

PROJECT: CONSTRUCTION OF CGHS WELLNESS CENTRE AND ADMIN.BLDG. AT SECTOR-13, R.K.PURAM, NEW DELHI								
BOQ FOR FIRE FIGHTING WORKS								
SL. NO.	(DSR-2012)/ NDSR	DESCRIPTION	UNIT	QUANTITY	RATE (In Rs.)	RATE (In Rs.)	AMOUNT (In Rs.)	AMOUNT (In Rs.)
	Item No.							
					In Figures	In Words	In Figures	In Words
SUBHEAD-II(A): FIRE PUMP WORKS (NON SCHEDULED ITEMS) FOR HYDRANTS & SPRINKLER SYSTEM								
1.1	NDSR	FIRE PUMPS - ELECTRICAL						
		Supply, installation, testing and commissioning of vertical single stage centrifugal type fire pumps suitable for automatic operation at synchronous speed of 2900 rpm, Eff -1 motor, TEFC conforming to IP-55 & flexible coupling gaurd mounted on a common structural base plate with 150mm dia gun metal pressure gauges with isolation cock and piping, suitable vibration elimination pads of approved design for pump foundation, motor to be suitable for 415 volts, 3 phase 50 cycles AC. It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.						
1.1.1	NDSR	Capacity 2280 LPM at 7.0 Kg/cm2 delivery pressure for Fire Hydrant & Sprinkler Network.	Set	1				
1.1.2	NDSR	Capacity 180 LPM at 7.0 Kg/cm2 (Jockey Pump).	Set	1				
1.2	NDSR	FIRE PUMPS - DIESEL						
		Supply, installation, testing and commissioning of vertical single stage centrifugal pumping set with CI volute and bronze impeller with mechanical seals directly coupled to automatic Diesel Engine complete with all accessories like self starting by means of Battery powered electric starter motor of EFF-1 class, Paper Filter type air cleaner, exhaust silencer etc. complete in all respects. The engine & the pump will be mounted on common base plate on anti-vibration mountings. It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.						

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1.2.1	NDSR	Capacity 2280 LPM at 7.0 Kg/cm ² delivery pressure for Fire Hydrant & Sprinkler Network.	Set	1				
1.3	NDSR	Oil Tank						
		Supplying, fixing and commissioning 500 ltrs. capacity including first fill of 500 ltrs high speed diesel oil in 16 SWG MS steel oil tank with manhole cover, glass gauge, inlet and outlet connections with gate valves, drain plug, GI piping between tank and engine vent pipe with wire mesh etc. duly painted and mounted on suitable MS angle staging to maintain gravity flow of oil. It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.	Set	1				
1.4	NDSR	Exhaust piping						
		Providing & fixing 150 mm diameter M.S. Class 'C' diesel pump exhaust pipe including all fittings, like bends, tees etc. clamps / structural steel supports. The pipe shall be provided with 75mm thick fiberglass insulation & covering the insulation with 500 g polythene sheet giving proper overlaps & sealing the joints with suitable adhesive compound. The pipe shall be provided with 24 gauge aluminium sheet cladding. It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.	Rmt	10				
1.5	NDSR	Pressure Switch						
1.5.1		Supplying, installing, testing and commissioning 0 to 12 Kg/ cm ² ON/OFF pressure switch in delivery line of pump along with control wiring for auto starting and auto stopping of hydrant / spinkler and jockey pumps. It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.	Nos.	3				

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1.6	NDSR	Pressure Vessel Supply, fabrication (as per code), installation, testing and commissioning of Pressure vessels 450mm diameter and 1000mm high fabricated from 8-10mm M.S. plate with accessories inside painting with epoxy paint and outside with enamel paint. It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.	No.	1				
1.7	NDSR	Providing, fixing, testing & commissioning of resilient rubber lined single arch vibration eliminators suitable for raw water up to 45 deg. C temperature, working pressure 8.8 Kg/cm2 and test pressure 14 Kg/cm2. It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.						
1.7.1	NDSR	150 mm dia	Nos.	4				
1.7.2	NDSR	100 mm dia	Nos.	1				
1.7.3	NDSR	80 mm dia	Nos.	1				
1.8	NDSR	Supply, installation, testing, trial run and commissioning of hydrants. It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.						
		Internal hydrants/landing valves generally as specified and all complete with:						
		63mm dia single outlet landing valve with cast iron wheel IS marked & as per approved makelist with suitable size bolts, nuts, washers and gaskets. Landing valve shall be confirming to IS 5290 (Type-A)						
		First aid hose reel with 20 mm dia, 30 m long rubber hose, ball valve, piping and nozzle confirming to IS:884						

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1.8.1	NDSR	63mm reinforced rubber hoses (RRL) with male and female gun metal coupling, IS marked & as per approved make list- 15 m x 2 lengths confirming to IS :636 (Type -A)	Set	12				
		standard short size 63mm dia. Stainless Steel branch pipe with gun metal nozzle of 20 mm nominal bore outlet with instantaneous type 63 mm dia coupling complete & confirming to IS:903						
		Fire Axe						
		MS door made up of 16 gauge MS Sheet capable of accommodating fire hose reel, landing valve, hose pipes, fittings, 1 No. CO2 & 1 No. Dry powder type portable fire extinguishers & accessories. The door shall have a front glass with lock and key arrangement & shall be painted with one coat of primer & two coat of finished stove enamelled post office red colour paint & "FIRE HOSE" written on front. (Approx. size of door: 1200 mmx2100 mm)						
1.8.2	NDSR	External hydrant valve, IS marked of gunmetal with generally as specified and as required all complete.	Set	6				
		63mm dia twin outlet landing valve with cast iron wheel IS marked & as per approved makelist with suitable size bolts, nuts, washers and gaskets. Landing valve shall be confirming to IS 5290 (Type-A)						
		63mm reinforced rubber hoses (RRL) with male and female gun metal coupling, IS marked & as per approved make list- 15 m x 2 lengths confirming to IS :636 (Type -A)						
		standard short size 63mm dia. Stainless Steel branch pipe with gun metal nozzle of 20 mm nominal bore outlet with instantaneous type 63 mm dia coupling complete & confirming to IS:903						
		M.S. fire hose cabinet (750x600x250mm) made out of 16 gauge M.S. sheet capable of accommodating landing valve, hose pipes, fittings & accessories. The box shall have a front glass door with lock and key arrangement & shall be painted with one coat of primer & two coat of finished stove enamelled post office red colour paint & "FIRE HOSE" written on front.						

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1.8.3	NDSR	<p>Roof hydrants/landing valves generally as specified and all complete with:</p> <p>63mm dia single outlet landing valve with cast iron wheel IS marked & as per approved makelist with suitable size bolts, nuts, washers and gaskets. Landing valve shall be confirming to IS 5290 (Type-A)</p> <p>First aid hose reel with 20 mm dia, 30 m long rubber hose, ball valve, piping and nozzle confirming to IS:884</p> <p>63mm reinforced rubber hoses (RRL) with male and female gun metal coupling, IS marked & as per approved make list- 15 m x 2 lengths confirming to IS :636 (Type -A)</p> <p>standard short size 63mm dia. Stainless Steel branch pipe with gun metal nozzle of 20 mm nominal bore outlet with instantaneous type 63 mm dia coupling complete & confirming to IS:903</p> <p>M.S. fire hose cabinet (750x600x250mm) made out of 16 gauge M.S. sheet capable of accommodating landing valve, hose pipes, fittings & accessories. The box shall have a front glass door with lock and key arrangement & shall be painted & shall be painted with one coat of primer & two coat of finished stove enamelled post office red colour paint & "FIRE HOSE" written on front.</p>	Set	2				
1.9	NDSR	Supply, installation, testing and commissioning brass orifice plates in pipelines to reduce pressure from 8 kg. to 3.5 kg/sq.cm. It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.	Nos.	18				
1.10	NDSR	Providing, installing, testing & commissioning of fire brigade inlet connection (fire department connection) consisting of 4 Nos. 63 mm dia instantaneous inlet arranged on a 50 mm dia header, 1 No. 150 mm diameter sluice valve, 1 No. 150mm dia. Non-return valve and wall mounted box of M.S. construction made out of 16 gauge MS Sheet with glass door to house the above mentioned components. It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.	Set	2				

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1.11	NDSR	Providing, installing, testing & commissioning of fire brigade draw out connection (fire department connection) with suction pipe MS class 'C' 100 mm dia. & 100 mm dia. foot valve & steel chain including wall mounted box M.S. construction made out of 16 gauge MS Sheet with glass door to house the above mentioned componenets. It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.	Set	1				
		TOTAL C/F TO SUMMARY						
SUBHEAD-I(B): PIPING FOR FIRE FIGHTING SYSTEM FOR HYDRANT & SPRINKLER SYSTEM (AS PER DSR-2012)								
1.12	18.59	Providing and fixing C.I. double acting air valves of approved quality with bolts, nuts, rubber insertions etc. complete (The tail pieces, tapers etc. if reqd. will be paid separately)						
1.12.1	18.59.1	50 mm dia.	Nos.	3				
		TOTAL C/F TO SUMMARY						
SUBHEAD-II(A):PIPING FOR FIRE FIGHTING FOR HYDRANT & SPRINKLER SYSTEM SYSTEM (NON SCHEDULED ITEMS)								
2.1	NDSR	Supply, fabrication , laying, testing & commissioning of heavy grade IS marked & as approved make list black mild steel piping confirming to IS 1239/3589 complete with all fittings, pipe supports, clamps etc. as approved with weleded jointing for external hydrant system in ground including excavation, refilling the trench & providing cement concrete blocks as supports, not exceeding 3 meters centre to centre.These pipes shall be provided with 2mm thick weather proof anti corrosive treatment (pypkote tape) as per IS 10221. It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.						
2.1.1	NDSR	150 mm nominal bore	Rmt	265				
2.1.2	NDSR	100 mm nominal bore	Rmt	20				

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2.2	NDSR	Supply and installation of Butterfly Valves with mating flanges generally as specified. It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.						
2.2.1	NDSR	100 mm nominal bore	Nos.	10				
2.2.2	NDSR	150 mm nominal bore	Nos.	16				
2.2.3	NDSR	200 mm nominal bore	Nos.	2				
2.3	NDSR	Providing and laying cast iron non-return valve IS marked & as per approved make list with flanges generally as specified. It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.						
2.3.1	NDSR	100 mm nominal bore	Nos.	4				
2.3.2	NDSR	150 mm nominal bore	Nos.	7				
2.3.3	NDSR	80 mm nominal bore	Nos.	3				
2.4	NDSR	Supply, installation testing & commissioning double flanged MS pot strainers with M.S. body and SS 40-grade mesh strainer. It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.						
2.4.1	NDSR	Size 150mm	Nos.	2				

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2.5	NDSR	Supply, fabrication & laying heavy grade IS marked & as per approved make list black mild steel piping confirming to IS 1239/3589 complete with all fittings, pipe supports, clamps & painting with one coat of primer & two coat of finished stove enamelled post office red colour paint etc. as approved with threaded and welded jointing for Wet Riser System. It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.						
		Note:						
		Threaded joint upto 50mm diameter pipe.						
		Welded joint above 50mm diameter pipe.						
2.5.1	NDSR	200 mm nominal bore	Rmt	25				
2.5.2	NDSR	150 mm nominal bore	Rmt	334				
2.5.3	NDSR	100 mm nominal bore	Rmt	432				
2.5.4	NDSR	80 mm nominal bore	Rmt	1,116				
2.5.5	NDSR	65 mm nominal bore	Rmt	527				
2.5.6	NDSR	50 mm nominal bore	Rmt	501				
2.5.7	NDSR	40 mm nominal bore	Rmt	485				
2.5.8	NDSR	32 mm nominal bore	Rmt	211				

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2.5.9	NDSR	25 mm nominal bore	Rmt	3,008				
		TOTAL C/F TO SUMMARY						
SUBHEAD-III(A): SPRINKLER SYSTEM (NON SCHEDULED ITEMS)								
3.1	NDSR	Supply, installation, testing and commissioning of 150 mm dia Installation Control Valve inclusive of 2 nos 150 mm dia Butterfly Valve, strainer, Alarm Valve with Water Motor Gong, Pressure Gauges, Test Lines with Ball Valves with necessary MS Class "C" piping with threaded fittings of required sizes. It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.	Set	1				
3.2	NDSR	Supply, installation, testing and commissioning of 150 mm dia Zonal Control Valve inclusive of 1 nos 150 mm dia butterfly valve, 150mm diam. non return valve, Flow Switch, water pressure gauges & 25 mm dia. Auxillary Drain valve with sight glass with necessary MS Class "C" piping with threaded fittings of required sizes. It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.	Set	6				
3.3	NDSR	Providing and fixing 150 mm dia Pressure Gauges on Sprinkler Header with ball valve. It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.	No.	1				
3.4	NDSR	Providing, fixing, testing and commissioning of quick response 15 mm dia. gunmetal quartz bulb type sprinkler head to operate at 68 degree centigrade. It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.						
3.4.1	NDSR	Side wall type	Nos.	43				

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3.4.2	NDSR	Pendent / Upright type	Nos.	1205				
		TOTAL C/F TO SUMMARY						
SUBHEAD-IV (A): FIRE EXTINGUISHER (NON SCHEDULED ITEMS)								
4.1	NDSR	Providing, storing, handling, shifting, installation, testing and commissioning of halon free portable fire Extinguishers as described below:						
4.1.1	NDSR	4.5 kg carbon dioxide extinguisher, IS marked, with high pressure discharge tube, horn, control valve, CCE approved cylinder	Nos.	38				
4.1.2	NDSR	5 kg Mono Ammonium Phosphate (ABC) type cartridge operated extinguishers	Nos.	38				
4.1.3	NDSR	2 kg Mono Ammonium Phosphate (ABC) type cartridge operated extinguishers	Nos.	6				
4.1.4	NDSR	50 Kg. Mech. Foam type extinguisher	Nos.	1				
4.1.5	NDSR	22.5 Kg. CO2 Fire Extinguisher	Nos.	1				
4.2	NDSR	Providing and fixing signages printed on photoluminescent U1000 aluminium sheet of 1.0 mm (+-10%) containing Lumigen II as base chemical, covered under UV stablized coating and of appropriate size including fixing on wall, door, ceiling etc. with proper clamps, hangers, cleats, anchor fasteners etc. complete in all respects as directed by Engineer-in-charge.	Square Inch	2592				
		TOTAL C/F TO SUMMARY						
SUBHEAD-V (A): ELECTRICAL WORKS (NON SCHEDULED ITEMS)								
5.1	NDSR	CUBICAL FIRE PANEL BOARD						

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		Supply, installation, testing and commissioning of fire fighting panel suitable for 415V, 3 phase, 4 wires, 50 HZ power distribution system. The panel shall be floor mounted sheet metal sheet enclosed, dust and vermin proof conforming to IP-52, Compartmentalized design, fabricated out of 14SWG sheet steel, painting, earthing numbering, danger plate as per specifications and drawings, flush front with Aluminium busbars, separate earthing to be provided throughout the length of the panel. The incoming and outgoing feeder breakers, fuses, indicating lamps etc shall be accommodated in modular multitier arrangement. The painting shall be done as per relevant IS codes/as specified in the specifications. Adequate size cable alley shall be provided all round the panel and in the back for each cable bending and termination. The panel shall be fabricated by TAC/Fire authority approved vendor. The outgoing feeders inside the panel shall be connected through solid bus bars. It should be complete as per manufacturer's temperature setpoint of VAV including cost of wal	Set	1				
		Bus bars shall be provided with heat shrinkable sleeves and shall be colour coded . The panels shall be suitable for cable entry from bottom/ top. The minimum fault rupturing of all incoming and outgoing switches/breakers shall be 35KA. The panels shall be fabricated after the approval of fabrication drawings.						
		i) For 1 x 70 HP Wet Riser and Sprinkler Pump						
		ii) For 1 x 7.5 HP Jockey Pumps						
		Supply, installation, testing and commissioning of non draw out Cubical type sectionalised floor standing powder coated switch board of 31 MVA fault capacity at 415 V complete with 4 strip, 400 A capacity Aluminium Bus - Bar Electrolytic grade, cable alley & supplying & fixing of following switchgears as per specifications including connections & interconnections.						
A)		INCOMER						
(i)		One (1) No. 250 A TPN MCCB (35KA).						
(ii)		One set of 250 Amps Aluminium TPN bus bar shall be insulated with heat shrinkable sleeves and shall be coded.						

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(iii)		Three (3) Nos. current transformer (600/5A).						
(iv)		One (1) No. ammeter (0-600) Amps with selector switch.						
(v)		One (1) No. (0-500V) voltmeter with selector switch with 3 Nos 2A SP MCB.						
(vi)		1 Set (3 Nos.) of phase indication lamps with HRC fuses.						
(vii)		Indication for control supply 'healthy'.						
B)		OUTGOINGS						
(i)		Main Pump:1 No. - 200A TPN MCCB (36 KA) with HRC fuses with suitable HP fully automatic star/delta starter with over load protection, current sensing type single phase preventor complete with all accessories and internal wiring required for automatic operation, selector switch for local/remote, auto/manual OFF operation.						
(ii)		Jockey Pump: 2 Nos. - 40A TPN MCCB (16 KA) with suitable HP fully automatic star/delta starter with overload protection, current sensing type single phase preventor complete with all accessories and internal wiring required for automatic operation, selector switch for local/remote, auto/manual OFF operation. (One No. Spare)						
(iii)		Dewatering Pump: 2 No. - 16A TPN MCCB (16 KA) with suitable HP fully automatic star/delta starter with overload protection, current sensing type single phase preventor complete with all accessories and internal wiring required for automatic operation, selector switch for local/remote, auto/manual OFF operation.						
(vi)		one (1) No. pressure Switch.						
(v)		Wiring from pressure switch to starter - Lot						
(viii)		electrical hooter with ON/OFF switch for the above pumps running indication						
(ix)		Wiring from pressure switch to starter -1 Lot						
(x)		Suitable rating TPN MCCB for Diesel Engine Control panel						
(xi)		Set of control system to make the system automatic /BMS compatible as per functional requirements.						
C		Control Panel for Diesel Engine comprising:						

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		(a) Auto/Manual selector switch & 3 attempt starting device, timers and relays as required, push buttons, start/stop in manual mode.						
		(b) Indication lamp for High/Low Lub.oil pressure, High Water Temp. and Engine ON Indication.						
		(c) Battery charger suitable for 24V DC with boost and trickle selector switch, with digital panel meter for AC, DC voltage and Ammeter for battery charging current						
		(d) necessary potential free contact for indication of diesel engine driven fire pump running/fault in the addressable fire alarm panel/BMS Panel.						
		(e) All standard relays and accessories for automatic operation of diesel engine.The diesel engine driven fire pump shall start automatically in the event of pressure drop beyond preset limit or mains failure or failure of electrical driven pumps to start						
		One (1) No. pressure Switch.						
		Wiring from pressure switch to Diesel engine control panel.						
		One (1) No. 150A TPN MCCB (35KA).						
		Note:- CABLE CONNECTION						
(i)		Control Scheme as per specification						
(ii)		Following provisions to be made in the fire panel:						
a		Audio visual alarm & indications having disconnect/reset facility with a range of 1/2 km. Annunciator to be provided in the Fire panel with hooter and acknowledge, test and reset P Bs. The indication shall come on when electrical driven pump set fails to start on pressure drop or when there is power failure during pressure drop.						
b		Facility for mode selection ie auto or manual test & local/remote.						
c		Protection failure & control cabling.						
d		Panel shall be interlocked in such a way when fire pump starts on pressure drop in the header, supply to working chiller A/c panel is disconnected.Necessory Control wiring upto A/c panel , relevant relays & contactors etc. as required complete in all respect shall be in the scope the Fire contractors.						

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e		Remote indication of ON/OFF/TRIP shall be provided through potential free contact.						
f		Provision of remote starting/stopping (manuals) of the engine shall be made.						
g		All pumps operation shall be controlled by flow switches.						
h		The logic of control panel based on specification attached.						
i		All pumps shall be working automatically or manually.						
5.2	NDSR	POWER, CONTROL CABLING & EARTHING						
		Supply, laying, testing and commissioning of power and control cabling, as per Standard specification including end termination as required. It should be complete as per manufacturer's specifications & as directed by Engineer- in-charge.						
5.2.1	NDSR	Power Cabling (XLPE) insulated and PVC sheathed, armoured, Aluminium Conductor of 1.1 KV grade on existing cable trays).						
5.2.1.1	NDSR	3.5C x 120 Sq. mm	Rmt	30				
5.2.1.2	NDSR	4C x 16 Sq. mm	Rmt	30				
5.2.1.3	NDSR	4C x 10 Sq. mm	Rmt	40				
5.2.1.4	NDSR	3C x 6 Sq. mm	Rmt	20				
5.2.2	NDSR	Control Cabling (PVC insulated and PVC sheathed, armoured, Copper Conductor of 1.1 KV grade on existing cable trays).						
5.2.2.1	NDSR	5C x 1.5 Sq. mm	Rmt	100				

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5.2.2.2	NDSR	Supplying and making end termination with brass compression gland & Al. lugs for following sizes of PVC insulated, PVC sheathed/XLPE Al. Conductor cables of 1.1 KV grade as required.						
		(a) for main pump cable(3.5C x 120 Sq. mm)	Sets.	2				
		(b) for jockey pump cable(4C x 16 Sq. mm)	Sets.	2				
		(c) for dewatering pump cable(3C x 6 Sq. mm)	Sets.	2				
5.3	NDSR	Earthing Strip / Wires.						
5.3.1	NDSR	Supply and fixing of vertical down conductor 32 x 6 mm copper strip etc. on approved surface for earthing complete in all respects	Rmt	20				
		TOTAL C/F TO SUMMARY						
		GRAND TOTAL (Rs.)						