steel, Hardness; 760 HV Min. 900 HV Max, Hand of cutting specified Right, Each center drill shall be covered with a suitable rust proofing material.

**Accessories**

- Drill bit for metal & wood 2 sets
- Drill reversible 2 sets

**Key Hole Saw: 2 sets**

- Saw blade type: metallic high tensile steel used for wood & metal cutting.
- Saw use: it is a flat blade used in combination with normal bit & having tips as cutting edge, having a centre hole to insert the drill bit.
- Saw blade diameter complete set of 04 saws of dia 2.54 cms, 5.08 cms, 7.62 cms, and 10.16 cms.

**Rotary Hammer Drill: 2 nos**

- Power input: 680 Watts
- Power output: 390 Watts
- No load speed: 0-1100 RPM
- Blows per minute: 0-4200 BPM
- Impact energy: 0-3.0 J
- Tool holder: SDS-plus
- Max. drilling capacity (wood): 30 mm
- Max. drilling capacity (metal): 13 mm
- Max. drilling capacity (concrete): 24 mm
- Max drilling capacity (core bit): 65 mm
- Weight: 2.6 kg

			<ul style="list-style-type: none"> <li>• Length: 352 mm</li> <li>• Height: 200 mm</li> </ul> <p>Bit type: Metallic bits used for drilling in concrete, metal</p> <ul style="list-style-type: none"> <li>• Bit length: 10" &amp; 16"</li> <li>• Bit diameter: 14 mm &amp; 18 mm</li> <li>• Compatibility: compatible with rotary hammer drill equipment</li> </ul> <p><b>Accessories</b></p> <ul style="list-style-type: none"> <li>• Drill bit 4nos.</li> </ul> <p>Ventilator with Air tube; 1 nos</p> <p>Product Description:</p> <p>8" -12" PLASTIC COM-PAX-IAL VENTILATOR / BLOWER AC WITH CANISTER</p> <p>GENERAL DESCRIPTION:</p> <p>It shall be High output compact axial blower, shall be designed for easy use and storage without sacrificing airflow. It shall be available complete unit with 25" of duct length with storage canister. Canister shall be able attach to intake or output of blower for suction or ventilation.</p> <p>It shall be certified to CSA Standard, UL Listed.</p> <p>CONSTRUCTION:</p> <ul style="list-style-type: none"> <li>• It shall have compact canister models with the lightest.</li> <li>• It shall have Polyethylene housing and canister assembly</li> <li>• It shall be Lightweight, corrosion-, UV- and chemical-resistant</li> <li>• It shall be Super quiet, in color "safety orange"</li> <li>• It shall have Bottom enclosure to protect electrical components</li> <li>• It shall have carry handle molded into blower and canister housing</li> <li>• It shall have Steel powder coated grill</li> </ul> <p>MOTOR:</p> <ul style="list-style-type: none"> <li>• HP: Minimum 1/3 HP</li> <li>• Certification: UL Recognized/ CSA Certified/ CE Certified</li> <li>• Voltage/Hz: 115V-230V AC, 50/60 Hz, Single Phase</li> <li>• RPM: 2800-3400</li> <li>• Switch: ON/OFF Rocker</li> <li>• Amps: 4.8A-2.4A (50 Hz) / 4.5A-2.2A (60 Hz)</li> <li>• Cord: 10' (3.05 m) AWG</li> <li>• Plug: NEMA 5-15P</li> </ul> <p>DUCTING:</p> <ul style="list-style-type: none"> <li>• Retractable, non-collapsible design</li> <li>• Single-ply, PVC coated vinyl and polyester materials, temperature resistant up to 180° F (82.2° C)</li> <li>• Yellow color with black weather strip and integrated nylon attachment strap</li> <li>• Class 1 hard drawn spring steel wire helix that meets ASTM 227</li> </ul>
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specs  
DIMENSIONS:

Ventilator/ Blower P/N	Maximum Length (In)	Maximum Width (In)	Maximum Height (In)	Maximum Weight (Kg)
	26"	16 "	24 "	17 kg

FLOW RATES: (CFM calculated using (25" ) dia of and discharge should not be duct not less than 700CFM)

**Hydraulic Jack 10 Ton: 2 nos**

- Rated capacity: 10 tons
- Application: for lifting heavy objects
- All casting shall be in accordance with appropriate Indian standard, shall be of uniform quality, free of blow holes, porosity and shrinking cracks.
- The jack shall be operated by hand lever of maximum length of 1000mm.

**Come Along: 2 nos**

- Come Along system should be of steel or hard Aluminium Alloy consisting three major parts i.e. Base, Mast & Boom.
- The system should provide a safe secure anchorage for confined space entry, exit and rescue work.
- The system should be completely collapsible and portable for advantage of easy transportation.
- The system should be corrosion resistant. All adjustment should be on key plugs easy to assemble and dismantle without any tools.
- The rated capacity in terms of working load should be more than 200 Kg. The complete system should have compliance of European standard or should have certification from NABL approved Lab for safety factor.
- Tenderer should supply ascending descending device/winch, accessory handle, rope, rescue stretcher and Full body Harness along with system. Ascending descending device/winch should work on principle of wrap or contract friction.
- Ascension handle should be made up of light forged aluminium Alloy. The handle grip should be comfortable with thermal insulation.
- Rope should be made of polyamide of 100 meter working length and continuous rope feeding winch. The breaking load of rope should be more than-24 KN (without end connection) and more than-18 KN (with end connection).
- The rope diameter should be 9 mm to 12 mm only. Rescue stretcher should be made up of Fibre / Lightweight Aluminium Alloy.

- It should be in bucket shape with sufficient number of straps to hold casualty. It can be lifted vertically up & down. Full body Harness should be complied with EN 361/ 358.

**Electric Chain Saw: 2 nos**

Chain saw wood cutting (Electrical) single phase AC/DC Voltage 220-250

- Guide Bar Length: 16"
- Chain Speed : more than 2,900 FRM
- Chain pitch: 3/8"
- Power Type: coded
- Light weight

**Accessories**

- Replacement chain 2 nos.

**Plier 8'- 5 nos**

- Size : Length 8"
- Material: made of forged steel with insulated handle
- Teeth/cutting edge: One jaw having cutting edge & other have teeth

**BIS Specifications**

- The pliers should have insulated handle. The insulating material shall be PVC or any other suitable material.
- The insulation shall cover the whole of the handle and insulating material shall adhere firmly to the handle
- The pliers shall pass various tests described in IS 2615

**Vice Grief 10"- 5 nos**

- size : Length 10"
- Material: made of forged steel
- Teeth : On both jaws

**Bolt Cutter 30"- 2 nos**

- Size : Length 30"
- cutting jaws : made of high tensile solid alloy steel, specially heat treated with centre cut head
- Handle : With sufficient grip of rubber fro a length of 6 to 8 inches
- Application : Suitable for cutting hard material viz. bolt, iron rod of 10 to 14 mm diameter

**Bolt Cutter 14"- 4 nos**

- Size : Length 14"
- cutting jaws : made of high tensile solid alloy steel, specially heat treated with centre cut head
- Handle : With sufficient grip of rubber for a length of 6 to 8 inches
- Application : Suitable for cutting hard material viz. bolt, iron rod of 8 to 10 mm diameter

**Chisel for concrete 8"- 5 nos**

- Size- length 8", width 1"
- Material- made of hardened alloy iron, specially heat treated
- Application- suitable for chiselling of concrete & brick.

**Chisel for concrete 4"- 5 nos**

- Size- length 4", width 1"
- Material- made of hardened alloy iron, specially heat treated
- Application- suitable for chiselling of concrete & brick width ½"

**Shovels Round 8 inch- 10 nos**

- Size: length 8", width 8", of almost round shape
- Material: made of wrought iron
- Handle: Provision of wooden handle to be incorporated
- Application: Suitable for various types of earth work

**BIS Specification**

- The shovel blade shall be made of suitable quality sheet steel as such T-50, T-55.
- Each blade shall be made in one piece without any welded or riveted joint.
- Shovels to be supplied with handles complete.
- The blades shall be well formed & cleanly made.
- The blades shall be free from seams, splits, cracks.

**Spade Shovels 12 x 10 inches- 10 nos**

- Size : Length 12", width 10", of rectangular shape
- Material: made of wrought iron IS-27438
- Handle: Provision of wooden handle to be incorporated
- Application: Suitable for various types of earth work

**BIS Specifications**

- The shovel blade shall be made of suitable quality sheet steel as such T-50, T-55.
- Each blade shall be made in one piece without any welded or riveted joint.
- Shovels to be supplied with handles complete.
- The blades shall be well formed & cleanly made
- The blades shall be free from seams, splits, crack

**Screw driver set- 2 Sets**

- Size: One complete set of eight sizes of bits
- Type: Flat tip/square tip including star shaped screw driver
- Handle: Insulated handle tested at 3000 volts

**BIS Specifications**

- The blades shall be made from suitable steel which is heat treated
- Plastic handle shall be solid and made of cellulose acetate.
- The ferrules shall be made of steel conforming to IS 513

**Framing square- 4 nos**

- Standard brand

**Axe mate kit- 5 nos**



- Designed for Emergency workers, fire fighters and in disasters and consists of Axe with fibre glass reinforced, thermoplastic handle, forged steel/tested for at least 22000 volts with different attachments i.e. shovel, mattock, hoe, fire rake, narrow pick, board pick, quality leather axe sheath, canvas carry case & heavy duty cardboard with handles.
- WEIGHT: 05 Kg to 07 Kg
- CONSTRUCTIONS: The axe head, pick, chisel and mattock are made of grade EN 8 steel or better than EN 8 steel. The shovel, rake cum hoe are made from steel and the blades should be hardened for long life.
- The hitch pins are of high-grade steel hardened and plated. The axe head is fixed with the handle and preferably bonded with the best epoxy resins. The composition of the handle is of protruded fibre glass insert moulded on the outside with PPCP and EPDM, giving tremendous elasticity and shock absorbent, to avoid blisters or sore palms even after having chopped quite some wood.
- DESIGN: The axe head is designed to chop wood effectively.
- HARDNESS: Of the blade ensures to cut or strike against rock or steel.
- APPROVAL: Tested at 22000 volts at least.

**NOTE TO TENDERER:**

- .The tendered shall indicate the make/model in their offer.
- The tendered shall furnish the clause-by-clause compliance statement. In case there is any deviation the same should be clearly brought out in the offer.
- They shall mention the relevant BIS/EN/DIN/UL certificate of the product offered.
- Technical manual comprising of servicing details shall be supplied with system
- Relevant Test certificates shall be provided from a Govt. approved laboratory or from the manufacturer, along with their o

**Crow Bar 24”- 10 nos**

- Size: Length 24”
- Diameter of rod: 1”
- Material: made of tempered steel
- Attachment: claw attachment for removing nails.
- The bars shall be heat treated to obtain a minimum hardness.
- The material shall be suitable quality steel such as wrought steel
- The bars shall be forged clean & in one piece.
- Cutting ends of the bars may be rounded of & finished ground.

**Crow Bar 36”- 10 nos**

- Size: Length 36”
- Diameter of rod: 1”
- Material: made of tempered steel
- Attachment: claw attachment for removing nails.
- The bars shall be heat treated to obtain a minimum hardness.

- The material shall be suitable quality steel such as wrought steel
- The bars shall be forged clean & in one piece.
- Cutting ends of the bars may be rounded off & finished ground.

**Pick Mattock- 10 nos**

- Size : 2” wide, 9” long
- Weight: 3 Kg
- Ends : One prong end blunt point headed 9” long & other prong flat Headed

**Hacksaw 12” Tubular- 4 nos**

- Size : Adjustable length 250 mm to 300 mm with handle
- Blade Type: High speed steel blade, size 300 mm x 12.5 mm x 0.63 mm
- Body: Tubular frame body
- Provision: for tightening & loosening of blades BIS Specification
- Hack Saw frame
- Type : Open grip adjustable flat hacksaw frame
- Nominal size: 250-300 mm.
- Impact test: Dropped on a concrete floor from a height of 3 meters

**Handsaw- 4nos**

- Size : Length 600 mm with wooden/ plastic handle
- Shape: Trapezium shape, width at one end 125 mm & 45 mm on the other
- Thickness : 0.80 mm
- Cutting edge: It should be straight
- Material: Blade made of hardened & tempered spring steel strips

**Hacksaw replacement blades- 20 nos**

- As per standard

**Tin Snip 12 inches- 4 nos**

- Size : Length 300 mm
- Application: For cutting tin sheets of small thickness

**Emergency light with 30 meters wire- 5 nos**

- Working lamp with 30 meters of 4 mm wire
- Type: with bulb holder, wire mesh protection for bulb
- Handle: fully insulated handle to provide manual grip
- Cord: PVC wire of 6 mm, 50 meter length with 2/3 pin plug

**Claw hammer- 5nos**

- Weight : 1 lbs
- Type : Nag ore type
- Size : Width 4”
- Provision : ¾” head dia at one side of hammer & claw on the other side to remove nail
- Handle : Wooden handle

**BIS Specifications**

- Striking face hardness : 46 to 58 HRC

- Hammer shall be cleanly forged & free from flaws, seams, & other forging defects.
- The claw hammer shall be made of steel conforming to designation T-55 of IS-1570
- The handle shall conform to IS-4953 & shall be shaped before fitting to suit the eye of the hammer.

**Sledge hammer 10 kg- 5 nos**

- Weight : 10 KG
- Provision: Iron head
- Handle : Wooden handle IS-84137
- Application: To break concrete & drive stacks

**BIS Specifications**

- The hammer heads shall be made from fully killed forging quality steel.
- The hammer heads shall be hardened & tempered on the striking faces & pains only.
- The striking face shall have hardness between 46 to 58 HRC.
- The hammer heads shall be cleanly forged in one piece

**Brick hammer- 10 nos**

- Weight: 1 lbs
- Provision: One end square shaped & the other flat chisel shaped
- Material & Handle: Iron alloy with Wooden Handle
- Size : Width 4"
- Application : Used for breaking bricks

**BIS Specification**

- The hammer heads shall be made from fully killed forging quality steel
- The hammer heads shall be hardened & tempered on the striking faces & pains only.
- The striking face shall have hardness between 46 to 58 HRC.
- The hammer heads shall be cleanly forged in one piece.

**Level 12"- 2nos**

- Standard

**File- 5 nos**

- Flat file, double cut, rough
- Size: length 12"
- Handle: wooden handle
- Material: high speed steel
- Application: to sharpen tools & to smooth rough edges

**Pry bar 3 ft.10 nos**

- Size : Length 36 "
- Diameter of rod: 1"
- Material: made of tempered steel
- Attachment: Claw attachment for removing nails

**BIS Specifications**

- The bars shall be heat treated to obtain a minimum hardness value of 320 HV.

			<ul style="list-style-type: none"> <li>• The material shall be suitable quality steel such as wrought steel</li> </ul> <p><b><u>Carpenter hammer- 10 nos</u></b></p> <ul style="list-style-type: none"> <li>• Head dia ¾ inches with wooden handle. Made of tempered steel to drive nails.</li> </ul> <p><b><u>Extension cord- 5 nos</u></b></p> <ul style="list-style-type: none"> <li>• Type: with one 15 amp &amp; two 5 amp switch socket fixed on wheel of diameter 1 feet with handle</li> <li>• Handle: insulated handle of 6” to provide manual grip</li> <li>• Cord: PVC wire 8 mm, 25 meter length with 2/3 pin plug, with wrapping arrangement on wheel.</li> </ul> <p><b><u>Fuel Containers 20 Liters- 10 nos</u></b></p> <ul style="list-style-type: none"> <li>• Type : Eco friendly thermo setting plastic</li> <li>• Capacity : 20 liter</li> <li>• Application: To store &amp; transport small amount of fuel</li> <li>• Accessories: With keep &amp; pipe of filling the fuel BIS Specification.</li> <li>• The containers shall be made from the following grades of HDPE Containers HDPE 42 BB Closures HDPE-43 MB</li> </ul> <p><b><u>8 Penny nails {Kgs} -2, 3, 4 inches assorted- 2 kg each</u></b></p> <ul style="list-style-type: none"> <li>• Size &amp; Material : 14 no nails of size 1”, 2” (Mixed), made of iron</li> <li>• Application : To join wooden members BIS Specification As per IS-725</li> </ul> <p><b><u>16 Penny nails {Kgs}-2, 3, 4 inches assorted- 2 kg each</u></b></p> <ul style="list-style-type: none"> <li>• Size &amp; Material : 10 no nails of size 3 ” , 4” (mixed), made of iron</li> <li>• Application : To join wooden members</li> <li>• BIS Specification As per IS-725</li> </ul> <p><b><u>Dust Mask- 50 nos</u></b></p> <ul style="list-style-type: none"> <li>• Size : 4”</li> <li>• Provision: Having two elastic straps to fasten above &amp; below the ear to prevent the dust</li> <li>• Material: The cloth used for fabricating dust mask should be able to prevent entry of dust</li> </ul> <p><b><u>Carpenters pencil- 10 nos</u></b></p> <ul style="list-style-type: none"> <li>• Standard</li> </ul> <p><b><u>Mega phone- 4 nos</u></b></p> <ul style="list-style-type: none"> <li>• Power output: - 16 watt rated /20 watt max.</li> <li>• Voice range:- 0.4 km (01 km in quite area)</li> <li>• Power source:- with suitable battery</li> <li>• Microphone:- unidirectional</li> <li>• Dimension:- horn dia.- 220 mm</li> <li>• Length:- 370 mm</li> <li>• Weight: - 2 kg approx.</li> <li>• Dry cell &amp; 12 V car battery operation</li> <li>• All ABS body, sturdy yet lightweight</li> <li>• Built-in siren</li> <li>• Microphone with volume control and press to talk switch</li> </ul>
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**Buckets Large- 10 nos**

- Size : 25 Liter capacity
- Provision: With handle to carry
- Material : Made of plastic

**BIS Specification**

- The bucket shall be moulded from natural or coloured HDPE(High density polythene bucket)
- The HDPE used for injection moulding of buckets shall be of grade 45/55 MA.
- The buckets shall have smooth surface finish without any blemishes.
- The handle shall be rigid and made of metal, coated metal or HDPE.

**Safety Vest Fluorescent water proof-50 nos**

- Material : Sleeveless jacket made of red fluorescent color cloth with white strips
- Size : Extra large

**Scene tape roll 100 mm- 4 Rolls**

- Size : Length 100 meter, width 3".
- Material : PVC tape roll with red & white strips (Red color preferably in fluorescent color) with DANGER written in bold letters

**Paint brush-4 nos**

- Standard

**Racks 6 ft.\*3 ft.\*1.5 ft.- 2nos**

- Standard

**Spray paint Orange 400 cc- 5 nos**

- Weight/Volume:-300 gm/400 cc
- Color:- Color must be of high contrast, durable & fluorescent
- Knob arrangement:-Press knob for release of paint, the release of paint should be in the form of spray jet.

**Steel pipes (6 ft. /1 1/2-2" dia.) – 8 nos**

- Size- length 6 feet, external dia. 1 1/2-2 " & thickness 5 mm
- Material- seamless steel duly powder coated painted.

**batteries 1.5 v- 20 ns**

- Standard

**Spray bottles- 4 nos**

- Standard

**Ear plug-50 pairs**

- Material :-Made of soft eco friendly fibre material, corded
- Provision:-With a lace or same type of other arrangement to keep units of both the ear together
- Application :-To prevent entry of dust & loud sound in the ear

**BIS Specification**

- Material coming into contact with the body shall not cause

irritation

- It shall be resistant to skin oil, hair oil and ear wax.
- Ear protector shall be made of material which is capable or being cleaned and sterilized.
- Ear Plug should be elastic to the ear canal
- Ear plug should be made so that no deleterious changes occur between (-) 25 and + 55 degree centigrade.

**Knee pad- 50 pairs**

- MATERIAL:-made of hard plastic with 1" sponge cushion inside with pair of straps for securing knee pads
- Application :-To fasten on the knees to protect from injury

**Safety goggles- 100 nos**

- Color :-Grey/blue
- Material:-Lightweight & safe to wear with impact resistant plastic
- Provision:-Adjustable according to the size of the head, loose enough to pass the sweat

**Heavy duty works gloves- 20 each**

- Material- made of fine cut resistance fabric, flexible
- Application- capable to work with hand held machine
- Size- medium and extra large

**Back board straps- 2sets**

- Restraint patient- one part
- Material- heavy duty seat belt webbing
- Length- 300 cm
- Width- 5 cm
- Package- in sets of 4
- Restraint patient- two parts
- Material- heavy duty seat belt webbing
- Length- 450 cm
- Width- 5 cm
- Locking mechanism- dual side release buckles plastic/ steel snap lock/ buckles (male and female ends)

**Back board long (spine board)- 2ns**

- Dimensions- length 1830 mm
- Width- 420 mm
- Weight- 8 kg
- Capacity- 150 kg CT/MRI compatible and radio lucent
- Material- carbon fibre of fibre glass material.
- Separate hand holds and restraint holds with smooth edges for easy and comfortable lifting

**Fire extinguisher 20 lbs. dry chemical type- 2ns**

- Size/ weight- 10 kg
- Type- dry powder chemical type BIS specification 2171.
- The shape of the body shall be cylindrical
- The top dome and bottom end shall be dished outward (convex) without reverse curvature.

**Latex gloves-100 pairs each**

			<ul style="list-style-type: none"> <li>• Shall be small, medium and large in size</li> </ul> <p><b><u>MFR box-4 nos</u></b></p> <ul style="list-style-type: none"> <li>• Shall be of imported origin for medical use having two tray compartments to accommodate first aid medical</li> </ul> <p><b><u>Tarpaulin 4*4-8ns</u></b></p> <ul style="list-style-type: none"> <li>• Size- 4 meter* 4 meter</li> <li>• Material- made of water proof canvas cloth, its edges should be secured by stitching a strip of similar cloth or otherwise of 1” width along the periphery of tarpaulin.</li> <li>• Colour- Green/ navy blue</li> <li>• Fabric (IS: 2089-1997)</li> </ul> <p><b><u>Tarpaulin 6*6- 8nos</u></b></p> <ul style="list-style-type: none"> <li>• Size- 6 meter* 6 meter</li> <li>• Material- made of water proof canvas cloth, its edges should be secured by stitching a strip of similar cloth or otherwise of 1” width along the periphery of tarpaulin.</li> <li>• Colour- Green/ navy blue</li> </ul>
03	03	Log Carrier	<ul style="list-style-type: none"> <li>• Features non slip grips hinged hook design hinged hooks expanded to the diameter of the log and firmly grip it with its curves hook ends each side of the log carrier features a large non-slip grip delivering increased comfort and hold.</li> <li>• Handle Diameter: 1.75” or more</li> <li>• over all length- more than 54”</li> <li>• can grip- 8” to 32”</li> </ul>
04	04	Spine Board Short with Strap	<ul style="list-style-type: none"> <li>• Ideal for close space extrication</li> <li>• Roto-molded from a HDPE shell (High Density Polyethylene) and filled with eco-friendly foam for durability and easy cleaning</li> <li>• Six over sized hand holes accommodate gloved hands</li> <li>• The six optional offset fibreglass pins can be located in the lower third of the hand holds to ensure patient comfort by keeping them out of the way while you lift</li> </ul> <p>Board size: 80cm*40cm*2.5cm</p> <p>Weight:-2.5kg</p>
05	05	Camera with Recording Provision ( <b>Now revised as HD Video camera</b> )	<p><b><u>Full HD Video Camera</u></b></p> <ul style="list-style-type: none"> <li>• Item Weight: 633 g</li> <li>• Product Dimensions: 12.9 x 9.3 x 11.4 cm</li> <li>• Batteries: 1 Lithium ion Battery required.</li> <li>• Flash Memory Type: SD/SDHC/SDXC/Memory Stick Duo/Pro-HG Duo PRO</li> <li>• Included Flash Type: Built-In Flash</li> <li>• Removable Memory: Secure Digital Card</li> <li>• Additional Features: NFC, Wi-Fi, GPS</li> </ul>

			<p><b>Accessories:</b> Lithium Ion Battery NP-AC- BX1, AC Adaptor UB10C, Multi USB Cable, Shoulder Strap, Lens Cap, Instruction Manual.</p> <ul style="list-style-type: none"> <li>• Screen Size: 3 Inches</li> <li>• Display Type: LCD</li> <li>• Colour Screen: Yes</li> <li>• Image Aspect Ratio: 4:3, 16:9</li> <li>• Sensor Type : Exmor R CMOS</li> <li>• Supported Image Type: JPEG</li> <li>• Has Image Stabilization: Yes</li> <li>• Optical Zoom: (Movie) 50 X</li> <li>• Digital Zoom: (Movie) 200</li> <li>• Display Resolution Maximum: 921600</li> <li>• Resolution: 20.0 Megapixels (Minimum)</li> <li>• Optical Sensor Resolution: 21.0 Megapixels (Minimum)</li> <li>• Max Shutter Speed: 1/4000 Seconds</li> <li>• Min Shutter Speed: 30 seconds</li> <li>• Min Aperture: F 2.8</li> <li>• Min Focal Length: 4.3-215 Millimetres</li> <li>• Microphone Technology: Stereo</li> <li>• Video Capture Resolution: 1980 x 1080 (50fps)</li> <li>• Video Input: 1080p</li> <li>• Batteries Included: Yes</li> <li>• Battery Cell Composition: Lithium Ion</li> <li>• Continuous Shooting Speed: 10 fps</li> <li>• Total USB Ports: 1</li> <li>• Form Factor: SLR-like (Bridge)</li> <li>• Device Type: Digital Camera</li> <li>• Flash Modes Description: Auto flash,, Slow Sync, Red eye reduction</li> <li>• Lens Type: Zoom</li> <li>• Metering Description: Multi, Center &amp; Spot</li> <li>• Viewfinder Type: Electronic</li> <li>• Has Self Timer: Yes</li> <li>• Includes External Memory: Yes</li> </ul> <p><b>± 1% tolerance of the above specification is acceptable.</b></p>
06	06	Camera with Recording Provision ( <b>Now revised as Thermal imaging</b>	<p><b><u>Thermal Imaging Camera:</u></b></p> <p>It should be capable of viewing object and persons in total darkness or more smoke filled conditions. It should also have integrated temperature measurement with digital display. The thermal imaging camera should be NFPA 1801 complaint and have following specifications:</p>



		<b>Camera)</b>	<p><b>Detector Type</b> Focal plane array (FPA), uncooled microbolometer (VOx)</p> <p><b>IR Resolution</b> 320 x 240 pixels</p> <p><b>Pitch</b> 25 µm</p> <p><b>Spectral Range</b> 8–14 µm</p> <p><b>Zoom</b> 2x digital zoom</p> <p><b>CERTIFICATIONS</b></p> <p>•<i>NFPA1801/C.E/E.N:2018 equivalent certificate</i></p> <p><b>Humidity (Operating and Storage):-</b> IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C(+77°F to +104°F)/ 2 cycles</p> <p><b>Operating Temperature Range:-</b> -20°C to +85°C (-4°F to +185°F) +150°C (+302°F): 15 min. +260°C (+500°F): 5 min.</p> <p><b>Relative Humidity :-</b> 95% relative humidity +25°C to +40°C(+77°F to +104°F)non-condensing</p> <p><b>Storage Temperature Range</b> -40°C to +85°C(-40°F to +185°F)</p> <p><b>Vibration</b> 2 g (IEC 60068-2-6)</p> <p><b>Camera size (L x W x H)</b> 120 x 125 x 280 mm (4.7 x 4.9 x 11 in.)</p> <p><b>Camera weight incl battery</b> 1.1 ±0.05 kg (2.4 ±0.1 lb.)</p> <p><b>Depth of Field</b> 0.84 m to infinity (33 in. to infinity)</p> <p><b>Display</b> 4 in. LCD, 320 x 240 pixels, backlit</p> <p><b>Focus</b> Fixed</p> <p><b>Image Frequency</b> 60 Hz</p> <p><b>Image Modes</b> IR image TI Basic fire-fighting mode Black-and-white fire-fighting mode Fire mode Search-and-rescue mode Heat detection mode Thumbnail gallery</p> <p><b>Non-radiometric IR video recording</b> MPEG-4 to internal flash memory</p> <p><b>Non-radiometric IR video streaming</b></p>
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			<p>Uncompressed colorized video using USB</p> <p><b>Spatial resolution (IFOV)</b> 2.8 mrad</p> <p><b>Storage Capacity</b></p> <p>200 files in total, with a maximum duration of 5 minutes each. The total number of files is co-dependent on the number of saved images.</p> <p><b>Automatic Hot Detection</b></p> <p>Heat detection mode (the hottest 20% of the of scene is colorized)</p> <p><b>Object Temperature Range</b></p> <p>-20°C to +150°C (-4°F to +302°F) 0°C to +650°C (+32°F to +1202°F)</p> <p><b>Spot Meter</b> 1.0</p> <p><b>Thermal Sensitivity/NETD</b> &lt; 30 mK @ +30°C (+86°F)</p> <p><b><u>POWER</u></b></p> <p><b>Battery capacity</b> 4.4 Ah, at +20°C to +25°C (+68°F to +77°F)</p> <p><b>Battery operating time</b></p> <p>Approx. 4 hours at +25°C (+77°F) ambient temperature and typical use. This operating time is independent of camera mode.</p> <p><b>Battery type</b> Li Ion</p> <p><b>Battery voltage</b> 3.6 V</p> <p><b>Battery weight</b> 0.152 kg(0.3 lb.)</p> <p><b>Charging system</b></p> <p>Battery is charged inside the camera 2-bay charger Optional In-truck charger</p> <p><b>Charging Temperature</b> 0°C to +45°C (+32°F to +113°F)</p> <p><b>Charging Time</b></p> <p>2 h to 85% capacity, charging status indicated by LEDs</p> <p><b>Power Management</b> Automatic shutdown and sleep mode</p>
07	07	Battery	Good quality battery charger is required to charge different size

		Charger	<p>of Batteries used in the appliances. The charger shall be portable and easy to carry with following specification.</p> <p>INPUT - 210V-230V A.C supply</p> <p>OUTPUT - 6V-36 Volt DC</p> <p>CAPACITY - 30 AMP make in all step</p> <p>CONTROL - Voltage Selector Switch-6 step (6 Volt, 12 Volt, 18 Volt,24 Volt, 30 Volt and 36 Volt DC)</p> <p>PROTECTION - IN INPUT SIDE -HRC fuse -10 Amp.</p> <p>DCOUTPUT SIDE-HRC fuse- 20 Amp. DC</p> <p>INSTRUMENT - Moving Coil Ammeter 0.50 AMP (for D.C)</p> <p>OUTPUT SIDE - Provision of Voltmeter to indicate the exact output of DC Voltage range 0.100 V D.C.Provision of voltage selector switch and current selector switch, 3 way, 50 AMP range.</p> <p>CABLE:- INPUT SIDE - 1.5 mtrs insulated copper wire with 3 pin Top, 15 AMP</p> <p>OUTPUT SIDE - 15 mtrs insulated copper wire of 4 mm sqr. fitted with insulated clamp.</p> <p>DIOD - Diod should be 70 AMP range.</p>									
08	08	<b>Rescue Tender</b>	<p>The appliance shall be designed to carry the equipment listed in Annex-1. The equipment shall be arranged on a manner to allow the crewmembers to get ready in vehicle itself.</p> <p>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 from a standing start, through the gears. The appliance shall also be capable of being started from rest up a gradient of 1 in 4 when laden.</p> <p><b>MATERIAL SELECTION AND TREATMENT</b></p> <ul style="list-style-type: none"> <li>➤ 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.</li> <li>➤ Timber shall not be used in the body construction.</li> <li>➤ The appliance shall be required for use in conditions with constant high humidity and heat. This shall be given full consideration while selecting the materials.</li> <li>➤ All metal parts exposed to atmosphere shall either be of corrosion resisting material or treated to resist corrosion.</li> </ul> <p><b>2.9.2 DESIGN AND CONSTRUCTION</b></p> <p>The chassis shall have the gross vehicle weight of not less than 25000 kg including of equipments, crewmembers, etc. and shall have the following dimensions:</p> <table style="margin-left: 40px;"> <tr> <td>Wheelbase</td> <td>:</td> <td>Approx. 5000 mm</td> </tr> <tr> <td>Turning circle</td> <td>:</td> <td>Not more than 20 m</td> </tr> <tr> <td>Road clearance</td> <td>:</td> <td>Not less than 230 mm</td> </tr> </table>	Wheelbase	:	Approx. 5000 mm	Turning circle	:	Not more than 20 m	Road clearance	:	Not less than 230 mm
Wheelbase	:	Approx. 5000 mm										
Turning circle	:	Not more than 20 m										
Road clearance	:	Not less than 230 mm										

			<p>Over-all width : Not more than 2.5 m  Height : Approx 3.6 m from ground level</p> <p>The chassis shall be 6x2 and the engine fitted on the chassis shall comply the respective emission norms in force at the time of delivery of chassis. The chassis shall be brand new with the following specifications.</p> <p>Engine : 6 cylinders in-line water cooled, turbo charged, diesel inter cooled engine developing not less than 180 hp and conforming to prevalent emission norms</p> <p>Clutch : Single plate dry friction type hydraulically actuated.</p> <p>Gear Box : Synchronesh gearbox with crawler gear.</p> <p>Front Axle : Heavy duty, forged, _I' beam.</p> <p>Rear Axle : Single reduction, hypoid gears, fully floating axle shaft with tandem axle.</p> <p>Steering : Integral hydraulic power assisted steering</p> <p>Brakes : Dual circuit fully air braking system with pneumatically operated parking brakes on rear wheels.</p> <p>Suspension: Semi- elliptical leaf spring at front and rear with hydraulic double acting shock absorber on front.</p> <p>Frame : Ladder type heavy duty frame with riveted / bolted cross members.</p> <p>Wheels and Tyres: As per manufacturer's design– 11 Nos. (including spare wheel)</p> <p>Fuel Tank : Minimum 160 liters capacity.</p> <p>Electrical System: 12/24 volts. 120 Ah capacity battery with Alternator.</p> <p>Cowl : Standard cowl duly painted in RED color with instrument cluster, rear view mirrors, Wiper system original driver seat, safety belts.</p> <p>GVW : Not more than 25000 Kg</p> <p>Safety features: Anti Lock Breaking System (ABS)</p> <p><b>2.9.3 ALTERNATOR UNIT</b></p> <ul style="list-style-type: none"> <li>➤ A 230 / 440 V, 50 cycle alternator shall be provided which shall be driven by vehicle engine through a suitable PTO.</li> <li>➤ The alternator shall be screen protected, continuously rated, self-regulating, self excited, class `E' insulation type, having an output of not less than 25 KvA at 0.8 power factor, 220 / 440 V Three phase, 50 cycles.</li> <li>➤ The alternator shall be equipped with a direct coupled flange mounted exciter which shall automatically keep the alternator voltage constant and provide an approximately straight line</li> </ul>
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			<p>voltage characteristic within 5 percent at all loads, and at any pre-set factor between 0.8 and unity.</p> <ul style="list-style-type: none"> <li>➤ Controls shall be mounted near the generator and shall consist of the following: <ol style="list-style-type: none"> <li>1. Three sockets (plugs) and switches with 3 phase connections</li> <li>2. Four sockets (plugs) &amp; switches (MCB's) with single phase connections of min. 15 AMP capacity</li> <li>3. Four sockets (plugs) &amp; switches (MCB's) with single phase connections of min. 10 AMP capacity</li> <li>4. RPM Meter digital – 1 No.</li> <li>5. KW meter – 1 No.</li> <li>6. Ampere meter separate for each phase – Total – 3 Nos.</li> <li>7. Frequency meter – 1 No.</li> <li>8. 32 Amps. TPN MCB – 1 No.</li> <li>9. Hand throttle control;</li> <li>10. Automatic voltage regulator</li> <li>11. Pilot lamp indicating the phases</li> </ol> </li> <li>➤ Two cable reels each with 30 m of cable shall be provided for single-phase connections. The cable shall be a 3-core heavy duty flexible cords 250 V grade having a conductor of cross-section 4 mm (128/0.20 mm) conforming to IS 434(Part 1):1964 or IS 694:1977 along with necessary plugs and sockets.</li> <li>➤ Two cable reels each with 20 m of cable shall be provided for Three phase connections. The cable shall be a 5-core heavy-duty flexible cords 440 V grade conforming to IS 434(Part 1):1964 or IS 694:1977 along with necessary plugs and sockets.</li> <li>➤ An earthing rod with 3 meters long flexible earthing cable (flat type) shall be provided and should be placed in a closed box near the control panel.</li> </ul> <p><b>2.9.4 BODY WORK</b></p> <p>Enclosed accommodation for six persons shall be provided in the driver cab-cum-crew compartment including the driver and the in-charge of the crew. Both the seats should be independent. The driver's seat should be adjustable and comfortable. The rear compartment of driver's cabin should have one removable seat for full width of cab for 4 (four) crew members. The cab floor except the mudguard arches should be covered with 3 mm thick Aluminium chequered plate and the mudguard arches shall be covered with 1.22 mm thick aluminium chequered plates rigidly fixed to the under frame cross members by means of nuts and bolts or riveting. Trap doors for topping up oil etc wherever necessary shall be provided.</p> <p>Two roof lights should be provided in the driver's cabin dwell vision and external rear view mirrors should be fitted to the cab.</p>
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The driver cum crew cabin shall be provided with full four doors, one for driver, one for officer and two at the crew compartment. The doors shall be generously sized for easy embarking / disembarking of crewmembers. All the doors shall be fitted on the super structural members, each hung upon three invisible coach type M.S. stout hinges and fitted with best quality handles.

The door handle on outside of driver seat shall have a locking arrangement. Other doors shall be lockable from inside. In addition to the doors locks, aluminum tower bolt of 8ll shall be provided for all the doors from inside Adequate grab rails shall be provided for easily boarding and alighting from the appliance.

The windscreen glass shall be provided in the two valves and shall be semi curved in shape. Each glass shall be fitted in E.P.D.M. rubber beading. The glasses shall be 5 mm thick toughened safety glass. The rubber beading used for fitting glasses and window frame shall be E.P.D.M. rubber.

### **2.9.5 SEATS**

The driver seat shall be adjustable type vertically, forward and backward. The officer seat shall be fixed type. Both the seats shall be rigidly fixed to the flooring by means of nuts and bolts.

The seat cushion shall be of latex foam rubber 75 mm thick upholstered in good quality foam leather cloth. The back seat shall be of latex foam rubber 50 mm thick upholstered in good quality foam leather cloth.

Below the crew seat, two lockers shall be provided. One for the batteries and another for keeping the accessories. The extra length of battery cable shall be provided if required.

The crew seat shall be rigidly fixed to floor by means of nuts and bolts, running full width of the vehicle suitable for sitting five firemen, covered with 75 mm x 50 mm cushion latex foam rubber upholstered in good quality foam leather of approved shade. 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.

The structure/frame work shall be of welded constructions and made from 2mm thick MS pressed sections and square tubes. The Angles and channels used shall be of min. 3mm thickness. The complete structure material shall be treated for anti corrosion by Zinc Plating. The plating thickness shall not be less than 20 microns. Two coats of Epoxy paint shall be applied to the completely welded structure.

The structure shall be so designed to avoid any vibration / ratting / deformation in the intended usage of the vehicle.

The Under frame cross members shall be done from MS rolled channels of 100 x 50 x 5 mm (Min.) and the Floor angles shall be done from 50 x 50 x 6 mm. The interior paneling shall be done from 1.22mm thick aluminum sheets & the exterior paneling shall be done from 1.60mm thick aluminum sheets.

### **2.9.6 LOCKERS**

The lockers should be provided for storage of all accessories. The lockers will have drawers as per the latest international standards i.e. roll in-roll out type with opening in tapered position giving very easy & immediate access to all equipments. All equipments should be stowed very scientifically & systematically in the drawers & each piece of equipment shall have its designated location so that at the time of EMERGENCY the required equipment can be very easily located & removed for use. Location of equipment (labels) should be provided on each drawer for immediate identification.

All the equipment should be properly clamped and strapped in the drawers to prevent shifting of the equipments while the vehicle is in motion. The drawer sides shall be constructed from aluminium angles of minimum 100mm X 4mm thickness and the bottom floor of the drawers will be made from min. 3 mm thick aluminium sheets and then covered with good quality neoprene rubber sheets.

The drawers should have self locking system to prevent accidental opening while the vehicle is in motion. The bottom edges of the drawers shall be covered with SS 304 angles of min 2 mm thickness. The roll-in-roll-out drawers should be made according to the required size suitable for the equipment that are to be stowed.

The lockers should be covered with Push-Pull type aluminium roller shutters only for faster & smoother rescue operation at the time of emergency.

The roller shutters shall be made from extruded aluminium sections with suitable roller, spring, guide channels etc. All aluminium sections used shall be properly anodized. The Roller shutters shall be rolled inwards underneath the roof giving unobstructed access to the equipment lockers and the firefighting material. These roller shutters should open in every position of the vehicle even in rough terrain. Guide rails shall support the shutters over entire length on both sides to make them absolutely torsion free.

The opening of the roller shutters should be done by means of a lift bar provided. 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.

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. These roller shutters should be durable, maintenance free, weather and corrosion resistant.

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. A master switch for isolating the locker lighting circuit shall also be provided.

Grab-rails and non-slip steps be provided wherever necessary. A ladder made out of S.S. round or square pipe of 1 1/2 diameter shall be provided at the rear of the appliance to provide easy access to the roof of the vehicle.

### **2.9.7 CABLE WINCH**

An electrically operated cable winch of not less than 6.5 tons pulling capacity (single layer) shall be provided. The winch unit should be complete with minimum 5.5 hp, 12v or 24v DC series wound electric reversible motor for pulling operations. The motor and solenoids shall be grounded to the battery. It shall have an automatic load holding brake system for holding the load. For free spooling the clutch design shall be easy to use type with spring loaded pull and rotate system. The gear system should be 3 stage planetary type for faster line speed and the gear reduction ratio shall not be more than 300:1 for maximum duty cycle, the rope drum shall not be of more than 8 inches diameter and shall be supplied with minimum 90 ft heavy duty galvanized wire rope with replaceable self locking clevis hook and shall be mounted on the front bumper of the vehicle with suitable strong supports and a 4 way roller fairlead. Weather resistant clutch housing and solenoid assembly for maximum durability under any weather should be provided. Winch shall be provided with a wireless remote control mechanism for ease of operation.

### **2.9.8 TELESCOPIC LIGHT MAST**

A compact, low profile, roof mounted folding type, lighting mast, fitted with 4 X 1500 watts waterproof halogen lamps. The mast shall be elevated and vertically extended up to 4.5m pneumatically from the rooftop. The mast shall be installed on the roof of the vehicle at a suitable location.

The light mast shall operate in temperatures of -40 deg.C up to 60 deg C, with anti-twist lock, with safety valve and drainage outlet valve.

The mast will be equipped with an internal spiraled electrical cable with 9 wires with a section each of 1.5 mm<sup>2</sup> and 13 wires with a section each of 0.22 mm<sup>2</sup>, the group of 13 wires will be screened. Each section of the mast should have a thickness of not less than 3.5 mm<sup>2</sup>.

The telescopic mast should be extremely resistant and designed with a minimum of 4 sections and it will be equipped with an internal spiraled



electrical cable with 9 wires with a section each of 1.5 mm<sup>2</sup> and 13 wires with a section each of 0.22 mm<sup>2</sup>, the group of 13 wires will be screened. Each section of the mast should have a thickness of not less than 3.5 mm<sup>2</sup>.

Each section of the mast should have a water drainage outlet. The folded and stowed height should not be more than 1800 mm. The Light mast will have Halogen flood light and reflectors in weatherproof casing. The floodlights on the top should have a minimum electrical rotation of 365° and a tilt of 310° Suitable connections for taking permanent Power Supply from generator set through an internal spiral wire mounted inside the mast should be provided.

A safety device must be added, by means of an infrared sensor that will stop the movement of the mast when tilting to the parking position in case any obstacle is detected on the way down.

All the functions of the mast, including extension and return to the original position, lights on/off, automatic restore should be capable of being done through a wired remote control. The same remote control must work without wire (wireless mode) through a male/female connector IP68 which keeps the battery under charge, whenever the remote is plugged and there is tension on the power circuit. Every single input given by the user, no matter which, will be confirmed by a visual led and an additional led will confirm the battery status; every single group of 2 lights when switched on will have a corresponding led alight on the remote control that will go off only when the lights will be switched off. Every single input given by the user on the remote control will make the whole remote keyboard alight for not less than 15 seconds.

### **2.9.9 MISCELLANEOUS**

A suitable bumper shall be provided at the rear rigidly fixed to the super structural members by means of nuts and bolts which is supplied along with the chassis

Two folding ladders made out of S.S. round or square pipe of 1 1/2 diameter shall be provided at the rear of the vehicle to facilitate access to the rear deck.

2 numbers of 1 1/2 diameter aluminum pipe railing with sufficient number of aluminum double socket brackets shall be provided to the rear body over the deck.

A heavy-duty Towing hook shall be provided and fitted the rear bumper by means of nuts and bolts.

Quick removable type wire mesh guard made from 1 1/2 X 1 1/2 size MS wire mesh of 16 SWG covered in MS angle frame shall be provided to all the glasses of driver-cum-crew cabin.

A 10.5 m 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.

#### **2.9.10 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.

#### **2.9.11 WORKMANSHIP AND FINISH**

The standard of workmanship and finish of all mechanical and other parts shall be such that the parts normally required to be replaced can be supplied and will fit in correctly.

##### **2.9.11.1 Painting**

- The complete structure material shall be treated for anti corrosion by Zinc Plating. The plating thickness shall not be less than 20 microns. Two coats of Epoxy paint shall be applied to the completely welded structure.
- The complete external and internal aluminum paneling of driver cum crew cabin and rear body shall be painted with two coats of Zinc Chromate paint.
- The complete exterior of the vehicle shall be painted with two finish coats of "POST OFFICE RED" polyurethane paint manufactured by ICI Dulux / Nerolac / Dupont or similar brands.
- The internal painting of cabin lockers etc. shall be done with two coats of Grey Synthetic enamel paint made by ICI Dulux / Nerolac / Dupont or similar brands.
- The name of the fire service/organization shall be painted on both sides of vehicle in letter of suitable size in golden yellow paint with black color shading.
- The "EMBLEM" of the department shall be painted on both sides of vehicle in natural colors at suitable place.

#### **2.9.12 INSTRUCTION BOOK AND ACCESSORIES**

##### **2.9.12.1 Instruction Book**

- Instruction book(s) for the guidance of the user, including both operating and normal maintenance procedures, shall be provided. The book(s) shall include an itemized and illustrated spare parts list, giving reference to all the wearing parts.

##### **2.9.12.2 Accessories**

			<p>The following accessories shall be provided in addition to these normally fitted on the chassis:</p> <ul style="list-style-type: none"> <li>• Fire bell 10” hand operated 1 No.</li> <li>• Siren operated on power supply of vehicle 1 No.</li> <li>• Fog lamps 2 No.</li> <li>• Reversing light to assist reversing 1 No.</li> <li>• Amber blinker type 1 No.</li> <li>• Trafficators blinker type 2 No.</li> <li>• Search light with 30-M cable reel 1 No.</li> <li>• Inspection lamp with brackets to be</li> </ul>
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			Sl. No.	Item	Quantity
			1.	<p><b>Self- Contained Breathing apparatus:</b></p> <p>The set shall be self-contained open circuit type compressed air breathing Apparatus set fully confirming to EN 137:2006 (type-2) or equivalent standard. Each Breathing Apparatus set shall be supplied inside a carrying box/ case.</p> <ul style="list-style-type: none"> <li>• Materials: The material used for the construction of BA set shall have adequate mechanical strength, durability, and resistance to deterioration. The material used for the construction of various parts of the set shall be as far as possible anti-static in nature.</li> <li>• Mass: The mass of the ready to use set with facemask back plate &amp; fully charged compressed air cylinder shall not exceed 13.00 kg.</li> <li>• Back plate (body harness): Anti-static back plate made from glass-filled polyamide material for resilience and impact resistance, with carbon fibre for strength fitted with a rubber shocker at the base. It shall be ergonomically designed with minimum two integrated moulded carrying handles.</li> <li>• Face mask: Full mask assembly shall be with reverted edge seal and made of Ethylene Propylene Dine M-rubber (EPDM)/silicone material with flame resistance requirement meeting EN 136:1998 clause III.</li> <li>• Air cylinder: The air cylinder shall have a minimum water capacity of 6.8 liters and free air capacity of min 2040 liters when filled at a pressure of 300 bar.</li> <li>• Valve to be in line type &amp; complied in accordance to EN/ISO/BIS standard.</li> <li>• The cylinder shall be aluminum lined, fully wrapped carbon composite materials.</li> <li>• The weight of the cylinder when fully charged shall not be more than 7 kg.</li> <li>• The cylinder shall be approved by PESO, India.(Petroleum &amp; explosive safety organization)</li> <li>• Pressure reducer: The set shall be supplied with a small, light, sturdy and encapsulated, high air delivery pressure reducer valve which directly be fitted to the cylinder valve assembly.</li> <li>• The pressure reducer valve shall have a high-pressure outlet and low-pressure outlet with a warning whistle.</li> <li>• The reducer shall be capable of supplying peak air flow at the rate 1400 lit/ min. &amp; 1000 lit/min at normal condition. The reducer shall be of the "balanced" type, ensuring that output pressure to the demand valve is stable and constant with varying input pressure down to 20 bars.</li> <li>• LUNG DEMAND VALVE (LDV):The set shall be provided with plug-in quick removable type lung demand valve(LDV) with a rubber hose having a quick connect coupling connected to the low-pressure side of pressure reducing valve.</li> <li>• Mechanical pressure gauge: The mechanical pressure gauge should be provided to check the pressure on the Cylinders. The mechanical pressure gauge should be self-luminescent</li> </ul>	4 sets

			<p>and it should rotate 360 degree.</p> <ul style="list-style-type: none"> <li>Hoses: The Single Line hose should combine Medium pressure supply for lung governed demand valve , High pressure supply for the gauge, Warning signal and 2nd manconnection</li> </ul> <p>It should have accessories like mechanical pressure gauge, hoses, rescue hood and smoke hood.</p>	
			<p><b>2.</b> <b>Chemical Protective suits 'A' type</b></p> <p><b><u>Chemical Suit:-</u></b></p> <p>Fully encapsulated, vapor-protective suit (Level A), expanded back, sealed seams inside and out, 48" zipper, double storm flap with Velcro®, 2 layer face shield (10 mil Teflon®/40mil PVC), 3 layer glove combination of Butyl®, North® Silver shield® and outer knit Kevlar®, 2 Pirelli® valves, attached sock boots with boot flaps, 1.5" waist belt with 3 belt loops sewn (inside) and sealed. Storage bag included. This garment offers Level A protection.</p> <p>Tychem® TK is the best protection you can wear in hazardous chemical environments. This line of chemical protective clothing is especially suited for protection against toxic, corrosive gases, liquids and solid chemicals. Developed by DuPont, Tychem® TK garments can be found in industrial, hazmat and domestic preparedness applications. They offer dependable protection with performance that has been proven over a wide range of chemicals</p> <p>Tychem® TK garments are extremely durable and puncture resistant. The chemical barrier properties of TK have been tested against 260 challenge chemicals. Permeation data proves the excellent protective capabilities of Tychem® TK. Tychem® TK garments are all lime-yellow in color, highly visible in both bright and dim light. Easily seen in hazy or smoky environments, this line-up of chemical protective clothing is the first line of defense</p>	nos.

**P E R M E A T I O N   D A T A**

**Permeation data for ASTM recommended list of chemicals for evaluating protective clothing materials (ASTM F1001)**

Chemical Name	Physical Phase	Normalized Breakthrough Time (min.)	Average Permeation Rate (µg/cm <sup>2</sup> /min)
Acetone	L	>480	<0.01
Acrylonitrile	L	>480	<0.0003
Ammonia Gas	G	>480	<0.1
1, 3-Butadiene	G	>480	<0.07
Carbon disulfide	L	>480	<0.02
Chlorine Gas	G	>480	<0.02
Dichloromethane	L	>480	<0.03
Dimethylamine	G	>480	<0.05
N, N-Dimethylacetamide	L	>480	<0.006
Ethyl Acetate	L	>480	<0.06
Ethylene Oxide Gas	G	>480	<0.1
n-Hexane	L	>480	<0.01
Hydrogen Chloride	G	>480	<0.1
Methanol	L	>480	<0.1
Methyl chloride	G	>480	<0.02
Nitrobenzene	L	>480	<0.1
Sodium hydroxide, 50%	L	>480	<0.1
Sulfuric acid, 98%	L	>480	<0.1
Tetrachloroethylene	L	>480	<0.01
Tetrahydrofuran	L	>480	<0.04
Toluene	L	>480	<0.02

> = greater than, < = less than

*For specific permeation data and breakthrough times for other chemicals, contact the DuPont Protective Apparel Fax-On-Demand Service at 1-800-558-9329.*

3. Chemical Protective suits 'B' type 4nos

**4. Fire entry suit :-** 2 nos

“Fire entry suit” shall be designed for the purpose of safety extinguishing fires that occurs during hazardous situation with a capacity to handle fire up to 1093<sup>o</sup> C temperatures. The suit consist of a coat with long sleeves, a double storm fly front, a pouch to carry the cylinder for the breathing apparatus, pants, a hood, boots and gloves, all constructed with multiple layers the garments that make of the fire entry suit are all stitched using superior quality DuPont 4-ply Kevlar thread. It shall be usually provided with adjustable strap while the pant hood can be kept in the built-in shell. In order to

provide thermal protection to the eyes, the fiber glass helmet has tempered glass and two gold plated lenses. The boots that accompany the suit are fitted with oil and hit resistant soles thus providing a fire fighter with complete security from any kind of fire related danger.

- The visor of the hood is made from mica and tinted polycarbonate. The helmet is manufactured using IS-2745 standard fiberglass helmet and attached with two elasticized straps for a better grip.

			<ul style="list-style-type: none"> <li>● The material technology, design, construction and workmanship should be certify to EN 1486.</li>   <li>● The suits outer material has a special aluminization technology called Dual Mirror which enables a much better rediant heat reflection compared to conventional aluminized fabrics. The base fabric is a knitted vergin, para-aramide that is extremely light in weight.</li>   <li>● The second layer is a moisture barrier which prevents water penetration.</li>   <li>● The third layer, i.e. the thermal barrier, consists of an Aramid/ Viscose FR inner lining quilted to two layers of inherently flame retardant felt. This to-layers felt enables more air to the trapped between the layers causing much better insulation against heat.</li>   <li>● Weight: - It should be 9 Kg to 10 Kg with boots (without SCBA and carrying case.)</li>   <li>● Garment layer:- <ul style="list-style-type: none"> <li>● Outer shell - Dual mirror Aluminized knitted KEVLAR fabric.</li> <li>● Moisture Barrier - FR non woven with PU membrane.</li> <li>● Heat Barrier - 2 layers of FR felt.</li> <li>● Inner lining - Aramide/ Viscose FR.</li> <li>● Sewing thread - 100% Kevlar dual mirror.</li> </ul> </li> </ul>	
		5.	<p><b><u>Fire proximity suits</u></b> - The suit should be a two piece design (Jacket &amp; Trouser) garment and should have an outer layer made of Inherent FR material followed by a Moisture Barrier and Thermal Liner (three layers minimum). It should have FR reflective tape on both garments for reflection in dark / smoky environment. Should be CE marked and certified to EN-469 standard. Should be supplied complete with a Multi Layer Fire Fighter Gloves CE marked and certified to EN659 standard; a Balclava Style Hood made of Inherent FR material – CE marked and certified to EN-13911 standard; A pair of Fire Fighter Gum Boots made of FR Rubber or Leather with pull-up loops, Steel Toe, Mid-Steel Sole. Boots should be CE marked and Certified to EN-345-2 standard; A Fire Fighter Helmet with visor and Neck Protector, CE marked and Certified to EN-443 standard.</p>	2 sets

			6.	Oxy-acetylene cutting set, complete with 5 l cylinders or equivalent and 10 m lengths of tubing, portable or trolley mounted	1 set
			7.	Oxygen cylinder, spare	1
			8.	Gauges for oxy-acetylene cutting plant, spare	1
			9.	Leather gloves <b>Hand Gloves (Ordinary working)</b>  The shell should be made of 10-gauge poly cotton coating material should be natural. Rubber latex finishing should be palm coated. Cuff Style should be knit wrist Length should be 220-260 mm colour of the shell should be grey and the coating should be in blue size availability: 7-10.It should be washable.	2 pairs
			10.	Goggles dark glasses	4 pairs
			11.	Chain tackle 2 tons (Chain pulley block)	1 set
			12.	<b><u>Tarpaulin 12 ft X 12 ft:-</u></b> a)Size :-12 meter x 12 meter, b) Material:- Made of water proof canvas cloth, its edges should secured by stitching a strip of similar cloth or otherwise of 1'' width along the periphery of Tarpaulin. c) Colour - Green/ Navy blue, <u>BIS Specification - 1,.</u> Basic fabric: shall be made from cotton duck or cotton canvas. Common proofing shall be prepared with the ingredients consisting essentially of paraffin wax, a suitable pigment and aluminium serrate. Resistance to microbial treating with suitable rot- proofing agent. 4. Sweating test- The common proofed canvas/ duck shall not stain the blotting paper when tested as prescribed Braking strength not less than 90% of specified value prescribed for the basic fabric. ( IS: 2089-1977)	2 nos.
			13.	Pulling and lifting machine, lifting 3 tonnes or pulling 5 tonnes and hook	1set
			14.	Portable, electrically operated, circular saws, 220 – 250V, single phase min 2500 W, 4500 RPM, with Disc Diameter max - 300 mm [12"], Arbor size - 22.2 mm, Weight – not more than 12kg, With soft start technology built in within electronic control box, Diamond Tip Blade of 12   dia, 5000 RPM, Arbor size - 22.2 mm, Thickness - 3.5mm – 2 Nos and Composite Blade of 12   dia 5000 RPM, Arbor size - 22.2 mm, Thickness - 3.5mm with a set of 5 blades having capability of cutting various material such as	1 no



			Rails, Aircraft alloys, vehicle panels, metal roller doors, wooden frames, etc.	
		15.	<p>Portable, electric drill with different size drill bits</p> <p>Electric Drill Machine:</p> <ul style="list-style-type: none"> <li>• Input power: - 450 W, No load speed: variable 0-3000 RPM. Light Weight</li> <li>• Shock proof body with different sizes of bits for both metal &amp; wood.</li> <li>• Electric drill bit Set (Complete set of 19 bits) Bits used for wood &amp; metal cutting, Bit Diameter: 1mm-10 mm, compatible with drill machine, Material; High speed steel, Hardness; 760 HV Min. 900 HV Max, Hand of cutting specified Right, Each center drill shall be covered with a suitable rust proofing material.</li> </ul> <p>Accessories</p> <ul style="list-style-type: none"> <li>• Drill bit for metal &amp; wood 2 sets</li> <li>• Drill reversible 2 sets</li> </ul>	1 set
		16.	Engineer's tools kit	1 set
		17.	100 ft long 16 mm dia BOB rope	2 lengt hs
		18.	40 ft long 12 mm dia BOB lashing lines	2 lengt hs
		19.	20 ft long 10 mm dia BOB rope	1 lengt h
		20.	100ft long 5/8 inch dia wire rope	1 lengt h
		21.	Hardwood blocks,assorted from 75 to 225 mm thick and 300mm	6 nos
		22.	<p><b><u>Spades:-</u></b></p> <p>Spade should be rectangular shape with provision to incorporate wooden handle. The material used for fabrication should be iron of suitable grade (Reputed Make).</p>	2 nos
		23.	Shovels (see IS 274 (part 1 and 2): 1981	4nos
		24.	Mattock,handle	2nos
		25.	Picks with handle see IS 273; 1973)	6nos
		26.	<b><u>Crow bars,</u></b>	4

			<ul style="list-style-type: none"> <li>• Size/ length- 36"</li> <li>• Diameter of rod- 1"</li> <li>• Material- made of tempered steel</li> <li>• Attachment- claw attachment for removing</li> <li>• The bar shall be heat treated to obtain a minimum hardness.</li> <li>• Material shall be suitable quality steel such as wrought steel.</li> <li>• The bars shall be forged clean and in one piece.</li> <li>• Cutting ends of the bar may be rounded off and finished ground.</li> </ul> <p><b>The item must be from reputed make</b></p>	nos
		27.	Sledge hammer 10 kg (see IS 841:1968)	2 nos
		28.	Hammer, 5 kg (see IS 841:1968)	2 nos
		29.	Rake, 3 prong (see IS 5991:1971)	2 nos
		30.	Rubber, gloves tested to 25,000 volts (see IS 4770:1968)	2 pair
		31.	Shears, bolt cropper, large with handle, 900 mm	2 pair
		32.	Shears, bolt cropper, small with handle 600 mm	2 pair
		33.	Fire mans Axe with carrying pouch	2 nos
		34.	Electric drill with spare bits Battery operated 2 mm to 10mm (rechargeable)	1 no.
		35.	<p><b>Circular saw with diamond blade</b></p> <p><b><u>Circular saw:</u></b></p> <ul style="list-style-type: none"> <li>▪ Electrically powered motor operating in 100 to 250 volts with power consumption between 1600 to 2500 watts. 15 ampere three core electrical cord of 5 meter length with three pin plug will be provided.</li> <li>▪ Idling speed of motor up to 2000 to 3000 rpm with a maximum load rpm of 1200 to 1500 rpm. The motor should have a minimum endurance for continuous operation up to 60 minutes</li> <li>▪ Should incorporate easily locatable push button start and an electric brake for quick stoppage.</li> <li>▪ Size of blade: More than 12 inches diameter with an arbor not exceeding 3.2cm (1,25inches) the blade provided will be carbide tipped blade with minimum 32 teeth.</li> <li>▪ The cutting capacity of the blade should exceed 125mm at</li> </ul>	1 no.

			<p>90 degrees and 82mm at 45 degrees. The saw should enable stable blade rotation and depth adjustment lever. A shaft lock will be provided for effecting blade changes.</p> <ul style="list-style-type: none"> <li>▪ The weight of the saw with blade should not more than 17kg.</li> <li>▪ Rubberized wrap around saw and support handles with protection arrangement for shielding operator from debris and kickbacks will be provided.</li> <li>▪ Noise level during operation at full load should not exceed 100 Db at a distance of one meter.</li> </ul> <p><b>Accessories</b></p> <p>The following accessories will be provided with each set:-</p> <ul style="list-style-type: none"> <li>▪ Two Spare carbide tipped blades</li> <li>▪ Tool kit.</li> <li>▪ Carrying case.</li> <li>▪ Operation and Maintenance Manual.</li> </ul>	
		36.	Chipping Hammer impact rate - 0-1400per/Min, Single impact force -38 -42 J min, Power input -1240 Watt, single phase 230 volts, Light in weight , shock proof body with required accessories, Less than weight 18 kg,With pointed and flat bit	1 no
		37.	Smoke blower & exhauster Exhaust pipe - 300 mm dia, flexible of 5 meter long. Motor 0.75 HP 2200 RPM, single phase, 230 volt. It should work on both side one for throwing Air out & other is for sucking the Air in from out side. Flexible pipe should be foldable type with wire core made from abrasion resistant material. The close size 1 meter max. and the extended size shall not be less than 5 meter. preferable yellow or any other bright colour.	1 no.
		38.	<p>Electrically operated chain saw</p> <p>Electric Chain Saw: 2 nos</p> <p>Chain saw wood cutting (Electrical) single phase AC/DC Voltage 220-250</p> <ul style="list-style-type: none"> <li>• Guide Bar Length: 16"</li> <li>• Chain Speed : more than 2,900 FRM</li> <li>• Chain pitch: 3/8"</li> <li>• Power Type: coded</li> <li>• Light weight</li> </ul> <p>Accessories</p> <ul style="list-style-type: none"> <li>• Replacement chain 2 nos.</li> </ul>	2 nos
		39.	<p>Petrol engine operated chain saw</p> <p>Chain saw one man operated:</p> <p>Petrol driven portable power saw having 2 stroke petrol engine displacement minimum 85cc &amp; engine power minimum 6.3hp. RPM-13500(Max.), 24"/610 mm guide bar, a high performance low vibration chain with square corner chisel cutters having pitch of chain to be 3/8". Dry weight of Power saw without Guide bar and chain should not be more than 7.5kg, vibration at front and rear handle should not be more than 7.0 m/second square, it</p>	1 no.

			<p>should designed to absorb less dust at air filters for avoiding frequent clogging, semi- automatic pull cord type start, with all control and safety device of reputed make. It should be light weight (it should be easy to carry/ transport, handle and operate by a person).The spares of the chain saw including chain and guide bar shall be new and unused and manufactured by OEM.</p> <p>The item to be new, unused and suiting to latest designed and specification and may have certification of ISI/ISO/or any recognized international standard/ national standard of quality test certificate.</p> <p>Accessories-Sturdy gloves-1 set, gum boots-1 set, Apron-1 no., Ear plug-1 set, Goggles-1 set, Helment-1 No. extra guide bar and spare chain-2 nos.</p>	
		40.	<p>Concrete Breaker having power input of not more than 1400 W, Impatc rate 42 joules, full load impact 1400 / min, bit shank size 30 mm hexagonal, weight not more than 17 kgs with accessories like carrying case, bull point and hexagn bar wrench m8 size.</p>	1 no.
		41.	<p>Diesel engine operated Portable generator 5 kva</p> <p>Engine: Direct injection naturally aspirated, Air-cooled engine, Single cylinder, 4 stroke diesel engine, confirming to ISO 3046 / BS 5514 has the following specifications:</p> <p>BHP: 8 (Min.)</p> <p>Governing System: Mechanical</p> <p>Starting System: 12V DC, 32Ah (min.) battery to start the 12 V DC electrical starter motor.</p> <p>Noise Level: &lt;75 dBA</p> <p>Alternator: Confirming to the standard BS-5000/ IS-4722 or equivalent standard.</p> <p>Power Rating at rated RPM-3000: 5 KVA/ 4 KW</p> <p>Power factor (Lagging): 0.8</p> <p>Frequency: 50 Hz</p> <p>Voltage: 230-240V AC, 1Phase</p> <p>Class of Insulation: H</p> <p>Acoustic enclosure– Powder coated, weather proof Canopy. Engine alternator assembly mounted on AVM with Silencer and S.S exhaust bellow suitably optimized to meet stringent sound emission standards as laid down by MOEF / CPCB.</p>	1 no
		42.	<p>High pressure pneumatic lifting bags</p> <p>Lifting Bag:</p> <p>1. The Pneumatic Lifting Bags should be portable and lightweight, and should be in set form, consisting of bags, hose</p>	1 set

			<p>assembles, Pressure gauges, pressure reducers, safety valve, Air bottle connector, and controller.</p> <p>2. Each set of high pressure airlift bags will an air-jacking system comprising two bags each on 5 sizes in term of maximum lift capacities, i.e. a total of 10 bags, with accessories. The totalled maximum lift capacity of one bag from each size should be in the range of 350 to 370 metric tons. The individual sizes should range between the maximum lifting capacities indicated below.</p> <ul style="list-style-type: none"> <li>• 20 to 22 tons</li> <li>• 35 to 38 tons</li> <li>• 52 to 55 tons</li> <li>• 85 to 88 tons</li> <li>• 95 to 98 tons</li> </ul> <p>3. Each set will be provided with the following accessories to operate all bags at a time:-</p> <ul style="list-style-type: none"> <li>• 10 inflation hoses 5 m long in five different colours (two each) with push lock couplers.</li> <li>• 10 inflation hoses 10 m long in five different colours (two each) with push lock couplers.</li> <li>• 5 dual control box/unit (Plastic Box), 12 bar, deadman</li> <li>• 5 single control units, 12 bar</li> <li>• 5 pressure reducers for air cylinders 200/300 bars.</li> <li>• 10 shut of houses with safety valve and 0.3 m hose</li> <li>• 5 compressed air cylinder 300 bar, 5 to 6 liters</li> <li>• 4 connection pieces for air cylinders</li> </ul> <p>4. The bags should be of multiple layers of Kevlar. Aramid construction. Bags should be square/ rectangular in shape. The insertion height of the bags should not exceed 25mm. The set of bags should provide lifting options from a minimum of 7 cm for the smallest size to more than 50 cm for the highest size.</p> <p>5. They should have anti-slip surfaces to provide good grip and high traction between the bag and surface of object to be lifted as well as when stacked on top of each other. Markings for centering should be provided along with fluorescent labels at corners for recognition in the night. Each bag should have its own storage bag.</p> <p>6. Operating pressure 12.0 bars. Bursting pressure should not be lower than 48 bars. Testing pressure to be flowed will be 1.5 times the operating pressure.</p> <p>7. Operating temperature – 20 to 50 degrees centigrade.</p> <p>Standards:-</p> <p>Equipment must conform to DIN EN 13731 standards for LIFTING BAGS and certifications will be submitted with tender.</p>	
		43.	<p>Jumping Air cushions type as per specs given below</p> <p>The jumping rescue cushions should have high reliability and shall be easy to handle and shall be capable of being fully</p>	

			erected by 4 to 6 persons. The possible jumping height shall not be less than 30 mtrs. It shall have illumination for night operations and shall be capable of being used in dusty conditions. The detailed technical specifications are as under:-																											
			<table border="1"> <tr> <td>Shape</td> <td>8 corner shape (octagonal)</td> </tr> <tr> <td>Outer Dimensions</td> <td>Not less than 5.50 X 5.50 mtrs</td> </tr> <tr> <td>Usable jumping area</td> <td>Not Less than 4.50 X 4.50 mtrs</td> </tr> <tr> <td>Jumping angle (30m height)</td> <td>9.74°</td> </tr> <tr> <td>Tube diameter of the inflatable frame</td> <td>22 cm ( 0,22 meters)</td> </tr> <tr> <td>Material of frame</td> <td>Natural rubber reinforced with polyester fabric 940 dtex, black</td> </tr> <tr> <td>Material of outer cover</td> <td>Fire retardant special PVC-coated polyester fabric, orange</td> </tr> <tr> <td>Material of jumping area</td> <td>Fire retardant special PVC-coated polyester fabric, white with black markings</td> </tr> <tr> <td>Compressed air cylinders</td> <td>2 x 6l/300bar or equivalent steel cylinders</td> </tr> <tr> <td>Erection time</td> <td>Not more than 75 sec. (depending on the used cylinders)</td> </tr> <tr> <td>Re-erection after a jump</td> <td>Not more than 10 sec.</td> </tr> <tr> <td>Weight of the complete device (with charged cylinders)</td> <td>Not more than 150 kg</td> </tr> <tr> <td>Packing</td> <td>It Shall be packed in a</td> </tr> </table>	Shape	8 corner shape (octagonal)	Outer Dimensions	Not less than 5.50 X 5.50 mtrs	Usable jumping area	Not Less than 4.50 X 4.50 mtrs	Jumping angle (30m height)	9.74°	Tube diameter of the inflatable frame	22 cm ( 0,22 meters)	Material of frame	Natural rubber reinforced with polyester fabric 940 dtex, black	Material of outer cover	Fire retardant special PVC-coated polyester fabric, orange	Material of jumping area	Fire retardant special PVC-coated polyester fabric, white with black markings	Compressed air cylinders	2 x 6l/300bar or equivalent steel cylinders	Erection time	Not more than 75 sec. (depending on the used cylinders)	Re-erection after a jump	Not more than 10 sec.	Weight of the complete device (with charged cylinders)	Not more than 150 kg	Packing	It Shall be packed in a	
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		44.	Leak sealing bags	1 set																										
		45.	<p>Hydraulic Spreader</p> <p>The spreader shall be operated by an electrical cable with back-up of incorporated rechargeable battery as power pack. No separate hoses or external hydraulic power units are acceptable. Tools with outside (external) separate batteries are not accepted. The energy pack shall integrated tool itself. This heavy duty electro-hydraulic rescue spreader of minimum spreading opening shall be not less than 600 mm. Maximum spreading force shall not be less than 150 KN, minimum pulling force shall not be less than 45 KN, the pulling chain set shall be quick adjusting without the need and special tips for pulling. The pulling chain shall be equipped with safety hooks in order to mount the chains easy to any object of whatever size or shape. The operational weight of the spreader shall not be more than 23 KG. The spreader shall be operated by an electrical cable and incorporated rechargeable battery. The spreader to be as per EN 13204 / NFPA or equivalent certified, the certificate should be enclosed with the offer.</p>	1 no																										

			<p>Accessories: 1. spare tip - 1 sets, rechargeable battery with charger- one no- LI-Ion with spare battery which provide constant power to the tool without affecting its performances, the operation time not less than 30 min. 3. Electric power supply cables can be connected any AC power outlet. The cable has to be equipped with electric power equalizing filter to hold the voltage constant even in the event of power fluctuation. High efficient electric rectifier from 110/ 230 V AC compatible to DC battery protected by an impact resistance click in adopter fixed on the tool. The control cable shall be protected and highly insulated to withstand rough handling during rescue operation. Pulling chain set- 1set</p> <p>Standard:</p> <p>Required necessary certification must be provided with offer.</p>	
		46.	<p>Hydraulic Cutter</p> <p>Equipment shall be tested for safety according to EN 13204 (European standard) / NFPA 1936 (US standard). Certificates shall be provided with the offer. This specification defines the technical and functional requirements for an electro/ hydraulic rescue set operated only by integrated internal hydraulic power supply to be used for rescue operation by fire brigades and special rescue teams in case of traffic accidents, building collapse and natural disasters confined space rescue, high raise building rescue etc.</p> <ul style="list-style-type: none"> <li>• The equipment shall be able to work without failure in heavy dust, high humidity, heavy tropical rain conditions and temperatures from -25°C to +55°C.</li> <li>• 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 with back up of a rechargeable high capacity LI / Ion Battery.</li> </ul> <p>The cutter shall be operated by an electrical cable with back up of incorporated rechargeable battery only. No separate hoses or external hydraulic power units are acceptable. Tools with outside (external) separate batteries are not accepted.</p> <ul style="list-style-type: none"> <li>• The cutter shall have curved design blades with the highest cutting performance in the effective cutting range and shall be able to cut round steel bars up to a diameter of not less than 30mm. Working pressure: minimum 700 bars.</li> <li>• The blades shall be designed to set the material to be cut in the optimal cutting position and the material cutting process shall be as smooth as possible w/o mechanical impact. Straight blades are not permitted The blades shall be dropped-forged of high tensile tool steel, well grinded for optimum grip, high-pressure glass-pearl blasted, fully hardened, surface treated, regrind able and easily replaceable.</li> <li>• The blade opening shall be not less than 150 mm.</li> <li>• Operational weight : not more than 20 kg</li> <li>• Classification according to EN 13204. BC Cutter G Cutting class ( 1G,2G,3G,4G,5G)</li> </ul>	2 nos

			<p>Classification according to NFPA “ A7 / B7 / C7 / D 7 / E 7</p> <p>Certificates must be provided with the offer.</p> <p>Accessories</p> <p>Rechargeable Battery</p> <ul style="list-style-type: none"> <li>• Each individual electro/ hydraulic tool shall be supplied with a back up rechargeable high capacity LI / Ion – Battery w/o memory effect which provides a constant power to the tool for an Intermediary Rescue Scene operation time of not less than 30 Minutes. In addition spare battery to be supplied with each tool.</li> <li>• LED – Light on the Battery shall indicate the charging state.</li> <li>• The recharging time of the Battery shall no longer than 70 minutes.</li> <li>• The self discharge of the battery shall be as less as possible</li> <li>• The battery shall be fixed on the tool by a clip mechanism which must withstand rough handling and cutting impacts.</li> </ul> <p>Electric Power supply cable</p> <p>The electric power supply cable shall be equipped with :</p> <ul style="list-style-type: none"> <li>• an electric power equalizing filter to hold the voltage constant even in the event of power fluctuation</li> <li>• a high efficient electric rectifier from 110 / 230 Volts AC to 26 Volts DC protected by an impact resistant click in adapter fixed on the tool.</li> <li>• The rectifier adapter shall be replaced easy and fast by the rechargeable battery w/o the use of special tool but only by click mechanism.</li> <li>• The control cable shall be protected and highly insulated to withstand rough handling during rescue operation .</li> <li>• The electric power supply cable shall be connected to any AC power outlet 110 V / 230V. Either directly or through an electric reel no matter of which length.</li> </ul> <p>Spare Blades - 1 pair</p>	
		47.	<p><b><u>Hydraulic Combi Tools</u></b></p> <p>Hydraulic Combi Tool shall be operated by an electrical cable with back-up of incorporated rechargeable battery as power pack. No separate hoses or external hydraulic power units are acceptable. Tools with outside (external) separate batteries are not accepted.</p> <p>This electro hydraulic combi tool shall have minimum working pressure 700 bar, minimum cutting force 360 KN., minimum cutting dia. 30 mm round, minimum spreading force 35 KN., minimum spreading distance 360 mm, minimum pulling force 41 KN., minimum pulling distance 360 mm. The EN 13204/ NFPA certificate should be provided with the offer. The certificate should be enclosed with the offer. The pulling chain set shall be quick adjusting without the need &amp; special tips for pulling. The pulling chains shall be equipped with safety hooks in order to</p>	2 nos



			<p>mount the chains easy to any object of whatever size or shape. The maximum weight shall not exceed 21 Kg.</p> <p>Accessories: rechargeable battery- one no- Li/Ion which provide constant power to the toll without affecting its performances. The operation time not less than 30 minutes. The charging time battery should not more than 70 minutes. 3 electric power supply cable- can be connected any AC power outlet. The cable has to be equipped with electric power equalizing filter to hold the voltage constant even in the event of power fluctuation. High efficient electric rectifier from 110/ 230 V AC to 26 V DC protected by an impact resistance click in adopter fixed on the tool. The control cable shall be protected and highly insulated to withstand rough handling during rescue operation. The equipment &amp; accessories should be new, unused and should conform to latest design &amp; specifications.</p> <p>Pulling chains and pulling adaptors should be supplied with the tool.</p> <p>Standard:</p> <p>Required necessary certification must be provided with offer.</p>	
		48.	<p>Hydraulic Telescopic Ram as per the following specs</p> <p>Spreading force of 1st plunger – not less than 20 Ton</p> <p>Spreading force of 2nd plunger - not less than 8 Ton,</p> <p>Length retracted including cross head – less than 600 mm</p> <p>Total Length including cross head – not more than 1300 mm,</p> <p>Stroke of 1st plunger - not less than 375 mm</p> <p>Stroke of 2nd plunger - not less than 350 mm</p> <p>It should have rotating cross head for easy positioning &amp; perfect grip in every positioning, accurate spring return to neutral position, maximum rotation to the right and to the left only 22 degree, full protection against overload, with all accessories like maintenance kit. The equipment &amp; accessories should be new, unused and should conform to latest design and specifications. The tool should have only 1 quick coupler directly connected to the tool without hoses</p>	1 no.
		49.	<p>Rescue Ram as per the following specifications :-</p> <p>Minimum spreading force - 16 Ton,</p> <p>Minimum length retracted including cross head – less than 1000 mm,</p> <p>Maximum length including cross head - less than 1750 mm</p> <p>Pulling force not less than – 5 tons,</p> <p>Stroke - min 2 X 325 mm,</p> <p>No. of Plungers – 2</p> <p>It should have rotating cross head for easy positioning &amp; perfect grip in every positioning, accurate spring return to neutral position, maximum rotation to the right and to the left only 22 degree, full protection against overload, with all accessories like</p>	1 set.

			a maintenance kit. The equipment & accessories should be new, unused and should conform to latest design and specifications. . The tool should have only 1 quick coupler directly connected to the tool without hoses											
			50. Hydraulic light weight aluminium jack as per the following specifications :- Lifting Capacity - Not less than 50 tons Closed Height - Approx 150 mm Stroke - Approx 50 mm Weight - Not more than 7.5 kg	1 no										
			51. Hydraulic light weight aluminium jack as per the following specifications :- Lifting Capacity - Not less than 50 tons Closed Height - Approx 200 mm Stroke - Approx 100 mm Weight - Not more than 9.5 kg	1 no										
			52. Hydraulic TOE jack with accessories - It should be Single acting hydraulic tool suitable for lifting heavy vehicles; trams or machines to free victims or objects that are trapped after an accident.	1 no										
			<table border="1"> <tr> <td>Max. centric force on the saddle :</td> <td>not less than 11 tons</td> </tr> <tr> <td>Max. force on toe :</td> <td>not less than 9 tons</td> </tr> <tr> <td>Closed height :</td> <td>not less than 440 mm</td> </tr> <tr> <td>Extended height :</td> <td>not less than 685 mm</td> </tr> <tr> <td>Weight :</td> <td>not more than 21 kg</td> </tr> </table>	Max. centric force on the saddle :	not less than 11 tons	Max. force on toe :	not less than 9 tons	Closed height :	not less than 440 mm	Extended height :	not less than 685 mm	Weight :	not more than 21 kg	
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Weight :	not more than 21 kg													
			53. Hydraulic door opener complete with a 2 stage hand pump. The spreading force shall not be less than 9 tons and the stroke shall not be less than 125 mm. A swiveling type connection with 30 cm long hose shall be provided.	1no										
			54. Hydraulic Pedal cutter shall have straight blades, one fixed and one moving, with a cutting force of at least 75 kN (7.7 ton). It shall be suitable to cut metal parts like car pedals, steering wheels, seat frames etc The opening in the jaw shall be at least 40 mm, whilst the width of the jaw shall be no more than 40 mm to use the cutter in confined spaces. It shall have a 360° rotation elbow, 30 cm pigtail hose and quick coupler	1no										
			55. Hydraulic pump for 2 tools simultaneous operation with 15 mtrs long hose as per the following specifications :- Engine - Petrol engine Capacity oil tank (effective / usable) - Not less than 3.6 litres Pump type - 2 stage radial pump Weight - Not more than 25 kgs No. of tools connected - Two No. of tools to be operated simultaneously – Two	2 no										

			56. Hydraulic foot / hand operated pump mounted on suitable base plate with 10 mtrs long hose. The pump shall have two-stage operation and shall be capable of developing adequate pressure for operating all the tools including the telescopic ram upto their full capacity	1 no
			57. Coaxial hose having pressure line inside the return line for use with the hydraulic tools 10 mtrs long orange and blue color – 1 each	2 nos
			58. Hose reel with 25 mtrs long high pressure coaxial hose having pressure line inside the return line for use with the hydraulic tools	1 no.
			59. <b><u>Power Shoring system</u></b> Versatile and easy to assemble emergency shoring system providing quick and reliable stabilization for every rescue situation. Consisting of various lightweight, fully compatible components with snap-lock connection, enabling both shoring and lifting. Shoring at various angles possible. <ul style="list-style-type: none"> <li>• Retracted length mm:1092</li> <li>• locking system: Auto Lock</li> <li>• Stroke mm: 252</li> <li>• weight kg:13.0</li> <li>• working pressure:720 bar</li> <li>• force at working pressure KN / t : 100/10.1</li> <li>• oil content at max. stroke cc:400</li> <li>• To be used in combination with struts with hydraulic cylinder hand pump, oil content 700 cc, weight ready for use 9.9 kg, pressure gauge 0-720 bar, rubber protection cover for pressure gauge, hose 3 metres with quick-coupler.</li> </ul> Heads & Other Accessories: <ul style="list-style-type: none"> <li>• Flat head - aluminum. For support against a flat surface; 0.3 kg; Ø 89 mm.</li> <li>• Pointed head. For use in e.g. narrow gaps; 1.2 kg; Ø 89 mm.</li> <li>• Flat head with nailing plate - aluminum. For support against a flat surface; with nailing holes; 0.8 kg. 150 x 150 mm.</li> <li>• Base support plate. Can support 3 swivel heads and is suitable for the use of up to 3 tensioning belts to create a stable triangle; 4.0 kg.</li> <li>• Tilting head - aluminum. For support on uneven or tilting surfaces. Max. Angle 45 degree in all directions; 1.7 kg, 95 x 95 mm.</li> <li>• Trench support plate - zinc plated steel. Can be nailed to wooden plates to support 2 swivel heads in e.g. a trench; 0.9 kg; 280 x 110 x 75 mm.</li> <li>• Tilting head with nailing plate - aluminum. For support on uneven or tilting surfaces; with nailing holes. Max. Angle 45 degree in all directions; 2.5 kg, 150 x 150 mm.</li> <li>• Tensioning belt. Length 4.0 m, width 35 mm, weight 1.4 kg, load 10 kN.</li> </ul>	1 set

			<ul style="list-style-type: none"> <li>• Beam support head. For use with beams up to 150 mm; with nailing holes; 1.7 kg.</li> <li>• Adjustable hook wrench. To create a preload with the MS 2 L 2+. Two pieces are advised.</li> <li>• Beam support head. For use with beams up to 100 mm; with nailing holes; 1.2 kg.</li> <li>• Rope with carabine hook. To lower struts, e.g. into a trench.</li> <li>• L-support head. For use with wide beams; with nailing holes; 1.0 kg.</li> <li>• Rubber anti-roll block. Prevents struts and extensions from rolling on uneven surfaces and protects against dirt and damage.</li> <li>• Swivel head - aluminum. Can be placed in almost any position and against each other for mutual support; 2.0 kg.</li> <li>• Storage / carrying bag for accessories.</li> <li>• V-block head small- aluminum. For support of pipes; 0.7kg; Ø 89mm.</li> <li>• Storage / carrying bag for struts and extensions.</li> <li>• V-block head large - aluminum. For support of pipes; 1.7 kg. Opening x width 141 x 100 mm.</li> <li>• 2-way block. To support 2 tilting heads.</li> <li>• Cone head. For support on concrete or steel surfaces; 0.5 kg; Ø 89 mm.</li> <li>• 3-way swivel head. Contains 3 integrated swivel heads for use with up to 3 shoring lines in various directions.</li> <li>• Cross head. For use on many kinds of surfaces; 1.1 kg.</li> <li>• No hand pump for operating struts with hydraulic cylinder.</li> <li>• Extension pipe 125mm 1 no.</li> <li>• Extension pipe 250mm 1 no</li> <li>• Extension pipe 500mm 1 no</li> <li>• Extension pipe 1000mm 1 no</li> </ul> <p>Connector 1no.</p>							
		60.	<p>Glass breaker (window punch)</p> <table border="1"> <tr> <td>short description</td> <td>Glass Master</td> </tr> <tr> <td>weight, ready for use kg</td> <td>1.0</td> </tr> <tr> <td>dimensions (LxWxH) mm</td> <td>420 x 245 x 35</td> </tr> </table>	short description	Glass Master	weight, ready for use kg	1.0	dimensions (LxWxH) mm	420 x 245 x 35	1 no
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		61.	<p>Evacuation system (rope rescue with tripod and descenders etc) consisting of a Tripod with rope rescue modular evacuation device ratio 3:1. The weight of the Tripod should not be more than 15 kgs and should have 4 point SS anchoring system on the top with Aluminium die cast locking system. All the three sides of the tripod should allow entry of the person without obstacles like chain etc. The load carrying capacity shall be 500 kg and the breaking strength of 1000daN. Their shall be 8 adjustable index positioning. A harness shall be provided consisting of 1 Dorsal attachment D ring / 1 Rescue D ring (rear), 2 Lateral attachment D rings, Positioning belt, Fully adjustable shoulder and thigh straps, net weight 1.6 Kg., and Rescue strap with hooks for 2nd person. It shall also have a ascending / descending device of 100 operating range with 400 mtrs braided rope of polyamide material</p>	1 set						

			<p>of 9 mm dia. The braking of descending load shall be by the friction of the rope on the drum, while a ratchet gear facilitates ascension Control and Descent Speed. The Permissible Load shall e 250 Kg with pulley reduction ratio of 3:1 The weight of this unit shall not be more than 1.75 kg. A ascending and locking handle made of light alloy shall also be provided with special gear belt for rope rescue and sit harness.</p> <p>A descent control device for mass evacuation from high rise buildings and public places consisting of 32 mtrs. Descent controller with all the accessories The features should include Automatic cable rewind, Self control speed of 1.20 per sec., Equipped with centrifugal brake, Load carrying capacity 150 kg. Metallic casing dully painted and shall have stainless steel cable of 5 mm dia and rescue strap. The weight of the unit shall be about 22 kg</p>	
		62.	<p>Search Camera - <u>Purpose</u> :</p> <p>This victim location system is electronic equipment for location and rescue of trapped victims. With this equipment, light and easy to carry, it is possible to explore the ruins, collapsed structure caused by earthquake, explosions, landslides, construction cave-ins or mine disasters and to communicate with victims via the microphone incorporated in the camera. The system should comprise of a telescopic boom with a camera, able to turn through 360° fixed to the end and connected to a portable control box screen.</p> <p><u>Capabilities required:</u></p> <ul style="list-style-type: none"> <li>• The systems primary configuration should be based on a video camera built at one end of a telescopic boom which can reach out into depths and void spaces up to a distance of 2m. This boom shall be extended telescopically and shall have 4 sections giving a total length of 2m and shall be fitted with minimum 5m of cable. Provision should also be made to manually lock the telescopic boom at the distance required.</li> <li>• The video camera shall have a colour display with a sensitivity of 0.5 lux and shall have 6 white LED lights which will allow visibility in pitch black conditions to a distance of 4 m. The camera head shall be able to rotate 360° without stop (infinitely). A speaker and a microphone shall be built into the body of the video camera, which will allow communication with the trapped person through a head-set.</li> <li>• The system shall have a control box for the operator which will be fitted with a minimum 7-inch, LCD colour screen, TFT active matrix, and shall be stored in a leather protective case with adjustable shoulder strap.</li> </ul>	1 no

			<ul style="list-style-type: none"> <li>• The system shall also be provided with mono headphones fitted with dynamic microphone with anti-disconnection plug which will allow the operator to communicate with the victims via the speaker and microphone built in the video camera. The cable length shall be minimum 1.5 mtrs</li> <li>• There should be provision for attachment of an additional headset for use by a third person like an interpreter or a doctor etc</li> <li>• The system design shall be such that it would not require more than 2 persons to operate, one operator to handle the probe, and the second for the control box: of the probe to see and search through the screen, communicate with victims.</li> <li>• The system shall have an inbuilt battery, 12V - 4.5 Ah battery, Ni-MH technology with an intelligent charger. The battery shall allow minimum 4.5 hours of continuous usage of the system and should be able to be fully charged in 4 hours. The system shall be equipped with an audible alarm which will warn the operator when the battery is low. A suitable Cigar-lighter adapter shall be provided to enable the charge the battery in a vehicle if necessary</li> <li>• An additional water proof camera capable of being used at a depth of 60 mtrs with 60 mtrs cable mounted on reel shall be provided. The camera shall be IP 67 compliant and shall give colour display. The camera should rotate 360 deg. and shall have integrated LED lights. Speaker and microphone shall be integrated in the body of the camera</li> </ul> <p>The system shall be capable of being operated in temperature range -10° to +60°C</p>	
		63.	<p><b>Life Detector:-</b></p> <p><b>The life detector should be a hand held instrument designed to quickly locate leaving human being from behind barriers-trapped under debris of structural collapsed, from building in smoke or even stuck under water by detecting electric field generated by human heart or any other human property. The instrument should be able to detect leaving human beings from far off distances as long as at least 350 to 400 m in open air and at least from 150-200 m when behind barriers (any type of barriers including multiple layers of concrete slab debris, steel structures, mud and slides snow-avalanche, under water etc. The instrument should not need any power supply so that it can be used in disaster emergencies. The life detector should not detect</b></p>	1no

			<p>any animals or creatures and should be such that its performance should not be affected by presence of other machinery/instrument.</p> <p><b>Acoustic based victim location unit</b> - The equipment is an acoustic listening device, light weight and easy to carry. Designed especially to detect and locate trapped, live victims in collapsed structure caused by earthquake, explosions, landslides, construction cave-ins or mine disasters. The slightest noise the victim makes should be detected by this device and so the sensitivity is exceptional. It is fitted with an adjustable filter to deaden the effect of dull noises like pneumatic drills, lorries passing...</p> <p><b>Capabilities required:</b></p> <ul style="list-style-type: none"> <li>• <b>Housing/Amplifiers &amp; filters:</b> IP66 housing with bar-graph for adjustment with IP 68 connectors.</li> </ul> <p>Two very high gain, low noise amplifiers.</p> <p>Two frequency filters "high pass and band pass" infinitely variable, filters activated by 2 keys (the chosen frequency is infinitely variable using the + and - keys)</p> <p>Filter 1: High pass filter" significantly reduces all frequencies below its adjustment point, which may be between 50Hz and 5 kHz which correspond respectively to the low and the high points on the liquid crystal scale. It will eliminate bass sounds such as lorry movements, dull noises...</p> <p>Filter 2: " "Band pass filter" significantly reduces low and high frequencies on either side of its turning point. It will filter an incoming signal.</p> <ul style="list-style-type: none"> <li>• Sensors: Two ultra-high sensitivity black vibration sensors with 8m of cable - One sound sensor fitted with a microphone and a loud speaker with 8m of cable.</li> <li>• Headset: One stereo head-set with microphone</li> <li>• Batteries: One pack of 6 rechargeable Ni/Mh batteries type LR6/AA (operating life 30h)</li> </ul> <p>One accumulator charger (usable at 50/60Hz 100v to 240v)</p> <p>One cigarette lighter charger plug with wire to be use in a vehicle.</p> <ul style="list-style-type: none"> <li>• <b>Specifications:</b> Operating temperature: -10° to +60°C</li> </ul> <p>Storage temperature: -25°to +70°C</p> <p>Total weight: 2kg (in use) / 8 kg (with carrying case)</p> <ul style="list-style-type: none"> <li>• Carrying case: One carrying strap and one shock proof carrying case</li> </ul>	
65.			Loud hailer battery operated	1 no
66.			Inflatable lighting tower with inbuilt 4 stroke petrol engine driven generator of 1200 VA with 400 watts high pressure Metal halide lamp, inflatable height of 4 mtrs with 2 blowers for balloon inflation. It should be possible to use the unit through AC mains.	1 no

			Weight not more than 45 kg	
			67. Pipe wrenches 12   & 24	1 each
			68. Wrench adjustable 12	1 no
			69. Slotted screw drivers	1 set
			70. Orange paint can	1 no
			71. Plywood (Marine grade) 1.25 m X 2.5 m	1 no
			72. Wood wedges	4 nos
			<p>73. Search light (Rechargeable)</p> <p><b><u>SEARCH LIGHT.</u></b></p> <p>It must be one piece portable search light fitted with high powered LED lights.</p> <p>The search light should be fitted with Lithium ION battery.</p> <p>Minimum dia 115 mm (<math>\pm</math>) 5%. The search light should be provided with inbuilt charger for charging up 12V. battery.</p> <p>The maximum charging time should be 8 hours.</p> <p>There should be provision of single push type on/off switch. Its body should be made of super tough glass filled nylon or polycarbonate of minimum 3mm thickness.</p> <p>The spotlight shall have a attachable handle. It should be effective long range type.</p> <p>The firm shall provide warranty for one year on product and the battery.</p>	2 nos
			<p>74. <b>Inflatable boat for 10 persons with 40HP (2 stroke ) OBM.</b></p> <p>Inflatable Rubber Boats made of Nylon / Polyester fabric coated with Hypalon rubber on the outside &amp; polychloropreneinner side, meeting ISO 15372.</p> <ul style="list-style-type: none"> <li>• Material Density- 1500 GSM, 1670 Dtex- Hypalon / Neoprene coated fabric, as per latest ISO 6185-3 standard.</li> <li>• Dimension: Length overall: 4.70mtr. to 5.0 mtr. Breadth Overall: 2.00M (Dimension variation <math>\pm</math> 0.5% maximum) Buoyancy Collar Diameter: 0.50 to 0.55 meter,</li> <li>• Boat Carrying capacity:- 10-12 persons or 1000kg Cargo</li> <li>• Buoyancy Chamber: Minimum 4+1 keel.</li> <li>• Floor Board: Marine Grade Aluminium Flood Board, Interlocking type, so as to form a rigid floor that does not vibrate/ chatter at higher speed. Joiners and Stringers to be of Marine</li> </ul>	1 no



				<p>Grade Imported Aluminium only.</p> <ul style="list-style-type: none"> <li>• Transom: Heavy duty rigid transom fitted with OBM mounting plate (SS-304). Height of transom should be 0.40 m suitably strengthen to fit 40 Hp (2 stroke) OBM.</li> <li>• Reinforcement: Heavy duty rubbing strakes underneath keel and all around the tube, Anti chafing strips on top buoyancy, OBM clamp plate in transom</li> <li>• Fittings: Life Line- Inside &amp; Outside <ul style="list-style-type: none"> <li>Towing Hook - 2</li> <li>Lifting Hook - 4</li> <li>Carrying Handle - 6</li> <li>Storage Pocket - 2</li> <li>Drain Plug - 2</li> </ul> </li> <li>• Accessories: Foot Pump (Heavy duty) 2 <ul style="list-style-type: none"> <li>Anchor 1</li> <li>Anchor Rope 30 mtr</li> <li>Oars 2</li> <li>Boat Valise 1</li> </ul> </li> </ul> <p>(Made of tear resistant coated nylon fabric)</p> <ul style="list-style-type: none"> <li>Repair Kit 1</li> <li>Lifebuoy 2</li> <li>Life jacket 10</li> </ul> <ul style="list-style-type: none"> <li>• Approval: Drawing, design &amp; building of the boat to be approved by IRS (Indian Register of Shipping), RINA or any other IACS member &amp; certificate of Inspection by IRS to be provided for each boat at the time of delivery.</li> </ul> <p><b><u>Out Board Motor (Two stroke)</u></b></p> <ul style="list-style-type: none"> <li>• OBM Engine: 40 H.P.2 stroke Mercury/ Mariner/ Johnson/ Evinrude or Equivalent Make, petrol operated (two stroke), rope start, manual drive and fuel efficient with accessories two paddles system for emergency rowing.</li> <li>• HP/ Kw: 40/29.8</li> <li>• Displacement (CID/CC: 42.5/697</li> <li>• Cylinder Configuration:1-3</li> <li>• Full Throttle RPM: 5000-5700</li> <li>• Fuel Induction System: Loop-charged (3 carb)</li> <li>• Starting: Manual</li> <li>• Steering: Tiller</li> <li>• Shaft Length: 15"381mm, 20"/508mm</li> <li>• Gear case Ratio: 1.85:1</li> <li>• Dry Weight: 72-75 Kg</li> <li>• Bore and Stroke:68X64</li> <li>• Trim System: Manual</li> </ul>	
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			<ul style="list-style-type: none"> <li>• Oil Injection: Pre Mix</li> <li>• Accessories: Fuel Tank - 1no <ul style="list-style-type: none"> <li>○ Fuel attachment – 1 Set</li> </ul> </li> </ul> <p>Repair Kit - 1no</p>	
		75.	<p><b>BA compressor :</b></p> <p>The COMPRESSOR will be a portable High Pressure breathing air compressor used to fill SCBA/SCUBA set cylinders with pure breathable air.</p> <ul style="list-style-type: none"> <li>▪ The compressor will be a portable one with FAD of not less than 100 LPM± 5%.</li> <li>▪ The Operating Pressure should be suitable for SCBA and SCUBA Cylinder. Max working pressure should be 300 bar.</li> <li>▪ The delivery pressure will be achieved in maximum three stages of compression.</li> <li>▪ Suitable 4 stroke petrol engine of reputed make with rope start</li> <li>▪ Breathing air quality should be confirming to EN 12021 – 2014.</li> <li>▪ V. Belt drive, Splash type lubrication</li> <li>▪ Two Filling hoses, both kink protected on compressor side. One filling hose for 200 Bar and other filling hose for 300 Bar or one meter long hose with filling adapter for 300 bar (DIN Type) with special provision/adaptor so that same can be used to refill 200 Bar cylinder. Both hoses should be of max one meter length, Have pressure gauge mounted on its respective filling valves.</li> <li>▪ Final stage safety relief valve fitted on compressor with CE Mark embossed on it. One set at pressure 225 &amp; other set at pressure 330 bar.</li> <li>▪ Operating Temp should be 5 deg C to 45 deg C</li> <li>▪ Air Cooled Compressor Speed 2300 rpm</li> <li>▪ Material of construction of Protective Covers to protect from moving parts such as fan, pulley &amp; belt should be Non Corrosive &amp; non rusting UV resistant advance plastic material</li> <li>▪ Tool kit for compressor, operating instructions and compressor oil as well as engine oil with 2 final stage filter will be supplied with each machine.</li> </ul> <p><b>Required standard certification of National/ International of above equipment for safety shall be submitted with offer.</b></p>	1 no
		76.	<p><b>Thermal Imaging camera</b></p> <p><b><u>Thermal Imaging Camera:</u></b></p> <p>It should be capable of viewing object and persons in total darkness or more smoke filled conditions. It should also have integrated temperature measurement with digital</p>	1 no.

display. The thermal imaging camera should be NFPA 1801 compliant and have following specifications:

Detector Type

Focal plane array (FPA), uncooled microbolometer (VOx)

IR Resolution 320 x 240  
pixels Pitch 25 µm

Spectral Range 8–14 µm

Zoom 2x digital zoom

### COMPLIANCE & CERTIFICATIONS

Compliance

•NFPA1801/C.E/E.N:2018 •Ex-certified according to ANSI/ISA 12.12.01-2015 and meets Class I Division 2 Groups C and D •Class II Division 2 Groups F and G, Temperature Code T4/T135°C

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**Humidity (Operating and Storage):-** IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C(+77°F to +104°F)/ 2 cycles

**Operating Temperature Range:-** -20°C to +85°C (-4°F to +185°F) +150°C (+302°F): 15 min. +260°C (+500°F): 5 min.

**Relative Humidity :-** 95% relative humidity +25°C to +40°C(+77°F to +104°F)non-condensing

Storage Temperature Range

-40°C to +85°C(-40°F to +185°F)

Vibration

2 g (IEC 60068-2-6)

Camera size (L x W x H)

120 x 125 x 280 mm (4.7 x 4.9 x 11 in.)

			<p>Camera weight incl battery</p> <p>1.1 ±0.05 kg (2.4 ±0.1 lb.)</p> <p>Depth of Field</p> <p>0.84 m to infinity (33 in. to infinity)</p> <p>Display 4 in. LCD, 320 x 240 pixels, backlit</p> <p>Focus Fixed</p> <p><b>Image Frequency</b></p> <p>60 Hz</p> <p><b>Image Modes</b> :IR image TI Basic fire-fighting mode Black-and-white fire-fighting mode Fire mode Search-and-rescue mode Heat detection mode Thumbnail gallery</p> <p><b>Non-radiometric IR video recording</b> MPEG-4 to internal flash memory</p> <p><b>Non-radiometric IR video streaming</b></p> <p>Uncompressed colorized video using USB</p> <p><b>Spatial resolution (IFOV)</b> 2.8 mrad</p> <p><b>Storage Capacity:-</b> 200 files in total, with a maximum duration of 5 minutes each. The total number of files is co-dependent on the number of saved images.</p> <p>Automatic Hot Detection</p> <p>Heat detection mode (the hottest 20% of the of scene is colorized)</p> <p><b>Object Temperature Range</b></p> <p>-20°C to +150°C (-4°F to +302°F) 0°C to +650°C (+32°F to +1202°F)</p> <p><b>Spot Meter</b> 1.0</p> <p><b>Thermal Sensitivity/NETD</b> &lt; 30 mK @ +30°C (+86°F)</p> <p><b>POWER</b></p> <p>Battery capacity</p> <p>4.4 Ah, at +20°C to +25°C (+68°F to +77°F)</p> <p>Battery operating time</p>	
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			<p>Approx. 4 hours at +25°C (+77°F) ambient temperature and typical use. This operating time is independent of camera mode.</p> <p><b>Battery type</b> Li Ion</p> <p><b>Battery voltage</b> 3.6 V</p> <p><b>Battery weight</b> 0.152 kg(0.3 lb.)</p> <p><b>Charging system</b> Battery is charged inside the camera 2-bay charger Optional In-truck charger</p> <p><b>Charging Temperature</b> 0°C to +45°C (+32°F to +113°F)</p> <p><b>Charging Time</b> 2 h to 85% capacity, charging status indicated by LEDs</p> <p><b>Power Management</b> Automatic shutdown and sleep mode</p>	
		77.	<p>Rescue rocket system with sling and line deployment consisting of one launcher, inflatable sling and line projectiles with charging hose &amp; adaptor with 300 ft polypropylene rope and 500 ft Decron 3 mm rope with rope storage compartment to be used with the launcher along with accessories. The system should be intrinsically safe and should work on Air Thrust technology.</p>	1 no.
			<ul style="list-style-type: none"> <li>• to the battery of the engine 1 No.</li> <li>• Revolving beacon light 2 No.</li> <li>• Side Flashing Square Lights 4 Nos</li> <li>• Rear Amber Blinker Signal Light 2 Nos.</li> </ul> <p><b><u>INSTRUCTION BOOKS, ACCESSORIES AND EQUIPMENT:</u></b></p>	
			<p><b>6 sets of illustrated books for the guidance of the user, including both</b></p>	

operating and normal maintenance procures, for the appliance, machinery, equipment and gadgets shall be supplied with the appliance. The books shall include itemized and illustrated spare parts list giving reference to all wearing parts.

Equipments as per Annexure-1 shall be supplied and stowed in ERT at suitable location in compartments and lockers.

MARKING: shall be done as per our choice / norms.

DRAWING FOR APPROVAL: dimensional general arrangement drawing of views, cross sections, layout of various main equipment / accessories, technical parameters shall be submitted with tender.

**SCOPE FOR SUPPLY. WORK AND TRAINING :**

- 1) All necessary working tools and set of special tools required for maintenance of the appliance shall be supplied.
- 2) Spare parts catalogue & test certificate shall be provided with appliance.
- 3) Necessary training shall be imparted for safe operation and maintenance of the appliance.

**ACCEPTANCE TESTS :**

- 1) Road test / stability test shall be carried out as per standard practice.
- 2) Practical demonstration of all rescue tools, machinery's gadgets, equipment's etc. shall be imported.
- 3) Test certificate shall be submitted for all imported safety / personal protective equipment's.
- 4) INSPECTION: three –stage wise inspection shall be carried at your workshop.

**Annexure-1**

**List of Accessories / Equipments to be carried on the Rescue Tender:-**

All the equipments provided by the OEM/fabricator shall have to meet all safety standard of EN/BIS/NFPA/UL listed (as applicable).The equipment should have to meet latest regulation and standard. The bidder shall clearly mention the name of the manufacturer against each item.

09	09	Tractor with Hydraulic Trailer	<p><b><u>TRACTOR with Hood</u></b></p> <p>ENGINE: 42 HP coolant cooled naturally aspirated diesel engine, 3 cylinder (min.), Rated RPM 2000 and above.</p> <p>Transmission: Two wheel drive, 8 or more forward and 2 or more reverse.</p> <p>Hydraulics: Lifting capacity should be more than 1300 Kgf &amp; above at lower link ends.</p> <p>Steering type: power steering</p> <p>Wheel &amp; Tyre: Front-6.0 X 16, 8 PR Rear- 13.6 x 28, 12 PR</p> <p>Wheel Base: 1850 mm or more.</p> <p>Overall length: 3400 mm or more.</p> <p>Overall width: 1800 mm or more</p> <p>Minimum Ground clearance : 410 mm</p> <p><b><u>HYDRAULIC LIFT TROLLEY (TRACTOR TRAILER)</u></b></p> <p>01. Hydraulic Cylinder: 5 ton capacity, Single acting hydraulic cylinder along with high- pressure pipe with adopters fitted at end.</p> <p>02. Dimension: Trailer Length – 3200 mm Width – 1830 mm Height - 560 mm</p> <p>03. Chassis and main Base Frame: Base chassis size may be min 150 mm. X 75 mm. of C type channel. Cross channel over chassis should be of min. 100 mm X 50 mm size having at least six cross members and two longitudinal member. Additional suitable longitudinal member size 120 X 65 mm may also be provided for hydraulic jack fittings, if required.</p> <p>04. Side Wall Sheet: M.S Sheet 3.40 mm (min) all side open type on hinges except front one.</p> <p>05. Floor Sheet: M.S Sheet 6.00 mm (min), 18-Gauge</p> <p>06. Axle: M S square 75X75 mm (min) or found 80 mm dia (min) The number of axle may be one.</p> <p>07. Wheel Hub: 02 nos. wheel hub heavy duty of 08 holes with branded wheel bearings.</p> <p>08. Fittings: 02 No's light reflectors, 02 No's Registration plates, steel hook etc.</p> <p>09. Tyre Assembly &amp; wheel: 02 nos. wheels (double plated ring type with 8 holes) and accordingly tyre should be two of size 9.00X20 (16 PR) of Brand like JK/MRF/Apollo/Good Year/equivalent, Wheel should be double plate made i.e. one wheel rim should have two plates.</p>
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			10. Painting One Coat of Red Oxide and 2 coats of super synthetic enamel paint.
10	10	RCC equipment set	<p>Each set consists of</p> <p>Bullet chain saw: 1 No</p> <p>Concrete cutter : 1 No</p> <p>Angle Cutter : 1 No</p> <p><b><u>Bullet Chain saw :-</u></b></p> <p>Diamond Tipped Chain Saws shall be petrol engine driven designed to cut through different building material like timber, masonry, metal sheets, FRP, PVC etc These shall be extremely useful for first responders for inspection, ventilation and obtaining access to victims during CSSR and for other tasks relating to extrication and recovery during natural and manmade disasters.</p> <p>Two stroke single cylinder air cooled petrol engine with a minimum displacement of 75cc and engine should have to develop 6.0HP minimum.</p> <p>The rated engine speed at no load condition maximum up to 13500 rpm.</p> <p>It should have electronic ignition system with one button start ON/OFF.</p> <p>Guide bar length should be minimum 14 inch.</p> <p>Cutting chain Shall be carbide tipped with locking Key pitch 3/8" gauge with heavy duty tie straps and tempered rivets. Fully automatic, speed controlled reciprocating oil pump and additional manually adjustable chain lubrication system. Automatic chain brake system for quick stoppage when required. An arrangement for adjusting chain tension shall be available.</p> <p>It should have suitable provision for setting and adjusting depth of cut.</p> <p>Gross Weight of the equipment with guide bar and chain including fully loaded fuel tank should be less than 12 kg.</p> <p>Sound pressure level at operator's ear should be less than 105 dB (A).</p> <p>Fuel tank capacity should be not more than 1ltr.</p> <p>Brochure and test report should be submitted in accordance to ISO/ CE or any National/International standard for conformity of the specification.</p> <p><b>Accessories</b></p> <p>P.P equipments 1 chain and 1 guide bar</p> <p><b><u>Concrete Cutter</u></b></p>



Requirement: Ring type concrete cutter attached with 16 inch dia diamond blade for optimum depth cutting of concrete/RCC as per the following specification:

ENGINE:

Air Cooled 2 stroke petrol Engine, Pull cord Start with Choke arrangement. The engine should fuel efficient, integrated with advanced carburetor to reduce emissions in comparison to power.

Engine Displacement: 81 cc or above.

Power developed at rated rpm: 4.0 Kw. or more.

Minimum rated RPM: 8500 or more.

Fuel tank capacity – 1ltr. (Min.)

Dry weight of power cutter with blade: 15 Kg (max.)

Cutting Equipment:

Type: Ring type cutting blade

1. It should be capable of running 16" (406 mm) dia. ring type diamond blade for concrete cutting.
2. Minimum depth of cutting should be 140 mm.
3. Blade Guard should be having the wheels on it for smooth operations.
4. Ring cutter periphery should be mounted on the four rollers provided in the machine for smooth revolution.
5. Rollers should be adjustable for ensuring the proper installation of ring in the machine.
6. A suitable arrangement should be provided with the equipment to spray water along with a flow control valve to adjust the pressure of water on the Cutting Ring for heat dissemination and to reduce frequent clogging.
7. Equivalent Noise level shall not be more than 120dB (A).

Equivalent vibration level at front and rear handle should not be more than 4.0 m/s<sup>2</sup>.

8. Quality test certificate in accordance to ISO/EC or any National/international standard confirming to specification must be attached with the bid.

**ACCESSORIES TO BE SUPPLIED WITH MACHINE:**

1. Three nos. Ring type blade compatible with the above machine (406 mm dia.)
2. 5 Ltr. fuel Container.
3. 5Nos. of spare air filter.
4. 01 no. Battery operated Water tank with 15 ltr (min.) Capacity.

**Angle Cutter**

- Electric Motor operating in range of 230 volts  $\pm 10\%$  power rating with a maximum no load speed of 4900 rpm  $\pm 10\%$  and full load speed up to 30000rpm  $\pm 10\%$ .
- 15 Ampere three core electrical cord of 5 meter length with three pin plug will be provided.
- The saw is to mount replaceable 12" (300mm) diameter diamond tipped or tungsten carbide tipped blade with a 25 mm arbor.
- The saw should be able to cut to a minimum depth of 100 mm. one tungsten carbide tipped blade will be provided as an integral component of the equipment
- It should be possible to adjust the position of the tool body through a minimum of 70 degrees independently of the cutting depth. It should also be possible to remove the tool base for cutting closer to walls and should be provided with guide wheels on the tool guard to ensure smooth travel over the surface material.
- A vacuum port for removal of the dust and debris as well as a shield for keeping debris away from the operator will be provided.
- A system for disengaging gears from motor to minimize effect of kickbacks will be provided to ensure operator safety.
- A lock on button for continues operation after start up will be provided.
- A rubberized wrap around handle will be provided.

**Accessories**

- Two spare tungsten carbide tipped blade and Four continuous rim diamond tipped blades.
- Carrying case.
- Tool kit

Operation and Maintenance Manual

**ANNEXURE-B**

**SPECIFICATION OF THE EQUIPMENT ARE AS FOLLOWS.**

Sl. No.	Name of the Equipment	Specification
1	Chain saw one man operated	<p>Petrol driven portable power saw having 2 stroke petrol engine displacement minimum 85cc &amp; engine power minimum 7hp. RPM-13500(Max.), 24"/610 mm guide bar, a high-performance low vibration chain with square corner chisel cutters having pitch of chain to be 3/8" .Dry Weight to power saw without Guide bar and chain should not be more than 8kg, vibration at front and rear handle should not be more than 7.5 m/second square, it should design to absorb less dust at air filters for avoiding frequent clogging, easy to start pull cord type start, with all control and safety device of reputed make. It should be light weight (it should be easy to carry/ transport, handle and operate by a person). The spares of the chain saw including chain and guide bar shall be new and unused and manufactured by OEM. The item to be new, unused and suiting to latest designed and specification and may have certification of ISI/ISO/or any recognized international standard/ national standard of quality test certificate.</p> <p>Accessories-Sturdy gloves-1 set, gum boots-1 set, Apron-1 no., Ear plug-1 set, Goggles-1 set, Helmet-1 No. extra guide bar and spare chain-2 nos.</p>
	Back-hoe Loader cum Excavator with Rock Breaker & Accessories	<p>The Back- hoe loader cum Excavator should have the Rock Breaker as an Accessory. For fitting of the rock breaker, it should have necessary circuit fitting.</p> <p>(A) PHYSICAL SPECIFICATION</p> <ol style="list-style-type: none"> <li>1. Performance specification: <p>The excavator cum backhoe loader shall be employed for excavation, digging, demolition grading and finishing job. The equipment shall be rugged and of sturdy construction, capable of working continuously and successfully under adverse working conditions.</p> </li> <li>2. Prime Mover: <p>The prime move shall have the following specifications:</p> <p>(a)Engine: Water-cooled, diesel engine of BEML/ TATA/ JCB/ Kirloskar/ Cummins or any reputed make conforming to ARAI/BIS/BS/ DIN/SAE standards.</p> <p>(b) Power Output: 70 HP or more at ratted RPM.</p> <p>(c) Starting System: 12V electric system with suitable battery and alternator.</p> </li> <li>3. Main frame Chassis: The main frame shall be very strong and robust enough to withstand extreme working stresses.</li> <li>4. Transmission Unit: <p>With 4 or more forwarded and minimum 2 reserve gear with 2WD. The transmission shall be internationally accepted with torque converter.</p> </li> </ol>

		<p>5. Axle with Steering Arrangement:</p> <p>The front Axle shall be centrally pivoted, oscillating type and shall be designed for continuous loading cycles and shall ensure excellent manoeuvrability.</p> <p>6. Brake System:</p> <p>The service brake should be hydraulically actuated dual line self-adjusting (compensated). The brake system should conform to CMVR norms. The parking brake should maintain the parking performance on its application and it should be easily applied by the driver. The break system should be designed in such a way to protect itself from dirt, water, mud etc.</p> <p>7. Electrical System:</p> <p>It should be 12volt and to be powered by alternator and batteries. The complete system of the equipment shall cater for safeguards against short circuits and over voltage. Separate searchlight to illuminate the surrounding area of the vehicle should be provided at an appropriate on the cabin.</p> <p>8. Hydraulic System:</p> <p>The components of the hydraulic system should be a tank, pump. Control valves hydraulic lines and filters as per the design of the manufacturer.</p> <p>9. Steering System:</p> <p>The equipment should have hydraulically operated steering system. Hydraulic supply from independent steering pump passing through suction strainer &amp; returns line.</p> <p>10. Rock Breaker:</p> <p>The equipment should have rock breaker of chisel dia 75mm, weight 410kg, suitable carrier-8-12 tons.</p> <p>11. Operator's Cabin:</p> <p>It should be so designed to serve the intended purpose of operator's safety and comfort and it should conform to the ISO standards. The operator's seat should be so designed to ensure easy operation of all lever positions. The seat should be vertically and horizontally adjustable, revolving, reclining type with armrest movable with control levers.</p> <p>12. Excavator: excavator should consist following main components:</p> <ul style="list-style-type: none"> <li>a. King Post</li> <li>b. Boom</li> <li>c. Dipper</li> </ul>
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		<p>d. Bucket</p> <p>13. Loader: The loader shall consist of a bucket pivoted on end of a pair of hydraulically operated arms. The loader arms shall be of self-levelling type. The bucket capacity of the loader shall be minimum 1.00 cm.</p> <p>14. Stabilizers: Two stabilizers shall be fitted at the rear end of the machine. The stabilizers shall be hydraulically operated. Each stabilizer having its own control shall be operated independently at different height.</p> <p>15. Access System for Excavator cum Loader: (a) Access system for Excavator cum Loader may include platform (b) The design of these devices and means of attachments should provide adequate strength for the purpose intended.</p> <p>16. General Requirements: (a) Rotating and Fixed shafts/Axles: The shafts and axles shall have ample rigidity and adequate quality. (b) Hardware Items: All the hardware items shall be galvanized/ surface treated as per manufacturer's design. (c) Instruction Plate/decals: The machine shall have instruction plate/ Decals permanently affixed at suitable location, indicating precautions and any special important procedures to be observed in operation the machine.</p> <p>17. Miscellaneous: The manufacturer/Authorized dealer shall supply all the technical literature like operation and maintenance manual for engine and equipment. Workshop manual for engine equipment, illustrated part catalogue, lubricant chart of complete equipment in English in hard and soft copy.</p> <p>(B) TECHNICAL SPECIFICATIONS OF EXCAVATOR-CUM BACKHOE LOADER</p> <p>I) Excavator Parameters:</p> <table data-bbox="518 1697 1476 1971"> <tr> <td>a. Digging Depth</td> <td>4.50 Mtr or more</td> </tr> <tr> <td>b. Reach-ground level to rear wheel center</td> <td>6.7 meter or more</td> </tr> <tr> <td>c. Maximum working height (stabilizers)</td> <td>5.9 meters or more</td> </tr> <tr> <td>d. Bucket rotation</td> <td>180 Degree or more</td> </tr> <tr> <td>e. Bucket digging/breakout force</td> <td>5000 Kgf or more</td> </tr> <tr> <td>f. Bucket capacity</td> <td>0.25 Cu.m or more</td> </tr> <tr> <td>g. Load over height</td> <td>4 meters or more</td> </tr> <tr> <td>h. Side reach to center of machine</td> <td>6.00 meters or more</td> </tr> </table> <p>(II) Loader Parameters</p> <table data-bbox="518 2033 1273 2067"> <tr> <td>a. Dump height</td> <td>2.65 meters or more</td> </tr> </table>	a. Digging Depth	4.50 Mtr or more	b. Reach-ground level to rear wheel center	6.7 meter or more	c. Maximum working height (stabilizers)	5.9 meters or more	d. Bucket rotation	180 Degree or more	e. Bucket digging/breakout force	5000 Kgf or more	f. Bucket capacity	0.25 Cu.m or more	g. Load over height	4 meters or more	h. Side reach to center of machine	6.00 meters or more	a. Dump height	2.65 meters or more
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		<ul style="list-style-type: none"> <li>b. Load Over Height 3 meters or more</li> <li>c. Dump Angle 43 degree or more</li> <li>d. Loader Bucket Capacity 1.00 cu.m or more</li> <li>e. Reach at ground 1.4 meter or more</li> <li>f. Reach at full height 1 meter or more</li> <li>g. Below ground level dig depth 0.05 meter or more</li> <li>h. Bucket Breakout force 6000 Kgf or more</li> </ul> <p>(III) Static Dimensions</p> <ul style="list-style-type: none"> <li>a) Ground Clearance 350mm or more</li> <li>b) Slew ground clearance 500 mm or more</li> <li>c) Overall height (maximum) 3.90 meter</li> <li>d) Engine HP Not less than 70 HP at maximum ratted RPM</li> <li>e) Torque 300 NM or more</li> <li>f) Tyre's as per manufactures design.</li> <li>g) Steering system Hydraulically operated power steering actuated through valves.</li> <li>(i) Hydraulic Pump flow Not less than 110lpm at maximum ratted RPM pressure not less than 140 bar or more.</li> </ul> <p>(j) Fuel Diesel</p> <p>(k) Forward speed Minimum 30 KMPH</p> <p>(l) Fuel Tank Capacity Minimum 110 Litres or more</p> <p>The above product should be new unused and have designed, Manufactured &amp; tested in accordance to latest national or international standard.</p> <p>Compatible Tools and tackles should be provided along with the equipment.</p>
3	<b>PLASMA CUTTER INCLUDING 20 KVA D.G.Set &amp; AIR COMPRESSOR</b>	<p><b>AIR PLASMA CUTTING MACHINE.</b></p> <p><b>Capability: -</b></p> <p>The machine shall be capable of carrying out all types of profile cutting without dross with plates of mild steel, carbon steel, galvanized steel, stainless steel, aluminium and their alloys. The machine shall be capable of compressed air plasma cutting to cut 16mm thick mild steel, carbon steel, aluminium and cast iron etc..</p> <p><b>.Scope of supply: -</b></p> <p>The specification covers supply of Air Plasma cutting machine with hand torch (with rubberized wheel to withstand the carrying load of the machine). The supply shall include all concomitant accessories/equipment's as mentioned in specification and any other concomitant accessories/equipment, which the manufacturer considers essential to make the machine fully operational when installed and connected to power source and other utilities</p> <p><b>Concomitant Accessories:</b></p> <p>The machine shall be accompanied by the concomitant accessories listed</p>

below whose cost shall be included in the basic price of the machine. However, the cost of each items of concomitant accessories should also be given separately in the offer.

- Hand cutting torch with torch cable of 15 -meter length- 01 no.
- Input copper cable for connecting power source to machine- 15m. 01 no
- Air filter and Air Pressure Regulator built-in with machine.- 1 No.
- Air filtration kit (ready to install kit) with a one micron filter and auto drain moisture separator protects against contaminated air.-1 no.
- Detachable Work Piece Cable. 1 No
- Operating Manual: Technical Literature along with circuit diagrams.- 3 Sets.

**Consumable Spares –**

1. Electrodes &Tip = 25 set each
2. Outer Nozzle = 25 Nos.

(Any other consumables required may also be quoted) Any other concomitant accessories required to make the machine fully operational when connected to power source is also included in scope of supply.

**Details of Accessories required**

1. Electric Supply Cable (Length – 15 meter) to be attached with machine along with plug at another end.
2. Plasma Hand cutting Torch (Hose Package Length- 15 meter).- 1 No.
3. Consumable Kit
  - a. This kit should include at least one spare of each component of torch head, except body of torch head.
  - b. All required consumables for performing required applications
4. Leather cutting Gloves:- 2 Sets.
5. Face shield helmet.:- **2 Nos.**

**CUTTING TORCH**

The torch should be air cooled type with air pre-flow and post- flow time control facility. The torch shall be of light weight and flexible with approx 15-meter-long hose. The torch handle should be insulated from live parts and provided adequate protection to operator's hand for overheating, without interfering cutting operation. The torch construction will minimize lodging of dirt in joints and Current carrying capacity at 100% duty cycle is 100Amps.

**Specifications plasma cutter :-**

**Input Voltages** :415V±10%, 3-PH, 50-60 Hz .

**Input current** : 100 Amps Cutting Load (100% Duty cycle) and 415 V ±10% Input supply

		<p><b>Output current</b> : 30 – 100 Amps DC</p> <p><b>Cutting Voltage</b> : 120 -180 V DC</p> <p><b>Duty cycle</b> : @40 ° C (104 ° F) 100% Duty Cycle Current = 100 Amps for 415 V, 3 Ph Input Supply</p> <p><b>Open circuit voltage (OCV)</b> : 275 – 280 V DC</p> <p><b>Dimensions with handles</b> : 550mm D ; 300mm W ; 500 mm H</p> <p><b>Weight</b> : 40 kg</p> <p><b>Torch Gas Supply Cutting</b> : air (clean, dry and oil free)</p> <p><b>Recommended</b> : 188 l/min (400 scfh) @ 5,9 bar (90 psi) Gas inlet Flow rate / pressure</p> <p><b>Input power cable length</b> : 15 m</p> <p><b>Power supply type</b> : Inverter – IGBT</p> <p><b>Engine drive requirement</b> : 20 KVA / 16 KW for full 100 Amps output (with 415 V±10% 3 Phase generator)</p> <p><b>Electrical efficiency</b> : 88 %</p> <p><b>Recyclability</b> : 100 %</p> <p><b>Engine – driven generator operation</b></p> <p><b>Engine drive rating System output current</b> : 16 KW 100 Amps</p> <p><b>Minimum Cutting Recommended</b> : 16 mm (5/8”) 500mm/h</p> <p><b>Severance</b> : 29mm (1-1/8”) 125mm/h</p> <p><b>Pierce</b> : 12mm (1/2”)</p> <p><b>Note: 1).</b> The manufacturer should be ISO-9001, ISO-14001 &amp; ISO-18001 Approved.</p> <p>2). The manufacturer should have service back-up (Adequate service Engineer &amp; spare parts availability)</p> <p>3). The manufacturer should have certification of occupational health &amp; safety management.</p>
	<p><b>20KVA diesel generator</b></p>	<ul style="list-style-type: none"> <li>• Genset Output (KVA / KW): 20/ 16(min) compatible to plasma Cutter</li> <li>• Max power KW (BHP) @ at rated speed, (RPM): 19 (25) or more</li> <li>• Engine Type: Natural Aspirated</li> <li>• Governor: Type /Class of Governing: Mechanical/Electronic</li> <li>• Air cleaner type: Dry</li> </ul>



		<ul style="list-style-type: none"> <li>• Charging alternator Voltage / Current (DC):12V /35 Amps</li> <li>• Battery Voltage (DC) / Capacity (AH):12V,88AH or more</li> <li>• <b><u>Fuel System:</u></b></li> <li>• Recommended Fuel: HSD</li> <li>• Fuel tank capacity ( Ltr): 75 or more</li> </ul> <p><b>Generator:</b></p> <ul style="list-style-type: none"> <li>• Voltage: 415V AC <math>\pm</math> 10%</li> <li>• Frequency: 50Hz</li> <li>• Current@0.8PF (Amps): 86/27 or more</li> <li>• Type: 4 Pole, Rotating</li> <li>• Unit- mounted water/coolant radiator ambient temperature(<math>^{\circ}</math>C ):50(122<math>^{\circ}</math>F)</li> <li>• Exciter Type: Brushless</li> <li>• Voltage regulator: Solid State, volts</li> <li>• Insulation: Class H,</li> <li>• Coupling: Flexible disc, CLOSE COUPLED</li> </ul> <p><b>Standard scope of supply:</b></p> <ul style="list-style-type: none"> <li>• <b>Engine</b> with direct injection, water/ air- cooled engine, min 3 cylinder, in-line,4 stroke, rated at 1500 RPM minimum, conforming to ISO 3046 / BS 5514 has the following Specification</li> </ul> <p><b>Alternator:</b> Crompton Greaves/ Stamford/ equivalent</p> <ul style="list-style-type: none"> <li>• <b>Acoustic enclosure</b>–Engine alternator assembly mounted on AVM with Silencer and S.S exhaust bellow suitably optimized to meet stringent sound &amp; emission standards as laid down by MOEF / CPCB</li> <li>• <b>Power cables: copper</b> conductor cables between Alternator &amp; Control panel inside the canopy.</li> <li>• <b>Literature:</b></li> <li>• Operation Manual</li> <li>• General maintenance &amp; installation Guideline</li> <li>• Parts manual</li> </ul>
	<b>Air Compressor</b>	<p>Air compressor reputed make, conforming to BIS standard.</p> <p>Type Prime Mover: Electric Motor,2.5 HP, (Compatible to plasma cutter)</p> <p>Input air 300 lpm</p> <p>Effective output air 190 lpm</p> <p>Sound level (LpA) : 85 dB(A)</p> <p>Maximum Pressure:8bar(116PSI) with variable</p> <p>Tank Capacity:50Lts</p> <p>STANDARD EQUIPMENT</p> <p>Gauge for tank pressure, Reset Button</p> <p>Pressure reducer with gauge</p> <p>Additional Handle, Rubber Grip Handle</p> <p>Accessories:</p> <ol style="list-style-type: none"> <li>1. Ball Valve (2 Nos)</li> <li>2. 15 Meter Air Hose with Foot Connector</li> <li>3. MCB for Air Compressor</li> <li>4. Compressor Oil</li> </ol>
	<b>Portable</b>	Material of Construction: High Strength anodized Aluminium of aero grade quality the

	<b>Telescopic Tower Light</b>	<p>base frame shall consists of three no's of legs which are individually adjustable and rigidly integrated to the telescopic mast so as to with stand minimum of 20 m/s wind pressure and gives better stability during extended condition of telescope, it should be self-locking &amp; release, less Maintenance and self-lubricating. The detailed specifications of Generator, Telescopic mast and Light as below:</p> <p><b>1. Generator:</b> Recoil start portable AC Generating set comprising AC Generator, output - 850VA or above,240V single phase of unit power factor and petrol start, petrol run air cooled four stroke single cylinder Engine with resettable circuit breaker in the AC output. Fuel tank capacity should be for continuous running of generating set for 7-8 hours. The gen set shall confirming to BIS standard and approved from CPCB/ equivalent.</p> <p><b>2. Integrated Telescopic mast with Base Frame:</b></p> <p>The base frame and telescopic mast with LED panels shall be well designed to operate any weather conditions at a height of 4.25mtr (minimum) without any effect on operation at the fully extended length at a Minimum of 20 m/s wind speed. The base frame shall be integrated with wheel assembly made of hard plastic nylon/composite material Mounted on stainless &amp; corrosion resistant ball bearing for easy transportation. It shall be portable, easy to handle during emergency operation and light weight.</p> <p><b>3. Dimension of Telescopic Mast:</b></p> <p>i) Extended: 4.25mtr or above.</p> <p>ii) Closed: The item shall be compactable, and the foot print of the item should not be more than to the Dimension of (32x32x120) cm. The weight of telescopic mast with light head shall not be more than 40 Kg.</p> <p><b>4. LED Light Head:</b> The LED Light Head shall consist of minimum of 5 number of glare free LED armatures each of 65 Watt minimum power to produce 40,000 Lumens or more with a colour temperature between 6000-6500K and contains minimum of 5 nos armatures with a total power consumption should be within 350-425W, which can be individually positioned from 180 ° to 360 ° in vertically and horizontally depending on the task. Each armature should be fitted with an acrylic lens that shapes the light in an optimal way. A suitable heat sink shall be provided to the LED light head for proper cooling of the Armature. It shall be water resistant with minimum ingress protection of 65.</p> <p><b>5. Control Gear:</b> Control gear shall be suitable designed and fitted with MCB, change over and on/off switches with energy saving dimmable option for lamps and should have a provision of multi-source input operation like Mains/Battery/Solar Pack. It shall be dust and water resistant to IP65 and above.</p> <p><b>6.Performance Requirement:</b></p> <p>A minimum Lux value of 1 shall be achieved instantly on ground at:</p>
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		<p>a) 130m or higher radius: during beam angle of 180 ° at min of 4.25 m height.</p> <p>b) 95m or higher radius: during beam angle of 360 ° at min. of 4.25 m height.</p> <p>c) Start up and repacking time shall be 2 minutes max.</p> <p>d) The system shall be continuously run for 7-8 hours, without damaging/adversely affecting the generator, LED Armature and control gear.</p> <p>e) The portable telescopic light mast should confirm to BIS/CE/EN or any International equivalent standard for safety during emergency operation.</p> <p><b>7. Overall dimensions:</b> Overall dimension in closed condition (nominal): 1200 x 320x320 mm.</p> <p><b>8. Weight:</b> Total weight of complete system (including Gen set &amp; Telescopic tower light) should be 65Kg max.</p> <p>Accessories:</p> <p>One set of following accessories /spares to be part of supply with the main equipment.</p> <p><b>a) Storage Box-</b> suitable designed to accommodate the tower and other spares and easy to handle with proper Locking arrangement.</p> <p><b>b) Rain Protection Cover-</b> for generating set and control gear box made of water proof cloth with air vent Arrangement. Supplier shall furnish complete and satisfactory type test certificate as per above specification. The test report shall be from NABL approved Govt. Lab or any other authorized national/ international lab confirming to the Standard.</p> <p>All goods and materials to be new unused and of the most recent or current models and that they incorporate all recent improvements in design and materials, unless provided for otherwise in the contract.</p> <p><b>N.B: -Supplier shall furnish complete and satisfactory type test certificate as per above specification. The TTC shall be from any Govt. Lab or any other authorized national/international Lab.</b></p>
	<p><b>Portable inflatable Tower Light</b></p>	<p>Portable Inflatable Emergency Lighting System of the following specifications,</p> <ol style="list-style-type: none"> <li><b>1. Base Frame:</b> It shall consist of MS Tube frame and a base plate of Aluminium sheet of 3mm +10%/ -5% thicknesses to support generating set and control gear box and shall be provided with anti-vibration rubber pads. M.S parts shall be powder coated.</li> <li><b>2. Top Cover:</b> Made of Moulded fibre glass or suitable material designed to fasten the tower Balloon by suitable steel strip so that there is no air leakage at the joint. It shall provide suitable nipple for filling air into the balloon and provided support for it to resin erect at wind speed of 40 to 45 Km/Hr.</li> <li><b>3. Generator Set:</b> Recoil start portable AC Generating Set comprising AC Generator, rated as 1200VA single phase of unit power factor and petrol run air</li> </ol>

	<p>cooled four stroke engine cylinder engine with resettable circuit breaker in the AC output. Fuel tank capacity should be for continuous running of generating set for 7-8 hours. A fuel level indicator should be on display panel. The gen set shall conform to IS-13364 part-1/EC-60034-1 and compliance to the latest CPCB norms/Rules framed by MoEF&amp; CS, Govt. Of India/ Equivalent.</p> <p>4. System should work on 220/240V 50HZ AC supply and for connecting to the mains and shall have provision for 15 Amp 3 Pin Socket and a suitable wire with plugs at both ends.</p> <p>5. Two nos. of compressors/ air blowers of suitable rating to be provided to inflate the balloon in 60 sec maximum.</p> <p>6. <b>Balloon:</b> It shall be cylindrical shape made suitable polyester based cloth to ensure emission of light with minimum loss and shall be water proof and strengthened with flexible stiffeners to sustain inside air pressure and to remain erected against outside wind of 40 to 45 Km/Hr.</p> <p>7. One 400W high pressure metal Halide (HPMH) lamp to give 40000 to 42000 lumens shall be mounted inside the balloon at the top end such that it goes up/down while inflating and deflation shall be 4.5 to 5m from base plate. The length of nylon rope required for the straps should be 5 meter and of 6mm dia.</p> <p>8. <b>Control gear</b> shall be suitable designed and fitted with MCB, lamp ballast igniters, capacitor, change over and on/off switches with indicating lamps for controlling 1 no 400W HPMH lamp and two air blowers.</p> <p>9. <b>Performance Requirement:</b></p> <p>(a) A minimum lux value of 1 shall be achieved on ground at 55m radius within 5 minutes of starting.</p> <p>(b) deflation time including repacking shall be 5 minutes max.</p> <p>(c) The system shall continuously run for 8 hours, without damaging/ adversely affecting the balloon fabric and other components.</p> <p>10. <b>Over all dimension:</b> Total weight of complete system: 50 Kg Max (excluding storage box) Overall dimension in deflated condition (nominal): 600X450X500mm.</p> <p><b>Accessories:</b></p> <p><b>One set of following accessories/spares to be part of supply with the main equipment.</b></p> <p>(a) <b>Storage Box:</b> -suitable designed to accommodate the tower and other spares and easy to handle with proper locking arrangement.</p> <p>(b) <b>Rain protection Cover:</b> -For generating set and control gear box made of water proof cloth with air vent arrangement.</p> <p>(c) <b>Wind support:-</b> 5 mtr. Nylon stay wire ropes of dia 6 mm (3 nos.) which can be tied to the tower (balloon) and grouping hook in case of extra velocity.</p> <p>(d) <b>Tool kit:</b> -necessary tools required for operation of the emergency light system viz. Screw driver, plug, spanner and T-nut driver. 3 nos. puncture tapes 10cmX10cm etc.</p> <p>(e) <b>Lamp with requisite control gear.</b></p> <p>(f) <b>One blower.</b></p> <p><b>N.B:- Supplier shall furnish complete and satisfactory type test certificate as per above specification. The TTC shall be from any Govt. Lab or any other authorized national/international Lab.</b></p>
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**Annexure – D**  
**List of Equipment for pre-delivery Inspection**

Sl.	Name of the Equipment
<b>1</b>	<b>2</b>
1	Life Jacket (Working)
2	Collapsed Structure Search Rescue (CSSR) tools, Equipment and Accessories
3	Log Carrier
4	Spine Board short with strap
5	HD Video Camera
6	Thermal Image Camera
7	Battery Charger
8	Rescue Tender
9	Tractor Trailer (Hydraulic)
10	RCC Equipment Set
11	Chain Saw one man operated
12	Back-hoe Loader cum excavator with rock breaker & Accessories
13	Plasma Cutter including 20 KVA DG Set & Air Compressor
14	Portable Telescopic Tower light
15	Portable Inflatable Tower Light

**ANNEXURE-E**

**List of equipment for which demonstration required**

Sl.	Name of the item
1	Life Jacket (Working)
2	Collapsed Structure Search Rescue (CSSR) tools, Equipment and Accessories.(Ventilator & come along)
3	Log Carrier
4	Spine Board short with Strap
5	HD Video Camera
6	Thermal imaging Camera
7	Battery Charger
8	RCC equipment set
9	Chain saw one man operated
10	Plasma Cutter including 20 KVA DG Set & Air Compressor
11	Portable Telescopic Tower light
12	Portable Inflatable Tower Light

## Annexure-C

FOR Destinations of the equipments (Tentative)																							
Sl. No	Name of equipments	Total Qty.	10 Newly created ODRAF Units										10 Old Existing ODRAF Units								Fire Striking force		
			Comdt. OSAP 1st Bn. Dhenkanal	Comdt. 1st IR Bn. Uppar kolab	Comdt. 2nd IR Bn. Rayagada	Comdt. 3rd IR Bn. Kalinganagar	Comdt. 4th IR Bn. Deogarh	Comdt. 5th IR Bn. Boudh	Comdt. 6th IR Bn. Khurda	Comdt. 7th Specialized IR Bn. Uparkolab Koraput	Comdt. 8th Specialised IR Bn. Kandhamal	Comdt OSAP 8th Bn. Chatrapur (New)	Comdt OSAP 6th Bn. Cuttack	Comdt. OSAP 2nd Bn. Jharsuguda	Comdt. OSAP 3rd Bn. Koraput	Comdt. OSAP 8th Bn. Chatrapur	Superintendent of Police Balasore	Comdt OSAP 4th Bn. Rourkela	Comdt OSAP 5th Bn. Baripada	DCP (Armed)OSAP 7th Bn. BBSR		Superintendent of Police Bolangir	Superintendent of Police Jagatsinghpur
1	Life Jacket (Working)	300	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	0	
2	Collapsed Structure Search and Rescue (CSSR) Tools, Equipment and accessories	35	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	2	2	2	2	2	0
3	Log Carrier	200	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	0	
4	Spine Board Short with Strap	100	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	0	

5	HD Video Camera	20	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
6	Thermal Imaging Camera	20	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
7	Battery Charger	19	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
8	Rescue Tender	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
9	Tractor Trailer (hydraulic)	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
10	RCC Equipment set	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
11	Chain Saw one man operated	200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200
12	Back-hoe Loader cum excavator with rock breaker & Accessories	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
13	Plasma cutter including P20 KVA DG Set & Air Compressor	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
14	Portable Telescopic Tower Light	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100
15	Portable Inflatable Tower Light	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100

