

Name of the Work : "Proposed Civil works for Conversion of Bio Safety to BSL-2 for Microbes in Eastern Lab Building at

Schedule of Quantities

SL. No.	Item Discription	Unit	Quantity	Rate	Amount
1	Providing 2mm thick hard, antistatic, abrasion re- sistant, robust solvent free epoxy flooring (ESD flooring) over existing concrete surfaces after removing old epoxy flooring with the following specifications.				
	1. Surface Preparation Surface Preparation of concrete substrate with proper diamond grinding / Proper Vacuum assisted shot blasting machine equipment to remove dust, laitance, other con- taminants etc., and to form the required anchor profile on the floor substrate.				
	2. Providing and applying 2 part water dispersed epoxy resin primer Sikafloor®-80 Promer @ 0.3 kg/m ² or equivalent.				
	3. Installation of underlay Moisture barrier – 2mm Providing and applying three part, self smoothing, solvent free, moisture barrier epoxy modified – cement screed Sikafloor81 EpoCem at at thickness of 2mm @ approx. 2.25 kg/m ² /mm or equivalent having Carbon dioxide diffusion co- efficient $\mu\text{CO}_2 = 4168$ as per Klopfer Engelgried method, water vapour diffusion co- efficient $\mu\text{H}_2\text{O}=252$ as per DIN 52615, Water absorption co- efficient $W=0.02$ kg/m ² as per DIN 52617. When applied at minimum 2mm thickness it can be laid over high moisture content substrate and must be used when substrate moisture is more than 4%				
	4. Installation of low emission, electrostatic conductive, self smoothing epoxy resin system Supply and application of Sika Electrostatic con- ductive Epoxy Flooring System or equivalent with electrode based in the following sequence:				
	i. Over the surface, an epoxy resin based primer Sikafloor 161 shall be applied. The primer ia s two component material consisting of Compo- nent A and Component B; the mixing ratio would be 79:21, by weight.				
	ii. The Earthing kit (Electrode) with copper tape shall be placed according to the specification mentioned above, The name of the earthing kit would be Sikafloor Leitset or equivalent and the copper tape would be Sika Kupferleitband or equivalent.				
	iii. Over the primed surface, a conductive under of Sikafloor 220W should be applied. The con- ductive undercoat is a two component material, which should be mixed at the specified ratio like 83:17 (by weight) and applied using a brush or roller. This is water borne epoxy and the mixed density is 1.04kg/l.				
	iv. Application of low emission, electrostatic con- ductive, self smoothing epoxy topping of 1.5mm thickness with Sikafloor 266 ECF CR or equivalent including taking the conductivity measurements of top coat as per the technical specification. The product conforms to Compressive strength is 80N/mm ² as per EN 13892-2, Resistance to ground: $\text{RG}10^4 \Omega$ to $10^6 \Omega$ as per IEC 61340-4-1 Flexural Strength is 39N/mm ² as per EN 13892-2, Shore D Hardness is 84 as per DIN 53 505 Abra- sion resistance is 45mg (CS 10/1000/1000)(14days/+23°C) as DIN 53 109 Taber Abrader Test) applied @ 2.1 Kg/sqm fol- lowed by Sikadur 502 @ 0.6 Kg/sqm or equiva- lent. All in complete as per the manufacturers specifications and directions of the engineer in charge.				

ESD FLOOR REQUIREMENT AND SPECIFICATION	
	Major Specification: 1. Electrical Resistance (On conductive black Coat): Surface resistance between 104 Ω to 106 Ω as per DIN IEC 61340-4-1 Standard. 2. Walk-in-voltage: - 100V to +100V as per DIN IEC 61340-5-1 Standard. 3. System Resistance: Less than 35M Ω including floor concrete substrate etc as per DIN IEC 61340-5-1 Standard. 4. Compressive Strength: More than 80N/mm ² as per EN 196-1 Standard. 5. Flexural Strength: More than 55N/mm ² as per EN 196-1 Standard. 6. Abrasion resistance: Maximum thickness reduction should not be more than 2mm as per IS 9162-1979/IS 1237-1980. 7. Hardness: Shore D hardness of floor more than 85 as per DIN53505.8. Tensile Strength: More than 15N/mm ² as per EN 196-1 Standard. 9. Pull Out Strength/Bond Strength: More than 1.5N/mm ² or concrete failure as per ISO4624 Standard. 10. Gloss: 75% as per IS 101-1988 Standard.
	a. Water Absorption Coefficient W - $W \sim 0.02 \text{ Kg/m}^2 \times h0.5$ acc. To DIN 52 617.
	b. Water Vapor Diffusion Coefficient ($\mu\text{H}_2\text{O}$) $\mu\text{H}_2\text{O}-252$ acc. Equivalent air Layer Depth for 3mm Thickness – SD-0.75m.
	c. E-Modulus – Static: $\sim 19.9 \text{ KN/mm}^2$ (at +20oC) $\sim 23.2 \text{ KN/mm}^2$ (at -20oC).
	d. Compressive Strength – 60 N/mm ² as per IS 9162-1979.
	e. Flexural Strength – 18 N/ mm ² as per IS 9162-1979
	f. Bond Strength – 4.1 N/ mm ² according to EN 13892-8.
	g. Production Description – A three part, Epoxy modified Cementitious, fine textured mortar for self smoothing floor screeds used as temporary barrier.
	16. Particle emission Certificate according to CSM statement of Qualification - ISO 14644-1, class3.
	11. Out gassing Emission Certificate according to CSM statement of Qualification - ISO 14644-8, class3. Construction/Configuration: Details of construction above concrete floor are as follows
	1. Epoxy Moisture barrier to avoid any moisture related deboning/blisters of floor in future or during application.
	2. Epoxy Scrape coat as per requirement depending on actual condition of concrete substrate.
	3.Primary coat as binder.
	4. Electrodes as per requirements to be embedded inside the floor (NO copper strips/copper grid or external lying of electrodes are permitted).
	5. Epoxy Conductive code for providing uniform conductivity of ESD flooring.
	6. Epoxy load bearing top coat of required thickness and color as per our selection from RAL Shade.
	General Condition:
	1. Guarantee for the performance of work should be furnished for 10 years.
	2. Warranty to be provided for blisters, debonding and loss of ESD property due to material degradation.
	3. Scratch resistance coating and preventive maintenance methodology, facility, provision to be provided.
	4. After sale service to be provided immediately for full warranty period free of cost.
	5. Repair, relaying charges will be paid for repair, relaying etc due damages caused by us on actual. Substrate Requirement:
	1. Compressive strength of concrete should be floor more than 25N/mm ² .

sqm

37.00

	2. Pull out strength of concrete should be more than 1.5N/mm ² .				
	3. Undulation of floor less than 5mm on a span of 10meter.				
	4. Floor surface to be free from laitance, grease, oil, inorganic/organic acids, polyurethane etc.				
	5. Surface should be free from voids, cracks, pot- holes etc.				
	6. High spots to be eliminated.				
	7. Metal panels/parts to be eliminated.				
	8. Expansion joints if any to be identified.				
	9. At least 15mm clearance to be provided from floor to door etc.				
	Rate in Words :				
2	Painting plastered surfaces or on existing wall and ceiling surface with two or more coats of water based Epoxy Polyurethane Paint of first quality manufactured by Asian or Berger or M/s. CIPY Polyurethane Pvt Ltd. or Equivalent approved make and colours to give a even shade with a neat finish over a surface prepared by re- moving all loose particles, dust and protrusions and applying neutralise coat to take care of de- liminations due to alkalinity of substrata by neutralising the cement plastered surface, acrylic putty is applied over the above surface to give smooth backing for the paint over the surface thus prepared water based two component pol- yurethane primer is applied to obtain a compatible surface for good adhesion of two coats of ul-tra high performer ultra violet resistant epoxy polyurethane coat etc., complete at all heights including scaffolding.The rate shall be inclusive of Surface preparation,Putty,primer,paint,paint on skirting, Scaffolding and inclusive of all taxes etc., complete .	sqm	123.00		
	Rate in Words :				
3	Dismantling aluminium/ Gypsum partitions / Plywood, doors, windows, fixed glazing and false ceiling including disposal of unserviceable surplus material and stacking of serviceable material with in 50 meters lead as directed by Engineer-in-charge.	Sqm	25.00		
	Rate in Words :				
4	Providing and fixing of frame work (styles and rails) for door frames /doors shutters / window shutters /Fixed panels with required sections of JINDAL / INDAL make or equivalent including providing all items and hinged / pivoted / sliding arrangements for op- eration of shutters and labour cost for fixing of door fittings and locks (which shall be free is- sues for fixing or paid separately) etc., com- plete. (Aluminium beadings and glazing clips measured under this item only.)	Kgs	27.00		
	Rate in Words :				
5	Dismantling doors, windows and clearstory windows (steel or wood) shutters including chowkhat's, architrave, holdfasts, etc; complete and stacking within 50m lead.				
	of area beyond 3sqm.	each	1		
	Rate in Words :				
6	Providing and fixing glass panes of selected glazing quality and thickness as specified below including providing and fixing Nylon / Rubber / PVC lining of approved quality and fixing with Aluminium glazing clips / Aluminium beadings (Supply cost of Aluminium clips / Aluminium beadings are measured in items T065A and T065B above for DOORS / WINDOWS / PARTI- TIONS etc., using 4.5mm to 5.0mm thick plain glass	Sqm	5.00		
	Rate in Words :				

7	Painting internal plastered surfaces with two or more coats of Premium super acrylic emulsion paint of approved brand and colour (Asian or Berger or equivalent) to give an even shade with required finish over a coat of water thinnable cement primer including cleaning the surfaces, filling the crevices with approved filler, applying a coat of approved putty on whole surface and rubbing the surface to achieve desired smooth surface, scaffolding, etc., complete all as per specifications	Sqm	92.00		
Rate in Words :					
8	Demolishing brick work / SCB in cement mortar including stacking of serviceable material and disposal of unserviceable material to outside the campus.	Cum	6.00		
Rate in Words :					
9	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes (SDR 13.5) conforming to IS:15778, having thermal stability for hot and cold water supply including all CPVC plain & brass threaded fittings including fixing the pipe with clamps at 1.00m spacing. This includes jointing of pipes and fittings with one step CPVC solvent cement and cost of cutting chases and making good the same with CM 1:3, including testing of joints complete as per direction of engineer-in-charge etc., for CONCEALED WORKS with: CPVC pipes, 20mm outer dia	Rmt	10.00		
Rate in Words :					
10	Providing, laying and jointing unplasticized PVC pipes and specials of working pressure as mentioned below conforming to IS:4985 including cost of necessary jointing materials, labour for excavation of trenches, testing, refilling etc., complete all as per specifications. 6 kg/sqcm and 40mm OD	Rmt	10.00		
Rate in Words :					
11	Repairs to plaster of thickness 12 mm to 20 mm in patches of area 2.5 sq.meters and under, including cutting the patch in proper shape, raking out joints and preparing and plastering the surface of the walls complete, including disposal of rubbish to the dumping ground, all complete as per direction of Engineer-in-Charge With cement mortar 1:4 (1 cement : 4 fine sand)	Sqm	3.00		
Rate in Words :					

12	Providing and fixing false ceiling at all height including providing and fixing of frame work made of special sections, power pressed from M.S. sheets and galvanized with zinc coating of 120 gms/sqm (both side inclusive) as per IS : 277 and consisting of angle cleats of size 25 mm wide x 1.6 mm thick with flanges of 27 mm and 37mm, at 1200 mm centre to centre, one flange fixed to the ceiling with dash fastener 12.5 mm dia x 50mm long with 6mm dia bolts, other flange of cleat fixed to the angle hangers of 25x10x0.50 mm of required length with nuts & bolts of required size and other end of angle hanger fixed with intermediate G.I. channels 45x15x0.9 mm running at the spacing of 1200 mm centre to centre, to which the ceiling section 0.5 mm thick bottom wedge of 80 mm with tapered flanges of 26 mm each having lips of 10.5 mm, at 450 mm centre to centre, shall be fixed in a direction perpendicular to G.I. intermediate channel with connecting clips made out of 2.64 mm dia x 230 mm long G.I. wire at every junction, including fixing perimeter channels 0.5 mm thick 27 mm high having flanges of 20 mm and 30 mm long, the perimeter of ceiling fixed to wall/partition with the help of rawl plugs at 450 mm centre, with 25mm long dry wall screws @ 230 mm interval, including fixing of gypsum board to ceiling section and perimeter channel with the help of dry wall screws of size 3.5 x 25 mm at 230 mm c/c, including jointing and finishing to a flush finish of tapered and square edges of the board with recommended jointing compound, jointing tapes, finishing with jointing compound in 3 layers covering upto 150 mm	Sqm	5.00		
	12.5 mm thick tapered edge calcium silicate false ceiling				
	Rate in Words :				
				Total Amount	

Note: The Contractor shall quote his rates in this schedule of quantity, submission of quotation in any format is liable for rejection.

Total Amount in words :

Signature with seal of Contractor :