

Procurement plan

CA&R Group

S.No.	Name of Equipment	Tentative Cost Rs.	Nature of item
1	Mobile Workstation	1.5 Lakhs	Capital
2	Workstation	6.0 Lakhs	Capital
3	PC	4.0 Lakhs	Capital
4	Solid Works Software	15 Lakhs	Consumables
5	Electronics Items to develop Drone	3.0 Lakhs	Consumables
6	Thermal Transmittance meter	5.0 Lakhs	Capital
7	Consumables for laboratory/BPPP shed	1.0 Lakh	Consumables
8	Consumables like (sand coarse, fine, bricks cement, fly ash, VMA, Clay, chemicals for 3D printing and panel/brick casting)	5.0 Lakhs	Consumables
9	Fabrication work (Window, door, tin shed roof etc., temporary test facilities, accessories of test apparatus etc.)	5.0 Lakhs	Consumables
10	Printing, binding and stationary works	5.0 Lakhs	Consumables
11	Repair of machine and equipment	3.0 Lakhs	Repair and Maintenance
12	Minor Repair of Instruments	3.0 Lakhs	Repair and Maintenance
13	IoT cloud/software	3.0 Lakhs	Consumables
14	Power supply	5.0 Lakhs	Capital
15	IoT based Data Logger	1.0 Lakhs	Capital
16	Electronics Consumables	5.0 Lakhs	Consumables
17	Data Logger system for SHM	5.0 Lakhs	
18	AC/DC Motors	4.0 Lakhs	Capital
19	AC/DC Motor drives	2.0 Lakhs	Consumables
20	Controllers	1.0 Lakhs	Consumables
21	Sensors	1.0 Lakhs	Consumables
22	Human machine interface module with workstation	3.0 Lakhs	Capital
23	Standard mechanical items: pumping unit, gears, shafts, bearings and LM guides etc	3.0 Lakhs	Capital
24	Fabrication of large-scale 3-D concrete printer	5.0 Lakhs	Consumables
25	Pan Mixer with accessories		Capital
26	Window AC	0.75 Lakhs	Capital
27	Split AC	3.0 Lakhs	Capital
28	Uninterrupted Power Supplies (UPS)	0.5 Lakhs	Capital
29	Scanner	0.5 Lakhs	Capital
30	Printer	0.5 Lakhs	Capital
31	Chairs	0.5 Lakhs	
32	Workstation	5.0 Lakhs	Capital

Structural Engineering Group

R.NO	NAME OF EQUIPMENT	TENTATIVE COST RS.
	CAPITAL ITEMS	
1.	Shake Table (3m x 3m)	5,00,00,000/-
2.	Laboratory scale 3D concrete Printer.	80,00,000/-
3.	Full Scale (Onsite 3D Concrete Printer.	1,80,00,000/-
4.	100 ton Universal Testing Machine	1,50,00,000/-
5.	300 ton Instron UTM fixtures for various testing (Compression, tension, fatigue etc.)	-
6.	Data Acquisition System	-
7.	Gas Actuated Fastening Tool	Rs. 2,10,000/-
8.	Riveting Tool	Rs. 1,30,000/-
9.	Mobile Workstation	-
10.	UPS	-
11.	Workstation	-
12.	Office Desktop	-
13.	Hydraulic Jacks	-
14.	Actuators (Pseudo-static, dynamic)	-
15.	Load cells (Pseudo-static, dynamic)	-
16.	Infrared thermal imaging camera/ scanner	-
17.	High speed camera	-
18.	Servo-stabilizer 3 phase/1 phase (Load- 10 KW, 20 KW etc.)	-
19.	Bamboo Splitting Machine	-
20.	High pressure Air Compressor with 500 liters pressure vessel	-
21.	Bamboo/Wood Turning Lathe Machine	-
22.	Bamboo Knot Removing Machine	-
23.	Split Hopkinson Pressure Bar	-
24.	Bamboo grading machine	-
25.	Rebound Hammer	-
26.	Crack Monitors/Meter	-
27.	Rebar Locators	-
28.	Ground Penetrating Radar	-
29.	Ultrasonic Pulse velocity Testers	-
30.	4-Channel Data Logging Thermometer	-
31.	Concrete Resistivity Meter	-
32.	Corrosion Meter	-
33.	Power Supply	-
34.	Rapid Chloride Permeability Tester	-
35.	Pull-Off Adhesion Tester	-
36.	Rebar Locators/Cover Meters	-
37.	Metal Detector	-
38.	Alkali Silica Reactivity (ASR) Detection Kit	-
39.	Concrete Moisture Meters	-
40.	Windsor Probe System	-
41.	Concrete Coefficient of Thermal Expansion System	-
42.	Laboratory Mechanical Tools (Grinder, Cutter, Drilling Machine etc.)	-
43.	Cutting Die	-
44.	Laser Displacement Sensors	-
45.	Vernier Caliper	-
46.	Office Furniture (Office Table, Executive Chair, Visitor chair, Almirah etc.)	-
47.	Compress meter	-
48.	Extensometer	-
49.	Putty Mixer	-

50.	Concrete Mixer	-
51.	Flow Table	-
52.	L-box/U-box apparatus	-
53.	Moulds	-
54.	Corrosion rate measuring portable apparatus	25 Lakhs
55.	Flat Jack for masonry test	-
56.	Split AC with Stabilizer	0.55 lakh

GEGH GROUP

S.No	Equipment Name	Cost (Approx.)
1.	Fredlund SWCC equipment	30 Lakhs
2.	3D Printer for rock sample preparation	30 lakhs
3.	High Speed camera	25 lakhs
4.	Bi-axial Shaking table	400 lakhs
5.	3D Digital Image correlation system	30 lakhs
6.	Dynamic/Cyclic Simple shear apparatus	100 lakhs
7.	Advanced dynamic triaxial testing system	150 lakhs
8.	Actuator with power pack	100 lakhs
9.	FBG sensor network	80 lakhs
10.	Pore pressure sensors (6 Nos.)	Rs. 4.5 lakhs
11.	Acceleration sensors (6 Nos.)	Rs. 6 Lakhs
12.	Displacement sensors (6 Nos.)	Rs. 5 Lakhs
13.	Force sensors (4 Nos.)	Rs. 8 Lakhs
14.	Dynamic data acquisition system	Rs. 25 Lakhs
15.	Artificial rainfall simulator system	Rs. 30 Lakhs
16.	Soil moisture sensors with data logger	Rs. 20 lakhs
17.	Fork lifting machine	Rs. 5 lakhs
18.	5 Ton electric wire rope hoist	Rs. 2 lakhs
19.	Workstation	30 lakhs
20.	Laptop 2 nos.	7 lakh
21.	Earth Pressure Balance Shield	90 lakhs
22.	Resonant Column Apparatus	100 lakhs
23.	Upgradation of Plaxis 3D software	10 lakhs
24.	Infrared Moisture Meter	0.5 lakhs
25.	Pile Integrity Tester (PIT)	7 lakhs
26.	Laser Displacement Sensor	20 lakhs
27.	Anchor [Steel strand, prestressing clamp, prestressing bolt, aluminium pipe, Thermoplastic elastomers tube]	10 lakhs
28.	Sand	1.5 lakhs
29.	Cement	2 lakhs
30.	Aggregates (Coarse & Fine)	2 lakhs
31.	Aluminium Pipes and Sheets	2 lakhs
32.	Tension Sensor	2 lakhs
33.	Acrylic Sheet	1 lakhs
34.	Strain Gauges	2 lakhs
35.	Earth Pressure Cells	1 lakhs
36.	Fabrication of Support System	5 lakhs
37.	Fabrication of concrete tank for physical model test	3 lakhs

38.	Tunnel Volume loss simulator	5 lakhs
39.	Earth Pressure cells	5 lakhs
40.	LVDT	5 lakhs
41.	Data Logger	10 lakhs
42.	Optum G2 Software	5 lakhs
43.	Earth pressure cell, Accelerometer, Pore Pressure Sensors	15 lakhs
44.	High end workstation	10 lakhs
44.	ERT cable/Wire	5 lakhs
45.	Bender Element and software	11 lakhs
46.	Dynamic load cell	5 lakhs
47.	Geophone with data logging arrangement	18 lakhs
48.	Laser displacement sensor	14 lakhs
49.	Chemicals/Consumables	2.5 lakhs
50.	Fabrication of test set up	10 lakhs
51.	Desktop (2 Nos.)	3 lakhs
52.	Rock science software	5 lakhs
53.	Ground Penetrating Radar (GPR)	120 Lakhs
54.	Circular steeliness steel tunnel (D=100mm L=2.25m) (1 No.)	9 Thousand

HSS Group

S. No.	Equipment	Expected Cost (Lakhs)
1.	Antenna for GPR	35
2.	Handheld EM wave-based Scanner / Handheld GPR	15
	Portable Laser scanner	48
3.	Tower AC 4 Nos	4
4.	Table & Chair for CoE on Heritage	6
5.	Vibration Shaking Table	20
6.	Gate for Flash flood simulator	08
7.	Earth pressure cells/Accelerometer/Pore Pressure Sensors /Small equipment / Test Setups / Fabricated Setup	15
8.	Server, High end workstation, Computers, All in One, UPS, Printer	35
9.	Pix 4D/Metashape/Other software	04
10.	Data collection system for monitoring	03
11.	Geophone with data logging arrangement	18
12.	3D Printer	2
13.	Metal Detector	5
14.	3-D DIC	90
15.	Other necessary minor instruments (Core cutting machine, Steel Cutter, Grinder, Drilling machine, Color meter, moisture meter, stone cutter, grinder, DSLR camera, humidity chamber etc.)	8
16.	Automatic CTM capacity 250 T	30
17.	Shock Tube and Blast Testing Facility (length-5m, 3 km/s, and caliber-20 cm)	150
18.	Load Cell Range 0-30 Tons	12
19.	High Speed Camera (30,000 fps, 320x256 pixel resolution, ISO 5000, 4GB)	75
20.	Oscilloscope (500 MHz, 5 GSa/s, 30 MHz-ARB, 4 channels)	10
21.	Dynamic Spectral Analyzer (25.6 kHz-4 channel, 90 dB, 6 Ms)	8
22.	Signal conditioner (8 channels, +/-10V, 30 kHz)	8
23.	Power Amplifier (150V, 70 kHz,-3dB)	8.74
24.	Linear stage (X-Y axis) (1 meter slide, 25 rotation/2.5 cm)	3
25.	MEMS High-G Shock Accelerometers (0-20000g, 60 kHz)	16
26.	High Frequency, General Purpose Pressure Sensors (345 kPa, 500 kHz)	16
27.	Preamplifier 1/4" Free-field Microphone (6 Hz to 20 kHz, Pre-polarized)	16
28.	High Frequency, General Purpose Force Sensors (20 KN, 100 kHz)	8
29.	High Frequency, Piezoelectric strain sensors (50mV/ μ strain , 10,000 g pk)	8
30.	Time-of-arrival, ICP® Micro-pressure Sensors (345 kPa, 100 kHz)	8
31.	Ballistic peak pressure monitoring system (Voltage gain 0.1-1000, 50 kHz)	10
32.	Piezo-Actuator (35 μ m-stroke length, 50 kHz-resonating frequencies)	10.56
33.	Academic licence (Annual Subscription based) of LS-DYNA	5.90
34.	Boundary Layer Wind Tunnel	150

35.	Pressure Scanner	20
36.	Hot Wire pyronometer	10
37.	High frequency force balance equipment	9
38.	Smoke Detector and Particle Image Velocimetry	50
39.	High frequency Camera	2
40.	Rebar Scanner	22
41.	Pneumatic Pressurization system + Test Chamber, Water Penetration Test Arrangement, Digital Controller with software and accessories	600
42.	Desktop workstation for computing, simulation, and modeling	8.70

*The Prices are based on the market survey. It may vary 10-15 % during procurement.

Outreach & Dissemination Services Office

S. No.	Budget Heads	Items	Quantity
1.	Equipment's	Desktop Computer	02 Nos.
		UPS 1 KVA	02 Nos.
		Laser Printer	1 No.
		Lamp for Inauguration Functions	1 No.
		Spiral Binding Machine	1 No.
2.	(Office Stationary)	Office Towels	10 Nos.
		Dusters	30 Nos.
		Room Fresheners	25 Nos.
		Glass/Objects Cleaner	25 Nos.
		Ring Binding Files	30 Nos.
		UPS Batteries	10 Nos.
		Anti-Virus CD's	02 Licenses
		Hand Sanitizers 500 ml	20 Bottles
		Battery Cell (Pencil)	10 Nos.
		Battery Cell (Standard)	10 Nos.
		Calculators	02 Nos.
		Glass Tumblers (300 ML)	03 Sets
		Tea Set	03 Sets
		Tea Kettle/Flask	02 Nos.
		Serving Trays	05 Nos.
		Dispenser Bottles	02 Nos.
		Glass Water Bottles	10 Nos.
		V-Shaped Desktop Name Stand	10 Nos.
		Mosquito Repellent Machine	10 Nos.
		Staplers & Staples	05 Nos.
		Scissors	05 Nos.
		Adhesive Tapes	25 Nos.
		Double Sided Tapes	05 Nos.
		Measuring Tapes	10 Nos.
		Fevicol/Glue stick	15 Nos.
		L-Folders	10 Pkts.
		Sketch Pens	10 Pkts.
		Drawing Sheets (A3)	10 Pkts.
		Cutter	10 Nos.
		Punching Machine	04 Nos.
		Sticky Notes	10 Pkts.
		Pencils	20 Nos.
		Eraser/Sharpener	10 Nos.
Correction Pens	15 Nos.		
Highlighter Pens	20 Nos.		
Permanent Marker	20 Nos.		
Whiteboard Marker	30 Nos.		

		CD Marker Pen	20 Nos.
		Envelope's (A4/A3/Postal)	10 Pkts.
		Measuring Scale	10 Nos.
		Ball Pen	50 Nos.
		Glossy Photo Papers	20 Pkts.
		A4 Sheet	30 Rims
		A4 Color Sheets	03 Rims
		A3 Sheet	05 Rims
		Register's	20 Nos.
		File Covers/Binders	100 Nos.
		File Tags	100 Nos.
		Dustbins	05 Nos.
		Extension Boards	05 Nos.
		Printer Cartridges - HP LaserJet M1005 MFP	04 Nos.
		Printer Cartridges- XEROX Phaser 6510 (Color)	04 Sets
		Printer Cartridges- XEROX Versa link B 7030 PCL6	02 Nos.
		Printer Cartridges- EPSON L455 Series	02 Sets
		Stationary items for Training Programmers	Bags
	Ball Pens		800 Nos.
	L-Folders		30 Pkts.
ID Card Holder + Dori	800 Nos.		
Notebooks	800 Nos.		
Soft Storage	100 Nos.		

APEE

Sr. No.	Name of Equipment's	Cost of Equipment's (in Lakh)
1	Thermal Comfort meter (1 No)	3.50
2	Lux meter	0.50
3	Anemometer	0.50
4	Pyronometer and Albedometer	4.00
5	Spectroradiometer	6.00
6	Data acquisition system	5.00

ACSC GROUP

S.No.	Name of Equipment's	Tentative cost (Rs. in Lakh)
1.	Autoclave machine	7.0
2.	Rheometer for mortar	40.0
3.	Consistometer for workability	0.75
4.	Air content meter for mortar mix containing waste materials	4.50
5.	Mercury Porosimeter	25.0
6.	Vibratory Hammer for concrete moulds	0.75
7.	BET Specific Surface Area Analyzer	30.0
8.	Auto-Shrink System apparatus	10.0
9.	Programmable Vacuum Mixing Unit	2.0
10.	Fatigue Testing Machine	300
11.	Servo Controlled Axial / Cyclic Testing System	25
12.	Detachable Furnace	5.0
13.	Double Acting Cylinder	10
14.	Freezer	15
15.	Carbonation chamber	10.0
16.	Humidity chamber	5.0
17.	Dynamic Image Analysis	75.0
18.	Digital Analytical balance (220 gm)	5.0
19.	Automatic vicat apparatus	5.0
20.	UV-Vis spectrophotometer	15.0
21.	Rheometer and accessories	20-25
22.	Setup + Data acquisition and Control System	25
23.	Acoustic Emission Setup	22
24.	Permeability Tester	4.0
25.	Sensors (Linear Position Sensor-Non Contact) and test setup for testing CFST specimens	4.0
26.	Platinum crucibles	30.0
	Molybdenum Disilicide Heating elements for Furnace : 06 Nos. worth 09 Lakhs	
	Chemicals (Polyvinyl alcohol, Acetone, HPMC etc.)	
	Flux materials (viz. - CaF2 etc.)	
	Glass wares	
	Repair work for different equipment	
	Coarse and fine aggregates	
	Pigments	
	Sample collection containers	
	Plasticizers/ water reducers/HRWRA	
	Lab safety Wears (Apron, gloves & mask)	
	Plastic Molds of different sizes for determination of physico-mechanical properties	
	Enamel tray (different size/shapes)	
	Sieves of different sizes ranging from 30 microns to 20 mm	
27.	Cements	30.0
	Chemicals	
	Flyash, GGBS, Silica Fume, Quartz powder	
	Epoxy, Coating materials	
	Steel Reinforcement, Steel Plates	

	Steel Sections	
	Bolt & Nuts	
	Strain gages, wires, thermocouple	
	Steel Pipes	
	AMC	
	Hydraulic oil, Gear Oil, Greece	
	CFRP, GFRP,BFRP, AFRP fabrics, mesh	
	Textile grids	
	Repair work for different equipment	
	Coarse and fine aggregates	
	Plasticizers/ water reducers/HRWRA	
	Lab Safety Wears (Apron, gloves & mask)	
	Steel Molds of different sizes	
	Sieves of different sizes ranging from 30 microns to 20 mm	
28.	Consumables	15.0
	Chemicals	
	Admixtures	
	Moulds	
	Cement	
29.	Sample Bottle, 50 ml(20 Nos.)	1,300/-
30.	Water bottle with neck 500 ml(01 No.)	120/-
31.	Beaker plastic 100 ml(10 No.)	800/-
32.	Dropping sample bottle(10 No.)	750/-
33.	Zip bag big size, 50 pc.(01 No.)	750/-
34.	Zip bag medium size, 50 pc.(01 No.)	350/-
35.	Zip bag small size, 50 pc.(01 No.)	110/-
36.	OPC 43 cement(01 No.)	600/-
37.	Steel plates small(12 Nos.)	960/-

ESTATE GROUP

S.No.	Name of Equipment's	Quantity	Cost
1.	Electric lawn	01	45,000/-
2.	Chainsaw MS 250v size 20 inch	01	2,500/-
3.	Repair of electric lawn	01	2,400/-

- Microphone/ speaker for conference room

Fire Safety Engineering

S.No.	Item/Description	Unit	Quantity	Amount (Lakh)
1.	LPG 47.5 kg Cylinder (40 Cylinder)	kg	24000	32.4
2.	MTO Oil	Litre	24000	32.4
3.	LPG 14.2 kg Cylinder(6 Cylinder)	kg	1020	1.377
4.	Cement Bags OPC 43 Grade(50 kg Bag)	Nos.	600	3.6
5.	Cast able Refractory (50 kg Bag)	Nos.	120	3
6.	K-Type Thermocouple (1200 °C ChromelAlumel)	Nos.	300	3
7.	Yamuna River Fine Sand (Zone II)	Quintal	2400	3
8.	Masonry Bricks First Class	Nos.	30000	3
9.	Canon 337 Cartridge	Nos.	24	1.2
10.	Canon 328 Cartridge	Nos.	24	1.2
11.	Canon 328 Cartridge	Nos.	24	1.2
12.	HP 110A Cartridge	Nos.	24	1.2
13.	HP CC 388 AC Cartridge	Nos.	24	1.44
14.	M-Seal (Hilti)/Adhesive for Thermocouple	Nos.	240	1.2
15.	K-Type Thermocouple Disk Type (400 °C)	Nos.	300	1.2
16.	T-Type Thermocouple Disk Type(450°C to 550 °C)	Nos.	300	1.2
17.	Aggregated 12.5mm	Quintal	200	0.36
18.	SMF Battery with Replacement (12V, 7Ah) for UPS	Nos.	120	1.2
19.	Repair of Computer /Printer	No.	60	3
20.	Stationary Item	No.	600	3
21.	Digital Vernier Caliper 300 mm	No.	1	0.1
22.	Safety Shoes	Nos.	15	0.3
23.	Apron	Nos.	20	0.4
24.	Electronic Customized Digital Information display Board	No.	1	1.8
25.	Online UPS for Display Board	No.	1	0.5
26.	Fabrication Work	Nos.	2	0.2
27.	6 mm Diameter TMT Rebar For Reinforcement Hanging Block Cage	kg	100	0.1
28.	Repair of VAS 125 R/LWSR Solenoid Valve	Nos.	16	4
29.	Repair of VCS 125R/NWSR Solenoid Valve	Nos.	16	4
30.	Relay(02 Pole,24 VDC RXM)	Nos.	10	0.15
31.	Relay(04 Pole,2430 VAC RXM)	Nos.	10	0.15
32.	Solenoid Valve (Rotex)	Nos.	2	0.5
33.	IFS 110 IM 5/1/1T 220 volt Repairing	Nos.	1	1.8
34.	IFD 258-5/1W 220 Volt AC 50Hz Repairing	Nos.	1	2.4

35.	Maintenance and service work of power line 440 Volt 3 phase of 3 tons crane at 25m height	No.	1	0.25
36.	Repair of Data Taker	No.	1	1
37.	Ignition Transformer TGI 7.5-12/100w 230 volt Ac 50 Hz Repairing	No.	1	0.1
38.	Thermocouple Extension Wire (Soraj) cu. Al.	No.	200	0.21
39.	Spark Plug Rod/Flame Rod	No.	16	0.64
40.	Gr.P99 Seamless Ferritic Alloy Steel Pipe (NPS)0.75	No.	2	0.2
41.	Limit Switch 10 Amp 2NO 2NC	No.	5	0.2
42.	Spark plug with Thread	No.	19	0.095
43.	Asbestos Sheet	No.	1	0.1
44.	M.S. Sheet for Thermcouple Cover on Beam	No.	10	0.02
45.	Measuring Tape	No.	4	0.008
46.	Multimeter	No.	1	0.02
47.	DFT meter	No.	1	0.2
48.	Tumbler/Glass	No.	12	0.06
49.	Safety Google	No.	2	0.04
50.	Safety Helmet	No.	5	0.05
51.	Face Shield	No.	2	0.01
52.	Grease	No.	5	0.02
53.	Teflon Tape	No.	20	0.01
54.	HSS Blade for Hacksaw (14"x1" 10 TPI)	pkt	2	0.03
55.	Electrical Insulation Tape	No.	50	0.008
56.	Crane Wiring Grease	kg	20	0.05
57.	Welding Electrode 8 No.	No.	5	0.05
58.	Welding Electrode 11 No.	No.	5	0.05
59.	Welding Holder	No.	1	0.025
60.	Top Plug 5 Ampere	No.	10	0.008
61.	Top Plug 15 Ampere	No.	10	0.012
62.	Cutting Wheel (107mm)	No.	5	0.01
63.	Grinding Wheel(125mm)	No.	5	0.01
64.	Gear Oil (Grade 20W 40 IN)	No.	5	0.2
65.	Star Coupling (oil Motor)	No.	8	0.016
66.	Jute Rope	No.	5	0.025

67.	Motor Belt(+B2680/B104)	No.	15	0.345
68.	Motor Pump Oil Seal	No.	6	0.027
69.	Pressure Pipe for O2 Cylinder	No.	10	0.05
70.	Pressure Pipe for LPG Cylinder	No.	10	0.05
71.	Mobile Oil	No.	10	0.01
72.	Gas Regulator On/Off	Nos.	10	0.08
73.	Repair of Motor	Nos.	2	0.25
74.	Flexible Metallic Conduit Pipe	No.	100	0.1
75.	IFS 110 IM-10/1/1T 220VAC 50 Hz (KROM SCHRODER)	No.	19	15.2
76.	Photo Cell UVS 10 DOG1 220VAC 50 Hz (KROM SCHRODER)	No.	19	9.12
77.	Ignisation Transformer PRI 230 VAC (0.45) A Sec. 7.5 KV (9)MA(KROM Schroder)	No.	19	4.75
78.	Process Solenoid Valve for Gas (Jeferson)	No.	19	1.14
79.	Process Solenoid Valve for Oil (Jeferson)	No.	19	1.14
80.	Control Conatctor 220 VAC 50 Hz (Schneider/Siemens/UB)	No.	19	0.95
81.	Air Break Contactor 220 VAC 50 Hz 70 to 80 amp (3TF47)(Schneider/Siemens/UB)	No.	8	2
82.	Limit Switch 10 Amp 2 No NC (Siemens)	No.	10	0.2
83.	Brake Liner	meter	5	0.1
84.	Push Button for Switch E69-30A	No.	10	0.05
85.	Air Break Contactor 110 A-125 A(3TF51)(Schneider/Siemens/UB)	No.	4	1.6
86.	L&T Power Contactor MCX 325 Amp.CS97023 Vacuum Contactor	Nos.	4	2
87.	Pressure Gauge 0 to 1000 MMWG	No.	2	0.04
88.	Pressure Gauge o to 1500 kg/m	No.	2	0.03
89.	IFD 258-5/1W 230VAC 50HZ (KROM SCHRODER)	Nos.	16	11.2
90.	Flame rod 1 Micro Amp (KROM SCHRODER)	Nos.	16	0.32
91.	Double Solenoid Valve VAS 125/LWSR 500M Bar 220VAC 50Hz	Nos.	16	28.8
92.	IgnisatinTransformerPri 230VAC (0.45) A Sec. 7.5 KV(9) MA	Nos.	16	4
93.	Air Brake Contactor 110A-125A(3TF51)	Nos.	4	2
94.	UB.PVC Relay Module Using 1N4007 230VAC 5A 1100 OHM	Nos.	50	1
95.	UB.PVC Relay Module Using 1N4007 24VDC 5A 1100 OHM	Nos.	50	0.75
96.	Emergency Push Switch Button	Nos.	8	0.04
97.	Alloy steel Seamless pipe 0.75 NBxSCHXXS ASTM A335 GR P9 Plain End 4 To 7 meter	Nos.	6	0.12

98.	LS Cable 1.512 copper Unarmoured Type A(UB)	metre	200	0.25
99.	SMPS 220 VAC/+12/+24VDC 10 AMP	Nos.	3	0.15
100.	Iron Motor Cooling Fan	Nos.	6	0.24
101.	Pressure Switch 220 VAC IC 20-07 W2E 22/17 IB-IN (KROM SCHRODER)	Nos.		25000
102.	500 Watt LED Luminous Flood Light	Nos.	10	0.6
103.	B1720 Belt B66(Ejector Blower Belt)	Nos.	16	0.32
104.	Furnace Repairing (Complete)	Nos.	2	25
105.	Equipment for cyclic tests under fire loading for columns, beam-column joints etc.	tons	200	150
106.	High Sensitive 24 channel PC Based Data Acquisition System	No	01.	30
107.	NDT Equipment for Damage, assessment in Fire damaged structures such as UPV, Rebound Hammer and Rebar Locator	Nos.	03	10
108.	Laser LVDT's	Nos.	05	3
109.	Load cells	Nos.	03	2.5
110.	Thermal Imaging Camera	No.	01	5
111.	Mobile Workstation	No.	01	2.5
112.	Computer	No.	01	0.8
113.	Fibres (Steel fibres, PP fibres, Rubber, fibre etc.)	kg	50	0.5
114.	Composite Material fabric and Laminate(CFRP and GFRP)and epoxy etc.	rolls	04	2.5
115.	Reinforcement, Cement, Aggregates etc.			1.5
116.	Fabrication of Different Sizes of Moulds		20 Nos.	2
117.	Chemicals			1
118.	Glassware			0.5
119.	Steel Chemical Rack		2	0.5
120.	Almirah		2	0.3
121.	Chair		8	0.3
122.	Ball Mill		1	3
123.	Steel or Mild Steel moulds		15	0.25
124.	Vernier Calliper		1	0.06
125.	Slump test Apparatus		1	0.04
126.	Bomb calorimeter (Capital Item)			1.300
127.	Humidity chamber (Capital Item)			2.100
128.	Non combustibility apparatus furnace			2.500
129.	Chemicals for laboratory			4.000

130.	Consumables like (gas cylinders, boards, heating elements, valves, bricks and incidental requirement as per laboratory etc.)			4.000
131.	Fabrication work (specimen holders, temporary test facilities, accessories of test apparatus etc.)			4.000
132.	Printing, binding and stationary works			1.000
133.	Repair of data logger			2.000
134.	Repair of smoke measurement system			0.250
135.	Minor Repair of Instruments			1.250
136.	VR Based Software-Unity			
137.	Software for Rapid Fluid Flow analysis of pipe and design of duct network			
138.	Auto CAD software			
139.	workstation (Desktop or Laptop based)	No.	1	

HCP0048

Sr.No.	Name of Equipment	Cost (in Lakh)
1.	Carbonation Chamber (Large sizes) with CO ₂ Cylinder fitted with, Vacuum Pump, DAQ temperature controlling unit and sensors, relative humidity, etc.	12.50
2.	High Temperature programmable Furnace	17.00
3.	Autoclaving Machine	7.00
4.	High Pressurized CO ₂ (Up to 10 bar) Curing Chamber along with Vacuum System	7.50
5.	Dynamic Fatigue Testing Machine (Repetitive Load Apparatus)	8.00
6.	Minor laboratory equipment	
	Vicat's Needle Apparatus (2 No.)	0.12
	Le-Chatelier's Apparatus (2 Nos.)	0.03
	Weighing Balance (2 Nos)	0.10
	Aggregate Crushing apparatus	0.08
	Aggregate Impact apparatus	0.12
	Slump cone Apparatus (2 Nos)	0.13
	Concrete Mixer pan type (60 Lit)	6.00
	Vibrating Table	0.85
	Air entrainment meter	0.70
7.	Drum Mixer	1.50
8.	pH meter (2 Nos)	1.20
9.	Magnetic stirrer (2 Nos)	2.00
10.	Sonicator	0.60
11.	Buoyancy Balance	0.60
12.	Analytical balance	1.25

13.	Hand pallet hydraulic trolley	0.40
14.	CTM	6.00
15.	Flue gas cylinder with gas	0.60
16.	Rapid Chloride Penetration Test	
17.	Cast iron Gang mould 25 mm and 50 mm size	
18.	Hydraulic trolley	
19.	Life cycle assessment software	
20.	Air content meter	

BM&ES GROUP

EQUIPMENTS

S.No.	Name of Equipment's	Quantity	Cost
1.	Starch powder	5 kg	4,000/-
2.	Sodium Silicate, LR grade	10L	7,500/-
3.	Nano Alumina power	1 kg	2,000/-
4.	Nano clay powder	1 kg	1,500/-
5.	Titanium Isopropoxide	2L	9,500/-
6.	Colour printer	01	15,000/-
7.	Wi-Fi Router	02	12,000/-
8.	LCD Monitor(for lab presentation)	01	25,000/-
9.	Silver polyester conductive Tape for FESEM size-1/2 width 72 yard long	02	49,560/-
10.	Portable precision colorimeter	01	98,600/-
11.	Polycarboxylate ether	25 kg.	18,750/-
12.	Vinnapas 8034 h Bag	25 Kg.	12,000/-
	Deep freezer (-86°C)	01	650000
13.	Refrigerated centrifuge	01	350000
14.	BOD incubator with relativity humidity	01	600000
15.	Electronic balance	01	100000
16.	Split AC	02	50000
17.	Electric oven	01	2000
18.	Barcode scanner	02	6000
19.	Dry ice making machine	01	20000
20.	Virtex mixture	01	25000
21.	Blood collection couch	01	20000

22.	Digital Mortar Mixer (5Lit)	01	35000
23.	Digital Pipette	01	30000
24.	Magnifying glass	01	1300
25.	Weighing Machine (50Kg)	01	4000
26.	Steel Container (2L)	02	1000
27.	Steel tray	05	2000
28.	Pycnometer	02	1000
29.	Density Bottol	03	1500
30.	Density Measuring cylinder (3L,15L,30L)	01	7500
31.	Temping rod	02	1000
32.	Tungsten Loop with holder	02	800
33.	Digital Compressometer (15x30cm)	02	25000
34.	Steel Scale (12inch, 24inch)	02	100
35.	Digital length Comparator	01	7000
36.	Forceps different shapes pack	01	1000
37.	EDXRF	01	6000000

Consumable and Chemical items

SL NO.	ITEM NAME	QUANTITY	COST (APPROX.)
1.	Wooden Blocks (2x2x2 inches)	100 nos.	Rs. 2000.00
2.	Wooden Blocks (1x1x1 inches)	100 nos.	Rs. 500.00
3.	Perspex sheets (6x6 inches)	100 nos.	Rs. 4000.00
4.	Polythene bundle (20x20 ft.)	1 nos.	Rs.2500.00
5.	Glass Jars/Bottles	75 nos.	Rs. 18750.00
6.	Measuring cylinder (1000 ml)	5 nos.	Rs. 7500.00
7.	Measuring cylinder (500 ml)	5 nos.	Rs. 4000.00
8.	Measuring cylinder (100 ml)	5 nos.	Rs. 2500.00
9.	Measuring cylinder (25 ml)	5 nos.	Rs.1500.00
10.	PVC Pipe (20 ft. length)	2 nos.	Rs. 2400.00
11.	Bricks	5000 nos.	Rs. 50000.00
12.	Cement bags	50 nos.	Rs. 25000.00
13.	White cement bags	20 Kg	Rs. 600.00
14.	Paint	02 kg	Rs. 800.00
15.	Yamuna Sand	5 buggi	Rs. 7500.00
16.	Coarse sand	5 buggi	Rs. 12500.00
17.	Soil	5 buggi	Rs. 4000.00
18.	Experimental MS plates (8x4 inches)	100 nos.	Rs. 5000.00
19.	Paint Brush	10 nos.	Rs. 1000.00
20.	Petri Dishes	50 nos.	Rs. 5000.00
21.	Whatman filter paper	10 pkts.	Rs. 10000.00
22.	Binding Wire	1 kg	Rs. 100.00
23.	SnowchemTerracota	5 kg	Rs. 1250.00
24.	Hand gloves	5 pairs	Rs. 750.00
25.	Surgical Gloves	2 pkts.	Rs. 200.00
26.	Evaporating Dishes (80x45cm)	20 nos.	Rs. 12000.00
27.	Evaporating Dishes (200x100cm)	20 nos.	Rs. 16000.00
28.	Methanol	3 litre	Rs. 7500.00
29.	Organic Solvent (Ethanol)	3 litre	Rs. 900.00
30.	Turpentine oil	20 litre	Rs. 2000.00
31.	Ethyl Alcohol	20 Ltr	3000
32.	Nutrient broth	5 Kg	12420
33.	Urea base broth	5 Kg	17000
34.	Urea	5 Kg	1000
35.	Cement bag	10 bag	5000
36.	Blue bitrile gloves	10 packets	
37.	Surgical mask	500 Nos	
38.	Ice Box	04 Nos	
39.	Nitrile glove	10 Packets	
40.	Ethyl alcohol	10 liter	
41.	Sanitizer	2 liters	
42.	Syninge 2.5 ml	200 Nos	
43.	Disposable bag different size	100 Nos	
44.	Dustbin 3 types	06 Nos	
45.	Centifuge tubes 1.5/2.0ml	400 Nos	
46.	Absorbent cotton	4 Kg	
47.	Alumonium foil	500 gm	
48.	Tissue roll	4 Packets	
49.	Liquid soap	4 Liters	
50.	Himedia PDA	1 Kg	
51.	Inaculation loop	04 Nos	
52.	Autoclavable bag different size	04 Packets	
53.	Agar Agar	500 gm	
54.	Disposable petriplate 90 mm	1 Box	

55.	Antifungal discs	10 Nos.	
56.	Streptomycine	10 Nos.	
57.	Blood collection tube	200 Nos.	
58.	Labels	200 Nos.	
59.	Stadiometer	01 No.	
60.	Digital weight machine	01 No	
61.	Single channel variable volume pipette C3-10-100 micro liter	02 Nos	
62.	Single channel variable volume pipette C3-100-1000 micro liter	02 Nos	
63.	Doctor tape	100 Nos	
64.	Tourniquet	02 Nos	
65.	Medical plastic bins/container	06 Nos.	
66.	Centifuge tube rack (2 ml)	04 Nos	
67.	Microscopic slide	04 Nos	
68.	Cover slip	06 No.	
69.	Lectophenol cotton blue	500 gm	
70.	Toner cartiridge	02 Nos.	
71.	Repair of equipments	As require	
72.	Colin(1 Lt)	10	170X10= 1700
73.	Harpic (1 Lt)	10	195X10=1950
74.	Dettol (1 Lt)	10	125X10=1250
75.	Vim bottol (1 Lt)	10	197X10=1970
76.	Gloves	5 packet	356X5=1825
77.	Tissue Rolls	5 packet	450X5=2250
78.	Aluminium foil	5	200X5=1000
79.	Room freshner	5	150X5=750
80.	Odonil	5 packet	172X5=860
81.	N-95 mask	20	150X20=3000
82.	Cotton bundle	05 packet	110X5=550
83.	Mask for laboratory	05 packet	215X5=1075
84.	Reagents and chemicals required for uv resistant pigments		
85.	scratch free paints		
86.	Acrylic sheet for making chamber		
87.	cutter for concrete specimen cutting, silicate source reagent,		
88.	plastic wares for laboratory use,		
89.	Measuring clyinder (100ml, 500ml, 1000ml)	5 each	4500
90.	Beaker 500ml, 1000ml)	10 each	12000
91.	Measuring flask – 50ml, 100ml, 500ml	10 each	11000
92.	Curing chamber		
93.	Fourier transform infrared Spectrophotometer		
94.	Ion selective electrode (Chloride, Sulphate etc)		
95.	Pelletizer		
96.	Gas cylinder		
97.	Helium Gas		
98.	P-10 Gas		
99.	Argon Gas		
100.	Nitrogen Gas		
101.	Oxygen Gas		
102.	Vermiculite		
103.	Binding of Report		
104.	Cartridge		
105.	Sand		
106.	Cement		
107.	Aggregate		
108.	Tylose		
109.	Opagel		
110.	Technocel		

111.	Battery		
112.	Filter Paper		
113.	Nitrle Gloves		
114.	Polycarboxylate Ether		
115.	Pen Drive		
116.	Silica Crucible		
117.	Web Camera		
118.	Head Phone		
119.	Keyboard		
120.	Mouse		
121.	Gypsum		
122.	Mould		
123.	Shallak Powder		
124.	Flex Board		
125.	Sodium Hydroxide		
126.	Copper Chloride		
127.	Acetone		
128.	Ethanol		
129.	HCl		
130.	Sulfuric Acid		
131.	Nitric Acid		
132.	Glassware		
133.	Silver Nitrate		
134.	Crucible		
135.	Hydraulic oil		
136.	Heating element		
137.	Magnesium Chloride		
138.	Sodium Chloride		
139.	Dropper		
140.	Pipettes		
141.	Magnetic Beads		
142.	VacuumFilter		
143.	Scale		
144.	Thermometer		
145.	Desiccator		
146.	Polythene Bag		
147.	Measuring Cylinder		
148.	Beaker		
149.	Spatula		
150.	Tray		
151.	Tissue Role		
152.	Sieve		
153.	Funnel		
154.	Conical Flask		
155.	Petri Dish		
156.	Watch glass		
157.	Mohr's Flask		
158.	Rod		
159.	Whatman Paper		
160.	Potassium Chloride		
161.	Potassium Acetate		
162.	Magnesium Nitrate		
163.	Magnesium Sulphate		
164.	Water Bottle		
165.	Zinc Chloride		
166.	Napthlene based SP		
167.	Cellulose Powder		
168.	Calcium Carbonate		

169.	Potassium Dichromate		
170.	DTPA		
171.	Vinapass 8034h		
172.	Vinnapass5010n		
173.	POP		
174.	Mobile oil		
175.	Ion selective electrode		
176.	Ethanol	30L	18,000
177.	Isopropanol	50L	16,000
178.	Acetone	20L	16,000
179.	Buffer solution (pH4)	1L	1300
180.	Buffer solution (pH9)	1L	1300
181.	Sodium Hydroxide	5Kg	3500
182.	Sodium Silicate solution	40L	12,000
183.	Hydrated Lime	200Kg	5,000
184.	Carbide sludge	200Kg	5,000
185.	Calcium Sulphate	50Kg	4,500
186.	Hydrochloric acid	50L	4,000
187.	Sulphuric acid	10L	7,000
188.	Nitric acid	10L	8,000
189.	Ferrous Ammonium Sulphate	500gm	1,000
190.	Barium Chloride	1Kg	1,200
191.	Ammonium Thiocyanate	500gm	900
192.	Titanium Isopropoxide	5L	60,000
193.	Acetic acid	2L	1,800
194.	Phenolphthalene solution	1L	4,000
195.	Sodium carbonate	2Kg	3,500
196.	Calcium chloride	2Kg	1,500
197.	Silver Nitrate	100gm	25,000
198.	Potassium dichromate	500gm	1,400
199.	Diethylamine	2L	3,000
200.	Labolene solution	10L	5,500
201.	Ethlene glycol	2l	3,000
202.	Glycerol	1l	1,600
203.	Sodium chloride	5kg	1,300
204.	Parafilm	5 rolls	15,000
205.	Sodium bicarbonate	2kg	1,200
206.	Nitrogen cylinder refilling	40 no.	1,20,000
207.	Carbondioxide cylinder refilling	40 no.	1,20,000
208.	OPC Cement	20 bags	12,000
209.	Superplasticiser	5L	10,000
210.	Leca/lytag	10 bags each	30000
211.	Alumina tray	4	48,000
212.	Silica tray	4	35,000
	GLASS WARES		
213.	Beakers (500 ml,1000 ml)	5 each	5,000
214.	Volumetric flasks (500 ml,1000 ml)	5	10,000
215.	Measuring cylinder (100 ml, 500 ml,1000 ml)	5	10,000
216.	Sample bottles	10 packets	20,000
217.	Conical flask	10	5,000
218.	Funnels	20	3,000
219.	Pippets(10ml)	20	13,000
220.	Thermometer	5	2,000
221.	Burettes(50ml)	10	20,000
222.	Sample pouches	20	5,000
223.	Tissue papers	20 packets	5,000

224.	China dishes	10	3,000
225.	Watch glass	10	2,000
226.	REPAIR		
227.	Vacuum pump	01	6,000
228.	Hot air oven	02	18,000
229.	Vibrating table	01	5,000
230.	Muffle furnace refractory brick	04	36,000
231.	Weighing balance	01	10,000
232.	CO ₂ Sensors		
233.	Steel Vice		

STATIONERY ITEM LIST

S NO.	ITEM NAME	QUANTITY	COST (APPROX.)
1.	Pen	100 nos.	Rs. 5000.00
2.	Pencil	50 nos.	Rs. 500.00
3.	Rim – A4 Size	15 nos.	Rs. 7500.00
4.	Duster	10 nos.	Rs. 500.00
5.	Eraser	10 nos.	Rs. 100.00
6.	Ruler	10 nos.	Rs. 100.00
7.	File Cover	40 nos.	Rs. 2000.00
8.	File Board	40 nos.	Rs. 2000.00
9.	Soap	20 nos.	Rs. 200.00
10.	Hand wash – Dettol	10 nos.	Rs. 1000.00
11.	Cello Tape	10 nos.	Rs. 500.00
12.	Pencil Cell	20 nos.	Rs. 500.00
13.	Permanent Marker	10 nos.	Rs. 500.00
14.	Colin	05 nos.	Rs. 500.00
15.	Fevicol	10 nos.	Rs. 500.00
16.	Detergent Powder	10 nos.	Rs. 400.00
17.	Tissue paper	10 packets	Rs. 500.00
18.	L-Folder	20 nos.	Rs. 400.00
19.	Vim Bar	10 nos.	Rs. 200.00
20.	Scissors	2 nos.	Rs. 200.00
21.	Glossy paper	5 packets	Rs. 500.00
22.	Register	20 nos.	Rs. 1000.00
23.	Attendance Register	5 nos.	Rs. 500.00
24.	Battery cell	20 nos.	Rs. 1000.00
25.	Sticky notes	10 packets	Rs. 200.00
26.	Highlighter	10 nos.	Rs. 400.00
27.	Cutter	5 nos.	Rs. 200.00
28.	Packing tape	10 nos.	Rs. 500.00
29.	Phenyle	10 litre	Rs. 1000.00
30.	Envelope – A3	50 nos.	Rs. 500.00
31.	Envelope – A4	100 nos.	Rs. 1000.00
32.	Printer Ink	10 nos.	Rs. 2000.00
33.	HP Cartridge	2 nos.	Rs. 10000.00
34.	Pen Drive	5 nos.	Rs. 3000.00
35.	Flex boards	15 nos.	Rs. 50000.00
36.	Diary	100 nos.	Rs. 10000.00
37.	Notebook	500 nos.	Rs. 10000.00
38.	ID card with holder	1000 nos.	Rs. 5000.00
39.	Bags	500 nos.	Rs. 50000.00
40.	Whitener	5 nos.	Rs. 400.00