

Indian Space Research Organisation - Department of Space				
				
NIT No. : SHAR_CMG_CIVIL_MAINT_EPT-04/21-22, TC_21_022 DT 08.09.21				
Name of Work: Arresting rain water leakage from roof by providing water proof membrane (Polyurethane water proof				
	Name of contractor			RAVI ENTERPRISES
Item No	Quantity	Description of Item	Unit	Rate
0001a	1.73	Demolishing cement concrete 1:3:6 or richer mix including disposal of materials within 50 mtrs lead.	CUM	
0002a	3,034.00	Demolishing / Removal of existing self adhesive membrane treatment and disposal of the debris within a distance of 150mtrs. The rate quoted by contractor/agency has to include cleaning, surface preparation and making neat to receive the new waterproofing treatment.	SQM	
0003a	3,033.05	Supplying & Applying of Solvent Free, 100% solids, Two Component (ASTM D 16, Type V), Polyurea (0.5mm) + Polyurethane (0.7mm) + Aliphatic Coating (0.3mm) System, Non-Tar Extended, Total System Thickness of 1.5mm (excluding primer) of PolyUrethane based DRYTHANE of AMCHEM Products Pvt Ltd or equivalent PolyUrethane based membrane water proofing system of make FAB / Dr. Fixit / CIPY / CERA / FOSROC / SIKA / BASF Chemicals. The treatment system has to form a tough durable film, highly resistant to mechanical damage and totally impervious to water immersion. Product shall not emit any Volatile Organic Compounds (VOC) or odour and will be totally environment friendly. i) System Composition: a) Damp Tolerant, Solvent Free Penetrating Primer: 0.15 mm Nominal WFT b) Solvent Free Polyurea (0.5mm) + Polyurethane (0.7mm) + Aliphatic Coating (0.3mm) = 1.5 mm Nominal DFT (Total system thickness) excluding primer c) Stripe coat of 1mm thick of make Drythane plus or equivalent shall be applied in parapet to floor joint portions only.	SQM	
		ii) Supply: Liquid coating materials will be supplied with original manufacturer's Material Test Certificate (MTC) showing residual shelf life. Material will be in original airtight, sealed drums without any damage or leak. Only approved makes shall be purchased. iii) Performance Properties: a) Adhesion (ASTM D 4541) > 380PSI, Tensile Strength of the Concrete with 90% or more break within the concrete matrix. b) Tensile Strength (ASTM D 412) > 29/20 MPa c) Elongation @ Break (ASTM D 412) > 700%/>125% d) Crack Bridging 10/2.54 mm e) Hardness (ASTM D 2240) > 42/>64 Shore D f) Water Absorption (ASTM D 570, Para 7.4, Long Term Immersion) < 1.50 % g) Chemical Resistance to 30% NaOH (ASTM D 543, 30-day immersion), Weight Gain < 1.5% h) Certified Potable Water Safe as per US FDA 175.300 by CFTRI (Only for water tank, swimming pool applications)		

		iv) Application Procedure: Strictly follow manufacturer's application instructions and provide a copy in advance to Engineer In charge to ensure compliance. Application will involve cleaning surface thoroughly with high pressure waterjet, drying and application of primer and topcoat by paint rollers. Ratio of the two components (Resin: Activator) must be strictly ensured as per design. Use pre-measured packaging as far as possible. Cracks will be treated with elastomeric polyurethane stripe coat prior to coating application. v) Covering: This type of product has very high mechanical resistance to mechanical damage as well as UV and Sunlight and protection by Screed, Tiles, etc., is not necessary. However, the coated surface may be covered with tile/stone, etc., for aesthetic purposes and drain board/ geotextile/ soil/ grass. Note: Ensure Substrate is strong enough to receive PU coating.		
		TOP COAT: Supply & apply of 100% solids, two component, colour fast & HEAT REFLECTIVE coating system having tensile strength of 17.6Mpa, Hardness of 60 shore D, SRI Index (ASTM C 1459-16) of Topcoat 110 & reduce rooftop surface temperature by as much as 13 °C, after sufficient surface preparation, Drythane or equivalent make's Aliphatic is applied at 300 microns & No need for reinforcement or protection. <u>Make:</u> DRYTHANE or SIKA or BASF or FOSROC or FAB or CIPY or Dr. FIXIT or CERA or equivalent.		
		<u>Important Notes:</u> 1. The Contractor / Agency has to submit warranty for water proofing for 7 years period from the date of completion of work on a non-judicial stamp paper. 2. Polyurea + Polyurethane + Aliphatic Coating System of PolyUrethane based water proofing system shall be used after the approval of Engineer in Charge after making a mock up at site. 3. During defect liability period / warranty period, any rectifications shall be attended by the agency within a week time, failing which the work will be done with agency and incurred amount will be recovered from security deposit without any notice. 4. The work should be executed through specialized / authorised agencies of reputed water proofing chemical companies.		
0004		Dismantling H.C.I. or A.C rain water pipe with fittings and clamps including stacking the materials within 50mtrs lead.		
0004a	744.00	b) 100mm dia.	RMT	
0005		Providing and fixing rigid PVC SWR (soil, waste and rain water) drainage / rain water pipe conforming to Type-A IS 13592-1992, including accessories like bends and fixing with pipe clips over wooden spacers, adhesive at joints all as per manufacturer's specifications to required length etc., complete all as per specifications and directions of Engineer in charge.		
0005a	744.00	c) 160mm dia OD pipes with minimum wall thickness of 3.20 mm	RMT	

0006a	280.00	Providing and Fixing G.I nipple at required locations and pressure grouting the same with neat cement slurry admixed with cementitious expansive grouting adhesive such as CERA EXPAN 250 of CERA CHEM/ SIKa/ FOSROC/ROFF at dosage as per manufactures specification including material, labour, equipment, etc complete all as directed by EIC. The area to be water proofed shall be ponded with water and leakage / dampness if any shall be marked in ceiling below the terrace . Nipples shall be fixed at required locations in ceiling wherever leakage persists.	PT	
0007a	132.00	Providing Polysulphide sealant in Expansion Joints /RCC Slabs/ Beams etc. The joints shall be of size 25mm wide & 10mm deep using sealant of approved make. The work shall be executed strictly as per manufacturer's specifications etc.Complete all as per directions of Engineer in Charge at all Heights/ Levels.	RMT	
	GRAND TOTAL			



HINDUSTAN AERONAUTICS LIMITED BANGALORE FACILITIES MANAGEMENT DIVISION						
NAME OF THE WORK: "Water Proof Treatment for Admin Block, Vigilance Building and LRU Building along with Expansion Joint Treatment in Floor at Final Assembly Hangar in Helicopter MRO Division, HAL [HC]." CONTRACT NO. HAL/FMD/R-155/22-23						
PRICE BID						
Name of the Contractor :						
Sl. No	Specification	Quantity	Unit	Rate in Figs [Including GST]	Rate in words	Amount
Preamble. (1) The subject work has been called on works contract basis and prevailing GST for same is 18%. Any change in GST +/- during the currency of contract shall be on HAL account. The Tenderer shall abide by prevailing GST act. (2) L1 (lowest quote) will be determined based on the total quoted amount including GST. (3) This BOQ specification has to be read in conjunction with detailed technical specification and tender drawings if any.						
	<u>PLASTERING</u>					
1	Preparing of old walls and ceiling by completely taking down the cement or cement lime plaster of any description (brick/concrete/stones) and any thickness including racking out the joints for receiving new plaster, etc., all complete. The rate is inclusive of staging, scaffolding, etc.all complete as directed by Engineer-in-Charge.	946.99	Sq m		#NAME?	0.00
2	Plastering the walls and ceiling with 15mm thickness Cement Mortar (1:4) over brick/concrete surfaces including finishing the surfaces fair and even. It includes for water drip bands, curing the plastered surface, etc., The rates quoted are including necessary scaffolding at heights, etc., all complete as directed by Engineer-in-Charge.	946.99	Sq m		#NAME?	0.00
3	Fosroc Conplast X421 IC or equivalent liquid waterproofing compound improving the quality of the concrete or mortar, liquid admixture instant and complete dispersion through out the mix, high efficiency etc., complete as per fosroc constructive solutions, etc., all complete as directed by Engineer-in-Charge.	20.00	Ltrs		#NAME?	0.00

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PRICE BID						
Name of the Contractor :						
Sl. No	Specification	Quantity	Unit	Rate in Figs [Including GST]	Rate in words	Amount
	<u>PAINTING</u>					
4	Supplying and applying two or more coats of 100% Premium acrylic exterior emulsion UV resistant paint as per IS 5489-2004 including Alkali, fungal resistance, dirt resistant exterior paint of required shade with silicon additives applied over and including a priming coat of exterior primer etc,. all complete as directed by EIC. The rate include uses of all scaffolding, Tresles, ladders, cradles etc,. necessary for execution of work and protective measures, removing of nails, spreading and removing covering to doors, windows, floors, fitting etc,. to protect them from splashes, cleaning of glasses, joineries, electrical fittings etc,. of drops, splashes and leaving premises, clean and tidy, etc., all complete as directed by Engineer-in-Charge.	1606.99	Sq m		#NAME?	0.00
5	Painting the interior walls and ceilings with two coats of premium interior plastic emulsion paint with low VOC, washable paint of approved manufacturer, colour, shade, tint, pattern over the old painted surface of walls and ceiling as directed over and with a coat of approved primer including applying touch up putty, smoothening the surface by using suitable emery paper, cleaning the dirt and other impurities, scrapping smooth and filling crevices, necessary scaffolding, etc., all complete as directed by Engineer-in-Charge.	330.88	Sq m		#NAME?	0.00

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PRICE BID						
Name of the Contractor :						
Sl. No	Specification	Quantity	Unit	Rate in Figs [Including GST]	Rate in words	Amount
	<u>ROOFING</u>					
6	Supplying and applying approved make 100% Solids (Solvent Free) , Two Component, Elastomeric Hybrid Polyurea + Polyurethane + Aliphatic top waterproofing to a combined thickness of 1,500 microns after sufficient surface preparation followed by priming using damp tolerant Polyurethane primer, following coats will be applied a) Solvent Free, Damp Tolerant Polyurethane Primer (coverage around. 0.2 Litre/sqm or as per manufacturer specification) b) Solvent Free Hybrid Polyurea 500 Microns (coverage around. 0.5 Litre/sqm or as per manufacturer specification) c) Solvent Free Polyurethane 700 Microns (coverage around. 0.7 Litre/sq.m or as per manufacturers specification). The application of 1200 Microns Ployurea and Polyurethane combination is also permitted based on manufacturer specification. d) Solvent free Aliphatic Top coat 300 microns (Coverage around. 0.3Litre/sqm or as per manufacturer specification). The waterproofing combo system shall meet the following parameters: a) Defect free substrate b) Adhesion (ASTM D 4541) > tensile strength of concrete c) Tensile Strength >16.6 Mpa d) Elongation 400% e) Hardness (Topcoat) > 60 Shore D(>>100A) f) Crack Spanning capacity (System) up to 8.00 mm g) Saturation water absorption (ASTM D 570, Para 7.4)0.59% h) Tear strength (Top coat) 54.3 N/mm i) Abrasion resistance 50 mg(ASTM D 4060) & SRI 110 for top coat j) Root Resistant Note: A performance guarantee bond for 10 years for leak proof roofing shall be given by the contractor on non-judicial stamp paper of Rs.200/- . The 10% of completed value of this item shall be dedcuted as defect liability deposit and the same shall be returned after sucessful completion of 10 years from the date of completion of contract / project as a whole. Proposed Makes: M/s.Fosroc, M/s.Asian Paints, M/s.BASF, M/s.Amchem & M/s.Pidilite.	3563.00	Sq m		#NAME?	0.00

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PRICE BID						
Name of the Contractor :						
Sl. No	Specification	Quantity	Unit	Rate in Figs [Including GST]	Rate in words	Amount
7	Repairing of construction, expansion joints in the salb/flooring for width of 25 to 50mm as per the following specifications: 1. Preparing the surface by removing the existing filler board from the joint and cleaning the joint by removing any dust, unsound or contaminated material, oil, paint, grease, corrosion deposits or algae by mechanical means. 2. Supplying and fixing backer rod of suitable size for tight fit in the joints. The backer rod shall be fixed so that the width to depth ratio of sealant is maintained. 3. Supplying and applying suitable primer on all the sides which are in contact with the sealant. 4. Supplying and laying polyurethane sealant having the following min. properties over the primed surfaces. Movement accommodation factor greater than 25% Elongation at break greater than 350% Shrinkage less than 10% Proposed Makes: M/s.Fosroc, M/s.Asian Paints, M/s.Bostik, M/s.BASF, M/s.ControChem & M/s.Pidilite.	125.00	R m		#NAME?	0.00
8	Supplying, Mixing, placing of screed concrete including finishing over roof of average thickness of 40mm , including mixing of water proofing compound if any thickness for the loose patches identified over roof including cleaning, applying in cement slurry and placing the concrete, etc., all complete as directed by Engineer-in-Charge. Note : Water proofing in compound wall be paid separately)	298.02	Sq m		#NAME?	0.00

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PRICE BID						
Name of the Contractor :						
Sl. No	Specification	Quantity	Unit	Rate in Figs [Including GST]	Rate in words	Amount
	<u>DISMANTLING & DEMOLITION</u>					
9	Dismantling existing Brick bat coba laid bedded and pointed in any mortor / screed concrete / Plastering of any description including removing the debris to a distance exc.1500m butn exc.5000m and depositing including providing necessary barricading allround when work in progress , etc.,complete all as directed by EIC. Dismantling of Roof Brick work, plastering and screed concrete if any, etc., all complete as directed by Engineer-in-Charge.	297.93	Sq m		#NAME?	0.00
10	Removing/taking and shifting any kind of debris including loading, transporting and unloading of debris using truck/ tipper/ tractor including depositing outside premises etc,. Up to a lead of 15 km complete. Payment shall be made as per the tipper/tractor size with 20% deduction in the volume of tipper, etc., all complete as directed by Engineer-in-Charge.	15.00	Cu m		#NAME?	0.00
	Grand Total	#NAME?				0.00



Indian Overseas Bank

इण्डियन ओवरसीज बैंक

Central Office: P.B.No.3765, 763 Anna Salai, Chennai, 600 002

केंद्रीय कार्यालय | पोस्ट बॉक्स नं 3765, 763 अण्णा सालाई, चेन्नई 600 002

Ph: 044 28524212

Fax: 044 28411443

gad@iobnet.co.in

GAD/127/468/2021-2022

05.10.2021

M/s.Sri Velmurugan Engineering
28/5, Sippoy Nagar Main road, Kumananchavadi,
Poonamalle
Chennai-600056
Ph: 7811003345/9585662500
Email: svmecpvtltd@gmail.com

Dear Sir,

**Sub: Terrace waterproofing works at Main building,
Annexe and Canteen block, Central Office-Award of work**

With reference to the tender on the captioned subject, we are glad to inform that the Competent Authority of the Bank has accepted your offer of **Rs.36,95,000/-** (Rupees Thirty-Six Lakhs Ninety-Five Thousand only).

Accordingly, we are pleased to award the contract as per specifications, conditions of tender, Bill of quantities.

As per the terms of tender dated 04.09.2021, furnish Initial Security Deposit for an amount of Rs.1,84,750/-+GST (i.e.,5% of accepted tender value less EMD) by means of DD or Performance guarantee.

This contract is on quoted rates and no claim for increase in rates for whatever reason will be entertained.

The work shall commence immediately from the date of this order and must be fully completed as stipulated in the tender.

Payment shall be made stage wise and as per the tender conditions for works executed, after statutory deductions. Retention money will be deducted from the interim bills by Bank, as per the tender terms.



It should be ensured that the materials specified in tender; and skilled workmen alone be used to achieve the desired product acceptable to both Project Consultant and Bank.

The contractor shall take all necessary safety and statutory precautions, to ensure smooth completion of work, in co-ordination with the Project Architect, Bank and other Statutory Agencies.

Any defects identified by the Bank should be rectified during the defect liability period of one year i.e., after completion and handing over of work.

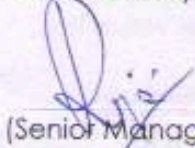
Samples of all materials and specimens of such items, as required for this work, for the approval of the Project Consultant and the Bank shall be submitted in time and at your own cost. All materials that are provided for this work shall be strictly in accordance with approved samples and specimens.

Please arrange to submit copies of Insurance policy to Bank.

All terms & conditions, specifications given in the tender and the conditions of agreement to be entered between the Bank and yourselves should be strictly followed. The tender Part-A & Part-B is part of the work order. The agreement between Bank & Contractor together with tender documents (both Part-A and Part-B), all correspondences between Bank and yourself and this work order will form part of the Agreement. A non-judicial stamp paper of Rs.20/- is to be submitted to the Bank, in this regard.

As a token of acceptance of the above conditions, the duplicate of this Letter of Award may be signed and returned within three days of its receipt.

Yours faithfully,



(Senior Manager)

For St. Williams Engineering & Construction Pvt. Ltd.

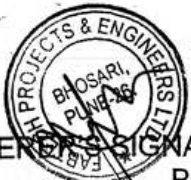

Director

- 8.2 PURETHANE from M/s Amchem Proudcts Pvt. Ltd.
A-79, Sector-58, Phase-III,
NOIDA-201301,
(Tel. No. 95120-2580121, 2581351, Fax No.95120-2521823)
- 8.3 M/s CIPY POLY URETHANES PVT. LTD.
J 446, MIDC, BHOSARI, PUNE-411026
OR SC-1-25, KOHINOOR ESTATE, Above Hyundai Show room,
Mumbai-Pune Road, Pune 411003,
(Tel(020)5821806-78 Fax(020)5820716)
- 8.4 M/s VCM Polyurethanes Pvt. Ltd.
329, A/2, Shah & Nahar Indl. Estate, SJ Marg,
Lower Parel(W), Mumbai-400013.,
(Tel:4951967/4952408/4960174, Fax.022-4974284)
- 8.5 GP Tough Guard 1000-from M/s Grand Polycots Company Pvt. Ltd.
204, Siddarth Complex, R.C. Dutt Road,
Vadodara-390007, Gujarat, (Ph.:0265-2340682, Fax.91-265-2337022)
- 8.6 SSPL/1R-ELASTO from M/s Solvosol Paints Pvt. Ltd.,
Sesha Sai Street, Ramaraopet,
KAKINADA-533004, (A.P.)

- 8.02.01 Blast surface profile using Elcometer 123 or equivalent surface profile gauge. The average of readings from five randomly selected areas shall constitute the average surface profile. In case bullet curvature causes error in readings, the blast profile will be tested on reference flat steel coupons.
- 8.02.02 Hardness shall be tested with a portable Shore D Durometer as per ASTM D 2240. Frequency shall be as per 8.02.05 and the measurement point shall be adjacent to the adhesion test so that the coating repair covers the pinpoint holiday caused by the Durometer.
- 8.02.03 The dry film thickness shall be checked with a **Magnetic Mil Gauge (Positest by DeFelsko or equivalent)** in accordance with SSPC PA 2. The average of readings from five randomly selected areas shall constitute the film thickness. No single spot measurement shall be less than 80% of specified thickness. Frequency shall be as per SSPC PA 2.
- 8.02.04 Holidays testing using high voltage holiday detector (Tinker[®] Razor or equivalent) as per NACE International RP 0188-90 "Holiday Testing". Coating to have cured at least 24 Hours prior to holiday test. The location of the holidays shall be noted on the coated surface for repair as per 7.01.03. **Final coating shall be holiday free.**
- 8.02.05 Pull off Adhesion to steel shall be measured using Elcometer / Positest / equivalent adhesion tester as per ASTM D 4541 using an Aluminum dolly attached to the coating & a perpendicular force applied to the dolly. Average reading from three (3) randomly selected spots shall constitute one test and shall be at least 8 (Eight) N/mm². One test shall be carried out 500 Sq.M surface area. Adhesion test shall be carried out on fully cured coating (7 days at 25°C). In case bullet curvature causes error in readings, the adhesion will be tested on reference flat steel coupons.
- 9.00.0 All above test to be witnessed & certified by Owner/Consultants Inspectors.
- 10.00.0 Prequalification test of experienced coating applicator shall be carried out by fabricator and submitted for approval by TPIA.
- 11.00.0 Fabricator to submit test results and certificate for the coating to be used for review and approval by TPIA.
- 12.00.0 The list of Vendors for the supply of Polyurethane coating is as under:
- a) **M/s. Amchem Products Pvt. Ltd.**
A-79, Sector-8
Noida Gautam Budh Nagar (U.P.) – 201 301
 - b) M/s. Goldschmidt TIB GmbH
Mulheimer Str. 16-22,
D-68219 Mannheim, Germany
 - c) M/s. Metrotech Ltd.
Shitechapel Road, Cleckheaton,
West Yorkshire, BD19 3 UF, England
 - d) M/s. Futura Coatings Inc.

SEAL:

TENDERER'S SIGNATURE:
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Following is list of suggested vendors :

- a) M/s. Amchem Products, Noida
- b) M/s. Madson Chemicals
- c) M/s. Futura
- d) M/s. Zebron
- e) M/s. Mitsui
- f) M/s Gold Schmidt, TIB Germany
- g) M/s Machmet, Kolkatta
- h) TIB Chemicals AG
- i) M/S Carboline India
- j) Futura Coatings
- k) 3M India Limited

10.00.00 ADDITIONAL DETAILS/ CLARIFICATIONS:

1. Coating manufacturer should be having a salt spray test report of 6000 hours available with him for the same formulation as shall be supplied by him for BPCL Mounded Vessels.
2. Salt spray testing as per ASTM – B117-73 for 6000 hours will have to be carried out for the first batch of Coating as per ASTM – B117-73 **by each fabricator from each coating manufacturer** (in case the successful bidder chooses to have more than one coating manufacturer). The sample shall be sent to Indian Institute of Chemical Technology (CSIR), Hyderabad or equivalent laboratory for testing. Sample of material shall be drawn randomly by BPCL after receipt of product at site and fabricator shall prepare the test coupon in presence of BPCL officer which shall be sent to Laboratory under the seal and signature of representative of Fabricator and BPCL/TPIA.
3. Subsequent batches of polyurethane coating material has to be of the same formulation and from the same coating manufacturer.
4. 'Chemical Fingerprinting' of liquid components by Fourier Transform Infra-Red Spectroscopy (FTIR) shall have to be conducted by a NABL approved laboratory for the first batch. Sample of material shall be drawn randomly by BPCL after receipt of product at site and shall be sent to Laboratory under the seal and signature of representative of Fabricator, and BPCL/TPIA.
5. FTIR testing in lieu of Salt Spray testing **may be done by** the coating manufacturer for all subsequent batch of the coating material as long as there is no change in the formulation of the material and the vendor who is supplying the material
6. For subsequent batches FTIR spectrums have to be matched. In case of any variation the salt spray tests have to be repeated. No Payment shall be made for the batch where FTIR has not matched .Payment shall be made for the same only after the satisfactory results of the salt spray test.
7. In case of change in formulation of coating material or coating manufacturer, salt spray tests shall have to be repeated.
8. Payment of all above tests shall be borne by the bidder.
9. In case of failure of the salt spray test, suitable compensation/replacement/recovery shall be made by BPCL.

	MOUNDED BULLET COATING / PAINTING SPECIFICATION	PC51-20-301-ANNEX-II	0
		DOCUMENT NO	REV
		SHEET 11 OF 11	

- Checking of surface preparation, cleanliness & surface profile
- Checking of airless spray equipment.
- Wet film thickness of first coat and intermediate coats
- Dry film thickness of total paint system after curing of final coat.
- Low voltage holiday/pin hole detection test
- Adhesion test by cross cut method
- Visual inspection for surface finish & coverage.
- Cathodic disbondment test data at ambient condition as per BS 4164 shall be submitted

10.0 QUALITY ASSURANCE

The contractor shall guarantee that the chemical and physical properties of coating/paint materials used are in accordance with the specifications contained herein/to be provided during execution of work.

11.0 RECOMMENDED PAINT MANUFACTURERS

A). Internal surfaces Coating

- i). Asian Paints
- ii). J&N
- iii). Berger Paint

B). Polyurethane Coating

- i. M/s. Amchem Products Pvt. Ltd., Noida
- ii. M/s. Goldschmidt TIB GmbH, Germany
- iii. M/s. Metrotech Ltd., England
- iv. M/s. Futura Coatings Inc., St. Louis, USA
- v. M/s. Carboline Company, St. Louis, USA
- vi. M/s. Modison Chemical Industries Inc., Canada

❶ Apart from these vendors LSTK contractor shall propose their approved sub-vendors for PDIL / CPCL approval.



एनटीपीसी लिमिटेड

(भारत सरकार का उद्यम)

NTPC Limited

(A Govt. of India Enterprise)

(Formerly National Thermal Power Corporation Ltd.)

केन्द्रीय कार्यालय नोएडा

Corporate Centre NOIDA

/ Ref. No.: 01/CQA/0330-135/C/230609

/ Date: 23.06.2009

Gammon India Ltd.
Gmmon House,
Veer Savarkar Marg,
P.O. No. 9129,
Prabhadevi
MUMBAI – 400 025
Fax No.- 022-2430 0221 / 24300529

Attention:- Shri R.B.Senani, GM (Marketing)

Sub: Indira Gandhi Super Thermal Power Project (3 X 500 MW) – Natural Draught Cooling Tower Package
:Polyurethane Coating reg.

Dear Sir,

This has reference to your letter no. GIL/Mktg/G/1821 dated 11.06.2009 regarding the Polyurethane Coating works for Natural Draught Cooling Tower package proposed to be executed by M/s Amchem Products Private Limited, NOIDA.

Based on the review of the details and credentials of furnished, We hereby accept your proposal for execution of Polyurethane Coating works for Natural Draught Cooling Tower package for Indira Gandhi Super Thermal Power Project proposed to be executed by M/s Amchem Products Private Limited, having their works at A-79, Sector-24, NOIDA – 201 307 subject to the following conditions :

1. Supply and application of PU coating shall be carried out as per the technical specifications.
2. Detailed coating procedures, deployment of resources for application and testing and Field Quality Plan shall be submitted to NTPC for their review and approval .
3. Satisfactory Results for the tests spelt out in the technical specifications like thickness, tensile strength, adhesion, recoverable elongation, surface hardness, water permeability, salt spray tests, impact resistance, abrasion resistance, flexibility, accelerated weathering, chemical resistance shall be got conducted by taking samples in presence of NTPC, at expert laboratories like IICCTT Hyderabad or CRI, Karaikudi.

Thanking You,

Your's sincerely,

(Atul Shrivastava)

AGM/CTF- IGSTPP Jhajjar

Digitally signed by Rajiv K Singh Bais
DN: cn=Rajiv K Singh Bais, o=IN, ou=NTPC, ou=Jh and En Task Force, email=rajivsinghbais@ntpc.co.in
Reason: ntpceocmail:Tue 6/23/2009 5:38 PM vm singh [vmsingh@ntpc.co.in]
Location: EOC Noida
Date: 2009.06.23 18:05:36 +05'30'



Engineering Division
ISO 9001:2008 Certified

AiBayaMi~kl kayaa-laya pirsar, PlaaT naM.- e 8e, saO@Tr-24, paosT baa@sa naM.- 13, naaOeDa (j p') ipna-201 307
Toilafaona naM.- 0120-2410333, 2410116 fO@sa-0120-2410136, 2410137
pMjalkRt kayaa-laya: enaTIplsai Bavana, skaop kamplao@sa, 7 [nsTITUyaUSanala eiryaa, laaoQal raoD, na[- idllal-110 003
Toilafaona naM.- 011-24361018 fO@sa-011-24361018, vaobasaa[T: www.ntpc.co.in,
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Tender Inviting Authority: NTPC TAMILNADU ENERGY COMPANY LIMITED					
Name of Work: STRUCTURAL REPAIRS & PROTECTIVE COATING OF INDUCED DRAFT COOLING TOWER, TANKS, FOUNDATION AND OTHER CONCRETE STRUCTURES, WATER PROOFING OF CABLE GALLERYS, TG ROOF AND OTHER ROOF AT NTECL					
Contract No: NTECL/C&M/OT/CS-5435					
	<u>Non - Scheduled Item</u>				
	<u>PRICE SCHEDULE</u>				
Sl. No.	Item Description	Quantity	Units	Rate (Excluding GST) in Rs. P	TOTAL AMOUNT Without Taxes in Rs. P
1	2	4	5	6	7
20	PART- B: Non Schedule Items				
20.01	Access system for Induced draft Cooling tower: Providing and fixing any suitable working platform like temporary engineered steel tubular standard double scaffolding system / handing platform/ motorized lifting arrangement/ scissor lift arrangement to provide access for repairing, cleaning and painting on the interior & exterior side of IDCT structures like columns and beams ,wall, deck bottom, hot water channel portions, basin, flume portion, roof, gear box pedestal, walking platforms, supporting beams, staircase, staircase landing etc all materials, machineries, labours, dimantling and taking away after completion of work . (Agency has to be prepared for working both during shutdowns and running of plant) Unit of measurement- Each cooling tower cell	54	Lumpsum per Cooling tower cell		0.00
20.02	Removal and refixing of IDCT internal element to assist internal repair & coating work: Removing of Induced draft cooling tower Drift Eliminators, V Bars and wire mesh with utmost care to minimize the damage while handling, refixing the same after completion of the repair and coating works and handing over for operation (however after taking all precaution if any damage in Drift Eliminators, V Bars and wire mesh should be intimated to EIC for issuing the same from NTECL store) Unit of measurement- Each cooling tower cell	54	Lumpsum per Cooling tower cell		0.00
20.03	Chipping, Removal of Loose concrete: Chipping/Removing of damaged , loose concrete to required depth by chiseling or low impact chipping machine without damaging the core concrete including cleaning the surfaces by compressed air jet/ pressure water jet/ wire brushing without damaging equipment/ facilities,cables etc. The debris will be disposed upto a lead of 2 KM in the place demarked by Engineer in Charge within the Plant Campus.	78900	Sqm		0.00
20.04	Filling of Crack: V-Cutting of the crack shall be done of size 10 mm x 10 mm cutting. The sealing would be done with epoxy repair mortar approved by and as per direction of Engineer-In-Charge.	10800	Running Metre		0.00
20.05	Epoxy Grouting Nipple fixing : Providing and inserting 12mm dia galvanised steel injection nipple wherever required including drilling of holes of required diametre (20mm to 30mm) up to depth from 30mm to 80mm at required spacing and making the hole & crack dust free by blowing compressed air, sealing the distance between injection nipple with adhesive chemical of approved make and allow it to cure, all complete as per direction of Engineer-In-Charge.	21600	No		0.00

20.06	Epoxy Grouting: Providing and injecting approved grout in proportion recommended by the manufacturer in concrete/ RCC wherever required by suitable gun/pump at required pressure including cutting of nipples after sufficient curing etc. complete as per directions of Engineer-in- Charge. (The payment shall be made on the basis of actual weight of approved grout injected.)	10800	Kg		0.00
20.07	Cement Grouting Nipple: Drilling 12mm dia hole of depth (max 300mm) and fixing the 10mm dia nozzle pipe with quick setting cement for grouting. Suitable length of pipe shall be maintained for grouting.	22000	No		0.00
20.08	Providing and applying reinforcement converting/ fixation treatment : Providing and applying alkaline based rust converting primer or rust fixing primer by brush/spray on the complete circumferential area of exposed & cleaned old reinforcement and new reinforcement, all complete as per direction of Engineer-In-Charge. (For measurement, patch area of repair work will be taken.)	78900	Sqm		0.00
20.09	Providing and applying reinforcement anti corrosive treatment: Providing and applying two coats of zinc rich epoxy based polymer coating or epoxy-phenolic or aromatic moisture cured urethane coating with anti-corrosion properties as anti-corrosive treatment to old & new reinforcement bars	79200	Sqm		0.00
20.10	Providing and applying concrete penetrating corrosion inhibitor: Providing and applying concrete penetrating corrosion inhibitor as per manufacturers' specification on the entire repair surface. The application method shall be as specified by the manufacturer. For measurement, patch area of repair work will be taken.	79200	Sqm		0.00
20.11	Providing Additional reinforcement: Fixing additional Steel Reinforcement wherever the diameter of the existing reinforcement has reduced more than 20% of the original diameter by welding (as per relevant standards) it to the original reinforcement or using reinforcement fixing chemicals with required lap length / anchorage depth respectively as advised by the EIC.	125400	Kg		0.00
20.12	Providing Shear Key: Providing and fixing of L shaped 150mm long, 10mm dia mild steel shear key after drilling suitable holes in reinforced or plain cement concrete with power driven drill machine upto 200mm in RCC beams, walls, columns and slabs to introduce steel bars including fixing the steel bars in position using epoxy resin anchor grout of approved make but excluding the cost of reinforcement, all complete as per direction of Engineer-In-Charge.	81000	No		0.00
20.13	Providing and applying Bond Coat: Providing and applying structural grade two component epoxy bond coat prior to application of any type of mortar conforming to ASTM C - 881 -13 Type - II to ensure bond between old and new concrete by brush application complete as per directions and approval of Engineer-In-Charge. (For measurement, patch area of repair work will be taken.)	79200	Sqm		0.00
20.14	Providing and Applying Polymer Modified mortar/concrete: Supplying & applying pre-packed/ in situ mortar/concrete shall be applied with aggregate (if required) as per recommendation of manufacturer through gunning equipment or manual method depending on site condition upto average depth of 40 mm average depth. Proper curing to be done after the repair work. This item includes material, machinery, labour and bonding coat if to be applied in between the layers of repair mortar.	59100	Sqm		0.00
20.15	Protective Coating on Cooling tower: Providing and applying one component moisture cured urethane coating system including surface cleaning to remove oil, grease, algae, fungal growth, impregnating/penetrating/sealing coat, primer coat and top coat on complete inner & outer surfaces of Columns, Beams, Walls, Shells, hot water channels, RCC Staircase etc. including all materials, machinery, labour etc., complete as per specification and instructions of Engineer-in-Charge. (The mode of measurement of this item shall be in Sqm area of receiving coating.)	224100	Sqm		0.00

20.16	Supply and application of Micro concrete: Supply and application of Micro concrete work with or without addition of aggregate - If required 6 mm to 12 mm chips aggregate shall be used. (aggregate if added will be paid extra)	851400	Kg		0.00
20.17	Supply and application of aggregate for micro concrete: Extra for providing aggregate for micro concrete of required specification- 6 mm to 12 mm chips aggregate with ratio mix as per instruction of EIC shall be added for mico concreting.	851400	Kg		0.00
20.18	Protective Coating on foundations & other concrete structures: Providing and applying four coat painting system of: 1) first coat Polyamide cured epoxy primer for DFT of 50-60microns, 2) second coat with Epoxy MIO for a DFT of 100-120microns, 3) third coat with Epoxy Top-coat for a DFT of 100-110 microns, 4) fourth coat with Aliphatic polyurethane sealer coat. including scaffoldings, temporary working platforms required if any, all men, machineries tools and tackles required. The application procedure should be strictly based on the manufacturer's specification. Any unsoundness in the concrete shall be repaired as per the direction of EIC. (Repairing of the surfaces before treatment will be paid extra under relevant item)	14000	Sqm	1.00	14000.00
20.19	Water arresting and water proofing on roof: Providing and applying waterproofing including surface repair (any additional items like micro concrete, concrete items, PMM/PMC will be paid seperately) surface preparation, surface cleaning ,solvent free polyurethane primer ,intermediate coat solvent free hybride polyurea, final coat solvent free polyurethane	25450	Sqm	0.00	0.00
	TOTAL				14000.00
	GST % APPLICABLE		0.00%		
	GST AMOUNT		-		
	TOTAL OF BOQ 2 INCLUDING GST		14000.00		
NOTE	a. The Bidder is required to quote their total Contract Price (Inclusive of all taxes & duties) on lump-sum basis on GeM portal in GeM Bid for entire package.				
	b. The Break-Up of applicable GST is required to be quoted in as per format given in the bidding documents.				
	C. GST SHALL BE APPLICABLE FOR THE ENTIRE PACKAGE I.E. SAME FOR BOQ 1 & BOQ 2				