



Maharatna Company

ISO 9001, ISO 14001,
OHSAS 18001 & SA 8000
certified company
SubContract Deptt.

Bharat Heavy Electricals Limited
(A Govt. Of India Undertaking)
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CORRIGENDUM – 02 Dtd 22/08/2018

Sub:-Tender for the work of “CONSTRUCTION AND DEVELOPMENT OF 275 Mtr. TALL SINGLE FLUE RCC CHIMNEY WITH BOROSILICATE GLASS BLOCK LINING ON INNER SURFACE OF STEEL FLUE CAN (EXCLUDING PILES) FOR 1X660 MW PANKI THERMAL POWER PLANT, PANKI U.P.”

TENDER NO. BHEL/ NR/SCT/PANKI /CHIMNEY/1117

BHEL WEBSITE REF: NIT_40010

The Corrigendum contains following amendment in the specifications and shall be a part of the above tender.

- 1.0** BOQ cum Rate schedule is modified and shall be as per annexure “II” (attached as a separate file).
- 2.0** The due date of bid submission is hereby extended from 23.08.2018 (15:00 Hrs) to 04.09.2018 (15:00 Hrs) Indian Standard Time. Bids shall now be opened on 04.09.2018 at 15:30 Hrs (Indian Standard Time).
- 3.0** All other terms and conditions against this NIT shall remain unchanged.
- 4.0** The bidder should acknowledge the amendment by submitting corrigendum online only through BHEL E-Procurement site <https://bhel.abcpurchase.com> along with Technical Bid (Part-I).

Sr. Mgr/SCT

MODIFIED BOQ CUM RATE SCHEDULE- MAIN PLANT CIVIL WORKS-CORRIGENDUM II

PROJECT: 1X660 MW PANKI THERMAL POWER STATION

NAME OF WORK: CONSTRUCTION AND DEVELOPMENT 275 Mtr. TALL SINGLE FLUE RCC CHIMNEY WITH BOROSILICATE GLASS BLOCK LINING ON INNER SURFACE OF STEEL FLUE CAN (EXCLUDING PILES) FOR 1X660 MW PANKI THERMAL POWER PLANT, PANKI U.P.

ITEM CODE NO.	DESCRIPTION OF ITEM	UNIT	QUANTITY	FACTOR (F)	RATE (Rs.) = FACTOR (F) * A / 100000 (Rounded off to two place after decimal)	AMOUNT (Rs.) = RATE * QUANTITY
c	Civil Works					
1	Earth work in excavation in all types of soil including moorum, ash which can be excavated by any means including setting out, levelling, dewatering (but excluding special type of dewatering viz. well point method), shoring & strutting (wherever required), dressing the sides & bottom, all lifts, ramming/compacting the excavated bottom, stacking, disposal of surplus excavated materials within a lead upto 1 km, spreading/levelling of disposed materials etc all complete for following depths below ground level including necessary men/women, materials, equipment, loading, transportation, unloading etc as per specification, drawing and as directed by engineer-in-charge					
a	Depth from ground level but not exceeding 2 m	cum	6276	0.02617	-	-
b	Depth exceeding 2 m but not exceeding 4 m	cum	5507	0.03272	-	-
c	Depth exceeding 4 m but not exceeding 6 m	cum	4788	0.04082	-	-
d	Depth exceeding 6 m but not exceeding 8 m	cum	221	0.05110	-	-
7	Back filling upto any depth below ground level around foundations, plinths, trenches, drains etc to proper grade and level in layers not exceeding 250 mm thickness using/with selected materials from compulsorily excavated soil available within a lead upto 1 km and compacted as specified including re-excavation of stacked earth, watering, ramming/compaction by manual/mechanical means, dressing etc all complete. for the following including necessary men/women, materials, equipment, loading, transportation, unloading etc as per specification, drawing and as directed by engineer-in-charge.					
a	Each layer compacted so as to achieve at least 95% maximum dry density as per IS-2720 (Part-VII)	cum	6038	0.02149	-	-
b	Each layer compacted so as to achieve at least 90% maximum dry density as per IS-2720 (Part-VII)	cum	1066	0.01932	-	-
9	Extra over item No. 1 and 3 to 7 for carriage of excavated earth/selected materials for every 500 m or part thereof beyond an initial lead of 1 km.	cum	37569	0.00218	-	-
11	Supplying and filling sand (Clean, wll graded sand which is normally used for concreting) upto any depth below grade slab, around foundations, etc. in layers not exceeding 250 mm thickness and compacted so as to achieve at least 80% relative density as per IS-2720 (Part-XIV) including spreading, watering, ramming/compaction by manual / mechanical means, dressing, royalty (if any) etc. all complete including necessary men/women, materials, equipment, loading, transportation, unloading etc as per specification, drawing and as directed by engineer-in-charge.	cum	377	0.65340	-	-
12	Supplying and laying (inside chimney in the space below the grade level slab) crushed rock range 63 mm to 45 mm in layers not exceeding 200 mm in thickness including breaking of stone boulders to required sizes, filling the interstices with selected sand and compacting to 85 % of original volume of stone stack for all lifts etc. all complete. Payment shall be made for the measurement of the volume of the compacted fill.	cum	561	0.65230	-	-
13	Providing and laying plain cement concrete (M 7.5) with graded aggregate (with maximum size of coarse aggregate not exceeding 40 mm) at all levels for all kinds of work like mass concrete, lean concrete, mudmat, filling etc. including labour, materials, equipment, handling, transporting, batching, curing, testing etc. all complete as per specifications, drawings and instructions of the Engineer. (Cement will be supplied by BHEL and issued as Free of Cost (FOC) Item).	cum	279	1.03042	-	-
14	Providing and laying design mix cement concrete with graded aggregate (maximum size of coarse aggregate not exceeding 20 mm) for reinforced concrete work at all levels for all kinds of work, including labour, materials, equipment, handling, transporting, batching, mixing, placing, levelling, compacting, curing, testing etc. and rendering or cleaning and finishing the exposed surface with cement mortar (1:3) to give smooth and even surface, all complete as per specifications, drawings and instructions of the Engineer, but excluding all formwork and reinforcing steel: (Cement will be supplied by BHEL and issued as Free of Cost (FOC) Item).					
i	For all works below ground level (except chimney shell)				-	-
b	Grade M-30 (foundations, etc)	cum	9684	1.15412	-	-
ia	Extra over St. No. 14(i) for controlling of temperature of fresh concrete for raft/pilecap to less than 23 degree centigrade using ice, including all related arrangements for providing, storing and mixing of ice with water, cooling of aggregates etc. All complete as per specification, drawing and instruction of engineer in charge.	cum	7263	0.20253	-	-
ii	For all other works				-	-
a	Grade M-25 grade level slab, pit, trenches, drain etc.	cum	113	1.15848	-	-
b	Grade M-30 for chimney shell, corbels and external platforms and other shell attachments.	cum	12306	1.73353	-	-
15	Providing and applying two coats of bitumen grade 85/25 as per IS 702 (@ 1.7kg/sqm) with 1% antistripping compound conforming to IS 6241 in foundation, shell, pedestal etc on concrete surfaces exposed to soil / ash including surface preparation etc. all complete.	Sqm	2250	0.03241	-	-
16	Providing and placing steel reinforcements of TMT steel of grade Fe-500 /Fe 500D conforming to IS:1786 and having minimum elongation 14.5% , for reinforced concrete work , at all levels, for all kinds of work, including transportation, cleaning, derusting, straightening, cutting, bending, binding in position with annealed wire and/or welding, providing concrete cover blocks, pins, separators, chairs, supports for reinforcement, etc. with all materials, labour, equipment, handling, testing, transportation to & from stores etc., preparation of bar bending schedules, all complete as per specifications, drawings and instructions of the Engineer.					
i	For all works below ground level (except chimney shell)				-	-
a	High strength deformed bars (Reinforcement Steel will be supplied by BHEL and issued free of cost (FOC).)	Mt	1114	2.41939	-	-
ii	For all other works				-	-
a	Mild steel reinforcement bars (Mild Steel to be provided by the bidder)	Mt	10	20.63756	-	-

MODIFIED BOQ CUM RATE SCHEDULE- MAIN PLANT CIVIL WORKS-CORRIGENDUM II

PROJECT: 1X660 MW PANKI THERMAL POWER STATION

NAME OF WORK: CONSTRUCTION AND DEVELOPMENT 275 Mtr. TALL SINGLE FLUE RCC CHIMNEY WITH BOROSILICATE GLASS BLOCK LINING ON INNER SURFACE OF STEEL FLUE CAN (EXCLUDING PILES) FOR 1X660 MW PANKI THERMAL POWER PLANT, PANKI U.P.

ITEM CODE NO.	DESCRIPTION OF ITEM	UNIT	QUANTITY	FACTOR (F)	RATE (Rs.) = FACTOR (F) * A / 100000 (Rounded off to two place after decimal)	AMOUNT (Rs.) = RATE * QUANTITY
b	High strength deformed bars (Reinforcement Steel will be supplied by BHEL and issued free of cost (FOC).	Mt	1415	2.87960	-	-
17	Providing and fixing formwork of approved quality for cast-in-situ, plain or reinforced concrete works of any type and section (including curved surfaces and chimney shell) for all elevations, including labour, materials, equipment, waste of forms, shoring, strutting, scaffolding, staging, tying, nailing, caulking, bolting etc. and removal of form work and staging etc. all complete as per specifications, drawings and instructions of the Engineer.			-	-	-
i	For all works below ground level (except chimney shell)	Sqm	2450	0.10314	-	-
ii	For all other works			-	-	-
a	Inner and outer faces of wind shield with slip form shuttering	Sqm	33260	0.33808	-	-
b	All other components of the superstructure including slabs, beams, columns, walls, enclosures, mini shells, external platforms, corbels, other shell attachments, chases/recesses in shell etc.	Sqm	769	0.36823	-	-
18	Providing and fixing formwork in shell openings and pockets (above 0.1 sq.m surface area) including cutting, formation of shapes and all other operations required for making the required shape and size, removal of formwork, all complete as per specifications, drawings and instructions of the Engineer.	Sqm	127	0.36823	-	-
19	Providing and placing in position at all levels, building paper (kraft paper) , as per IS:1397, between concrete surfaces including the cost of labour, material, etc. complete as per drawings and instruction of the Engineer.	Sqm	59	0.01411	-	-
20	Providing and installing, at all levels, bitumen impregnated fibre boards , 12 mm thick, conforming to IS:1838, as joint filler at joints in concrete, including nailing, coating of both faces with coal tar pitch/bitumen, including the cost of all labour, material and equipments etc., complete as per drawings, specifications and instructions of the Engineer.	Sqm	39	0.37931	-	-
21	Providing and filling, at all levels, bitumen sealing compound (hot applied type) conforming to IS:1834, for sealing gaps and joints in concrete, including cleaning, mixing, heating, pouring or injecting, application of primer, cost of all labour, material and equipments etc., complete as per drawings, specifications and instructions of the Engineer.	Kg	584	0.04221	-	-
22	Preparing detailed fabrication drawings and after approval by the Engineer, supplying, fabricating, erecting and installing miscellaneous steel parts to be embedded/cast in concrete (like staircase embedments, corbel face plates, etc) at all positions and levels including the cost of all labour, materials and equipments for setting materials in concrete, grouting, welding, bolts & bolting, expansion anchors, drilling, cutting, etc. complete as per drawings and specification.	Mt	6	26.64442	-	-
A23	Fabrication and erection of structural steel of grade E-250 in rolled/ built up section at shop conforming to IS:2062, mild steel rounds in platform, staircase, columns, beams, struts, monorails, stays, safety chains, ladders, MS gratings, gantry girders, roof trusses, portals, laced purlins, space frames, hangers, wall beams, sheeting runners, brackets, stiffeners, stub columns, bracings, cleats, base plates, splice plates, gussets, end plates, steel frame grid over false ceiling, walkway platforms, ladders, stairs, stringers, treads, landings, decking and seal plates, galleries etc. including blast cleaning, providing & applying primer, providing and applying finish paint (blast cleaning, primer and paint shall be paid separately as per item no B23 & C23), connection design & preparation of fabrication drgs, straightening, cutting, bending, rolling, grinding, machining, drilling, welding, electrodes and other consumables, alignment, erection bolts & nuts (weight of erection bolts and nuts not payable), assembly, edge preparation, preheating / post heating if required, testing of welders, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, production test plate, inspection and testing, erection scheme, protection against damage in transit, stability of structures, installation of temporary structures, setting column bases, surface preparation by means of manual or mechanical power tools as per IS:1477 part 1, touch-up painting, rectification, dismantling and removal of all temporary structures (weight of temporary structures not payable), etc all complete. (Structure Steel will be supplied by BHEL and issued as Free of Cost (FOC) Item.)	Mt	585	11.71520	-	-
B23	Extra over ST NO. A23 for blast cleaning of steel structures to near white metal surface conforming to Sa 2 ½ finish of SISO5-5900 including providing and applying zinc silicate primer (two primer coats, first coat of primer shall be given in shop after fabrication before dispatch to erection at site after surface preparation. The second coat of primer shall be applied after erection and final alignment of the erected structures. Dry film thickness of each primer coat shall be 25 microns.)	Mt	585	1.16970	-	-
C23	Extra over ST NO. A23 for providing and applying 2 coats of matt finish synthetic enamel paint or equivalent with DFT of 25Micron each. The undercoat and finish coat shall be of different tint to distinguish the same from finish paint. The total dry film thickness shall be 100 microns and of approved make including the cost of all labour, material, equipments, protection and cleaning, scaffolding, touch-up painting etc. all complete as per drawing and specifications.	Mt	585	0.47361	-	-
24	Supplying, fabrication, erection and alignment of factory made hot dip galvanised welded grating units with mild steel conforming to IS:2062 in platforms, staircases with edge binding strips and anti-skid nosing in treads etc. including redoxide zinc-silicate primer (two primer coats, first coat of primer shall be given in shop after fabrication before dispatch to erection at site after surface preparation. The second coat of primer shall be applied after erection and final alignment of the erected structures. Dry film thickness of each primer coat shall be 25 microns), fixing clamps, fittings, fixtures, all taxes, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete.	Mt	95	23.09952	-	-

MODIFIED BOQ CUM RATE SCHEDULE- MAIN PLANT CIVIL WORKS-CORRIGENDUM II

PROJECT: 1X660 MW PANKI THERMAL POWER STATION

NAME OF WORK: CONSTRUCTION AND DEVELOPMENT 275 Mtr. TALL SINGLE FLUE RCC CHIMNEY WITH BOROSILICATE GLASS BLOCK LINING ON INNER SURFACE OF STEEL FLUE CAN (EXCLUDING PILES) FOR 1X660 MW PANKI THERMAL POWER PLANT, PANKI U.P.

ITEM CODE NO.	DESCRIPTION OF ITEM	UNIT	QUANTITY	FACTOR (F)	RATE (Rs.) = FACTOR (F) * A / 100000 (Rounded off to two place after decimal)	AMOUNT (Rs.) = RATE * QUANTITY
25	Providing and fixing in positing of high strength structural bolts (of property class 8.8 and product grade 'C' as per IS: 1367) and conforming to IS: 3757 and high strength structural hardened and tempered nuts (of property class '8' as per IS:1367) conforming to IS:6623 with hardened and tempered washers as per IS:6649 etc. up to and inclusive of 39 mm diameter and upto 300 mm long for structural steel work etc all complete.	Quintal	100	7.60906	-	-
26	Preparing detailed fabrication drawings and after approval by the Engineer, providing, fabricating and erecting, at all levels, structural steel flues (liners), of grade COR-TEN-B with ultimate strength of 410 N/mm ² , conforming to IS 2062 (grade A), complete with all bends, flanges, stiffeners, all other flue attachments, support system, collars, access manholes and gas sampling ports along with gaskets and other accessories, staying system, including the cost of all labour, material and equipment, transporting, lifting to all heights, setting in place, cutting, grinding, drillings, bending, bolts and bolting, welding, preheating and post-heating for welding, testing, etc. complete as per drawings and specifications. (Structure Steel will be supplied by BHEL and issued as Free of Cost (FOC) Item)	Mt	685	10.73719	-	-
A26	Application of suitable epoxy primer including surface finish of Sa 2 ½, over all heights of internal surface of chimney flue can, including cost of labour, material, tools & tackles etc. all complete as per drawings, specification, manufacturer's recommendation and Engineer in charge. (EPOXY PRIMER WILL BE SUPPLIED BY BHEL AS FREE OF COST (FOC) ITEM)	SqM	5715	0.04182	-	-
C26	Installing closed cell borosilicate glass block lining system over all heights of chimney by attaching it to inside surface of cleaned MS flue can, internal surface of minishell, using adhesive/membrane material under controlled temperature and humidity conditions mentioned in specification, including cost of skilled labour, material, tools & tackles, equipment required to create controlled temperature & humidity conditions inside chimney during installation, under the expert supervision by borosilicate glass manufacturer during installation, mixing of two components adhesive membrane by automated mixing machines etc. all complete. Nominal adhesive/ membrane thickness shall be minimum 3 mm behind & between each block. A 1.5 mm thick layer should be troweled onto the liner as well as to the sides and back of each block before installation. Double buttering technique shall be used to ensure full bond of each block to the liner and to each other. Cost of application of adhesive membrane (having minimum tensile strength at 23°C of 1.0 N/mm ² conforming to ASTM D412) is included in this item and shall not be paid separately. Installation of blocks shall be carried out as per specification, drawings, direction of engineer in charge and accepted by the customer. Contractor shall get installation procedure approved by BHEL/UPRVUNL before installation including verification of installation procedure & workmanship standards of the lining system. Note: Borosilicate Glass Block Lining material and Adhesive / membrane materials shall be provided by BHEL Free of Cost	SqM	5715	1.54771	-	-
D26	Providing (supplying, erection, labour, equipment etc. all complete) C276 Strips in MS flue cans, expansion joint, inspection doors, gas sampling ports etc. including TIG or other specialised welding, all weldables /consumables, equipment, material, surface finishing, sealing, testing for quality and correction of defective works, all complete at all elevation as per drawings, specification and instruction of the engineer. Measurement for payment shall be done for net weight of C276 installed.	Kg	1050	0.76085	-	-
27	Providing, fabricating and installing at various locations and elevations of the chimney system the following miscellaneous mild steel items complete with the cost of all labour, material and equipment, transporting, lifting, setting in place, cutting, grinding, drilling, welding, bolts and bolting, anchor fasteners and anchoring, priming, painting, grouting etc. complete as per drawings and specifications:			-	-	-
a	Mild steel ladders with cage, hood access hatch, louvers, bird screens, hood drain basin covers and other miscellaneous mild steel items not specifically mentioned.	Mt	17	29.09813	-	-
b	32/40 mm nominal bore medium class tubular hand railing for stair case and internal and external platforms.	Mt	24	30.45174	-	-
c	Providing minimum 275 gsm Hot dipped galvanisation on mild steel parts as per specification.	Mt	21	11.82502	-	-
d	Providing minimum 610 gsm Hot dipped galvanisation on mild steel parts as per specification.	Mt	20	15.91362	-	-
29	Supplying, fabricating and installing in the liners, gas sampling and gas opacity measurement ports made from SS grade 316L pipe including the cost of all labour, materials, bolts and bolting, asbestos gaskets, cover plates & all other accessories, painting etc., complete as per drawings and specifications.	Each	14	4.60064	-	-
30	Preparing detailed fabrication drawings after approval by the Engineer, providing, fabricating and erecting, at all levels SS Mini Shell at roof shell of grade AISI 316L or BS:1449, etc. complete as per drawing and specifications.	Mt	28	26.15223	-	-
31	Preparing detailed fabrication drawings and after approval by the Engineer, providing, fabricating and installing at all levels, stainless plates (including stainless steel screws and fasteners) of grade AISI 316L and lead sheets beams and over the mild steel in the platform beam bearing, flue supports bearings, flue restraints brackets/ buffers etc. including the cost of all labour material & equipment, transporting, lifting to all heights, setting in place, cutting, grinding, drilling, welding of stainless steel using compatible & approved stainless steel electrodes, testing & machining flat and polishing the contact surfaces of stainless steel, coating the polished surfaces with silicone grease, etc., complete as per drawings and specifications.			-	-	-

MODIFIED BOQ CUM RATE SCHEDULE- MAIN PLANT CIVIL WORKS-CORRIGENDUM II

PROJECT: 1X660 MW PANKI THERMAL POWER STATION

NAME OF WORK: CONSTRUCTION AND DEVELOPMENT 275 Mtr. TALL SINGLE FLUE RCC CHIMNEY WITH BOROSILICATE GLASS BLOCK LINING ON INNER SURFACE OF STEEL FLUE CAN (EXCLUDING PILES) FOR 1X660 MW PANKI THERMAL POWER PLANT, PANKI U.P.

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a	Stainless steel components. (STAINLESS STEEL PLATE SHALL BE SUPPLIED BY BHEL FREE OF COST)	kg	240	0.03105	-	-
b	Lead Sheets.	Kg	80	0.11077	-	-
32	Preparing detailed fabrication drawings and after approval by the Engineer, providing, fabricating and installing expansion compensator joints including bolster in the flue liner including all labour, material and equipment transporting, hoisting, fixing in position, drilling, cutting, bolts and bolting, etc. along with the user handbooks (giving details of installation, dismantling and maintenance procedures for the expansion joints), testing, etc complete as per drawings and specifications.	Sqm	80	8.45794	-	-
33	Supplying ,Fabricated Ready to Install, spare expansion compensators alongwith bolster including the cost of all labour, material and equipment, accessories, transporting, proper packaging (for several years of storage), and delivery to site store complete in all respects as per drawings and specification.	Sqm	22	7.34269	-	-
37	Supplying, and placing in position (at the beam supports bearings) Neoperne pads between concrete surface and mild steel including the cost of all labour materials, cutting to shape, grinding, drilling etc., complete as per drawings and specifications.	Cum	1	194.69516	-	-
42	Supplying and installing ready mix castable refractory concrete at opening of chimney shell baffle wall and at other locations including all necessary arrangement for keeping them in position as per drawings and approval of Engineer.	Cum	5	8.98100	-	-
43	Providing, laying and packing, at all levels, asbestos ropes at expansion joints including the cost of all labour material, etc. complete as per drawing and specifications.			-	-	-
b	12 mm (diameter) at expansion joints between brick lining segments.	Rm	573	0.06353	-	-
47	Providing and installing, at all levels, resin bonded rock wool insulation slabs of density not less than 100 kg/cu.m with an installed thickness of not less than 100 mm, on the outside surface of steel flue liners, on the outside surface of brick liner, on the inside surface of concrete windshield, inside surface of concrete minishells, under the cast iron caps and wherever as directed by the Engineer, in two layers (each 50 mm thick) including the cost of all labour, material and equipment, transporting, lifting to all heights, etc., inclusive of plated or galvanised accessories such as pins/studs/anchors/wire netting, speed washers, tying wires, etc. welding of pins/studs to steel surfaces or embedding of pins/studs/anchors in concrete surfaces, fixing, cutting, cutting, lapping, binding, testing, etc. complete as per drawings and specifications.	Sqm	5860	0.41782	-	-
49	Providing and packing, at all levels, loose rock wool insulation to a density not less than 100 kg/cu.m between the insulated minishells and brick liners at expanjoints between the lining segments and wherever as directed by the Engineer including the cost of all labour, material and equipment, filling, ramming, testing, etc. complete as per drawings and specifications.	Cum	10	3.25154	-	-
50	Providing and painting, at all levels, inside surface of chimney shell, inside and outside surfaces of minishells, underside of roof slab and other concrete components/surfaces of the chimney as indicated in the drawings and wherever as directed by the Engineer, with acid and heat resisting black bituminous paint (conforming to type I(I) of IS:158) in as many number of coats (not less than four coats in any case) as required to give a paint DFT of not less than 150 microns including the cost of all labour, materials, equipment, surface preparation, primer and finish painting, protecting, cleaning etc. complete as per drawings and specifications.	Sqm	16050	0.07179	-	-
53	Providing and painting, at all levels, the external surfaces of chimney shell and wherever as directed by the Engineer, with synthetic enamel paint (conforming to IS:5410) in as many number of coats (not less than four coats in any case) as required to give a paint DFT of not less than 150 microns over a coat of primer, in alternate bands of colours 'signal red' and 'pure/bright white including the cost of all labours, material and & equipment,surface preparation, primer and finish painting, protecting, cleaning etc. complete as per drawings and specification.	Sqm	14520	0.09656	-	-
54	Providing and painting, at all levels, the external surfaces of chimney shell and wherever as directed by the Engineer, with acid and heat resistant polyurethane paint in as many number of coats (not less than four coats in any case) as required to give a paint DFT of not less than 150 microns over a coat of primer, in alternate bands of colours 'signal red' and 'pure/bright white including the cost of all labours, material and & equipment surface preparation, primer and finish painting, protecting, cleaning etc. complete as per drawings and specification.	Sqm	3165	0.12903	-	-

MODIFIED BOQ CUM RATE SCHEDULE- MAIN PLANT CIVIL WORKS-CORRIGENDUM II

PROJECT: 1X660 MW PANKI THERMAL POWER STATION

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55	Proving and laying over the chimney roof, a composite acid and heat protection treatment including providing of slopes for roof drainage including the cost of all labour, material and equipment, etc., complete as required for preparing the roof concrete, laying under bed of plain cement concrete screed to slopes, preparation of screed surface for painting, painting the screed surface with black bituminous paint, applying bitumenmastic in layers, laying acid resisting(A/R) mortar bed and laying 75 mm thick acid resisting(A/R) bricks with A/R mortar, curing, pointing(with phenolic based A/R cement), protection and cleaning, finishing, etc., complete as per drawing and specifications.	Sqm	150	1.03588	-	-
56	Providing, fitting& fixing, outlet and overflow, cast iron roof drain heads (with gratings) in chimney roof including sockets, adapters, brackets, hangers, supports, etc., casting-in and jointing to 150 mm nominal bore rainwater pipes, grouting, etc. including the cost of all labour material and equipment, transporting, lifting, setting in place, painting, etc. complete as per drawing and specifications.	Each	8	3.28357	-	-
57	Providing, fitting and fixing rainwater pipes at all levels internally from the chimney roof to ground level upto the hood drain basin including shoes, bends, junctions, flanges,hoppers, sockets, adaptors, brackets, hangers, supports, anchor fasteners, spacers, pipe sleeve through shell, silicon or vulcanised butyl seant, foam backing material, jointing, socketing, grouting, caulking, primer and finish painting etc. complete including the cost of all labour, material and equipment, complete as per drawing and specifications:			-	-	-
a	150 mm nominal bore cast iron pipes.	Rm	32	0.68368	-	-
b	150 mm nominal bore medium class galvanised mild steel pipes.	Rm	550	0.75119	-	-
58	Providing and laying 50 mm thick cement concrete flooring (comprising of 12 mm thick mettalic concrete hardener topping over 38 mm thick under bed of concrete) over the grade level slab inside the chimney, including the cost of all labour, material and equipment, etc. complete as required for preparation of base, laying underbed and topping, finishing, rounding of edges, corners and junctions, curing, testing, etc. complete as per drawing and specifications.	Sqm	755	0.15662	-	-
59	Providing and installing an electrically operated grill type steel roll-up door (with the bottom one third of the curtain in solid type) at chimney base, in opening of approx size of 56 square m, with all hardware and mechanisms, fittings and fixtures, locking arrangements, frames, fasteners, gear handle arrangement for standby manual operation, all electrical accessories such as motors, control systems, cables, etc. including the cost of all labour, material and equipment, fixing in position, grouting primer and finish painting, testing, etc., complete as per drawing and specifications.	Each	1	79.40954	-	-
60	Providing and installing at any level and location, mild steel, double plate, personnel access doors , in shell openings of size 1.2m by 2.1m, complete with all fittings and fixtures, locking arrangements, frames, fasteners including the cost all labour, material and equipment, lifting to all heights, setting in place, grouting primer and finish painting, etc., complete as per drawing and specifications.	Each	8	6.88764	-	-
63	Supplying, fabricating and installing mild steel hatches at various locations in the chimney system complete with locking arrangements, frames, insulation, fittings and fixtures and all mechanisms and accessories reqd. for proper operation including all labour, painting etc. complete as per drawings and specifications.			-	-	-
a	Hood Access Hatch (750mm x 1000 mm)	Each	1	9.34906	-	-
65	Designing, supplying, fabricating and installing after approval by the Engineer, non-metallic expansion joints to seal gaps between chimney components and to meet the service requirements as given in the specifications alongwith the cost of all components of the expansion joint, insulation, galvanised bolts, nuts, washers, anchor fasteners and retaining bars, packing materials and reinforcements at the connecting ends and flanges, lapping etc. including preparation of brick surface (to be connected to the expansion joint) with potassium silicate resisting mortar for proper leak tight bearing surface, with the cost of all labour and equipment, user hand books (giving details of installation, dismantling and maintenance procedures for the expansion joints) etc. complete as per drawings and specifications for:			-	-	-
a	Expansion joint between ducts and liners	Sqm	50	5.28780	-	-
66	Supplying and erecting after approval by Engineer an Elevator from ground upto top of chimney with landing at various platform level complete as per spec. and drawings.	Lumpsum	1	1,803.36148	-	-
67	Conducting laser scanning for vertical check and entire shell surface profile , including all equipments, arrangements, skilled manpower and other supplies complete as per specification and drawings and approval of engineer in-charge.	Lumpsum	1	299.20170	-	-
E	ELECTRICAL WORKS (Supply, installation and testing / commissioning of following items as per specification)			-	-	-
E1	415V, 200A, 50 KA for 0.25 sec, 4 wire AC Lighting distribution board alongwith 50KVA lighting transformer (415/433 V, Dyn11, Z=4%, ±2x2.5% off ckt. Tap) Distribution Board with 1No. incomer (MCCB) & 9 nos. of 100A MCCB (TPN) outgoing complete in all respects	No.	1	163.80875	-	-

MODIFIED BOQ CUM RATE SCHEDULE- MAIN PLANT CIVIL WORKS-CORRIGENDUM II

PROJECT: 1X660 MW PANKI THERMAL POWER STATION

NAME OF WORK: CONSTRUCTION AND DEVELOPMENT 275 Mtr. TALL SINGLE FLUE RCC CHIMNEY WITH BOROSILICATE GLASS BLOCK LINING ON INNER SURFACE OF STEEL FLUE CAN (EXCLUDING PILES) FOR 1X660 MW PANKI THERMAL POWER PLANT, PANKI U.P.

ITEM CODE NO.	DESCRIPTION OF ITEM	UNIT	QUANTITY	FACTOR (F)	RATE (Rs.) = FACTOR (F) * A / 100000 (Rounded off to two place after decimal)	AMOUNT (Rs.) = RATE * QUANTITY
E2	415V, 200A, 4 wire AC Emergency Lighting distribution board alongwith 50KVA lighting transformer (415/433 V, Dyn11, Z=4%, ±2x2.5% off ckt. Tap) with 2 nos. of MCCB (TPN) incomers with auto changeover facility using contactors and 6 nos. 100A SFU (TPN) outgoing complete in all respects. In case load requirement of chimney can not be met by 50 kVA lighting transformer after considering loading of 80 to 85%, 100 kVA lighting transformer shall be provided alongwith suitably rated components without any commercial implications to the purchaser.	No.	1	227.01797	-	-
E3	Normal AC lighting panel outdoor type with degree of protection IP 55 with one no. 100A MCCB (TPN) Incomer , 18 outgoing (16A SP MCBs)	No.	3	35.59863	-	-
E4	Emergency lighting panel outdoor type with degree of protection IP 55 with One no. of 100A TPN/MCCB incomer and 12 outgoing (16A, SP MCBs)	No.	6	30.45965	-	-
E5	Aviation lighting panel outdoor type with degree of protection IP 55 with one no. 100A MCCB (TPN) Incomer , 8 outgoing (20A SP MCBs)	No.	1	41.64142	-	-
E6	Aviation obstruction lights :		0	-	-	-
a	High intensity flashing white XENON Type-A light having intensity 2000-200000 candles & flashing frequency 40-60/min (as per ICAO), shall be of type FTB 205 and FTC 110N of Flash Technology Corporation of USA or equivalent; including all accessories, controller, flasher etc. complete in all respects.	No.	6	91.79737	-	-
b	Medium intensity Type B flashing RED light having flashing frequency 20-60/min & intensity as per ICAO .including all accessories, controller, flasher etc. complete in all respects.	No.	3	23.76975	-	-
c	Temporary obstruction light located at diametrically opposite points at the top of chimney during period of construction	No.	2	24.44888	-	-
d	Flood light with 250W HPSV lamps with all controlgears & accessories	No.	8	3.53089	-	-
E7	Well glass type luminaries with 150W/HPSV lamp with all controlgears & accessories	No.	177	3.03321	-	-
E8	63Amp welding switch socket with plug & other Mounting accessories	No.	18	4.71257	-	-
E9	3 pin, 1 ph, 240V,15Amp. Power sockets complete with plug Switches etc.	No.	20	1.46201	-	-
E10	AL conductor, XLPE insulated, Armoured, ST-2 outer sheath, FRLS type 1100V grade conforming to IS-7098 Part I.			-	-	-
a	3/4 Cx95mm ² Al for connection between ACDB/ELDB/ welding sockets	RM	1400	0.26126	-	-
b	3/4 Cx35mm ² Al for Lighting panel incoming supply	RM	1000	0.13312	-	-
c	4C x16mm ² Al Conductor, XLPE insulated, Armoured, PVC outer sheath, FRLS type 1100V grade conforming to IS-7098 Part I for connection between ALP/ADB/Aviation Lights	RM	1600	0.09893	-	-
E11	Control cable shall have annealed tinned copper conductor, 1100grade, PVC insulation, extruded PVC inner sheath ,GS Wire Armoured, , Overall extruded PVC outer sheath, FRLS type .			-	-	-
a	2.5 mm ²	RM	500	0.10866	-	-
E12	Flexible trailing cable : Annealed tinned copper conductor, EPR insulated, reinforced with nylon cord, cores laid up, HDCSP inner sheathed , cotton taped & HDCSP overall sheathed confirming to IS:9968.	RM	500	0.10866	-	-
E13	PVC insulated 650/1100V grade stranded Cu Conductor lighting wires conforming to IS-694 for the following.			-	-	-
a	1CX6 mm ² Al from lighting panel to junction boxes	RM	2000	0.03565	-	-
b	1CX2.5 mm ² Al from junction boxes to lighting fixtures(no. of wires per lead as required)	RM	1500	0.02915	-	-
c	1CX6 mm ² Al from lighting panel to Receptacles	RM	2000	0.04245	-	-
E14	The ground conductor sizes for grounding of electrical equipment, lighting fixtures, junction boxes etc. shall be as follows :			-	-	-
a	Distribution Boards, Lighting : 50 mm x 6 mm GI Flat Panels and motors above 90 KW	RM	300	0.19695	-	-
b	Motors above 30 KW upto 90 KW : 35 mm x 6 mm GI Flat	RM	250	0.14941	-	-
c	Motors above 5 KW upto 30 KW : 25 mm x 3 mm GI Flat	RM	400	0.07810	-	-
d	Motors upto 5 KW : 8 SWG GI wire	RM	300	0.01358	-	-
e	Lighting Fixtures, junction boxes, : 16 SWG G.I. wire conduits, etc.	RM	250	0.01019	-	-
E15	Galvanised steel conduit 32mm dia with junction boxes, pull boxes & accessories etc complete in all respects.	RM	5000	0.11545	-	-
E16	Lightning protection Air terminal	RM	45	5.79499	-	-
E17	Electrical equipment earthing materials including down conductors	RM	20	7.47049	-	-
E18	GS cable trays. Cable trays shall be of ladder type constructed of minimum 2 mm thick mild steel hot dip galvanise including cover, cabling material, accessories etc. complete as per drawings & specifications..			-	-	-
a	600 mm wide	RM	150	0.51466	-	-
b	450 mm wide	RM	100	0.39050	-	-
c	300 mm wide	RM	150	0.27910	-	-
d	150 mm wide	RM	350	0.23464	-	-
E19	Aviation Distribution Board (ADB) with one 32A MCCB (TPN) incomer and 8 nos. SP 20A MCB. Construction is same as Lighting Panel.	No.	4	78.10060	-	-
Total Amount (INR)		'A'				

NOTES:

- Bidder's quoted price above shall be complete in all respect for the full scope defined in specification and in accordance with all terms & conditions of tender.
- Contractor shall fully understand description and Specifications of items mentioned in BOQ.

MODIFIED BOQ CUM RATE SCHEDULE- MAIN PLANT CIVIL WORKS-CORRIGENDUM II

PROJECT: 1X660 MW PANKI THERMAL POWER STATION

NAME OF WORK: CONSTRUCTION AND DEVELOPMENT 275 Mtr. TALL SINGLE FLUE RCC CHIMNEY WITH BOROSILICATE GLASS BLOCK LINING ON INNER SURFACE OF STEEL FLUE CAN (EXCLUDING PILES) FOR 1X660 MW PANKI THERMAL POWER PLANT, PANKI U.P.

ITEM CODE NO.	DESCRIPTION OF ITEM	UNIT	QUANTITY	FACTOR (F)	RATE (Rs.) = FACTOR (F) * A / 100000 (Rounded off to two place after decimal)	AMOUNT (Rs.) = RATE * QUANTITY
3	Conditional price bids with any deviation / clarification etc. are liable to be rejected. No cutting / erasing / over writing shall be done.					
4	Quantities mentioned in rate schedules are approximate only and liable for variation on either side depending upon site / design requirement. The tentative contract value (CV) of entire scope of work shall be calculated as per finally quoted / accepted rates & the Quantities indicated in BOQ cum Rate Schedule .					
5	Contractor's total quoted price as per rate schedule will be taken as tentative only. The contractor undertakes to execute actual quantities as per advice of BHEL Engineer and accordingly the final contract price shall be worked out on the basis of quantities actually executed at site and payments will also be regulated for the same.					
6	In case of any mis-match in rate and amount on price discrepancy, the same will be dealt as per clause no. 1.4 of GCC.					
7	Taxes (GST) shall be payable extra as per relevant clauses in Technical Conditions of Contract.					