INDIAN INSTITUTE OF TECHNOLOGY BOMBAY
POWAI, MUMBAI, MAHARASHTRA – 400076

EO/A/ACAD/WKS278/25-26 ESTATE OFFICE

Name of work :- Renovation, Refurbishment, Additions & Alterations to Victor Menezes Convention Centre for Civil, Structural, Repairs & Façade works at IIT Bombay, Powai, Mumbai – 400076.

SR. NO.	PARTICULARS	UNIT	Qty.	RATE (In Rs.)	AMOUNT (In Rs.)
1	**PILE WORK**				
	The complete pile work shall be carried out from Surronding ground Level (EGL).				
	Important Notes -				
	Cement shall be OPC of grade 53 and the mix design shall be approved by the structural consultant. In case of concrete mix design the fly as content shall not exceed a maximum of 25%.				
	Pile length mentioned in the BOQ is indicative based on the borelogs, however the Pile length may vary in actual.				
	For calculation purpose 0.00 m level is considered as Existing ground level.				
	The scope shall also include any other related activities involved, material, resource not specifically described herein below but essential for satisfactory & timely completion of the Building Pile work.				
	In the event the pile fails to satisfy the safe load criteria during dynamic pile load test OR fails in integrity test then the contractor at his own cost shall drive additional pile / s as per the design requirement and as worked out by the structural consultant. No claims in this respect will be entertained.				
	In case the piles are cast above the cut off level the piling contractor shall cut / dismantle the same at his cost. No claims in this respect will be entertained.				
	In the event the pile are cast lower than the specified cut off level the contractor shall build it up as per structural Consultants recommendations and design up to the cut off level at his cost. No claims in this respect will be entertained.				
	Item rates should include mobilisation & demobilisation of piling equipment, no extra cost shall be payable towards the same.				
	Empty boring				
1.1	Empty boring from existing ground level till bottom of Pile cutoof level as specified or as the case may be. The scope also includes filling of soil / sand after completion of the pile concreting from safety point of view.	Rmt.	351	2,250.00	789750.000
	300 mm dia Pile (54 Nos. X 6.50m =351m)				
	Cast in situ bored RCC Piles.				
1.2	Providing & construction of **cast in situ RCC bored piles** of specified diameters **in M30 concrete grade** as shown in the structural drawings using rotary drilling rigs. Scope includes setting out cardinal points, boring in over burden through all stratas including dewatering, chiselling through obstacles like boulders,weathered rock, soft rock, providing temporary steel casing(if required) sunk to the required depth through all strata except hard rock & stabilizing the bore wall portion by using bentonite slurry including flushing out the same by pumps of adequate capacity, removing all slush to locations approved, irrespective of lead as directed, lowering the reinforcement cage, welding of new bars of specified dia with stitch weld &/or lap weld in accordance with the structural drawing, as per enclosed technical specification & directions and concreting with ready mix concrete of using tremie arrangements, compaction of concrete etc complete.				
1.2.1	For calculation purpose length of concreted pile @ 6.50 m	Rmt	351	7,250.00	2544750.000
	Pile Load Test				
1.3	Carrying out high strain **Dynamic load test** on bored reinforced concrete cast-in-situ piles as per ASTM D 4945 and Institution of Engineers code to evaluate the pile capacity and structural integrity of pile including net and total settlement of under displacement the measured capacity along with other related tests and submission of report, including cost of all necessary excavation, back filling, disposal of material, equipment & labour, and chipping of piles with surface preparation to the complete satisfaction of the Consultant. (on 2% piles).				
1.3.1	300 mm dia Pile	Nos.	2	80,000.00	160000.000

1.4	Integrity testing of Pile using Low Strain/ Sonic Integrity Test/ Sonic Echo Test method in accordance with IS :14893 including surface preparation of pile top by removing soil, mud, dust & chipping lean concrete lumps etc. and use of computerised equipment and high skill trained personal for conducting the test & submission of results, all complete as per direction of Engineer-in-charge. per test 1153.20 **Note :-** The inclusion of the above item in the schedule of work shall be judiciously decided by the technical sanctioning authority, keeping in view the quality control, type of soil strata & importance of the project.				
1.4.1	300 mm dia Pile	Nos.	54	1,030.92	55669.680
	TOTAL OF PILE WORK				**3550169.680**

2	**EARTH WORK**				
2.1	Earth work in excavation by mechanical means (Hydraulic excavator)/ manual means over areas (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plan) including getting out and disposal of excavated earth lead upto 50 m and lift upto 1.5 m, as directed by Engineer-incharge. 2.6.1 All kinds of soil				
	a) Up to 1.5m depth	Cum.	225	158.68	35703.000
	b) More than 1.5m to 3m depth	Cum.	25	272.03	6800.750
2.2	Rubble Soling :- Providing and laying in position 230mm thick rubble soling, using approved quality stone with sand cushion of appropriate thickness provided below the PCC at basement, below footing level including the cost of sand cushion, base preparation by mechanical compaction, using hand broken metal/ Rubble and smaller pebbles for void filling, grit for binding as directed by the Engineer-in-charge including watering, packing, compaction etc.complete.The item includes all lead & lift.	Cum.	86.05	6,000.00	516300.000
	TOTAL OF EARTH WORK				**558803.750**

3	**STRUCTURE WORK**				
3.1	Providing and laying in position cement concrete of specified grade including the cost of centering and shuttering - All work up to plinth level : 1:2:4 (1 cement : 2 coarse sand (zone-III) derived from naturalsources : 4 graded stone aggregate 20 mm nominal size derived from natural sources)	Cum.	46	7,043.11	323983.060
3.2	**STRUCTURAL REPAIR TREATMENT:** Removing loose concrete from the damaged structural members such as columns, beams, slabs, chajjas, etc. carefully by close chipping with chisel upto sound core of concrete as directed by the Consultants; clean the exposed corroded steel including loose rust particles, scales, etc. by a stiff wire brush apply a passivating solution of "Rusticide" or equivalent as approved by consultant including providing and applying polymer primer coat to the existing RCC members to bring it to true line and level, shape to match to existing size of the members, including treating exposed reinforcement as per detailed specification, including cost of necessary chemicals such as rust remover, passivator as directed by the engineer in-charge etc complete. (Contractor shall attached all the challans of polymer/chemicals with every bill and all materails to be accounted for in the materials register).				
3.2.1	Providing & applying Nitozinc or equivalent approved rust remover after cleaning exposed corroded steel, loose rust particles & scales, etc. with Nitozinc or equivalent approved by a stiff wire brush and applying passivating primer or equivalent as approved by consultant.	Kgs.	100	1,200.00	120000.000
3.2.1	POLYMER PRIMER: Providing and applying Polymer primer coat using approved make Aquabond 150 or equivalent of Aqua Alliance / Sunanda / Fosroc or as approved,	Kgs.	200	650.00	130000.000
3.2.3	Providing and applying ready mix polymer modified mortar **(PMM)** of Renderoc - HS extra of Fosroc or approved equivalent as per Structural Consulant and as per manufactuer's specification, in layer of approximate 15 mm thickness (hand packed concrete) using washed metal as directed between two consecutive layers of polymer mortar with curing etc. complete, all as directed by Engineer In Charge. (Measurments will be considered only for the actual consumption of pre-mixed mortar)	Kgs.	5,000	95.00	475000.000
3.2.4	Providing & applying premix repair treatment by providing **Micro Concrete** of Rendroc RGL or approved equivalent and directed, mixed with water to get desired consistency and as per manufacturers specifications including shuttering with provision of window to pour super fluid micro concrete, filling the gaps with masking tape, hacking the surface immediately on removal of shuttering to receive further finishing, curing minimum 3 days etc. complete. (Material challan of site delivery to be reconciled with usage consumption)	Kgs.	5,000	100.00	500000.000
3.2.5	Providing and injecting neat cement slurry grouting in the ratio of 1:1 cement and water or as per the required consistency as directed by the consultant at site. The treatment shall start with chiselling out carefully 'v' groove approx. 1 ½" x 1 ½" size at the junction of dissimilar materials or honey comb concrete, window frame and wall or as directed, watering and cleaning the groove and providing fresh cement mortar in 1:3 mechanically mixed and pressed into the groove including adding CEBEX 112 @ 125 ml / per 25 Kg of cement as expandable anti shrinkage additives & hand packed with the stone aggregates, curing etc. complete,drilling holes and providing P.V.C socket pipes around the window junctions, brick wall and concrete surface junctions etc. and then grouting with pressure grouting method to fill up cracks, fissures, cavities, void, honey comb to make substrate consistent, homogeneous and resistant to water seepage/ penetration and sealing top of the socket etc. complete. (Payment shall be based on cement bags of 50 kg each consumed).	Bag	25	2,500.00	62500.000
3.3	Providing and fabricating structural steel works in rolled sections like joists, channels, angles, tees, hollow sections and any other required sections etc. as per detailed designs & drawings for supports, rafters, purlins, railing, staircase and any other work including fixing in position with connecting plates, braces and welding, riveting, bolting as necessary including one coat of redoxide priming coat, scaffolding etc. complete.	Kgs.	200	105.09	21018.000

3.4	Providing and laying concrete including adding admixture Conplast P211 of M/s. Fosroc Chemicals or equivalent, tieing reinforcement, shuttering, propping, curing and 15mm clear cover to all steel. Adequate vibrating, cover blocks , binding wire shall be of 16 Gauge galvanized, etc. as directed by Consultants complete. (For pardi / drop pardi / slab / beam / column chajjs etc.) with M25 grade concrete	Cum	5	28,244.00	141220.000
3.5	**POP FLOOR PROTECTION SHEET -** Providing and Laying POP for floor protection or "Sunpeck" sheets or 3mm thick PVC Deck Sheet during the internal structural repairs including cleaning and removing the protection after completion of the work	Sqm	475	322.80	153330.000
3.6	**PLUMBING DUCTS COVERING AT TERRACE LEVEL:** Providing & laying laadi coba slab with structural steel (E250 / YST 255 Grade) supports, kota stone, M-15 grade concrete on top, waterproofing with brick pieces, coba + IPS on top.	Nos	6	10,000.00	60000.000
	Reinforced Cement Concrete				
3.7	Carrying out all RCC works strict in conformity with IS 456 & specification appended herewith. Unless other wise specified, all items of RCC shall be done using RMC as per the grade specified. The rate of concreting shall be inclusive of dewatering (if applicable), concreting by either pumping or by suitable mechanised means. Consolidation / compaction shall be done using approved mechanical vibrator. The scope shall also include protecting ,curing, hacking and roughening of concrete surface for receiveing plaster or any other finish as directed. Use of admixtures in concrete is permitted. Nothing extra shall be paid for use of such admixtures.The mix design shall be approved by the consultant. For mix design of all concrete grades, fly ash content shall not exceed a max of 25 %.				
	The rate for RCC work shall include forming of projections, sinking of floors in toilets or wherever required, keeping provision in shuttering for niches, dowel bars etc. The contractors shall co-ordinate with other agencies appointed for services viz laying conduits, placing boxes, pipes, clamps etc.The rates quoted shall include construction of expansion construction joint / expansion strips as directed by the client. The scope also includes providing and applying aquabond 150 and cement 1:1 proportion for construction joints as per manufacturer specifications.				
	Concrete rates are inclusive of formwork. Formwork shall not be measured and paid seperately unless otherwise specified.				
	Reinforcement steel shall be measured & paid seperately under item No.2.2 No finishing items are to be considered in quoting the rates of RCC items unless otherwise specified. After concreting the concrete shall be cured & covered with Hessian cloth for minimum 7 days.				
3.7.1	Ready mix / Site Mix concrete of M 30 grade with minimum cementitious content of 390 Kg/m³. Reinforcement shall be measured & paid seperately under suitable item	Cum	273	15,000.00	4095000.000
	REINFORCEMENT STEEL				
3.8	Providing and fixing in position tor steel bar having grade Fe-500D or more for reinforcement of various diameters for R.C.C. footings, foundations, slabs, beams, columns, canopies, staircases, chajjas, lintels, pardies, coping, fins, dowel bars with sleeve, tie bar, any other required work etc. as per detailed designs, drawings and schedules including cutting, bending, hooking the bars, binding with wires or tack welding and supporting as required completed as directed.	Kg	17,500	96.41	1687175.000
3.9	Providing & fixing Anchor bolts of M16 dia Grade 5.8	Nos.	400	400.00	160000.000
3.10	Providing and fabricating, installing structural steel works (E250 / YST 255 GRADE) in rolled sections like joists, channels, angles, tees, hollow sections and any other required sections etc. as per detailed designs & drawings for supports, rafters, purlins, railing, staircase and any other work including fixing in position with connecting plates, braces and welding, riveting, bolting as necessary including one coat of redoxide priming coat, ~~scaffolding~~ etc. complete.	Kgs.	4,000	105.09	420360.000
3.11	Designing, providing and fabricating, installing structural steel works (YST 355 GRADE) in hot finished welded type tubes and any other required sections etc. as per detailed designs & drawings for supports, rafters, purlins, railing, staircase and any other work including fixing in position with connecting plates, braces and welding, riveting, bolting as necessary including one coat of redoxide priming coat, scaffolding etc. complete. (Location : Cafeteria, Atrium & Terrace floor)	Kgs.	1,48,500	210.00	31185000.000

3.12	Providing & applying 2 hour fire rated gypsum based vermiculite material over structural steel beams of average 10mm thk. including primer bond coat, all labour, machines, scaffolding, covering adjacent areas etc. complete, as per instruction of Structural Consultant.	Sqm.	3,600	3,000.00	10800000.000
3.13	Providing and applying Zinga or equivalent coating system consisting of first coating of Zinga over rusted area shall be of minimum 40 microns as per manufacturer's specifications. The Second coating of Zinga over thefFirst coat shall be of minimum 40 microns as per the manufacturer's specifications.	Sqm	100	750.00	75000.000
3.14	**ANCHOR BOLTS / FASTENERS & THROUGH BOLTS**				
	Anchor Bolts - Providing & fixing Hilti HST / Fisher / Mungo **anchor bolts** of specified dia and length as shown in the drawings & as per manufacturer's specifications including necessary drilling holes in the concrete etc. complete.				
3.14.1	12 mm dia.	Nos.	350	400.00	140000.000
3.14.2	16 mm dia.	Nos.	275	450.00	123750.000
3.14.3	20 mm dia.	Nos.	150	550.00	82500.000
3.14.4	25 mm dia.	Nos.	150	675.00	101250.000
3.15	**Anchor Rebar** - Providing & fixing Hilti cartridge RE - 500 V3 / Mungo or equivalent reinforcement **anchorage for rebars of various dia**, as shown in the drawing & as per manufacturers specifications including drilling holes of required size in concrete all etc complete.				
3.15.1	8 mm dia.	Nos.	350	150.00	52500.000
3.15.2	10 mm dia.	Nos.	350	175.00	61250.000
3.15.3	12 mm dia.	Nos.	350	225.00	78750.000
3.15.4	16 mm dia.	Nos.	250	280.00	70000.000
3.15.5	20 mm dia.	Nos.	250	305.00	76250.000
3.15.6	25 mm dia.	Nos.	175	365.00	63875.000
3.15.7	32 mm dia.	Nos.	175	400.00	70000.000
	Through bolts				
3.16	Providing and fixing through bolts of specified dia and length as shown in the drawing including drilling of holes in the concrete etc complete				
3.16.1	12mm dia.	Nos.	350	500.00	175000.000
3.16.2	16mm dia.	Nos.	225	650.00	146250.000
3.16.3	20mm dia.	Nos.	175	775.00	135625.000
3.16.4	25 mm dia.	Nos.	100	865.00	86500.000
	TOTAL OF STRUCTURAL WORK				**51873086.060**

4	**MASONRY WORK**				
4.1	Providing and laying Autoclaved Aerated concrete (AAC) blocks masonry with 150mm/230mm/300 mm thick with Grade-I AAC blocks of density 551 to 650 kg/ cum conforming to IS: 2185 (Part 3) in super structure above plinth level up to floor V level with RCC band at sill level and lintel level with approved block laying polymer modified adhesive mortar all complete as per direction of Engineer-in-Charge. (The payment of RCC band and reinforcement shall be made for seperately).	Cum	521	7,450.00	3881450.000
4.2	Providing and laying Autoclaved Aerated concrete (AAC) blocks masonry 100 mm/ 125 mm thick with Grade-I AAC blocks of density 551 to 650 kg/ cum conforming to IS: 2185 (Part 3) in super structure above plinth level up to floor V level in cement mortar 1:4 (1 cement : 4 coarse sand). The rate includes providing and placing in position 2 Nos 6 mm dia M.S. bars at every third course of masonry work.	Cum	21	9,114.38	191401.980
	TOTAL OF MASONRY WORK				**4072851.980**

5	**PLASTERING WORK**				
5.1	12 mm cement plaster of mix :				
	1:4 (1 cement: 4 fine sand)	Sq m	426	310.25	132166.500
5.2	Extra for providing and mixing water proofing material in cement plaster work in proportion recommended by the manufacturers.	Per bag of 50 Kg Cement used in the mix	38	19.76	750.880
5.3	Providing and applying 12 mm thick (average) premixed formulated one coat gypsum lightweight plaster having additives and light weight aggregates as vermiculite/ perlite respectively conforming to IS: 2547 (Part - 1 & II) 1976, applied on hacked / uneven background such as bare brick/ block/ RCC work on walls & ceiling at all floors and locations, finished in smooth line and level etc. complete.	Sq m	3,525	419.18	1477609.500
5.4	Providing and applying plaster of paris putty of 2 mm thickness over plastered surface to prepare the surface even and smooth complete.	Sqm	915	234.84	214878.600
5.5	18 mm cement plaster in two coats under layer 12 mm thick cement plaster 1:5 (1 cement : 5 coarse sand) finished with a top layer 6 mm thick cement plaster 1:6 (1 cement : 6 fine sand).	Sqm	1,043	463.57	483503.510
5.5.1	Extra for plastering exterior walls of height more than 10 m from ground level for every additional height of 3 m or part thereof.	Sqm	871	129.88	113125.480
5.6	Providing and creating Plaster band of 100mm x 25mm size in external plaster as shown in the drawing.	Rmt	1,552	201.00	311952.000
5.7	Providing and applying 12mm thick Plaster with ready mix mortar of approved make to internal surfaces of concrete and masonry work; including raking out joints, hacking concrete surfaces and applying approved chemical bonding agent and applying a scratch coat over concrete surfaces by bonding / adhesive chemical coat as directed by approved manufacturer to create a key, cleaning / grooving deep junctions of concrete & masonry, grouting them back by mortar mixed with non shrinking compound along with packing of clean, fresh square cut aggregate; also providing and fixing 20 gauge GI chicken mesh @ 150 mm wide to junctions of concrete and masonry, including preparing and finishing jambs, sills, grooves, pattas, wattas, rounding of corners, etc. all complete as per architectural drawings, specifications and finished smooth with wooden rundha etc. or as specified by the PM at all leads,depth and lifts, doing independent double-legged scaffolding, cleaning of surfaces, curing, etc. complete as per specification and to the approval of the Engineer in charge.	Sqm	100	361.00	36100.000
5.8	Providing and applying 25mm thick double coat Plaster with ready mix mortar of approved make to exterior surfaces of concrete and masonry work approved manufacturer, finished sand face or as required to receive specified architectural external finish to correct line, plumb and level to external faces of walls, sofits/ceiling if any, including hacking concrete surfaces then applying chemical adhesive coating and a scratch/dash coat as a possitive bond, curing the same, racking out junctions of masonry and concrete, then pointing and grouting using non-shrinking compound, joints grouted by pressing square crushed stone, further providing 150mm wide 20 gauge GI chicken mesh at junctions of concrete and masonry work, doing independent double legged scaffolding etc. at all heights. Item also include plastering to preparing and finishing window sills, RCC cornices, making wattas, drip-moulds, pattas, all type of grooves as shown in the drawing etc., doing curing, cleaning, etc. all complete to the approval of the Engineer in charge.	Sqm	100	735.00	73500.000
	TOTAL OF PLASTERING WORK				**2843586.470**

6	**WATERPROOFING**				
6.1	Providing and applying Membrane or Elastomeric waterproofing treatment by using Vandex BB75 (Hitchins) in two coats by trowelling as per manufacturers specifications to internal areas of Elevated water tank including thoroughly cleaning the surface. 1st coat of Vandex BB 75 shall be applied to the prepared surface at a coverage of 3.0 Kg./m^2. Whilst the 1st coat is still "green" a second coat comprising of Vandex BB75 at a coverage of 3.0 Kg/m^2. The slurry coatings shall be applied with a stiff masonry brush or stiff broom and worked into every irregularity on the surface shall be done by means of trowelling or by spray only. Trearment to floor slabs shall be carryied out by trowel application in 6.0 Kg/m^2 coverage of Vandex BB75 using a steel trowel onto hardenced cocnrete slab surface including curing, cleaning etc. complete.	Sq.m.	200	1,650.00	330000.000
6.2	Providing & laying cement screed of minimum 25mm thickness	Sq.m.	100	1,500.00	150000.000
6.3	Providing and laying integral cement based water proofing treatment including preparation of surface as required for treatment of roofs, balconies, terraces etc consisting of following operations: (a) Applying a slurry coat of neat cement using 2.75 kg/sqm of cement admixed with water proofing compound conforming to IS. 2645 and approved by Engineer-in-charge over the RCC slab including adjoining walls upto 300 mm height including cleaning the surface before treatment. (b) Laying brick bats with mortar using broken bricks / brick bats 25 mm to 115 mm size with 50% of cement mortar 1:5 (1 cement : 5 coarse sand) admixed with water proofing compound conforming to IS : 2645 and approved by Engineer - in- charge over 20 mm thick layer of cement mortar of mix 1:5 (1 cement :5 coarse sand) admixed with water proofing compound conforming to IS : 2645 and approved by Engineer-in-charge to required slope and treating similarly the adjoining walls upto 300 mm height including rounding of junctions of walls and slabs. (c) After two days of proper curing applying a second coat of cement slurry using 2.75 kg/ sqm of cement admixed with water proofing compound conforming to IS : 2645 and approved by Engineer-in-charge.	Sq.m.	1,588	1,505.97	2391480.360
	(d) Finishing the surface with 20 mm thick jointless cement mortar of mix 1:4 (1 cement :4 coarse sand) admixed with waterproofing compound conforming to IS : 2645 and approved by Engineer-in-charge including laying glass fibre cloth of approved quality in top layer of plaster and finally finishing the surface with trowel with neat cement slurry and making pattern of 300x300 mm square 3 mm deep. (e) The whole terrace so finished shall be flooded with water for a minimum period of two weeks for curing and for final test.“All above operations to be done in order and as directed and specified by the Engineer-in-Charge : 22.7.1 With average thickness of 120 mm and minimum thickness at khurra as 65 mm.				
	TOTAL OF WATERPROOFING WORK				**2871480.360**

7	**JOINERY & METAL WORK**				
7.1	Providing and fixing aluminium work for doors, windows, ventilators and partitions with extruded built up standard tubular sections/appropriate Z sections and other sections of approved make conforming to IS: 733 and IS: 1285, fixing with dash fasteners of required dia and size, including necessary filling up the gaps at junctions, i.e. at top, bottom and sides with required EPDM rubber/ neoprene gasket etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snap beading for glazing / paneling, C.P. brass / stainless steel screws, all complete as per architectural drawings and the directions of Engineer-in-charge. (Glazing, paneling and dash fasteners to be paid for separately) :				
7.1.1	For fixed portion				
7.1.2	Polyester powder coated aluminium (minimum thickness of polyester powder coating 50 micron)	Kg	583	482.61	281361.630
7.1.3	For shutters of doors, windows & ventilators including providing and fixing hinges/ pivots and making provision for fixing of fittings wherever required including the cost of EPDM rubber / neoprene gasket required (Fittings shall be paid for separately)				
7.1.4	Polyester powder coated aluminium (minimum thickness of polyester powder coating 50 micron)	Kg	1,457	575.22	838095.540
7.2	Providing and fixing glazing in aluminium door, window, ventilator shutters and partitions etc. with EPDM rubber / neoprene gasket etc. complete as per the architectural drawings and the directions of engineer-in-charge . (Cost of aluminium snap beading shall be paid in basic item):				
7.2.1	Windows & Glazing with 8mm thick clear toughened glass	Sqm	241	5,384.00	1297544.000
7.3	Providing and fixing double glazed hermetically sealed glazing in aluminium windows, ventilators and partition etc. with 6 mm thick clear float glass both side, having 12 mm air gap, including providing EPDM gasket, perforated aluminium spacers, desiccants, sealant (Both primary and secondary sealant) etc. as per specifications, drawings and direction of Engineer-in-charge complete. (Glass shall be high performance (Neutral 70 of M/s. Guardian or equivalent) with properties like SHGC @ 0.52, Shading cooefficienr @ 0.60, U value @ 1.87 W/sqm.K etc.)	Sqm	238	5,854.00	1393252.000
7.4	Design, Fabrication, Supply, Installation, Testing, Protection, Cleaning & Handover of Unitized four sided structural glazing Curtain wall system custom designed to with stand the design wind pressure confirming to IS -875 part III with microwave cured EPDM gaskets, Structural & weather sealants, Open PU cell Spacer tape, backer rod, Bracketing system with MS hot dip galvanized / Aluminium Alloy of 6061 T5 brackets designed to accommodate three dimensional movements with serrated plate and serrated washers, building plump tolerences upto 40mm, SS 316 grade fasteners & Anchor Fasteners, nylon separators to prevent bi-metallic contacts, Aluminium trims and flashings to seal the gaps between curtain wall and the building structure all complete required to perform as per specification and drawing in conjunction with BOQ.	Sqm	496	12,905.00	6400880.000
	The system design shall be based on Open joint system & design shall include pressure equalization with minimum 3 barrier gaskets for improved weather performance, drainage at all floor levels, spandrel panel shall have pressure release slots on vertical side of profile system to avoid condensation. The design to accommodate building movements, thermal expansions & the seismic movements. The system shall be designed considering surface temperatures of 80-90 deg Cel & temperature differential of 25 deg cel without creating excess stress in the system. All metal joints in the wet area shall be small joint sealant applied to ensure water tightness.				
	The system shall be designed of floor height units spanning between the floors with face / Slab mounted brackets or hook on bracket on mullion with provision to accommodate movement at all floor levels and at every grid panels horizontally. System shall be mounted on to the bracket arrangement with the help of Anchor Fastener. The Bracketing system with Aluminium Alloy / MS HDG with built in serration & serrated washers. The system shall be designed to accommodate 28 mm DGU in vision area & 8mm SGU glass spandrel area at all floor level. System shall accommodate openable panel as per architectural requirement in the unitized system. All fix vision glass and openable shall look similar in the elevation. Aluminium Edge Guard shall be fixed at all vertical & Horizontal grooves. Each glass panel shall be structurally glazed on the main unitized profile system . Each glass panel shall be supported for dead load at the bottom of glass with black anodised glass retainers two per panel.				
	The three barrier gasket system consists of 1st , 2nd & 3rd barrier of EPDM gaskets to achieve the required compression & seal in the system. EPDM Gaskets shall be of micro cured (Online Curing) with shore A hardness of 60-65.				

	Flasing / Trim / Floor Closure at Parapet level, floor level, beam bottom level and required flashings shall be provided continuously with required GI / Aluminium sheet. Internal & External concelled Flashings shall be 1.2mm thk GI sheet. External exposed flashing shall be 2 mm thk. Aluminium sheet with PVDF coated matching with external Aluminium profiles. Internal exposed flashing shall be 2mm thk. Aluminium sheet with powder coated matching with internal aluminium profiles.				
	The extruded aluminium sections of Alloy 6063 T5 / T6 & tolerances confirming to DIN / EN standard from approved extruder. The structural profiles shall have minimum 2.5mm wall thickness at screwing or load transfer locations. All the internal visible surfaces shall have high Durability (Akzonobel) / Super durable (Jotun) Powder coating of 60 - 80 micron confirming to AAMA 2604 & all externally visible surfaces shall have PVDF finish with minimum 35 micron confirming to AAMA 2605. The non visible aluminium surfaces shall have minimum chromatizing treatment.				
	The quote rate shall include all design, engineering & shop drawing approval from architect & consultant. The quote rate shall include all Taxes, duties, statutory obligations and safety code compliance . The item shall include site testing as per instructions of EIC.				
7.5	Providing, assembling and supplying vision glass panels (IGUs) comprising of hermetically-sealed 6-12- 6 mm insulated glass (double glazed) vision panel units of size and shape as required and specified, comprising of an outer heat strengthened float glass 6mm thick, of approved colour and shade with reflective soft coating on surface # 2 of approved colour and shade, an inner Heat strengthned clear float glass 6mm thick, spacer tube 12mm wide, dessicants, including primary seal and secondary seal (structural silicone sealant) etc. all complete for the required performances, as per the Architectural drawings, as per the approved shop drawings, as specified and as directed by the Engineer-in-Charge. The IGUs shall be assembled in the factory/ workshop of the glass processor. For payment, only the actual area of glass on face # 1 of the glass panels (excluding the areas of the grooves and weather silicone sealant) provided and fixed in position, shall be measured in sqm. Glass shall be high performance (Neutral 70 of M/s. Guardian or equivalent) with properties like SHGC @ 0.52, Shading cooefficienr @ 0.60, U value @ 1.87 W/sqm.K etc.	Sqm	496	6,518.00	3232928.000
7.6	Providing, fabricating and supplying shadow box of required size and shape, for fixing in the spandrel portion of the structural glazing, in linear as well as curvilinear portions of the building by providing semi-rigid, inorganic, non-combustible fibre glass wool insulation 50 mm thick, conforming to IS: 8183 and BS: 3958 Part 5. The insulation layer shall have facing (factory bonded on surface # 1 of the fibre glass insulation layer), of black non-woven fibre glass tissue of nominal thickness 0.5 mm and nominal mass not less than 60 gm /sqm, made of randomly oriented glass fibres distributed in a binder by a wet-lay process including fixing 1.5 mm thick solid aluminum sheet backing using, 6 mm thick cement board including SS rivets, nuts, bolts, washers etc complete.	Sqm	57	3,282.19	187084.830
7.7	Providing and supplying Spandrel Glass Panels comprising of 6 mm thick heat strengthened monolithic float glass of approved colour and shade with reflective soft coating on surface # 2 of approved colour and shade so as to match the colour and shade of the IGUs in the vision panels etc. ,all complete for the required performances as specified, as per the Architectural drawings, as per the approved shop drawings, as specified, and as directed by the Engineer- in-Charge.	Sqm	57	2,190.35	124849.950
	For payment, only the actual area of glass on face # 1 of the glass panels (but excluding the area of grooves and weather silicone sealant) provided and fixed in position, shall be measured in sqm. (Payment for fixing of Spandrel Glass Panels in the curtain glazing is included in cost of relevent Item*).“(i) Coloured tinted float glass 6mm thick substrate with reflective soft coating on face # 2, having properties as visible Light transmittance (VLT) of 25 to 35 %, Light reflection internal 10 to 15%, light reflection external 10 to 20 %, shading coefficient (0.25- 0.28) and U value of 3.0 to 3.3 W/m2 K etc. The properties of performance glass shall be decided by technical sanctioning authority as per the site requirement.				

7.8	Providing and fixing the fire barrier between structure and glazing/facade system. The continuous gap between the façade and the concrete slab edge is to be filled with Fire barrier compressed to the manufacturers' recommendation with a 2-hour fire resistant period (Integrity 120 min and Insulation 120 min) tested as per BS476 Part 20 when tested to EN 1364 Part 4 or ASTME 2307 or any other laboratory with accreditation. Thickness of the safing shall be 120 mm minimum top to bottom with factory applied impervious foil face , with foil taped joints on site . Minimum 80kg/m3 density rock fibre insulation , 10% compression at site as per manufacturer recommendation and tested standards. Product waste is non-hazardous with "Zero" VOC content and is recycled material with class M1 environmental rating.The installation shall be in accordance with the manufacturer recommendation and joints between strips has to be sealed properly with Class O aluminum fire rated tape. Provide impaling zinc coated GI clips configured as per fire stop manufacturer's requirements except as noted herein. Impaling clips shall be fastened to floor slab. Galvanized sheet shall be min 1mm thick , with sealed overlaps and interfaces for screeding or flashing.	Rmt	177	4,106.00	726762.000
7.9	Providing, fixing and commissioning of GEZE or equivalent Automatic linear bi-parting EC Drive T2 Sliding door system with ESG frame 12mm thick toughened glass, includes the modular design track, carrier profile, cover with a maximum overall height of 100mm, designed to carry a door mass of maximum 120kg/140kg and passage width of 3000mm. The automatic sliding door system should self diagnose, automatic reverse on contact with obstruction and provide door status contact. It should be TUV approved as per DIN EN 16005:2013-01 for power operated pedestrain doorsets, DIN18650-1/2:2005-12 for automatic door system and BGR 232:2003 for guidelines of power operated windows, doors & gates. It should meet the durability class 3 (1,000,000 cycles). The system should include 16 bit Microprocessor control unit, a battery to support during power failure for 30minutes or 30cycles, self cleaning rollers, noiseless maintenance free motor and Bi stable electromechanical lock to restrict the access. A program switch should activate various operating modes as permanent hold open mode, automatic mode,night mode, shop closing time mode and reduced opening width mode.				
	In addition, it should also be activated to "OFF" mode by a program selector switch. Authorize access of program switch by key while mount it on a accessible height. The door system designed for optimum traffic, using a dynamic extension of hold open time. The opening and closing speed can be adjustable to a maximum of 0.8 m/s, adjustable hold open time 0-60 seconds and opening and closing force adjustable to a maximum of 150N. The enclosure rating should be IP20 and ambient temperature class 2 (-150C to 500C). Visible Finish - EV1/Silver Include EM Lock & Key switch - Single/Double Door application (Security application) and Combined detector with direction-sensing radar movement sensor and self-monitored double 3D light curtain for actuating and protecting the closing area.				
7.9.1	Structural opening size : 5414mm x 3000mm Door opening size - 2000mm x 3000mm	Set	3	5,27,902.00	1583706.000
7.10	Designing, providing, fabricating and installing cladding of 4mm thick (0.5mm + 3mm + 0.5mm) aluminium composite panels with FR core of approved make, for sizes and panels (based on concept architectural elevation drawings) including required fixtures and fittings of stainless steel (SS 316 grade), anchor fasteners, jointing and sealing with M/s. Dow Corning silicon sealant, required fire stops, water drains and gutters and finishing junctions with concrete, stone, timber, aluminium, glass etc. all complete. Further include required preparation of shop drawings with structural calculations and getting approval from the Architect and structural consultants, providing samples, mockups, taking actual site measurements and modifying and coordinating with site and fabrication yard, all conforming to international standards etc. complete to the approval of PM. Further the system installed and tested shall be guaranteed for 10 years in approved proforma on stamp paper of appropriate value.	Sqm	273	4,483.28	1223935.440
7.11	-Do- as per Item No. 6.10 above but fixing Aluminium composite panels in roofing including providing and fixing GI gutter and sealing all junctions with adjoining solid / glass surfaces with approved silicon sealant etc. complete all complete as shown in the drawing and as per direction and satisfaction of the Engineer in charge. (Location : Cafeteria roof)	Sqm	442	4,483.28	1981609.760
7.12	Supply and fixing of gutter in 1mm GI Sheet of Girth 600 mmalong with Downtake spout ,	Rmt	165	7,039.00	1161435.000
7.13	Supply and Fixing of Flashing made of 0.9 mm Aluminium Sheet of 400 mm girth maximum	Rmt	165	3,520.00	580800.000

7.14	Design, fabrication, supply, installation, testing, protection, cleaning & handover of extruded aluminium powder coated rectangular louvers at 350 center to center distance. Size 75 x 350 x 3 mm thick, including necessary peripheral end plate frames, bolts, screws and necessary sealants etc. all as per drawing. Contractor shall submit detailed full scale shop drawings with details of fixing for approval of the Engineer in charge. Samples of each item on full scale as directed by the Engineer in charge shall be submitted for approval. Work shall be commenced only on approval of shop drawing by Engineer in charge etc. complete all complete as shown in the drawing and as per direction and satisfaction of the Engineer in charge. (Location : Cafeteria roof) (refer Drawing No._____)	Sqm	2,606	5,315.00	13850890.000
7.15	DOUBLE SKIN WITH INSULATED KALZIP ROOFING SYSTEM: TOP LAYER: Supply and fixing of Kalzip 65/400. 0.9mm thick Aluminiumstanding seam roof sheets. The sheet comprise of profiled sheeting of aluminium self supported standing seam roof system manufactured from aluminium alloy AA 3004, minimum material thickness of 0.9mm and stucco embosed finish on the exposed surface with ST clips, necessary accessories and fasteners. The material properties shall be as follows: Ultimate tensile strength minimum 200N/ sqmm, 0.2% proof stress: min 185N/Sqmm. Modulus of Elasticity 70,000 N/Sqmm. Sheets are to be laid to meet the requirements of the building geometry and fixed on Aluminium clip and which is fixed to the top hat with SS screw. INSULATION: For curve roof Insulation : Supply of Thermorock wool made by ROCK INSUL INDIA LTD / Roxul Rockwool with low chloride content, chemically inert, non sulphurous, rot proof, vermin proof, impervious to hot water and steam, non injurious to health and non corrosive to steel. The ROCK INSUL INDIA LTD / Roxul Rockwool insulation 50mm thick 48 Kg/cum density U - value 0.330 W/M2K. IS NONCOMBUSTIBLE CLASS A1 as per En 13501-1. Weight per cubic meter of the material should not be less than 10% of nominal or density. Insulation material with water absorption not more tham 1% as per ASTM C 1104/C, 1104M and moisture resistance less than 12 Ppm as per ASTM C795. Shot content shall not be exeed 12 %. All the joints between insulation shall be taped with insulation tape on the top of surface.	Sqm	1,174	8,095.00	9503530.000
	BOTTOM LAYER: Color coated galvalume in HI-Rib liner sheeting in 0.5mm TCT,550 Mpa with necessary self drilling self tapping screws, EPDM washer etc all complete.				
7.16	Supply and installation of Fall protection system as per EN 795 Class C:2012. -1762 Constant Force Post system will be capable of taking load of 3 users. Systems Type & Length- Constant Force Post System- on 400 mm Kalzip sheets. Systems Certification- EN 795 Class C and ATEX Approved. Testing has been done with 300 Kg weights to prove CFP's compliance for 3 simultaneous users. System shall include 1000 hours of corrosion testing in Acetic acid Salt spray test to worthiness for minimum 5 years. Material- SS 316 Marine grade, 17/4 pH stainless steel for Cast components and 5084 treated aluminium alloys. CFP absorbs 4,500 Joules of ensuring that it can take a maximum load of 3 users simultaneously. All CFP systems have omni-directional performance ensuring that load can be taken in 360 degrees rather than just in the direction of wire. Product marking complies to EN 795 and EN 365. CE certificate mark and EC declaration of conformation.	Rmt	100	9,385.00	938500.000
7.17	Preparation of detailed shop drawings, and fabricating, supplying, delivering at site, assembling, installing / fixing in position including framework for structural glazing with sections of extruded EPDM including thresholds, flashings, copings and such other accessory members as required, mild steel brackets (painted with PU coating or hot dipped galvanizing) and fixings with stainless steel bolts and nuts, EPDM gaskets, silicon sealant and weather trims as required, cutting, drilling and all operations required for the work to complete. All aluminum members shall be finished with 35 micron thick PVDF coated including installing in position glazed panels etc. complete all complete as shown in the drawing and as per direction and satisfaction of the Engineer in charge. (Location : Cafeteria roof)				
	DGU 6 mm HS Clear Glass +1.52 PVB lamination +6 mm HS Clear Glass + 12 Air gap + 6 mm HS Glass with system	Sqm	449	17,597.00	7901053.000
7.18	Design, supply and installation of Aluminium U-channel / frame at the top and bottom and vertical glass to glass silicon joint, along with 4mm clear heat strengthened glass + 1.14 PVB lamination + 4mm clear heat strengthened glass. Rate shall including necessary SS hardware to fix the system to existing primary steel framing and glass size to accomodate defelection and necessary wind speed as per IS code etc. complete all complete as shown in the drawing and as per direction and satisfaction of the Engineer in charge. (Location : Cafeteria roof)	Sqm	93	9,385.00	872805.000

	TOTAL OF JOINERY & METAL WORK				**54081022.150**

8	**PAINTING WORK**				
8.1	Finishing walls with textured exterior paint of required shade :				
8.1.1	New work (Two or more coats applied @ 3.28 ltr/10 sqm) over and including priming coat of exterior primer applied @ 2.20kg/10 sqm	Sq m	6,909	200.25	1383527.250
8.2	Finishing with Epoxy paint (two or more coats) at all locations prepared and applied as per manufacturer's specifications including appropriate priming coat, preparation of surface, etc. complete. On steel work	Sq m	186	216.34	40239.240
	TOTAL OF PAINTING WORK				**1423766.490**

9	**DEMOLITION, DISMANTLING & REFURBISHMENT WORK**				
9.1	Dismantling and demolishing existing structure or part of it, inclusive of all fittings and fixtures and taking away to approved locations or sorting / stacking of salvagable material as per directions of PM, cleaning of debris upto place of disposal as approved by local authurity & in fashion as directed or stored as directed by PM, required strengthening and providing safety measures during demolition, providing temporary partitions, obtaining insurance for work and labour, doing breaking during non working hours of office to avoid any hindrance to offices functioning, accounting for required security checks, providing and maintaining required tools and tackle, coordinating with the Architect, Structural Consultant, Engineer in charge all complete. No extra claim shall be allowed on the method of dismantling adopted for any type of structural member. Damage caused to structure or part thereof which is not supposed to be dismantled, during the process of dismantling the required portions shall be made good by the Contractor at his own cost. Rate shall also inclusive use of required machinery / equipment for safe dismantling as per directions of the Engineer in charge.				
9.1.1	Demolishing brick work manually/ by mechanical means including stacking of serviceable material and disposal of unserviceable material within 50 metres lead as per direction of Engineer-in-charge. 15.7.4 - In cement mortar	Cum	14	1,841.75	25784.500
9.1.2	Dismantling Reinforced cement concrete work including breaking concrete by chiselling, wedging including scaffolding, covering area with jute kantan to avoid spreading of dust etc., stacking the debris upto a distance of 50 metres as directed.	Cum	5	3,174.70	15873.500
9.1.3	Dismantling of existing Façade glazing including metal framing and all fixing accessories etc. as per directions of the Enginner in charge. Further damaged area need to be made good similar to adjoining surface by treating with approved grout etc. complete as per directions of the Engineer in charge.	Sqm	46	1,587.00	73002.000
9.1.4	Dismantling of existing ACP chajjas / vertical panels including metal framing and all fixing accessories etc. Further damaged area need to be made good similar to adjoining surface by treating with approved grout and applying approved cemetitious waterproof coat and making surface waterproof from any leakages etc. complete as per directions of the Engineer in charge.	Sqm	3,446	911.00	3139306.000
9.1.5	Dismantling aluminium/ Gypsum partitions, doors, windows, fixed glazing and false ceiling including disposal of unserviceable material and stacking of serviceable material with in 50 meters lead as directed by Engineer-in-charge. (Recovery of wood scrap will be done @ Rs. 25 per kg, aluminium scrap @ Rs. 120 per kg and structural steel scrap @ Rs. 20 Per Kg from item of work against actual weight if material taken outside IIT campus.)	Sqm	475	50.37	23925.750
9.1.6	Dismantling doors, windows and clerestory windows (steel or wood) shutter including chowkhats, architrave, holdfasts etc. complete and stacking within 50 metres lead: (Recovery of wood scrap will be done @ Rs. 25 per kg, aluminium scrap @ Rs. 120 per kg and structural steel scrap @ Rs. 20 Per Kg from item of work against actual weight if material taken outside IIT campus.) 15.12.2 - Of area beyond 3 sq. metres	Nos	80	449.44	35955.200
9.1.7	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	100	489.36	48936.000
9.1.8	Dismantling existing waterproofing with top finish, waterproofing layer including brick bat coba/PCC in cement mortar including stacking of serviceable material and disposal of unserviceable material.	Sqm	1,588	340.00	539920.000
9.2	Refurbishmant of exisiting MS Railing including cutting, welding, re-fixing, priming, painting, making good for reuse as per requirement according to site measurements with required screws, pins, bolts etc. as per directions of the Engineer in charge.	Rmt	82	971.00	79622.000
9.3	Refurbishment and installation of existing Facade glazing including replacing exisitng broken glasses with new glass panels of 6mm thick toughened glass of approved make including cutting, welding, with making existing hardware reusable and replacing damaged hardware, cleaning and sealing with approved compatible sealant, making finish surface acceptable to Architect / Engineer in charge). Further removing existing exhaust fan and providing and fixing 6mm thick clear toughened glass panles etc. complete as per directions of the Engineer in charge.	Sqm	29	3,997.00	115913.000

9.4	Refurbishment and installation of existing Aluminium windows and ventilators including replacing exisitng broken glasses with new glass panels of 6mm thick toughened glass of approved make including cutting, welding, with making existing hardware reusable and replacing damaged hardware, cleaning and sealing with approved compatible sealant, making finish surface acceptable to Architect / Engineer in charge) etc. complete as per directions of the Engineer in charge.	Sqm	1.539	2,347.00	3612.000
9.5	Refurbishment and installtion of existing Wooden flush door shutters including removing, cutting, re-fixing, scrapping exisiting paint / laminate, providing and applying approved primer and finished with approved laminate (finish surface shall be acceptable to Architect / PM). Edges of shutters shall be provided with 6mm thick approved teakwood beading using exterior quality synthetic adhesive and finished with approved melamine polish, also providing and fixing approved new SS hardware, fittings and fixtures etc. all complete as shown in the drawing and as per directions of the Engineer in charge.	Sqm	22	2,376.00	52272.000
9.6	Careful removal of existing structural steel framing above 2nd floor part terrace of atrium, stacking on the site, disposing off from the site including the necessary cranes, vehicles and joint weighing of the truck load along with Client's Representative, Consultant & Contractor complete.	Kgs.	10,000	70.00	700000.000
9.7	Same as above but rebate to client on item above 8.6	Kgs.	-10,000	30.00	-300000.000
	TOTAL OF DEMOLITION, DISMANTLING & REFURBISHMENT WORK				**4554121.950**

10.00	**MISCELLANEOUS WORKS**				
10.1	Providing & erecting sturdy tubular H – frame steel scaffolding from ground floor to terrace parapet level with supporting braces at required levels including making working / debris collection platforms at required levels as directed by engineer incharge. Covering entire scaffolding surface with nylon net cover 85 to 100 gsm/jute kantan including providing necessary horizontal supports at specified floor leveland maintaining the same for the entire duration of the works including filling the hole with necessary water proofing treatment as ditercted by the consultant & dismantling the same on completion of the work etc., complete.	Sqm	8,500	200.00	1700000.000
10.2	Providing and erecting Double bamboo scaffolding for painting, water supply and sanitary pipe line repair works using bamboo male of 1" to 11/2" dia. Vertical and Horizontal at 1.20 mtr. And necessary cross bamboos and short bamboos for supports from building by taking necessary holes in wall and remaking good the damages after completion of work, including coir and all necessary material incluidng conveying loading unloading including removing the same offer completion of work by taking necessary precautions and safety measures of labour etc. for external work.	Sqm	850	110.00	93500.000
10.3	Providing and fixing Scaffolding net of required width made of high density Polyethylene UV stabilized knitted on warp knitting machines having density 100grams/sqm and shading coefficient minimum 75% around the construction site/ for vertical extension as per requirement including fastening/tying with building/scaffolding pipes or with any other fixtures etc. complete as per direction of Engineer-in-Charge. (One time payment shall be made for providing Scaffolding net from start of work till completion of work including shifting if any. The Scaffolding net shall be the property of the contractor on completion of the work)	Sqm	2,143.51	43.62	93500.000
10.4	Carefully removing internal or external plaster in patches or any length without damaging structure brickwork in the vicinity by using electric cutting tools including cutting a groove first to demarcate exact area of damage taken place stacking the debrises with in 50 meter, cleaning the site etc. complete. including covering the furniture, floor, windows and partitions with plastic sheets while chipping with double scaffolding. Note:- a) No extra payment shall be made for extra thickness removed. b) Proper tools to be used for removal of concrete and it should be seen by contractor no damage on the other side / near by area will be taken place and if required other portions are to be checked by the contractors with respect to the damage before commencement of the work. c) The area in vertical plane shall be measured.	Sqm	6,970	48.86	340554.200
10.5	**WINDOW PLY PROTECTION:** Providing and fixing 6 mm thick commercial plywood with jungle wood frame work of 50 x 35 mm size at 60 cm on both ways for closing the window portion/openings for protection from falling debris, dust etc. including cutting, fixing with nails and removing after the same after completion of the work. (To be used after approval of Superintending Engineer)	Sqm	950	376.00	357200.000
10.6	Providing and applying waterproofing treatment with siporex block filling of 300mm average thickness with IPS top of 400mm thickness, etc. complete	Cum.	50	4,000.00	200000.000
	DECK PROVISION FOR AHUs				
10.7	Providing and fixing of new SRD 60 1mm thk JSW decking sheet in proper line & level with required fixing material etc complete. (NETVERK MAKE & ROOF AREA)	Sqm.	420	3,000.00	1260000.000
	TOTAL OF MISCELLANEOUS WORK				**4044754.200**

11.00	**EXTERNAL DEVELOPMENT (HARD SCAPING) WORK**				
A	**PLANTERBED AREA NEAR SEATS**				
11.1	**Granite of approved shade**-of 25mm thick laid as per paving pattern of grey-Coloured rough finish with grouted joints, including all necessary beds as specified and as directed by PMC.	Sq.m.	115.20	4,500.00	518400.000
11.2	**25mm thick mortar setting bed**	Cu.m.	2.88	3,765.12	10843.546
11.3	**4"thk concrete coping on planter bed top**	Cu.m.	11.05	8,235.75	91005.038
11.4	**100MM THK. PCC**:Providing, machine mixing and laying **M20 grade plain cement concrete (PCC)** for foundation, rafts, levelling course, coping etc.; including compacting, curing, required shuttering and its removal, dewatering where required, cleaning, preparing surfaces, junctions, etc.; complete at all depths and leads as per the drawing and to entire satisfaction of the PMC. Size of aggregate to be minimum 20 mm or as directed by the PMC for intended thickness.	Cu.m.	23.58	8,235.75	194198.985
11.5	**Plaster with chemical waterproofing on plant bed walls-**Providing and applying minimum 15mm thick cement sand plaster in cement sand mortar of mix ratio CM 1:4 (1 cement : 4 sand) including adding 2% by weight of cement approved waterproofing compound, including raking out joints, hacking concrete surfaces, preparing pattas, wattas, rounding of corners, etc. all complete as per architectural drawings, specifications and finished smooth / rough as directed with wooden rundha etc. or as specified by the PM at all leads, depth and lifts, cleaning of surfaces, curing, scaffolding etc. complete as per specification and to the approval of the PMC.(On exposed Masonry and water feature rafts)	Sq.m.	59.00	368.09	21717.310
B	**SEAT WITH IPE WOOD**				
11.6	Providing second class burnt brick masonry with IS approved quality well burnt bricks having crushing strength of 35 kg. / square cm. and maximum water absorption of 20% in cement mortar 1:6 in superstructure including striking joints, racking out joints, watering etc. complete as directed.	Cu.m.	6.00	8,140.71	48844.260
11.7	**IPE wood battens-** Providing and fixing of IPE engineered wood of 50mmx100mm battens on seat top with necessary adhesive as directed by PMC	RMT	265.00	882.75	233928.750
11.8	**6" thk Murum -**Providing and laying as directed by Engineer in charge.	Cu.m.	5.34	626.22	3344.015
	TOATL OF EXTERNAL DEVELOPMENT (HARD SCAPING) WORK				**1122281.903**

12.00	**PHE WORKS**				
12.1	Supply & Fixing in position galvanised **iron puddle flanges** of approx. 60 cm length with flange on one end and welded to mild steel plate (8mm thick) in the centre etc. complete as directed by engineer-in-charge.				
12.1.1	Flange on both end				
12.1.1.1	150mm	No.	1.00	3,700.00	3700.000
12.1.1.2	100mm	No.	1.00	2,950.00	2950.000
12.1.1.3	50mm	No.	1.00	2,500.00	2500.000
12.1.2	Flange on one end				
12.1.2.1	150mm	No.	1.00	3,330.00	3330.000
12.1.2.2	100mm	No.	10.00	2,655.00	26550.000
12.1.2.3	50mm	No.	1.00	1,080.00	1080.000
12.1.2.4	32mm	No.	4.00	630.00	2520.000
12.2	Supply & installation of **Ductile Iron Manhole Covers** with frame,& openable hinge of 600mm Dia. for UGR including all necessary supports, grouting of the frame in RCC, making arrangements for recessed locking of the Manhole cover etc. complete as directed by engineer-in-charge.	No.	2.00	10,000.00	20000.000
12.3	Supplying and erecting G.I. pipe above ground of **'C' class ERW** of sizes pipe with necessary fittings complete as per specification no. FF-PP.				
	Below Ground				
12.3.1	50 mm dia	Rmt	10.00	705.00	7050.000
12.3.2	65 mm dia	Rmt	10.00	893.00	8930.000
12.3.3	80 mm dia	Rmt	10.00	1,116.00	11160.000
12.3.4	100 mm dia	Rmt	10.00	1,588.00	15880.000
12.3.5	150 mm dia(New fire tank to existing fire tank)	Rmt	50.00	2,409.00	120450.000
12.4	Supplying and erecting of below listed sizes of **cast iron double flange butterfly valve** of size complete with **PN16** pressure rating, as per specification no. FF-VL/BFV				
12.4.1	150 mm dia	No	1.00	6,327.00	6327.000
12.5	Supply, installation, testing & commissioning of **Heavy Duty Brass Float Valves** consisting of Brass valve, brass stem and copper float ball suitable for the working pressure of the feeding line, complete as directed by engineer-in-charge. (Pn-10)				
	50mm	No	1.00	7,500.00	7500.000
	TOTAL OF PHE WORKS				**239927.000**

Gross Total Amount Rs.	**13,12,35,851.99**
Say Rs.	**13,12,35,852.00**
At Par	
(In words._____%) (In figures……..%) Above	
(In words._____%) (In figures……..%) Below	
Gross Total Amount Rs.	
CGST 9%	
SGST 9%	
Net Total Amount Rs.	
Say Rs.	

(Rupees in words _____

_____)

(Rates for all items & net amount of total to be filled with figure and words, Percentage for above/below in words as well as in figures should be mention clear & correct. If it is not done, it will be assumed as incomplete tender & tender opening committee will reject your offer at the time of opening of tenders/quotations).

1) If you will engage labourer 20 or more any day, you have to get labour licence as per contract Regulation & Abolition Act 1970 Rule 1971, and also, you have to keep all such recored for inspection to the Principal Employer. If you will engage labour up to 10 Nos. per day, you have to file returns after completion of work as per Building & Construction Act to the Office of Regional Labour Commissioner (Central), Sion, Mumbai.

2) This schedule of work is legal documents of Estate Office, IIT Bombay and directed to enlisted contractors to get the copy of schedule of work to fill the rates and can submit his offer. No changes in schedule of work is allowed i.e. item description , units , quantity, rates, etc. If noticed his offer will be rejected and the contractor will be blacklisted or any other strict action will be initiated against him.

3) This work is to be executed as per the the clauses mentioned in the tender document signed by you. In addition to the existing safety clause of the tender documents a penalty of Rs. 5,000/- (per case) will be recovered from the bills of the particular work, in case any safety violations are noticed.

4) Tender will be rejected if white ink applied for correction in the schedule of work.

5) Taxes as per government notification time to time.

6) Contractor must pay GST Taxes to concern authority within 30 days time limit after receipt of payment from IIT Bombay & said record must be submitted to IIT Bombay Accounts Section, otherwise action will be taken as deemed fit.

7) If any malpractices / fraud / negligent professional behaviour or any discrepancy / inconsistency / disparity / deviation / disagreement / dissimilarity / mismatch noticed, their contract will be terminated by issuing one month notice by following legal procedure and will be blacklisted and informed to all Government Authorities and Organisations.

8) **The quantity of each item may vary from zero to indefinite for BOQ, depending on the requirements of the site, as directed by the Engineer in charge.**

sd/-
Superintending Engineer (I/C)

Signature of the Contractor
Name & Address in full