

TENDER

TENDER NOTIFICATION NO. - FCX/19201030

FOR

**Extension of GJB for establishing
manufacturing facility of Heat exchangers for
nuclear project.**

PRICE BID



FACTORY CIVIL CONSTRUCTION & MAINTENANCE DIVISION

BHARAT HEAVY ELECTRICALS LIMITED

(A Government of India Undertaking)

BHOPAL – 462 022 (M.P)

PREAMBLE OF PRICE BID

1.0 This Price Bid consists of Three Schedule:

1.1 Schedule A

Schedule A consists of Three Annexure:

Total price of the package combining Annexure I , Annexure II & Annexure III to be quoted by the bidders which shall form the basis for comparison for deciding lowest bid. For further processing and award, total quoted amount by the L1 (lowest) bidder for the package shall be used for deriving individual item rate by BHEL based on % (percentage) weightage specified at Annexure I , Annexure II & Annexure III of Price Schedule.

The field quality plan (FQP) is attached with this tender documents. All the prescribed test as enumerated in FQP has to be done by the contractor in a Government approved/NABL accredited laboratory in presence of BHEL representative. All the expenses pertaining to these tests has to be borne by the contractor. Contractor may take a note of this while quoting the rate in the tender.

1.2 Schedule B

It consists of details of free issue materials by BHEL.

1.3 Schedule C

It consists of details of tools & tackles provided by BHEL either on higher basis or on free of cost basis which are mentioned in price bid.

2.0 The work to be carried out under the contract shall, except as otherwise provided in tender conditions, include all labour, materials, tools, plant, equipment, and transport which may be required in preparation of and for full & entire execution and completion of the Works. The descriptions given in the Schedule of Quantities shall, unless otherwise stated, be held to include waste on materials, carriage and cartage, carrying in return of empties, hoisting, setting, fitting and fixing in position and all other labours necessary in and for the full and entire execution and completion as aforesaid in accordance with good practice and recognized principles as laid down in Technical Specification & elsewhere in Tender Specification.

3.0 The price bid should not contain any condition. Conditional price Bids shall be summarily rejected.

4.0 The bidder should not leave any column blank in Price Schedules.

5.0 Price Quoted shall include all taxes, & duties except **GST**.

6.0 Unless otherwise specified in the items involving cement, reinforcement steel or structural steel, these items shall be issued free of cost by BHEL.

FACTORY CIVIL CONSTRUCTION & MAINTENANCE DIVISION

NIT No. :FCX/19201030

Price Schedule

Name of work : Extension of GJB for establishing manufacturing facility of Heat exchangers for nuclear project.

SUMMARY

	Details ANNEXURE		Total Amount (Rs.)
	TOTAL OF AMOUNT QUOTED IN ANNEXURE- (I), ANNEXURE (II)& ANNEXURE (III)		

Amount in words: Rs.

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Total price of the package consisting of Annexure-I , Annexure-II & Annexure-III to be quoted by the bidders which shall form the basis of comparison for deciding lowest bid.

For further processing & award total quoted Amount for the package by the L1 (lowest) bidder shall be used for deriving Individual item rate by BHEL based on % (percentage) weightage specified at Annexure-I , Annexure-II & Annexure-III of Price Schedule.

FACTORY CIVIL CONSTRUCTION & MAINTENANCE DIVISION

NIT No. FCX/19201030

Price Schedule A - Annexure: I

Name of work : Extension of GJB for establishing manufacturing facility of Heat exchangers for nuclear project.

S. No.	Based on DSR' 2012	Item Description	Qty.	Unit	% Weightage of item amount against total amount
1		Carriage of material by Mechanical transport including, loading, unloading & stacking of..			
	1.1.1	a) Lime, moorum, building rubbish 1 km lead	470.00	cum	0.1178
	1.1.1	b) Lime, moorum, building rubbish 2 km lead	100.00	cum	0.0284
	1.1.2	c) Earth - 1 Km lead	2142.00	cum	0.6712
	1.1.2	d) Earth - 2 Km lead	238.00	cum	0.0846
	1.1.11	e) Steel - 1 Km lead	120.00	tonne	0.0267
2	2.6	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 disposal of excavated earth, lead up to 50 m and lift up to 1.5 m; disposed earth to be levelled and neatly dressed.			
	2.6.1	All kind of soil	2142.00	cum	1.0487
3		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 disposal of excavated earth, lead up to 50 m and lift up to 1.5 m, disposed earth to be levelled and neatly dressed:			
	2.7.1	a) Ordinary rock.	390.00	cum	0.2919
	2.7.3	b) Hard Rock (blasting prohibited).	80.00	cum	0.1484
4		Earth work in excavation by mechanical means (Hydraulic excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan), including dressing of sides and ramming of bottoms, lift upto 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m.			
	2.8.1	All kind of soil	238.00	cum	0.1178
		Extra rate for quantities of work, executed:			
5	2.24.1	In or under water and/or liquid mud including pumping out water as required. (20 % of item no.3)			
		a) Ordinary rock.		Cum per metre depth	
			78.00		0.0117

FACTORY CIVIL CONSTRUCTION & MAINTENANCE DIVISION

NIT No. FCX/19201030

Price Schedule A - Annexure: I

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		b) Hard Rock (blasting prohibited).		Cum per metre depth	
			16.00		0.0059
6	2.25	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.	2484.00	cum	0.7879
7		Extra for every additional lift of 1.5 m or part thereof in excavation / banking excavated or stacked materials.			
a)	2.26.1	All kinds of soil.	1250.00	cum	0.1637
b)	2.26.2	Ordinary or hard rock.	650.00	cum	0.1525
8	2.31	Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees and saplings of girth up to 30 cm measured at a height of 1 m above ground level and removal of rubbish up to a distance of 50 m outside the periphery of the area cleared.	1000.00	100 Sqm	0.0182
9		Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level: (cement which shall be supplied free of cost by BHEL)			
a)	4.1.3	1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size).	26.00	cum	0.2536
b)	4.1.6	1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 40 mm nominal size).	494.00	cum	4.737
10	**	Providing and laying in position specified grade of reinforced cement concrete excluding the cost of centering, shuttering, finishing and reinforcement - All work upto plinth level. (Cement free issue by BHEL)			
	5.1.2	a) 1 : 1.5 : 3 (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20 mm nominal size).	20.00	cum	0.2041
	5.1.3	b) 1 : 2 : 4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size).	5.00	cum	0.0524

FACTORY CIVIL CONSTRUCTION & MAINTENANCE DIVISION

NIT No. FCX/19201030

Price Schedule A - Annexure: I

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S. No.	Based on DSR' 2012	Item Description	Qty.	Unit	% Weightage of item amount against total amount
11		Reinforced cement concrete work in walls (any thickness), including attached pilasters, buttresses, plinth and string courses, fillets, columns, pillars, piers, abutments, posts and struts etc. up to floor five level, excluding cost of centering, shuttering, finishing and reinforcement : (Cement free issue by BHEL)			
	5.2.2	1 : 1.5 : 3 (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20 mm nominal size).	10.00	cum	0.1263
12	5.3	Reinforced cement concrete work in beams, suspended floors, roofs having slope up to 15° landings, balconies, shelves, chajjas, lintels, bands, plain window sills, staircases and spiral stair cases up to floor five level, excluding the cost of centering, shuttering, finishing and reinforcement, with 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size). (cement which shall be supplied free of cost by BHEL)	30.00	cum	0.4039
13		Centering and shuttering including strutting, propping etc. and removal of form for :			
	5.9.1	a) Foundations, footings, bases of columns, etc. for mass concrete.	1652.00	sqm	0.9724
	5.9.2	b) Walls (any thickness) including attached pilasters, buttresses, plinth and string courses, etc.	236.00	sqm	0.2447
	5.9.5	d) Lintels, beams, plinth beams, girders, bressumers and cantilevers.	354.00	sqm	0.3367
	5.9.6	e) Columns, pillars, piers, abutments, posts and struts.	118.00	sqm	0.1561
14	Ana.	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto plinth level. (Reinforcement bars will be supplied free of cost from BHEL store).			
	5.22.6	Thermo-Mechanically Treated bars.	96525.00	Kg	2.7037
15	Ana.	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete above plinth level. (Reinforcement bars will be supplied free of cost from BHEL store).			
	5.22A.6	Thermo-Mechanically Treated bars.	2475.00	Kg	0.0693

FACTORY CIVIL CONSTRUCTION & MAINTENANCE DIVISION

NIT No. FCX/19201030

Price Schedule A - Annexure: I

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S. No.	Based on DSR' 2012	Item Description	Qty.	Unit	% Weightage of item amount against total amount
16	5.28	Providing and fixing in position 12 mm thick bitumen impregnated fibre board conforming to IS : 1838 including cost of primer, sealing compound in expansion joints.	80.00	per cm depth per 100m	0.1114
17	5.31	Extra for laying reinforced cement concrete in or under water and/or liquid mud including cost of pumping or bailing out water and removing slush etc., complete.	50.00	cum	0.0615
<p>Note :</p> <p>The quantity will be calculated by multiplying the depth measured from the subsoil water level up to the centre of gravity of the R.C.C. under subsoil water with the quantity of R.C.C. in cubic metre executed under subsoil water. The depth of centre of gravity shall be reckoned correct to 0.1m, 0.05 m or more shall be taken as 0.1 m and less than 0.05 m ignored. No extra payment shall be made for placing reinforcement or centering & shuttering under sub-soil water conditions.</p>					
18	5.33	Providing and laying in position machine batched and machine mixed design mix M-25 grade cement concrete for reinforced cement concrete work, using cement concrete as per approved design mix including pumping of concrete to site of laying but excluding the cost of centering, shuttering, finishing and reinforcement. including 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 Engineer- in - charge.			
<p>(Note :- Cement concnet considered in ths item is @ 330 kg/cum. Excess/less cement used as per design mix is payable/recoverable separately).</p>					
	5.33.1	All works upto plinth level	1650.00	cum	20.2307
19	6.32	Brick work with clay flyash F.P.S. (non modular) bricks of class designation 7.5 in superstructure above plinth level up to floor five level in :			
	6.32.2	Cement mortar 1: 6 (1 cement : 6 coarse sand)	85.00	cum	1.051

FACTORY CIVIL CONSTRUCTION & MAINTENANCE DIVISION

NIT No. FCX/19201030

Price Schedule A - Annexure: I

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S. No.	Based on DSR' 2012	Item Description	Qty.	Unit	% Weightage of item amount against total amount
20		Coursed rubble masonry (second sort) with hard stone in foundation & plinth with (Excluding the cost of cement and stone which shall be supplied free of cost by BHEL):-			
	Ana 7.7.1	Cement mortar 1:6 (1 cement : 6 coarse sand).	100.00	cum	0.6955
21		Coursed rubble masonry (second sort) with hard stone in foundation & plinth with (Excluding the cost of cement which shall be supplied free of cost by BHEL):-			
	7.7.1	Cement mortar 1:6 (1 cement : 6 coarse sand).	100.00	cum	1.0426
22	9.96	Providing and fixing aluminium sliding door bolts ISI marked anodised (anodic coating not less than grade AC 10 as per IS:1868) transparent or dyed to required colour or shade with nuts and screws, etc., complete.			
	9.96.1	300 x 16 mm.	20.00	each	0.0133
23		Providing and fixing aluminium tower bolts ISI marked anodised (anodic coating not less than grade AC 10 as per IS:1868) transparent or dyed to required colour or shade with necessary screws, etc. complete:			
	9.97.4	150x10 mm.	20.00	each	0.0038
24	9.100	Providing and fixing aluminium handles, ISI marked anodised (anodic coating not less than grade AC 10 as per IS:1868) transparent or dyed to required colour or shade, with necessary screws, etc. complete.			
	9.100.1	a)125 mm.	20.00	each	0.0040
25	11.4	52 mm thick cement concrete flooring with concrete hardener topping under layer 40 mm thick cement concrete 1 : 2 : 4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) and top layer 12 mm thick cement hardener concrete consisting of mix 1:2 (1 cement hardener mix : 2 graded stone aggregate 6 mm nominal size) by volume. Hardening compound is mixed @ 2 litre per 50 kg of cement or as per manufactures specifications. This includes cost of cement slurry, but excluding the cost of nosing of steps etc. complete.(Excluding cost of cement which shall be supplied free of cost by BHEL)			
			2050.00	sqm	2.1797

FACTORY CIVIL CONSTRUCTION & MAINTENANCE DIVISION

NIT No. FCX/19201030

Price Schedule A - Annexure: I

Name of work : Extension of GJB for establishing manufacturing facility of Heat exchangers for nuclear project.

S. No.	Based on DSR' 2012	Item Description	Qty.	Unit	% Weightage of item amount against total amount
26	**	12 mm cement plaster of mix:(Cement free issue by the Deptt.)			
	13.4.1	a) 1 : 4 (1 cement : 4 coarse sand) .	22.00	sqm	0.0083
	13.4.2	b) 1 : 6 (1 cement : 6 coarse sand) .	410.00	sqm	0.1539
27	**	15 mm cement plaster on the rough side of single or half brick wall of mix:(Cement free issue by the Deptt.)			
	13.5.1	a)1 : 4 (1 cement : 4 coarse sand).	22.00	sqm	0.0095
	13.5.2	b)1 : 6 (1 cement : 6 coarse sand).	410.00	sqm	0.1774
28	**	Pointing on stone work with cement mortar 1 : 3 (1 cement : 3 fine sand):(excluding cost of cement which shall be supplied free of cost by BHEL) (Scaffolding not required)			
a)	13.33.1	Flush / Ruled pointing.	10.00	sqm	0.0039
b)	13.33.2	Raised and cut pointing.	100.00	sqm	0.071
29		Distempering with 1st quality acrylic washable distemper (ready made) of approved manufacturer, of required shade and color complete as per Manufacturer's specification.			
	13.42.1	Two or more coats on new work "Duwel Acrylic Distemper" from Akzonobel, "Bison acrylic distemper" from Berger, "Beauty Premium acrylic distemper" from Nerolac	430.00	sqm	0.0583
30	13.46	Finishing walls with Acrylic Smooth exterior paint of required shade:			
	13.46.1	New work (Two or more coats applied @1.67 litre/10 sqm) over and including priming coat of exterior primer applied @ 2.20 kg/10 sqm).	430.00	sqm	0.0977
31	Analysis	Providing and applying white cement based putty of average thickness 1 mm, of approved brand and manufacturer, over the plastered wall surface to prepare the surface even and smooth complete.			
	13.80	Make of Putty: Birla Wall Care Cement Putty, JK Wall Putty, Asian Wall Putty, Sika Wall Décor Putty	860.00	sqm	0.2204
32		Painting with synthetic paint of approved brand and manufacture of required colour to give an even shade: (Excluding cost of paint)			
	14.54.1	One or more coats on old work.	200.00	sqm	0.0183

FACTORY CIVIL CONSTRUCTION & MAINTENANCE DIVISION

NIT No. FCX/19201030

Price Schedule A - Annexure: I

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S. No.	Based on DSR' 2012	Item Description	Qty.	Unit	% Weightage of item amount against total amount
33		Painting with aluminium paint of approved brand and manufacture to give an even shade: (Excluding cost of paint)			
	14.55.1	One or more coats on old work	300.00	sqm	0.0274
34		Demolishing cement concrete manually / by mechanical means including disposal of material within 50 metres lead as per direction of Engineer-in-charge:			
a)	15.2.1	Nominal concrete 1:3:6 or richer mix (i/c equivalent design mix)	10.00	cum	0.0254
b)	15.2.2	Nominal concrete 1:4:8 or leaner mix (i/c equivalent design mix)	20.00	cum	0.0313
35	15.3	Demolishing RCC work manually / by mechanical means including stacking of steel bars and disposal of unserviceable material within 50 metres lead as per direction of Engineer-in-charge.	30.00	cum	0.1112
36		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.	30.00	cum	0.0643
37		Demolishing stone rubble masonry 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:			
	15.9.2	In cement mortar	100.00	cum	0.2559
38		Removing mortar from bricks and cleaning bricks including stacking within a lead of 50 m (stacks of cleaned bricks shall be measured) :			
	15.8.3	From brick work in cement mortar	5000.00	1000nos.	0.0349
39		Dismantling doors, windows and clerestory windows (steel or wood) shutter including chowkhats, architrave, holdfasts, etc. complete and stacking within 50 metres lead:			
	15.12.1	a) Of area 3 sqm and below.	10.00	each	0.0038
	15.12.2	b) Of area beyond 3 sqm.	10.00	each	0.0053

FACTORY CIVIL CONSTRUCTION & MAINTENANCE DIVISION

NIT No. FCX/19201030

Price Schedule A - Annexure: I

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S. No.	Based on DSR' 2012	Item Description	Qty.	Unit	% Weightage of item amount against total amount
40	15.57	Dismantling aluminium/Gypsum partitions, doors, windows, fixed glazing and false ceiling including disposal of unserviceable surplus material and stacking of serviceable material within 50 metres lead as directed by Engineer-in-charge.	50.00	sqm	0.003
41	15.36	Dismantling barbed wire or flexible wire rope in fencing including making rolls and stacking within 50 metres lead.(Note:including dismantling of concertina coil)	2000.00	Kg	0.0768
42	15.18	Dismantling steel work in built up sections in angles, tees, flats and channels including all gusset plates, bolts, nuts, cutting rivets, welding etc. including dismembering and stacking within 50 metres lead.	33502.00	Kg	0.1966
43	15.19	Dismantling steel work manually / by mechanical means in built up sections without dismembering and stacking within 50 meters lead. as per direction of Engineer-in-charge.	78170.00	Kg	0.3107
44		Dismantling 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.			
	15.43.1	a) Water bound macadam road	50.00	sqm	0.0117
	15.43.2	b) Bituminous road	50.00	sqm	0.0227
45	Ana. 16.1	Preparation and consolidation of sub grade with power road roller of 8 to 12 tonne capacity after excavating earth to an average of 22.5 cm. depth(which shall be paid separately) , dressing to camber and consolidating with road roller including making good the undulations, etc. and re-rolling the sub grade and disposal of surplus earth lead upto 50 metres.(Excluding cost of excavation)	2200.00	sqm	0.0291

FACTORY CIVIL CONSTRUCTION & MAINTENANCE DIVISION

NIT No. FCX/19201030

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S. No.	Based on DSR' 2012	Item Description	Qty.	Unit	% Weightage of item amount against total amount
46		<p>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, fixed with rawl plugs and screws or with fixing clips, or with expansion hold fasteners including necessary filling up of gaps at junctions, at top, bottom and sides with required PVC/neoprene felt etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snap beading for glazing/panelling, C.P. brass/stainless steel screws, all complete as per architectural drawings and the directions of Engineer-in-charge. (Glazing and panelling to be paid for separately).(Make of Aluminium section shall be Maan/Jindal/Hindalco)</p> <p>a) For fixed portion.</p> <p>21.1.1.2 Powder coated aluminium (minimum thickness of powder coating 50 micron)</p>	400.00	kg	0.4819
		<p>b) 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 PVC/neoprene gasket required (Fittings shall be paid for separately).(Make of Aluminium section shall be Maan/Jindal/Hindalco)</p> <p>21.1.2.2 Powder coated aluminium (minimum thickness of powder coating 50 micron)</p>	240.00	kg	0.3313
47		<p>** Providing and laying integral cement based treatment for water proofing on horizontal surface at all depth below ground levels for underground structures as directed by Engineer-in-Charge and consisting of:</p> <p>I) 1st layer of 22 mm to 25 mm thick approved and specified rough stone slab over a 25 mm thick base of cement mortar 1 : 3 (1 cement : 3 coarse sand) mixed with water proofing compound conforming to IS: 2645 in the recommended proportion over the levelling course (levelling course to be paid separately). Joints sealed and grouted with cement slurry mixed with water proofing compound.</p> <p>II) 2nd layer of 25 mm thick cement mortar 1 : 3 (1 cement : 3 coarse sand) mixed with water proofing compound in recommended proportions.</p>			

FACTORY CIVIL CONSTRUCTION & MAINTENANCE DIVISION

NIT No. FCX/19201030

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		III) Finishing top with stone aggregate of 10 mm to 12 mm nominal size spreading @ 8cudm/sqm thoroughly embedded in the 2nd layer:			
22.1.1		Using rough kota stone (Cement free issue by Deptt.)	50.00	sqm	0.0944
48	**	Providing and laying integral cement based treatment for water proofing on the vertical surface by fixing specified stone slab 22 mm to 25mm thick with cement slurry mixed with water proofing compound conforming to IS:2645 in recommended proportions with a gap of 20mm (minimum) between stone slabs and the receiving surfaces and filling the gaps with neat cement slurry mixed with water proofing compound and finishing the exterior of stone slab with cement mortar 1:3 (1 cement:3 coarse sand) 20mm thick with neat cement punning mixed with water proofing compound in recommended proportion complete at all levels and as directed by engineer -in-charge.			
22.2.1		Using rough kota stone (Cement free issue by Deptt.)	50.00	sqm	0.1122
					42.3777

Seal & Signature of Contractor

Sr. Engineer (FCX/Plg)

FACTORY CIVIL CONSTRUCTION & MAINTENANCE DIVISION

NIT No. FCX/19201030

Price Schedule A - Annexure: II

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S. No.	Item Description	Qty.	Unit	% Weightage of item amount against total amount
1	Supplying and filling in plinth with stone dust under floors, including watering, ramming, consolidating and dressing complete.	950.00	cum	2.6578
2	Supplying and fixing in position foundation bolts of all leg lengths and dia including nuts and washers as per drawing and instructions of engineer-in-charge. Dia of bolt may vary from 25 to 65 mm.	4070.00	Kg	1.2163
3	Laying / pouring of grouting material as per manufacturer's specification in foundation and plinth. (Grouting materials will be free of cost from BHEL stores)	3.00	cum	0.0168
4	Supply and installation of coated galvalume steel sheet having maximum of pitch of 205 mm c/c and minimum 28 mm crest depth in length for roofing / side cladding as per site requirement. The supplied material is to be manufactured out of 0.50 mm TCT (Total coated thickness) and 550 MPA tensile strength, with zinc aluminium alloy of AZ-150 (As per IS-15961:2012). The sheet shall have a hot dip metallic zinc aluminium alloy coating of zinc (43%), silicon (1.5%) and aluminium (55%) with total mass coating of 150 gms/sqm considering both sides together , self drilling/self tapping screws with EPDM seal fixed to the existing MS purlins/MS runners complete as per drawing and as directed by engineer-in-charge.	6150.00	Sqm	11.2727
5	Pre dispatch inspection of the material shall be carried out to witness the tests as per FQP. Sample shall be submitted for color approval . Supply & fixing of flashings, ridges, cappings, corner pieces etc. made of 0.5mm TCT plain galvalume steel sheet in required shape & size & fixed with stitching screw complete at a maximum height up to 35.00 m as per the instruction of Engineer-in-charge.	200.00	Rmt.	0.1971

FACTORY CIVIL CONSTRUCTION & MAINTENANCE DIVISION

NIT No. FCX/19201030

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S. No.	Item Description	Qty.	Unit	% Weightage of item amount against total amount
6	<p>Providing & fixing in position including fabricating and erecting structural steel works at all heights comprising sag rods floor beams, columns, girders, rails bracings, clamps, purlins with channels & angles, gutters with M.S. Plates, M.S. Flat supports including all connections as per detailed drawings connected steel works etc., cleats, gusset plates all bolts, nuts washers base plates anchor bolts etc., as per detailed drawings cutting welding and painting 2 coats of red oxide primer before erection & 2 coats of synthetic enamel paint of approved brand & colour after erection complete. Advani made electrodes or other approved make electrodes are to be used. All bolts nuts washers, gas, electrodes paints are in contractor's scope. Fabrication to be done as per I. S. Codes of latest revision. Structural Steel will be provided free of cost by BHEL. (Note:- The item includes cost of cutting, threading of sag rods etc.)</p> <p>a) Only fabrication with free issue of Structural Steel by BHEL</p> <p>b) Only erection</p>	610004.00 610004.00	Kg Kg	21.3809 10.4134
	Critical structural welds shall be inspected as per Field Quality Plan .			
7	Dismantling existing profiled galvalume sheets/ profiled puff insulated sandwich panel sheets at any height from Fy. Block roof, wall cladding etc including unscrewing of self tapping screws from supporting steel frame work, including dismembering of existing supporting steel framework including scaffolding, taking all safety measures, lead and lift etc, and stacking the material within 50 meter lead all as per the Instructions of Engineer-in-Charge.	1100.00	Sqm	0.5829
8	<p>Providing and fixing north/south light fire retardant and U.V. resistant plain and solid transparent embossed polycarbonate sheet of minimum 3 mm thick on MS runner with polymer coated galvanised hexagon heated self tapping self drilling screw with EPDM seal as per manufacturer specification ,design and instruction of engineer-in-charge complete. The solid transparent polycarbonate sheet shall be free from scratches and other surface damage and it shall be UV treated and tested as per relevant ASTM or DIN or AS etc. as the case may be .The minimum side overlapping shall be 50 mm.</p>	770.00	Sqm	3.5795

Pre dispatch inspection of the material shall be carried out to witness the tests as per FQP. Sample shall be submitted for color approval .

FACTORY CIVIL CONSTRUCTION & MAINTENANCE DIVISION

NIT No. FCX/19201030

Price Schedule A - Annexure: II

Name of work : Extension of GJB for establishing manufacturing facility of Heat exchangers for nuclear project.

S. No.	Item Description	Qty.	Unit	% Weightage of item amount against total amount
9	Providing and fixing fire retardant and U.V. resistant profiled and solid transparent embossed polycarbonate sheet of minimum 3 mm thick with profile to match with that of adjacent galvalume sheets on roof with self drilling/self stitching fasteners with EPDM seal for transmission of light, fixing of the sheet to the existing support system underneath as per the standard practice complete and as directed by engineer-in-charge. The solid transparent polycarbonate sheet shall be free from scratches and other surface damage and it shall be UV treated and tested as per relevant ASTM or DIN or AS etc. as the case may be.	80.00	Sqm	0.3985
10	Providing & fixing South/North light curve in required girth with 0.5 mm TCT coloured galvalume sheet with length of south/north light curve equal to maximum width of Galvalume sheet fixed to the steel members with self drilling/self stitching fasteners at maximum spacing of 500 mm c/c along length of capping, flashing etc complete as directed by Engr-in-charge. The curved width of south/north light curve shall be as per drawing/ site condition and instructions of Engineer-in-charge .	970.00	Rmt.	1.2561
11	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): (Make of glass shall be Saint Gobain/ModiGuard/Asai from Tata) With float glass panes of 5.00 mm thickness (Weight not less than 12.27 kg/sqm)	100.00	Sqm	0.2461
12	Supply & fixing M.S Galvanised Gutters with 3.0 mm thick (minimum) M.S. Galvanised sheet including zinc coating of 120 gsm considering both side together and sheet width 900 mm in the required shape and size as per drawing of valley gutter with necessary fastener, welding and supports on steel bracket & sealing the space as required with external cladding as directed by Engineer-in -Charge .	9920.00	Kg	2.6491
13	Providing and fixing on wall face unplasticised- Rigid PVC rain water pipes conforming to IS : 4985/2000 class 2 including jointing with solvent cement to form a permanent water tight joints.(Working pressure-4.0 kgf/sqcm) (i) Single socket (selfit) pipes:(Working pressure-4.0 kgf/sqcm)			

FACTORY CIVIL CONSTRUCTION & MAINTENANCE DIVISION

NIT No. FCX/19201030

Price Schedule A - Annexure: II

Name of work : Extension of GJB for establishing manufacturing facility of Heat exchangers for nuclear project.

S. No.	Item Description	Qty.	Unit	% Weightage of item amount against total amount
	160 mm dia.	330.00	metre	0.545
14	Providing and fixing on wall face unplasticised-PVC moulded fittings/accessories for unplasticised - Rigid PVC rain water pipes conforming to IS : 4985/2000 class 2 including jointing with solvent cement to form a permanent water tight joints.(Working pressure-4.0 kgf/sqcm)			
1.1	Coupler(Working pressure-4.0 kgf/sqcm)			
1.1.1	a)160mm	50.00	each	0.0308
1.2	Single Pushfit Coupler(Working pressure-4.0 kgf/sqcm)			
1.2.1	a)160mm	10.00	each	0.0113
1.3	Single Tee with Door(Working pressure-4.0 kgf/sqcm)			
1.3.1	a)160x160x160mm	10.00	each	0.0113
1.4	Single Tee without Door(Working pressure-4.0 kgf/sqcm)			
1.4.1	a)160x160x160mm	10.00	each	0.0082
1.5	Bend 87.5 degree(Working pressure-4.0 kgf/sqcm)			
1.5.1	a)160mm Bend/Elbow	20.00	each	0.0164
1.6	Shoe(plain)(Working pressure-4.0 kgf/sqcm)			
1.6.1	a)160mm Shoe	10.00	each	0.0174
				56.5076

Note:

- 1 PVC(poly Vinyl Chloride) rain water pipe should be of KISAN, SUPREME or FINOLEX or equivalent and as per the instruction of the Engineer-in-charge.
- 2 All the safety rules and regulation must be followed by the contractor. All the workmen of the contractor must wear PPE while working at height.
- 3 The contractor will have to get his workman insured at his own cost before deploying them at height.
- 4 All the workmen engaged must be medically fit for working at height .Certificate to this effect obtained from a registered medical practitioner having a minimum of MBBS degree shall be submitted by the contractor to the department.
- 5 Jack hammer/ drill machine and all other tools and tackles shall be in the contractor's scope. However electricity points/ compressed air point shall be provided by BHEL free of cost but electricity shall be charged as per the schedule c for the fabrication of structural steel.
- 6 Various clauses of Field quality Plan as applicable shall be submitted to Quality cell for approval .

Seal & Signature of Contractor

Sr. Engineer (FCX/Plg)

NIT No. FCX/19201013
Price Schedule A - Annexure: III

Name of work : Extension of GJB for establishing manufacturing facility of Heat exchangers for nuclear project.

S. No.	Item Description	Qty.	Unit	% Weightage of item amount against total amount
1	<p>1 Labour only for fixing in position factory manufactured profiled Galvalume sheet, 0.5 mm thick of different sizes . The work shall include cutting of sheets to required sizes and fixing them in position with the help of stainless steel self tapping/ self drilling screws , including all safety measures, lead and lift, labour, tools and tackles and cost of screws, fittings & fixture etc complete as per the instructions of engineer-in-charge.</p> <p>Note:</p> <p>1. Only Galvalume sheet shall be issued free of cost by BHEL.</p> <p>2. Sheeting work shall be done up to a maximum height of 35.00 m</p>	500.00	Sqm	0.3766
2	<p>2 Labour only for fixing in position factory manufactured profiled PUF insulated Galvalume panels, 40 mm thick of different sizes. The insulation sandwich in between the top and bottom sheets shall be polyurethane foam (PUF) of density 40 ± 5 Kg/m³ approximate having a thickness of 40 mm as per IS: 12436 -1988 or latest revision. The work shall include cutting of sheets to required sizes and fixing them in position with the help of stainless steel self tapping/ self drilling screws , including all safety measures, lead and lift, labour, tools and tackles and cost of screws, fittings & fixture etc complete as per the instructions of engineer-in-charge.</p> <p>Note:</p> <p>1. Only PUF insulated sandwich panels shall be issued free of cost by BHEL.</p> <p>2. Sheeting work shall be done up to a maximum height of 35.00 m.</p>	500.00	Sqm	0.7381
Total of ANNEXURE- (I) + (II) + (III)				1.1147
Total of ANNEXURE- (I) + (II) + (III)				100.0000

Note: The following notes are applicable to all the relevant items combining in Annexure I, II & III.

- 1 Work shall be done as per CPWD Specifications and as per BHEL Special terms and conditions.
- 3 All the Safety Rules for working at height must be followed including use of all PPEs such as safety helmets, safety belt etc.
- 4 Standard construction safety nets made of polypropylene (as per IS: 5175) shall also be preferably used to protect /guard labourers working at height against fall as per the instruction of Engineer in-charge. The contractor shall arrange for the net without extra cost to BHEL over and above his quoted rates.
- 5 All the workmen engaged must be medically fit for working at height .Certificate to this effect obtained from a registered medical practitioner having a minimum of MBBS degree shall be submitted by the contractor to the department.

Seal & Signature of Contractor

Sr. Engineer (FCX/Plg)

FACTORY CIVIL CONSTRUCTION & MAINTENANCE DIVISION

NIT No. :FCX/19201030

Price Schedule 'B'

Name of work : Extension of GJB for establishing manufacturing facility of Heat exchangers for nuclear project.

The following material free issue from BHEL stores.

- 1 Cement
- 2 Reinforcement Steel.
- 3 Stone for C.R.Masonry against item no 20 of Annexure-I
- 4 Structural steel
- 5 Red oxide zinc chromate primer
- 6 Synthetic enamel paint
- 7 Aluminium paint
- 8 Galvalume sheet
- 9 PUF insulated Galvalume Paneled sheet

Note:- If the contractor fails to return to the department unconsumed portion of total quantities of respective free issue materials after completion of this work or as and when instructed by the Engineer-in-charge , penalty at twice the respective material cost as given in CPWD's DSR-2012 shall be imposed on him which shall be deducted from his bill(s).In case the materials cost is not available in DSR-12 , recovery against such materials shall be done @ twice the material cost as indicated in PO placed by BHEL.

SCHEDULE-C

Name of work : Extension of GJB for establishing manufacturing facility of Heat exchangers for nuclear project.

- 1 Electricity charges at Rs.66.00/- per M.T. of fabrication of structural steel

Hire charges.

- i) Drill machine @ 252.00/- per day
- ii) Jack Hammer @108.00/- per day



(Subject to availability)

Drill machine/jack hammer rod Rs. 100.00 per rod

Seal & Signature of Contractor

Sr. Engineer (FCX/PLG)

FACTORY CIVIL CONSTRUCTION & MAINTENANCE DIVISION

NIT No. :FCX/19201030

Scope of work

Name of work : Extension of GJB for establishing manufacturing facility of Heat exchangers for nuclear project.

The scope of work broadly comprises of the following points:

- 1 Preparation for project schedule along all the milestones specifically mentioned duly approved by FCX department.
- 2 Dismantling of Structure (Structural steel and R.C.C) along with sheets at the eastern side of the GJB block with all associated works in order to pave way for the extension of the block
- 3 Column foundations work including excavation work, concreting work as per apporved drawings and layout along with work of construction of plinth wall.
- 4 Fabrication works of all the structural members as per approved drawing and erection of the same as per approved activity schedule.
- 5 Filling work of area within the plinth walls and flooring work with approved section and finishing the factory floor as per specifications.
- 6 Sheeting works with approved quality and color as per FQP of the extended area.
- 7 All associated works of brickwork, drains, plinth protection as envisaged by department over and above mentioned activities

The scope shall also include all associated & enabling works including the cost of labour, tools & tackles and materials except for those to be provided by BHEL free of cost or on chargeable basis as mentioned in the schedule.

NOTE: The above scope of work is tentative in nature and may undergo changes at the time of physical execution of work based on the requirement of BHEL.

Seal & Signature of Contractor

Sr. Engineer (FCX/PLG)