

A. RETROFITTING AND RENOVATION WORK OF PARABAZAR BRANCH OF RNSB, RAJKOT.

SR.NO	QUANTITY	DESCRIPTION	UNIT	APPROXIMATE MARKET RATE	AMOUNT
MANDATORY PRELIMINARY STRUCTURAL ASSESSMENT, DETAILED INVESTIGATION AND REPAIR STRATEGY FORMULATION					
The quantities, repair locations, strengthening provisions and retrofitting measures included in this estimate and BOQ are based upon preliminary visual inspection, limited condition assessment, preliminary investigations and test results made available by the Principal Client at the time of preparation of the estimate and tender documents. The quantities indicated herein are therefore tentative and indicative in nature and shall not be construed as the final extent of repair, strengthening or retrofitting works required for the structure. The Contractor shall visit the site, satisfy himself regarding the age, condition, accessibility and extent of deterioration of the structure and shall be deemed to have considered the same while quoting his rates. Prior to commencement of any repair, strengthening or retrofitting work under this contract, the Contractor shall carry out, at his own cost and under the direction and supervision of the Structural Consultant, a comprehensive structural condition assessment of the entire building. The assessment shall include detailed distress mapping, crack mapping, corrosion mapping, leakage mapping, dampness mapping, delamination mapping, structural damage mapping and preparation of member-wise condition drawings covering slabs, beams, columns, walls, staircases, foundations and all other structural components. The investigation programme shall include Non-Destructive Testing (NDT), Semi-Destructive Testing (SDT) and Destructive Testing (DT), wherever directed by the Structural Consultant, in accordance with applicable Indian Standards including IS 13311 (Part 1), IS 13311 (Part 2), IS 516 (relevant parts), IS 456, IS 15988. The investigation programme may additionally include reinforcement scanning, cover meter survey, carbonation depth testing, chloride content testing, half-cell potential testing, concrete coring, laboratory testing of extracted samples, selective opening-up of structural members, exposure of reinforcement for verification of reinforcement condition, diameter and spacing, and any other investigation considered necessary by the Structural Consultant. Based upon the findings of the above investigations, all structural members shall be classified according to their condition and distress severity. The complete findings, drawings, test reports and observations shall be submitted to the Structural Consultant for detailed review. Upon review of the detailed assessment and investigation results, the Structural Consultant shall have full authority to revise, modify, add, delete or alter the repair methodology, strengthening scheme, retrofitting strategy, structural details, drawings, specifications, repair locations, quantities, materials, sequence of execution and any other technical requirement considered necessary in the interest of structural safety, serviceability, durability and long-term performance of the structure. Accordingly, the final repair and strengthening scheme may differ substantially from the preliminary scheme contemplated during preparation of this estimate and tender documents. The Contractor shall execute the works strictly in accordance with the revised drawings, revised specifications and instructions issued by the Structural Consultant and Engineer-in-Charge from time to time during execution. Trial panels, trial repairs, trial injections, trial grouting operations and field verification exercises shall be carried out wherever directed by the Structural Consultant to finalize repair materials, repair methodology, grid spacing, drilling parameters, hole diameter and depth, nipple or packer type, injection pressures, refusal criteria, material consumption, application procedures and acceptance criteria before commencement of full-scale execution. No separate payment whatsoever shall be made for distress mapping, damage mapping, crack mapping, leakage mapping, corrosion mapping, delamination mapping, preparation of condition drawings, NDT, SDT, DT investigations, cover meter survey, reinforcement scanning, carbonation testing, chloride testing, half-cell potential testing, concrete coring, laboratory testing, selective opening-up, trial panels, trial repairs, trial injections, trial grouting, preparation of reports, submission of findings, coordination with the Structural Consultant, revision of repair layouts arising from investigation findings, or any other activity required for formulation and finalization of the repair, strengthening and retrofitting strategy. The Contractor shall be deemed to have examined the tender documents thoroughly and fully allowed for all such requirements in the rates quoted for the respective BOQ items. All costs towards labour, supervision, instruments, testing equipment, consumables, temporary works, access arrangements, documentation, reports, approvals, coordination, transportation, overheads and incidental expenses required for carrying out the above activities shall be deemed included in the quoted rates of the respective contract items, and no additional payment, compensation, escalation, extra item or claim of whatsoever nature shall be entertained on this account. The Contractor shall further not be entitled to any claim on the grounds that the actual repair quantities, repair locations, strengthening requirements, retrofitting details, drawings, specifications or methodologies differ from those envisaged during the preliminary survey stage, provided such changes arise from the detailed investigations and directions issued by the Structural Consultant during execution of the works. All works shall thereafter be executed strictly in accordance with the Specification Booklet, approved revised drawings, approved repair methodology, <u>relevant Indian Standards and the instructions of the Structural Consultant and Engineer-in-Charge</u>.					

1	1500.00	Providing and executing grid-based drilling and installation of injection nipples/packers/ports in existing RCC members, including rebar scanning, setting out grid (spacing as per site condition with Consultant concurrence within 230-600 mm), maintaining minimum edge distance (≥ 75 mm or 6 x hole diameter whichever greater), shifting of points wherever required due to reinforcement/services/geometry while maintaining grid intent, drilling holes to diameter and depth as per manufacturer's written guideline, cleaning/conditioning, pressure injection operation with calibrated pump, removal of nipples/packers where applicable and patching of holes complete, including logs and as-built layout, all as directed. AS PER SPECIFICATIONS MENTIONED IN SPECIFICATIONS BOOKLET Repair, Strengthening & Facelifting Works ITEM NO. H (1 TO 4)	Each	270.30	4,05,450.00
2	120.00	Supplying and injecting approved low-viscosity rigid epoxy injection resin for consolidation/impregnation in designated zones as per Item 1A, including mixing accessories and all incidentals, measured by actual consumption. AS PER SPECIFICATIONS MENTIONED IN SPECIFICATIONS BOOKLET Repair, Strengthening & Facelifting Works ITEM NO. H (1 TO 4)	kg (or L).	553.4	66,408.00
3	180.00	Supplying and injecting approved cementitious grout slurry/microfine cement/non-shrink grout slurry in designated zones as per Item 1A, including admixtures if required, measured by actual consumption. AS PER SPECIFICATIONS MENTIONED IN SPECIFICATIONS BOOKLET Repair, Strengthening & Facelifting Works ITEM NO. H (1 TO 4)	kg (or L).	124	22,320.00
4	100.00	Supplying and injecting approved PU/Acrylate resin/gel in wet/leaking zones for water cut-off/sealing as directed, measured by actual consumption. AS PER SPECIFICATIONS MENTIONED IN SPECIFICATIONS BOOKLET Repair, Strengthening & Facelifting Works ITEM NO. H (1 TO 4)	kg (or L).	795.25	79,525.00
5	468.55	Structural RCC Section Repair with PMRM (≤ 40 mm average) Providing and carrying out repair and rehabilitation of damaged structural RCC members (beams, slabs, columns, walls, cantilevers, stair slabs, etc.) in existing RCC having typically M15 parent concrete, affected by spalling/delamination/crumbling and exposed/corroded reinforcement, complete in all respects, including: marking of hollow zones; scaffolding/working platforms, barricading, safety nets and protection; temporary propping/unloading where required; careful chipping/removal of all unsound concrete to sound substrate; debris disposal; full 360° exposure of corroded bars with clearance; mechanical cleaning and approved rust remover treatment including wash/neutralization as applicable; assessment of bars and reporting of significant section loss; application of approved passivating/anti-corrosion coating (two coats); substrate preparation, cleaning and application of bonding agent; section restoration using polymer modified repair mortar (thixotropic) for average thickness up to 40 mm, compacted and finished to line/level/profile; curing as per IS 456 and product datasheet; making good complete as	Sq.mt	1850	8,66,824.09
		directed. (NDT (Rebound Hammer / UPV as per IS 13311) and cover scanning to be done before executing this item. The test has to be conducted by Contractor and no separate payment for test will be given) AS PER SPECIFICATIONS MENTIONED IN SPECIFICATIONS BOOKLET Repair, Strengthening & Facelifting Works ITEM NO. A (1 TO 4)			

6	7.37	Providing and carrying out deep section repair/encasement of damaged structural RCC members in existing RCC typically M15 parent concrete, where average repair thickness exceeds 40 mm, complete, including all operations described in Item A up to passivation and bonding; additionally providing leak-proof shuttering/formwork with supports and vents, sealing joints to prevent grout loss; placing approved non shrink micro-concrete/repair concrete to fully encapsulate reinforcement without voids; finishing, curing, removal of formwork, making good, complete as directed. AS PER SPECIFICATIONS MENTIONED IN SPECIFICATIONS BOOKLET Repair, Strengthening & Facelifting Works ITEM NO. A (1 TO 4)	Cu.Mt.	44813.05	3,30,446.60
7	11291.60	Providing and fixing additional reinforcement/dowels/shear pins/anchorage bars as directed by Structural Consultant and Engineer-in-Charge, including cutting, bending, placing, binding with galvanized binding wire, drilling holes, cleaning holes, supplying and injecting approved chemical anchor adhesive, installation to required embedment, laps/couplers as approved, spacers/cover blocks, complete. AS PER SPECIFICATIONS MENTIONED IN SPECIFICATIONS BOOKLET Repair, Strengthening & Facelifting Works ITEM NO. A (1 TO 4)	Kg.	122.05	13,78,139.78
8	200.00	Repair and rehabilitation of damaged non-structural RCC components (lintels, chajjas/sunshades, drop pardi, RCC fins, coping, façade bands, projections, parapet features and similar elements) affected by crumbling/spalling concrete and corrosion of reinforcement, complete in all respects, including the following: ☐ All scaffolding/working platforms, barricading, safety nets, protection, and temporary propping/support where required. ☐ Identification/marketing of delaminated zones; careful chipping/removal of unsound concrete to sound substrate; disposal of debris. ☐ Full 360-degree exposure of corroded reinforcement with adequate clearance behind bars for cleaning and coating. ☐ Mechanical cleaning (wire brush/emery/power tools), application of rust cleaner, washing/neutralization (as applicable), and abrasive blasting (e.g., 60/90 mesh garnet or equivalent) where required. ☐ Assessment of bar condition; providing and fixing additional reinforcement/dowels with approved chemical	Sq.mt	2000	4,00,000.00
		anchoring where directed; GI binding wire and spacers/cover blocks. Application of passivating/anti-corrosion coating to reinforcement; substrate preparation and bonding agent application. ☐ Section restoration using polymer modified repair mortar (for up to 40 mm average thickness) and/or non-shrink micro-concrete (for more than 40 mm average thickness) including all shuttering/formwork for micro-concrete. ☐ Finishing to line/level including drip groove/chamfer/profile restoration; curing; waterproofing/protective coatings and final exterior protective coating/painting as directed. ☐ Submission of QA/QC documentation with photographs and material batch certificates. AS PER SPECIFICATIONS MENTIONED IN SPECIFICATIONS BOOKLET Repair, Strengthening & Facelifting Works ITEM NO. B			

9	100.00	Providing and carrying out structural crack repair in RCC members by LOW VISCOSITY EPOXY pressure injection, including crack mapping and preparation, removal of coatings/weak surface for adequate bond, cleaning and drying, fixing injection nipples/ports (surface or socket mounted) at required spacing, sealing/cap sealing of crack line with non-sag epoxy paste, mixing and injecting two-component low viscosity epoxy resin as per manufacturer and as per approved procedure, maintaining controlled injection pressure with gauge (maximum 1.3 MPa / 200 psi unless otherwise approved), injecting in proper sequence (vertical cracks bottom-up; horizontal cracks end-to-end) until refusal/appearance at adjacent ports, capping ports, removal/finishing of ports and seal, patching and making good, complete as per specifications and as directed by Engineer-in-Charge AS PER SPECIFICATIONS MENTIONED IN SPECIFICATIONS BOOKLET Repair, Strengthening & Facelifting Works ITEM NO. C	R.Mt.	503.80	50,380.00
10	200.00	Providing and carrying out cementitious pressure injection grouting for structural repair of cracks in brick/stone/block masonry of width 0.5 mm to 5 mm, using approved non-shrink cementitious grout / cement-polymer grout (NON-EPOXY), including removal of local finishes as required, cleaning/flushing, drilling holes to intersect cracks, fixing injection ports/packers, sealing of crack line and ports with cement mortar, injection from lowest port/end sequentially till grout appears at adjacent/next port/opposite face, controlled pressure pumping with gauge and within specified pressure limits, closing ports, finishing/patching of holes, curing, all labour, materials, tools, tackles, scaffolding, disposal, complete as per specifications and as directed by Engineer-in-Charge AS PER SPECIFICATIONS MENTIONED IN SPECIFICATIONS BOOKLET Repair, Strengthening & Facelifting Works ITEM NO. D	R.Mt.	313.00	62,600.00
11	200.00	Providing crack stitching to masonry walls using CRS Fe500 reinforcement C-clamps (8 mm / 10 mm dia) across cracks without chasing, by drilling holes on both sides of crack, thorough hole cleaning, chemical anchoring of clamp legs using approved adhesive, and securing clamps to subsequent guniting reinforcement mesh to ensure full embedment within guniting, including all labour, materials, tools, consumables, scaffolding and disposal of debris complete as per drawings, specifications and Engineer-in-Charge/Structural Consultant direction.AS PER SPECIFICATIONS MENTIONED IN SPECIFICATIONS BOOKLET Repair, Strengthening & Facelifting Works ITEM NO. E	Rmt	1180.80	2,36,160.00
12	5110.34	Providing and applying cement mortar gunite (shotcrete) 40 mm thick in CM 1:3 on internal and external faces of existing masonry walls for gravity and seismic strengthening, including removal of existing plaster, masonry repairs, raking and repointing of joints, supply and fixing of 50 mm x 50 mm galvanized welded wire mesh of 3 mm diameter with galvanized binding wire, fixing of anchors and chemical dowels into masonry and RCC stiffener columns and lintel band, provision of through-ties at parapet level at 900 mm c/c, application of gunite in two layers, curing for minimum 7 days, scaffolding, barricading, safety measures, and all incidental works, complete as per specifications, drawings, and directions of the Engineer-in-Charge. <u>Also Corner structural detail as per the drawing is covered under this item. No extra cost will be claimed for reinforcement and revelant grouting material, labour etc.</u> AS PER SPECIFICATIONS MENTIONED IN SPECIFICATIONS BOOKLET Repair, Strengthening & Facelifting Works ITEM NO. F	Sq.mt	2035.20	1,04,00,567.16

13	88427.21	Providing and fixing complete structural steel strengthening system including beam jacketing/underpinning, ISMB slab support beams, continuous runner at slab-wall junction on gunite-jacketed masonry walls, and plan bracing members below slab to develop diaphragm action, all as per approved structural drawings and specifications, including: ☐ Supply of IS 2062 steel sections/plates, fabrication, drilling, welding, bolting, stiffeners, gusset plates, cleats, pack plates and all accessories; ☐ Steel-to-steel welded/bolted connections; ☐ Steel-to-RCC fixing using post-installed epoxy/hybrid chemical anchors with drilling, hole cleaning, adhesive injection, threaded rods/rebar, nuts/washers and curing; ☐ Steel-to-masonry fixing using polymer-based injection mortar chemical anchors suitable for solid/hollow masonry with sieve sleeves where required, including drilling through gunite and into masonry, hole cleaning, adhesive injection, installation and curing; ☐ Achieving 100% bearing/contact by providing non-shrink grout / non-shrink mortar packing and shims as required, including bedding at end seats and behind runners;	Kg.	129.75	1,14,73,429.88
		☐ Surface preparation and corrosion protection painting system to specified DFT; ☐ All scaffolding, propping/temporary supports, safety measures, handling, alignment, testing, records and as-built documentation complete. AS PER SPECIFICATIONS MENTIONED IN SPECIFICATIONS BOOKLET Repair, Strengthening & Facelifting Works ITEM NO. G (1 TO 2)			
14	200.00	Carrying out proof/pull-out tests of installed chemical anchors in RCC/masonry including reaction arrangement, calibrated jack, gauge, loading protocol, recording load-displacement/ ultimate load and reporting; complete as directed. AS PER SPECIFICATIONS MENTIONED IN SPECIFICATIONS BOOKLET Repair, Strengthening & Facelifting Works ITEM NO. G (1 TO 2)	No. of test	2000	4,00,000.00
15	89.79	Providing and laying in position Ready Mixed M-250 grade concrete for reinforced cement concrete work , using cement content as per approved Design Mix manufactured in fully automatic batching plant and transported to site of work in transit mixer for a lead up to 10 kms having continuous agitated mixer, manufactured as per mix design of specified grade for reinforced cement concrete work including pumping of R.M.C. from transit mixer to site of laying, INCLUDING the cost of centering shuttering finishing and EXCLUDING the cost of reinforcement including cost of admixtures in recommended proportions as per IS: 9103 to accelerate/ retard setting of concrete, improve workability without impairing strength and durability as per direction of the Engineer - in - charge. Without Fly Ash (Min cement level as per latest IS 456 shall be maintained) (Cement level 450 kg)	CU.MT	9000	8,08,138.89

16	350.00	Providing and executing complete negative-side confined waterproofing system to existing basement walls, floor slabs, lift pits, sump pits and associated underground structural surfaces including condition assessment, leakage mapping, crack mapping, cleaning, removal of unsound material, repair of cracks, repair of honeycombs, repair of voids, treatment of open joints, formation of polymer modified cementitious fillets, supply and installation of approved confined waterproofing membrane system, treatment of laps, corners, penetrations, sleeves, construction joints, lift pits, sump pits, terminations and changes in plane, protection during reinforcement fixing, protection during concreting, repair of accidental damage, quality assurance procedures, inspection, testing, photographic documentation, monsoon protection measures, preparation of records, rectification of defects before concealment and all labour, materials, equipment, tools, tackles, lifts, leads, temporary works and incidental operations complete.AS PER SPECIFICATIONS MENTIONED IN SPECIFICATIONS BOOKLET Repair, Strengthening & Facelifting Works ITEM NO. J	Sq.mt	800	2,80,000.00
17	32.20	Providing and fixing 100mm Thick concrete jacketing (M-25) as per specifications of Engg	Sq.mt	3000	96,585.37
18	5807.76	Removing and scraping of old deteriorated plaster of any thickness from wall / R.C.C member including stacking of serviceable material and disposal of unserviceable from site of work with all lead and lift. (Item no. -, Page no. 122)	Sq.mt	300	17,42,328.07
19	6186.87	Providing 15mm Thick Cement Plaster in single coat for Interior plastering upto all floor level finished even and smooth in Cement mortar 1:4 (1-Cement : 4-sand) finishing with a floating coat of Lime neeru etc.complete.	Sq.mt	400	24,74,746.75
20	2601.30	20 mm thick sand faced cement plaster on walls upto height 10 meters above ground level consisting of 12 mm thick backing coat of C.M. 1:3 (1-cement: 3-sand) and 8 mm thick finishing coat of C.M. 1:1 (1-cement: 1-sand) etc. complete including all material and labour as directed by Engineer in charge	sq.mt	600	15,60,780.67
21	100.00	Providing and fixing anchor fastners upto 20mm dia with making the hole of required dia and depth as per supplier specifications using EPOXY grouting chemical etc complete as per instructions of engg.(Which are not covered in any completed item)	each	400	40,000.00
22	100.00	Providing and fixing anchor fastners upto 20mm dia with making the hole of required dia and depth as per supplier specifications using CEMENTIOUS grouting chemical etc complete as per instructions of engg.(Which are not covered in any completed item)	each	300	30,000.00
23	720.40	WATER PROOFING - Terrace water proofing on bare (naked) concrete floor of liquidnmemberane with net or equivalent any other application having minimum 10 years of gurantee	sq.mt	600	4,32,239.43
24	125.14	Providing and executing strengthening of existing load-bearing masonry wall foundations by controlled alternate block underpinning, foundation widening and composite jacketing system as detailed in drawings and Section Z-Z, complete in all respects, including joint inspection, distress mapping, setting out of Zone-1 and Zone-2 blocks, temporary shoring/propping/bracing and all structural stability measures, controlled excavation in alternate blocks only, excavation in all types of soil, dewatering and water diversion, protection of open excavations, cleaning and preparation of existing masonry foundation, removal of loose mortar, vegetation, roots and deteriorated material, drilling holes in existing masonry foundation, providing and fixing 12 mm diameter dowel bars at 600 mm c/c or as shown in drawings, providing and fixing 16 mm diameter shear pins/connectors at 600 mm c/c both ways and both faces or as shown in drawings, cleaning drilled holes, fixing bars with approved chemical anchoring system/non-shrink anchoring grout, providing foundation widening on both sides of existing masonry foundation by plum concrete in 1:3:6 proportion with approximately 450 mm projection on each side	Cu.mt	5000	6,25,680.00

		and in two vertical lifts/blocks of approximately 600 mm + 600 mm or as detailed, proper placement and compaction around existing foundation to achieve composite action, repair/filling of local cavities and voids, selected earth backfilling with watering and compaction, providing 40 mm thick cement mortar gunite in 1:3 proportion to prepared masonry surfaces, providing 150 mm thick M15 RCC coping at ground/plinth level including formwork, reinforcement if detailed, placing, vibrating, finishing and curing, continuous curing of concrete/gunite/coping, structural monitoring, monsoon protection measures, scaffolding, barricading, warning signs, lighting, safety arrangements, disposal of surplus material, QA/QC documentation, photographs and all labour, materials, machinery, tools, tackles, leads, lifts, temporary works and incidentals complete as per specifications, drawings and directions of Engineer-in-Charge / Structural Consultant. AS PER SPECIFICATIONS MENTIONED IN SPECIFICATIONS BOOKLET Repair, Strengthening & Facelifting Works ITEM NO. I			
25	10664.06	Providing TMT Bar FE 500/500D reinforcement for R.C.C. work including bending, binding and placing in position complete upto floor two level as per the drawing and instruction of Engineer-in-charge etc complete FOR ALL FLOORS	kg	83	8,85,117.31
				Total	3,51,47,866.99
		Add contingencies and overheads.		ADD 15%	52,72,180.05
				Total	4,04,20,047
				Say	369 lacs

I/We _____ am/are willing to carry out the above work at _____ % above/below _____ percent (should be written in figures and words) of the estimated rate mention above estimated amount of my/ours tender work out as under.

ESTIMATED AMOUNT PUT TO TENDER	ESTIMATED AMOUNT PUT TO TENDER
Rs. _____	Rs. _____
Add _____ % above	Add _____ % below
Rs. _____	Rs. _____
Total Amount Rs. _____	Total Amount Rs. _____
Rupees _____ only	Rupees _____ only

SIGNATURE OF THE BIDDER