

CHAPTER - 4 : REINFORCED CEMENT CONCRETE				
Item No.	Description of Item	Unit	Rate (Rs.)	Cement Qty.(qtl.)
	CAST IN SITU			
041010	Providing and laying in position M 20 Grade concrete for reinforced concrete structural elements but excluding cost of centering, shuttering, reinforcement and Admixtures in recommended proportion (as per IS:9103) to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer in charge			
041011	All work upto plinth level, including raft foundation of washable aprons, HS tank, pile cap, footings of FOB, and Platform shelter etc.	cum	2123.57	3.44 or as appd. in design mix
041012	All work in buildings above plinth level upto floor two level.	cum	2548.28	3.44 or as appd. in design mix
041015	In kerbs, steps and the likes etc.	cum	3096.37	3.44 or as appd. in design mix
041016	In arches, arch ribs, domes, vaults, shells, folded plates and roofs having slopes above 150	cum	1879.23	3.44 or as appd. in design mix
041017	In chimneys and shafts	cum	2170.68	3.44 or as appd. in design mix
041018	In vertical and Horizontal fins individually or forming box louvers, facias and eaves boards	cum	1861.65	3.44 or as appd. in design mix
	FORM WORK :			
042010	Centering and shuttering including strutting, propping etc. and removal of form for :			
042011	Foundations, footings, bases of columns, raft foundation of washable aprons, Pile caps, Footings of FOB etc.	Sqm	128.80	
042012	Walls (any thickness) including attached plasters, buttresses, plinth and string courses etc.	Sqm	212.70	
042013	Suspended floors, roofs, landings, balconies, FOB slabs, walkway slabs and access platform	Sqm	205.20	
042014	Lintels, beams, plinth beams, bed blocks, girders, bressumers and cantilevers	Sqm	180.45	
042015	Columns, pillars, , posts and struts	Sqm	266.90	
042016	Stairs (excluding landings) except spiral-staircases	Sqm	245.40	
042017	Spiral staircases (including landing)	Sqm	264.49	
042018	Arches, domes, vaults upto 6m span	Sqm	665.50	
042019	Extra for arches, domes, vaults exceeding 6m span	Sqm	287.30	
042020	Centering and shuttering including strutting, propping etc. and removal of form for special shapes			
042021	Chimneys and shafts	Sqm	216.40	

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042022	Vertical and horizontal fins individually or forming box louvers band, facias and eaves boards	Sqm	271.50	
042023	Extra for shuttering in circular work (20% of respective centering and shuttering items)	Sqm	0.20	
042024	Small lintels not exceeding 1.5m clear span, moulding as in cornices, window sills, string courses, bands, copings, bed plates, anchor blocks and items of similar shape and size	Sqm	94.61	
042025	Edges of slabs and beams in floors and walls under 20 cm wide	metre	73.60	
042026	Edges of slabs and beams in floors and walls above 20 cm wide	Sqm	301.11	
042027	Cornices and mouldings	Sqm	408.16	
042028	Small surfaces such as cantilever ends, brackets and ends of steps, caps and bases to pilasters and columns and items of similar shape and size	Sqm	301.11	
042029	Weather shade, Chajjas, corbels etc. including edges	Sqm	323.10	
042030	Extra for additional height in centering, shuttering wherever required with adequate bracing, propping etc. including cost of de-shuttering and de-centering at all levels, over a height of 3.5m, for every additional height of 1 metre or part thereof in Suspended floors, roofs, landing, beams and balconies (Plan area to be measured)	Sqm	83.90	
042040	Supplying and applying shuttering oil for mould releasing, having (Flash point 54 degree C and specific gravity 0.88±0.02) for concrete formwork to be applied either by brush or with spray machine to the entire satisfaction of Engineer Incharge	Sqm	7.08	
	PRE-CAST R.C.C. (Cast at site)			
043010	Providing, hoisting and fixing in position upto floor two level M20 Grade precast RCC work including setting in cement mortar 1:3 (1 cement : 3 coarse sand) and finishing smooth with 6mm thick cement plaster 1:3 (1 cement : 3 fine sand) on exposed surfaces complete including cost of centering, shuttering, finishing, Admixtures in recommended proportion (as per IS:9103) to accelerate, retard setting of concrete, improve workability without impairing strength and durability, excluding cost of cement and steel reinforcement, as per approved plan & direction of Engineer incharge.			
043011	In string courses, bands, coping, bed plates, anchor blocks, plain window sills, and the like	cum	2416.10	4.04 or as appd in design mix
043012	In small lintels upto 1.50m clear span	cum	3150.26	4.04 or as appd. in design mix

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043013	In lintels, beams, bressumers	cum	4052.95	4.04 or as appd. in design mix
043014	In Shelves, cantilevers, chajjas, sunshades etc.	cum	4052.95	4.04 or as appd. in design mix
043015	In slabs for drain covers, manhole covers, flue tops etc.	cum	2618.68	4.04 or as appd. in design mix
043016	In vertical and horizontal fins individually or forming box louvers	cum	4293.43	4.04 or as appd. in design mix
043017	In mouldings as in cornices, window sills etc.	cum	2776.76	4.04 or as appd. in design mix
043018	In door and window frames	cum	2548.95	4.04 or as appd. in design mix
043019	In blocks of complicated design such as C blocks of cabins, Platform walls etc.	cum	4592.31	4.04 or as appd. in design mix
043020	Providing, hoisting and fixing in position M25 Grade Reinforced cement concrete in Precast standard Platform wall sections, including the cost of centering, shuttering, finishing, Admixtures in recommended proportion (as per IS 9103) to accelerate, retard setting of concrete, improve workability without impairing strength and durability but excluding the cost of cement and steel reinforcement, as per approved plan & as per direction of the Engineer incharge.	cum	2378.36	4.34 or as appd. in design mix
	ENCASING ROLLED STEEL SECTION :			
044010	Encasing rolled steel sections, in beams and columns with Grade 15 cement concrete 1:2:4 (1 cement: 2 sand: 4 graded stone aggregate 12.5mm nominal size) including centering and shuttering but excluding the cost of cement and reinforcement, ungalvanised wire mesh/expanded metal and hangers.	cum	1880.27	3.20 or as appd. in design mix
044020	Extra for providing and fixing expanded metal mesh of size 20x60mm and strands 3.25 mm wide 1.6mm thick weighing 3.64kg. per sqm for encasing of rolling steel sections/built up sections in beams, columns and grillages excluding cost of hangers.	Sqm	280.33	
044021	Encasing RS or rail section with 12mm mesh rabbit wire including cost of rabbit wire.	Sqm	208.68	
	REINFORCEMENT :			
045010	Supplying Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete.			
045011	Mild steel and medium tensile steel bars	Kg	45.29	
045012	Hard drawn steel wire	Kg	55.83	
045013	Cold twisted bars	Kg	48.41	

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045014	High yield strength deformed bars	Kg	48.41	
045015	Hard drawn steel wire fabric	Kg	56.24	
045016	Thermo-Mechanically Treated bars	Kg	48.41	
045020	Supplying anti corrosive reinforcement bars with fusion bonded epoxy coating after sand blasting, cleaning, induction, heating etc. of the reinforcement bars complete as per specification. including cutting, bending, placing in position and binding all complete.			
045021	Upto 16mm dia bars	Kg	62.44	
045022	More than 16mm dia bars	Kg	59.81	
045030	Extra for providing and mixing polyester triangular synthetic fibres in specified ratio (@ 0.25% of cement by weight), 6 to 18 mm in length, designed for melting point 240°C to 260°C and having specific gravity of 1.33 to 1.40 in all types of works of CC, RCC, plaster etc.	Kg	390.26	
	ADDITIONS / DEDUCTIONS			
046010	Extra for RCC work in superstructure above floor two level for every floor or part thereof.	cum	216.54	
046020	Extra for rendering smooth the top of suspended floors, landings and staircases (treads and risers) with cement mortar 1:2 (1 cement: 2 coarse sand) including a floating coat of neat cement and protecting the surface with a layer of 7.5cm of earth laid over	Sqm	23.49	0.073
046030	Add or deduct for plaster drip course/ groove in plastered surface or moulding to R.C.C. projections.	metre	14.12	
	EXPANSION JOINTS			
047010	Providing and fixing in position copper plate as per design for expansion joints.	Kg	399.13	
047020	Providing and filling in position, blown bitumen in expansion joints.	per cm depth/cm width/ 100m length	417.72	
047030	Providing and filling in position bitumen mix filler of proportion 80kg of hot bitumen, 1kg of cement and 0.25cum of coarse sand for expansion joints.	per cm depth/cm width/ 100m length	139.42	
047040	Providing and fixing in position 12mm thick bitumen impregnated fibre board conforming to IS: 1838 including cost of primer, sealing compound in expansion joints.	per cm depth/ 100m length	428.88	
047050	Providing and fixing sheet covering over expansion joints with iron screws as per design to match the colour/ shade of wall treatment.			
047051	Non-Asbestos sheet 6mm thick, 150mm wide	metre	75.74	
047052	Non-Asbestos sheet 6mm thick, 200mm wide	metre	101.74	
047053	Aluminium fluted strips 3.15mm thick, 150mm wide	metre	391.31	

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047054	Aluminium fluted strips 3.15mm thick, 200mm wide	metre	429.65	
	MISCELLANEOUS			
048010	Extra for laying reinforced cement concrete in or under water and / or liquid mud including cost of pumping out water and removing slush etc. complete. Note : The quantity will be calculated by multiplying the depth measured from the subsoil water level upto the centre of gravity of the R.C.C. in cubic metre executed under subsoil water. The depth of centre of gravity shall be reckoned correct to 0.1m, 0.05m or more shall be taken as 0.1m and less than 0.05m ignored. No extra payment shall be made for placing the reinforcement or centring or shuttering under the sub soil water level.	cum/m depth	276.56	
048020	Extra for laying reinforced cement concrete in or under foul position	cum/m depth	85.74	
048030	Supplying cement / epoxy grout and sealing of cracks by injection process through nipples with pressure of at least 1.4 kg/sqm till the grout comes out through adjacent nipples, complete as per specification			
048031	Using cement grout	kg	33.84	
048032	Using epoxy grout as per manufacturer's specification	kg.	310.78	
048040	Supplying, fitting and fixing nipples with approved fixing compound after making grooves 10mm wide and 10mm deep, drilling holes for grouting along cracks in CC/ RCC structures, sealing of grooves including subsequent cutting/ removal and sealing of the holes of nipples after grouting by the approved fixing compound, complete as per specification.	Each	80.41	As per site conditions
048050	Supplying and applying epoxy mortars (average thickness 5mm) over leached, honey combed, spalled concrete surface and exposed steel reinforcement after thorough cleaning of the exposed concrete/ reinforcement with wire brush, etc. complete as per specification. Note: This item is to be paid for only where concreting of the defective work was not the responsibility of the same contractor.	Sqm	1646.91	

Item No.	Description of Item	Unit	Rate (Rs.)	Cement Qty.(qtl.)
048060	Providing and fixing shear anchors made of HTS bars of required dia, shape & design & fixing by drilling holes in the existing concrete/masonry to bond new work with the old work. Shear anchors to be provided at specified distance. These anchors will be embedded as per drawing inside existing concrete/masonry and will be fixed by Polymer based ready grouts as per manufacture's specification to ensure proper bonding with old structures. The shear anchor will be as per drawing or as directed by Engineer-in-charge			
048061	With 12mm dia bars	Each	111.83	
048062	With 16mm dia bars	Each	143.92	
048070	Vacuum dewatering of all types & grade concrete by mechanical means including draining out the sucked excess water from concrete & then finishing the surface smooth with mechanical trowelling with suitable equipment etc. complete. The methodology to be adopted will be as per user manual of dewatering & trawling machine and as directed by Engineer.	Sqm	36.12	
048080	Carrying out mechanical trowelling of concrete surface so as to obtain smooth shrinkage cracks free surface. Methodology to be adopted as per users manual of the equipment & as directed by Engineer - in - Charge.	Sqm	9.94	
048090	Extra for making anti-slip grooves in RCC staircase 3mm wide and 3mm deep	Sqm	145.02	
048100	Keeping holes for holding down bolts in foundation blocks or bed blocks	Each	38.38	
048110	Grouting of holding down bolts with cement mortar in foundation blocks or bed blocks.	Each	29.20	0.002
048120	Manufacturing, supplying & fixing of pr-fabricated RCC coping stone of size 530mm x 1125mm x 100mm thick as per top face designed and approved by site Engineer with M-30 grade RCC with 8 mm dia. tor steel at 150mm c/c both ways and manufactured by vibro compaction process using jointless FRP/GRP steel moulds of required size, shape & design. The item includes cost of cement, reinforcement, transportation etc. (Note : Under layer of cement mortar to be laid as per site conditions & should be paid for separately)	Each	1143.58	
048130	Supplying & applying with mechanical sprayer water-based concrete curing compound (membrane curing) covering 3.5 to 5 sqm of surface area per litre of compound. It should give 75% or more curing efficiency when tested to BS 7542 & comply with BS 8110 Part-I, Clause 6.63(c)	Sqm	31.66	
	New Items To Be Added By Zonal Railways			
049010				
049020				