TENDER

TENDER NOTIFICATION NO. - FCX/20211013

FOR

Repairing of Magnesium Oxychloride flooring in test bay and old UHV lab of NTB inside factory area.

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 Two Annexure:

The evaluation currency for this tender shall be INR.Total price of the package combining Annexure I & Annexure II 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 of Price Schedule.

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

Price Schedule

Name of work: Repairing of Magnesium Oxychloride flooring in test bay and old UHV lab of NTB inside factory area.

SUMMARY

	Details ANNEXURE	Total Amount (Rs.)
	Total price of the package combining of Annexure-I & Annexure-II.	

Amount in words: Rs.
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The evaluation currency for this tender shall be INR. Total price of the package combining of Annexure-I & Annexure-II 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 of Price Schedule.

FACTORY CIVIL CONSTRUCTION & MAINTENANCE DIVISION

Price Schedule : Anneuxre - I

Name of work : Repairing of Magnesium Oxychloride flooring in test bay and old UHV lab of NTB inside factory area.

Sr. No.	Based on DSR' 2012	Item Description	Qty.	Unit	% Weightage of item amount against total amount
1		Carriage of materials by mechanical transport including loading, unloading and stacking --- 1 Km lead			
	1.1.1	Lime, Moorum, building rubbish	10.00	cum	0.068
		Annexure : I			0.0680

FACTORY CIVIL CONSTRUCTION & MAINTENANCE DIVISION

Price Schedule : Anneuxre - II

Name of work : Repairing of Magnesium Oxychloride flooring in test bay and old UHV lab of NTB inside factory area.

Sr. No.	Item Description	Qty.	Unit	% Weightage of item amount against total amount
1	Surface preparation : Removal of dust/dirt , grease ,oil , other contaminants or loosely adhering deposits / particles using compressed air or wire brush or any other suitable means to make entire area suitable for laying of Heavy duty Magnesium oxychloride flooring as per the manufacturer's specifications and to the satisfaction of Engineer-in-charge. (Note:- During removal of dirt/ dust etc, the entire area to be kept barricaded/covered properly so that dirt/dust etc. does not spread in adjacent manufacturing areas).	300.00	Sqm	5.5883
2	Demolishing existing old epoxy/ PU /concrete floor to the desired extent with demolition hammer / chipping machine / floor cutting machine or any other suitable mechanical tool to the satisfaction of Engineer-in-charge. (Note:- While demolishing the entire area to be barricaded/ covered properly so that dirt/dust etc does not spread in adjacent manufacturing areas).	10.00	Cum	1.0521
3	Providing and laying heavy duty Magnesium Oxychloride flooring having compressive strength minimum 600 kg/ sq-cm at 28 days as per manufacturer's specifications over prepared RCC floor using all tools and tackles as per the instructions of engineer-in-charge. The floor work shall be done as per the technical specification and terms & conditions attached herewith at Annexure-N.	10.00	Cum	85.5606
4	Providing and applying 200 micron thick PU primer such as cipoxy 14 from M/S Cipy Polyurethanes Pvt Ltd.or suitable equivalent product followed by 100 micron chemical putty two or more coat (so as to facilitate colour retention of top coat of PU) followed by 200 micron PU coating such as FK111 from M/S Cipy Polyurethanes Pvt Ltd.or suitable equivalent product over Magnesium Oxychloride floor surface. The various coats of PU treatment as mentioned above shall be applied on the underlaid prepared surface of magnesium oxychloride floor as per the manufacturer's specifications.	300.00	Sqm	7.7310
	Annexure : II			99.9320
	Total Annexure I + Annexure : II			100.0000

Note 1 **The warranty clause shall be kept as below:-**

The contractor shall give a performance warranty of 02 years for his work from date of actual completion of contract.

In case of any defect noticed during the warranty period which is attributable to the poor workmanship / poor material quality, the same shall to be made good by the contractor free of cost and on priority. Security Deposit (SD) shall be kept with BHEL against above defect liability for a period of 02 years.

FACTORY CIVIL CONSTRUCTION & MAINTENANCE DIVISION

Price Schedule : Anneuxre - II

Name of work : Repairing of Magnesium Oxychloride flooring in test bay and old UHV lab of NTB inside factory area.

Sr. No.	Item Description	Qty.	Unit	% Weightage of item amount against total amount

The contractor is required to mobilise the resources (man, machine & materials) within 48 hours of intimation by BHEL for attending to the warranty related issues and the same has to be attended within 10 days of intimation. The time includes completing all formalities pertaining to issuance of passes, labour entry etc. inside factory area. Beyond this stipulated time of 10 days, shall attract recovery @ Rs. 5000/- per day up to a maximum of 20 days from the date of intimation. This recovery shall be effected from the
In the event of failure on the part of the contractor in attending to complaints within a maximum period of 20 days as stipulated above, Security Deposit (SD) shall be forfeited and work shall be carried out at contractor's risk & cost.

This warranty does not include rectification / restoration of Magnesium oxychloride floor damaged due to abuse of floor. Abuse of Magnesium oxychloride floor shall mean dragging of objects causing abrasion gouging of floor due to protruding metallic object, chipping due to falling of sharp objects, damage caused due to impact more than the specified capacity of Magnesium oxychloride floor etc.

However , the extent of repair to Magnesium oxychloride floor due to abuse shall be inspected jointly i.e. by the department and the contractor / agency. Though the reasons for damages may not be attributable to the contractor / agency but this shall not absolve the contractor from his responsibilities. The same shall be repaired by the contractor without invalidating the warranty clause as per the original contract.

If the repair of epoxy floor damaged due to abuse consists of area more than 0.5 sqm the department shall pay the contractor for this repair work separately. The area less than 0.5 sqm damaged due to abuse has to be rectified / repaired by the contractor without any price implication along with rectification of floor falling under warranty terms

2 The contractor shall submit the manufacturer's test certificates of materials/chemicals to be used in the work. He will use only those materials/ chemicals which are approved by Engineer-in-charge as per technical specification of the contract .

3 The materials/chemicals shall , if required , be got tested in a Govt. or Govt. approved laboratory or any recognised test house as per the instruction of Engineer-in-charge in the presence of an authorised representative of BHEL . The materials/ chemicals shall be got approved by BHEL before application . Testing charges shall be borne by the contractor at no extra cost over and above the quoted rates.

4 **Offers from only original manufacturer or his authorized applicator of the products shall qualify techno-commercially along with other qualifying criteria mentioned in NIT.The tenderer shall , in this connection , submit supporting documents with the**

5 The main criterion to establish equivalence of any other product (from any other manufacturer) with that of M/S Cipy Polyurethanes Pvt Ltd. may be generic name of the product.Such an equivalence may also be ascertained through comparison of physical / mechanical and chemical properties/ parameters of products.The decision of BHEL shall, in this regard , be final and binding on the tenderer.

6 **The contractor shall submit technical data sheet along with application procedure of all the products to be used in this treatment along with the techno-commercial bid.In case the products mentioned in technical data sheets do not fulfill our specification , the contractor's offer shall be liable to be rejected.**

7 The contractor shall take all safety precautions during handling of materials/ chemicals by workers. The workers shall use/ wear all personal protective equipments (PPEs) during

8 The above mentioned notes at sr. nos. 1 to 7 are applicable to all the Annexures -I and II .

FACTORY CIVIL CONSTRUCTION & MAINTENANCE DIVISION

Price Schedule : B

Name of work : Repairing of Magnesium Oxychloride flooring in test bay and old UHV lab of NTB inside factory area.

----- NIL -------

Price Schedule : C

Name of work : Repairing of Magnesium Oxychloride flooring in test bay and old UHV lab of NTB inside factory area.

1 Hire charges.

i) Jack Hammer @108.00/- per day (Subject to availability)
ii) Drill machine rod/jack hammer rod Rs. 100.00 per rod

TECHNICAL SPECIFICATIONS AND APPLICATION PROCEDURE OF MAGNASIUM OXYCHLORIDE FLOORING

1. The following standards shall be followed vis-à-vis production of materials, transportation, mixing , laying and testing :-

a) IS: 657-1982 reaffirmed 2006 --- Specification for materials for use in the manufacture of magnesium oxy-chloride flooring compositions.

b) IS: 658-1982 reaffirmed 2006 --- Code of practice for magnesium oxy-chloride composition floors.

c) IS: 10132-1982 reaffirmed 2006 --- Method of Test for Materials for Use in the Preparation of Magnesium oxy-chloride Flooring Compositions.

2. Magnesium oxy-chloride flooring shall consist of dry mix combination of Magnesium-oxide, Calcium carbonate, Silica, Quartz sand, Saw dust, Talcum powder mixed with aggregate and Magnesium chloride solution at workable consistency.

The dry mix combination shall be as follows:-

Magnesium oxide –55% by weight
Calcium carbonate-17.5% by weight
Silica-10% by weight
Quartz sand-10% by weight
Saw dust-5% by weight
Talcum powder-2.5% by weight

The mixes may vary up to 5-7% during mixing

Ratio for Dry mix: Aggregate = 1: 2 to 2.25 by weight

Magnesium chloride solution shall be prepared at specific gravity of 1.18+/-0.02.

B. **APPLICATION:**

1) Preparation of the Base:- The base shall be sound, rigid, free from rising dampness and not unduly porous. The existing concrete base should be roughened to a suitable degree by tooth chiseling, picking or by any other suitable process before oxy-chloride

TECHNICAL SPECIFICATIONS AND APPLICATION PROCEDURE OF MAGNASIUM OXYCHLORIDE FLOORING

2) Preparation of Floor Finish Mixture **:-**

a) Magnesium Chloride Solution - Magnesium chloride both before and after it has been dissolved should not be allowed to come into contact with any floors or walls. Whenever possible, the work of breaking up and dissolving the solid material or diluting the solution should be performed outside the building. Where the work has to be done inside, adequate protection should be provided under and around all vessels containing the chloride by means of tarpaulins, trays or other suitable devices. The solid chloride should be broken up and dissolved in a watertight vessel by covering the same with clean water, that is, clean and free from deleterious acids, alkalis, salts or organic material and stirring the same from time to time. The solution should be allowed to stand overnight so that residue, dust, impurities, etc., may settle to the bottom. The clean concentrated solution should be well stirred after each dilution before determining the specific gravity. The solution shall be prepared sufficiently early so that it is cooled to room temperature before use. The specific gravity of the chloride solution should be maintained at a selected value within the limits.

b) Proportions of Dry Materials – as mentioned above at sr. no. 2 of Annexure N

c) Proportion of Chloride Solution-*A* strong floor finishing composition may be formed by adding only sufficient magnesium chloride solution to dampen the dry mixed materials. For single coat and top coat mixes, some additional solution is usually required to enable the mix to be placed and brought to a smooth finish. The extra chloride does not improve the strength of the mixture. The use of its excessive quantity will, rather, have harmful effects.

The quantity of solution required for a given weight of dry mixture cannot be stated with accuracy. However, the following guidelines are provided :

Single coat and top coat mixes - Single coat and top coat mixes should be gauged with no more solution than is needed to produce a stiff mix which is just sufficiently plastic to

3) Final Mixing **-** The mixing of the chloride solution with the dry mix should be carried out in trough or box or on a bunker and in no case directly on the floor. The quantity of material mixed in any one batch should be such as can be laid easily before initial set begins. The addition of further quantities of chloride solution during laying should not be permitted. If the mix becomes too stiff to be worked, it should be discarded.

4) Laying the Floor Finish **-** If the floor finish is to be laid on a concrete base, this should be thoroughly dry before commencement of laying. After laying, the top surface is to be finished with the help of floater.

TECHNICAL SPECIFICATIONS AND APPLICATION PROCEDURE OF MAGNASIUM OXYCHLORIDE FLOORING

5) Expansion joint treatment **- No** expansion joint is required for Magnesium Oxy-chloride flooring .

C. INSPECTION AND TESTING :-

a) Inspection - The work shall be inspected before commencement of laying of floor, during laying and after completion of laying. Special attention to be paid to the following
a) General condition of the base,
b) Protection of all metal work liable to corrosion,
c) Correct mixing,
d) Proper compaction, and
e) Correct curing.
b) Testing

General - The testing of the flooring composition shall be carried out on specimens made from samples or from the mixes being laid. Sample less should be taken from at least three different parts of the mixing vessel and thoroughly mixed together. Testing shall be done as per IS:10132-1982, reaffirmed 2006.