

## APPLICATION REPORT

### **ELECTRICAL INSULATION (Di-electric) FLOOR COATING OF HT SWITCH GEAR PANEL**



*AT*

**NTPC LIMITED, KHARGONE SUPER THERMAL POWER  
PROJECT, VILLAGE-SELDA, POST-KHEDI(BUJURG),  
DISTT-KHARGONE (MADHYA PRADESH)**

## **INTRODUCTION:-**

DIFFCOR division of DIFFUSION ENGINEERS LIMITED successfully completed job work for ELECTRICAL INSULATION FLOOR COATING. This job work was carried out for our customer NTPC LIMITED, KHARGONE. Our customer were facing problem of DAMAGES INSULATING RUBBER MATTING. Coating was done with DIFF FLOOR PRIME, DIFF FLOOR SCREED, DIFF INSULATE and DIFF FLOOR TOP.

We have Fantastic electrical insulation coating / Dielectric coating for floor intended to provide high electrical resistance for various electrical applications. A tough film is formed above the surface when properly applied and dried.

We recommend this for various application areas like Electrical switchgear Panel room floor, Bus bar etc. This will be the ideal **replacement of Rubber mats placed in front of Electrical panels.**

Shock proof coating or shock resistant coating offers excellent U.V radiation resistance coupled with tracking resistance which makes use of it useful for outdoor exposure and under severe weather.

Current resistant coating for floor is best option. Protection provides a smooth protective Insulated floor coating. Based on Grafted co-polymer technology, it is self-levelling solvent based flooring. It is so built to provide attractive flooring for insulation, simple operation and dust-free. In addition to isolation properties, this floor offers chemical resistance, high drainage properties and floor finishing resistance to water and protection against metal parts from corrosion.

Insulating coating provide the protection against electrical leakage in danger areas of high voltage, such as electrical panel rooms, substations, battery rooms, changing rooms for power supply, etc.

## **BENEFITS OF INSULATION COATING:-**

- Seamless, Glossy Smooth & Non-porous Surface Finish
- Improves Safety
- High Electric Strength and Protect Floor from water Penetration
- Excellent Puncture and Fire Resistance
- Application on any Shape & Size
- On site applications
- Excellent Wear/Abrasion Resistant Properties
- Available in any desired colour

Electrical insulating coating provide electrical protection for individual and collective protection for workers involved on electrical installations for voltages of 3.3kV, 6.6kV, 11kV, 15kV, 20kV

**Application:** - HT Insulation Floor coating

**Area:** - 370 sq. mtr.

**Location:** - HT Switchgears of 3.3 KV & 11 KV

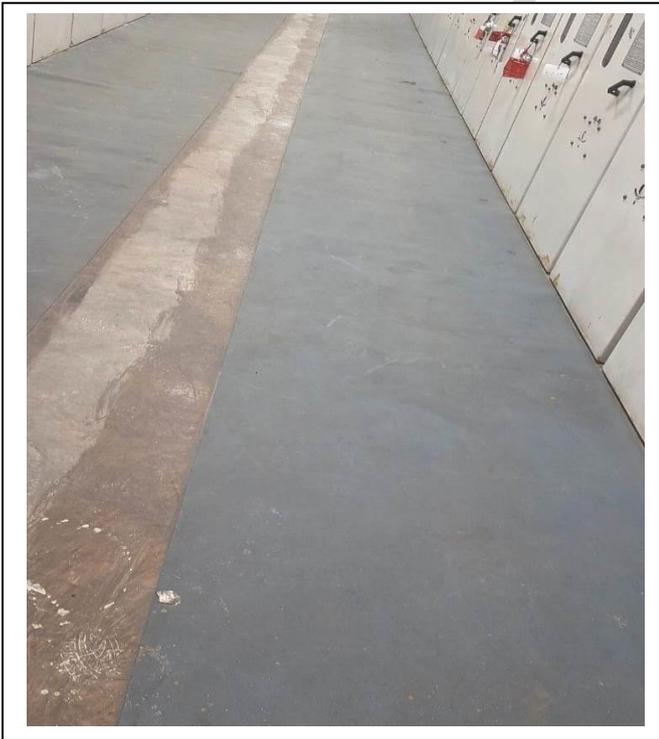
**Colour:** - Blue

### **DISADVANTAGES OF RUBBER MATS:-**

1. Rubber mats can easily be damage by the movements of heavy equipment and machinery.
2. Rubber mats are not good choice of flooring when it comes to protection against leakage current and shocks.
3. Rubber mats are very expensive in terms of maintenance as compared to Insulation coating.
4. Rubber mats have a short lifetime and they needs more care while using under heavy equipments.
5. Rubber mats require special cleaners for cleaning whereas coating area can be cleaned with water.
6. Rubber mats are less versatile as they become slippery and are dangerous when wet.
7. Rubber mats are inflammable and catch fire easily.

### **PROBLEM:-**

Customer was facing severe concrete floor damages problem in HT switch gear rooms. Leaving the concrete in brittle condition and result was deteriorated of concrete which reduce concrete strength. Also corrosion starts on checker plates due to surface were not protected from rubber mats. Replacing the mats after damages and it is very expensive.



### **PRODUCT RECOMMENDED:**

#### **DIFF FLOOR PRIME:-**

DIFF FLOOR PRIME is a low viscous a two-component, penetrating epoxy primer used to prime concrete surfaces. It is commonly utilized as part of a complete flooring system.

### **DIFF FLOOR SCREED:-**

DIFF FLOOR SCREED is high solid heavy duty polymeric resin for mortar screed and metal surfaces has been specially developed for providing high strength to floor. DIFF-FLOOR SCREED is three component system, providing heavy duty flooring and has high mechanical strength, anti-skidding, non dusting and chemical resistance properties.

### **DIFF INSULATE:-**

DIFF INSULATE a two component solvent free, high polymeric resin system especially designed for electrical insulation. DIFF INSULATE is filled with highly dielectric insulating material and forms non porous film with excellent adhesion to metallic, non metallic surface and offers a good combination of mechanical, thermal and electrical insulating properties. Prevents, flashovers, Downtime and Equipment damages.

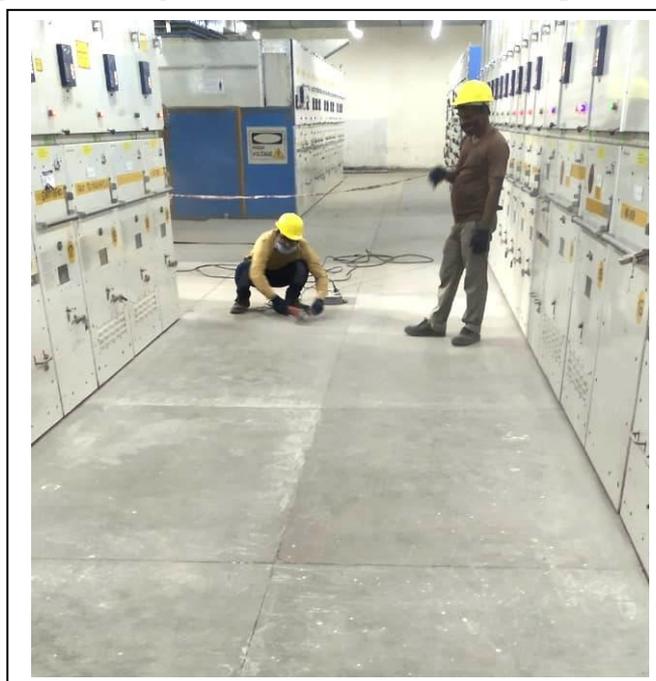
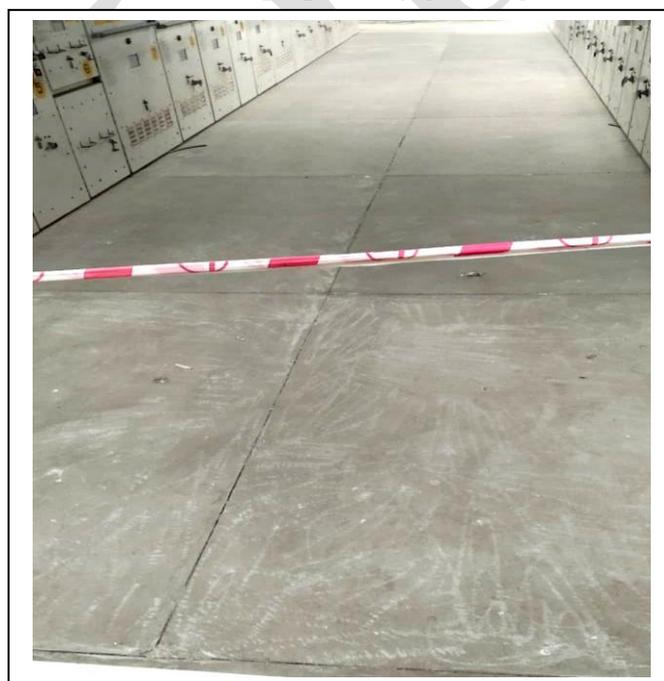
### **DIFF FLOOR TOP:-**

DIFF FLOOR TOP is a medium-solids, self leveling epoxy protective coating for tough industrial environments Floors. Especially formulated with blend of penetrates and surface tension-control agents for concrete surface to solve, chemical spillage, floor with trolley and racks movements, The DIFF FLOOR TOP is a tough, durable coating with excellent resistance to weather, moisture & industrial environment. DIFF FLOOR TOP with special preparation is durable anti-slip protection in a variety of industrial settings, and for every maintenance coating job.

## **APPLICATION PROCEDURE:**

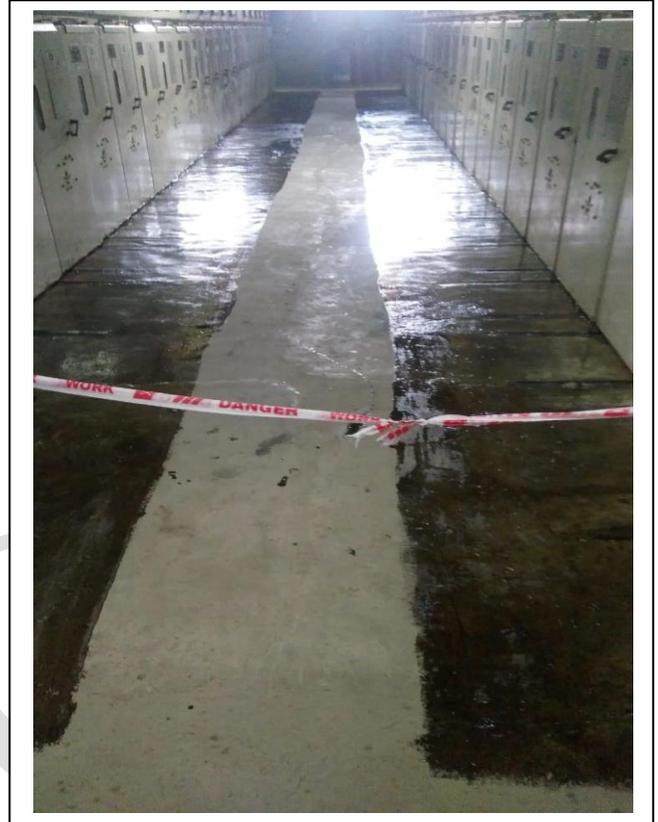
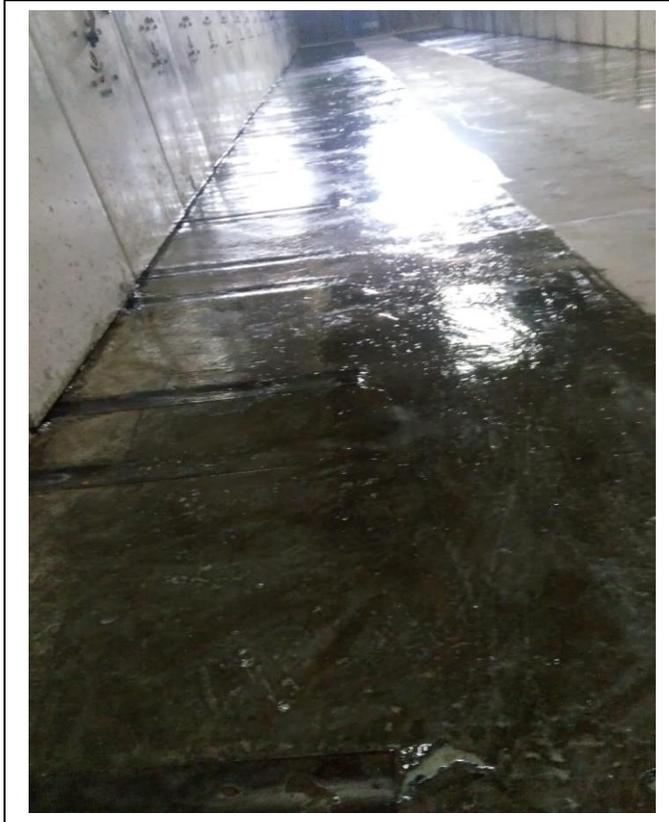
### **A.SURFACE PREPARATION:-**

1. Before application of any kind of coating surface preparation is must to activate the base metal so that coating will have better bonding.
2. Before started grinding work were removed rubber mats from floor surface.
3. Initially cleaning was done by chipping out all the deposition of dust from the surface.
4. Floor was cleaned by our specially developed cleaning agent and surface was prepared by water wash.
5. Final surface was prepared by grinding with the help of surface grinder to remove all the loose particles.

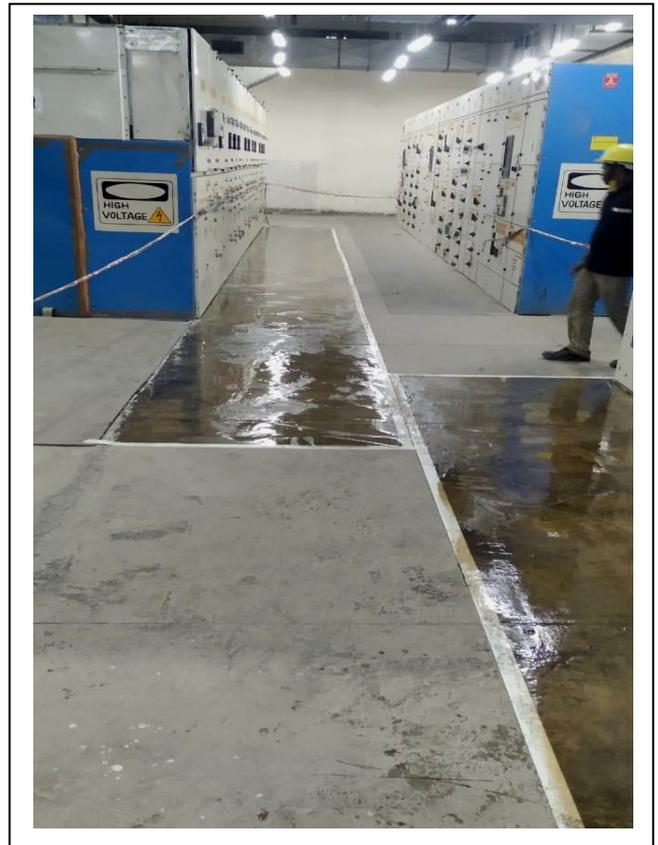
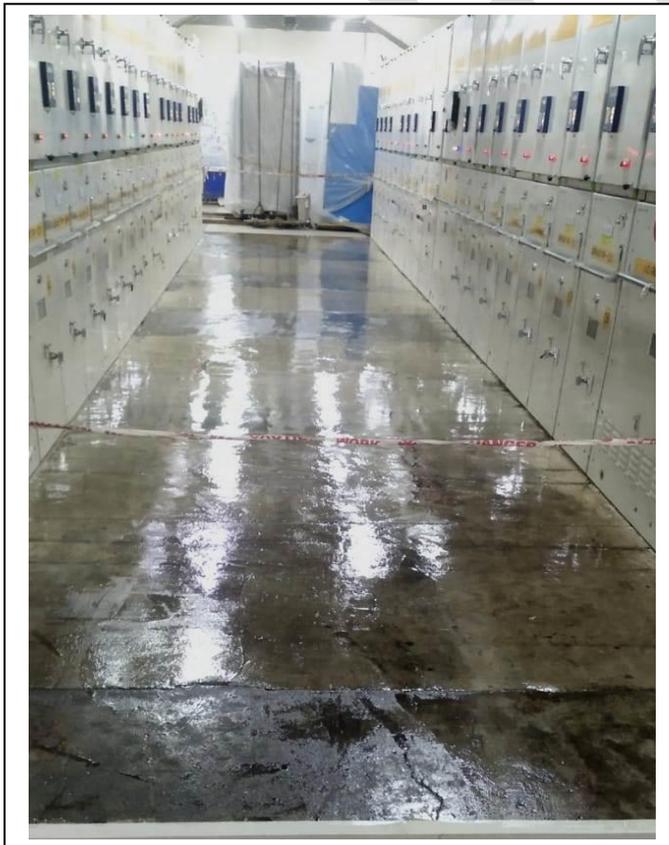


**B. PRODUCT APPLICATION:-**

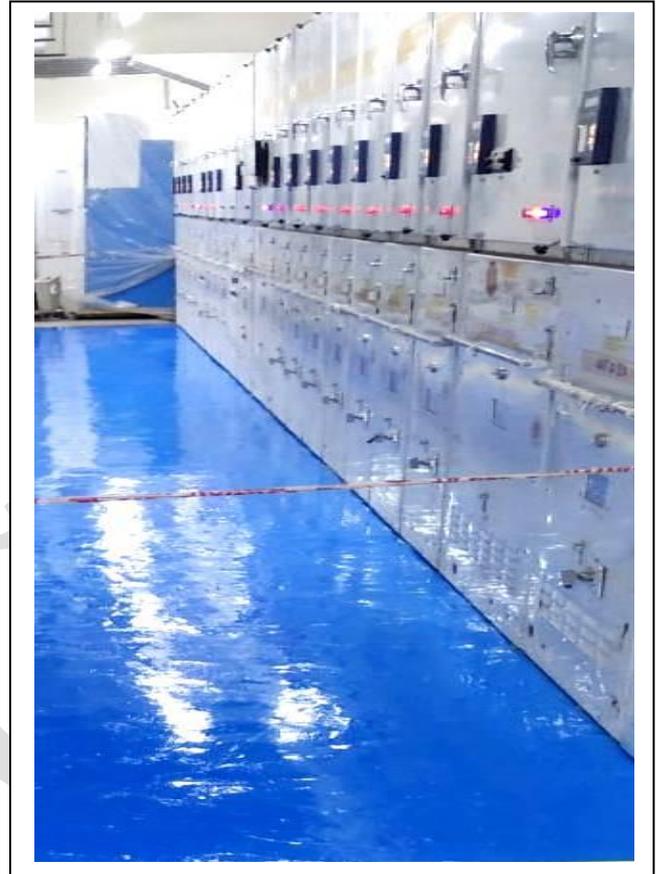
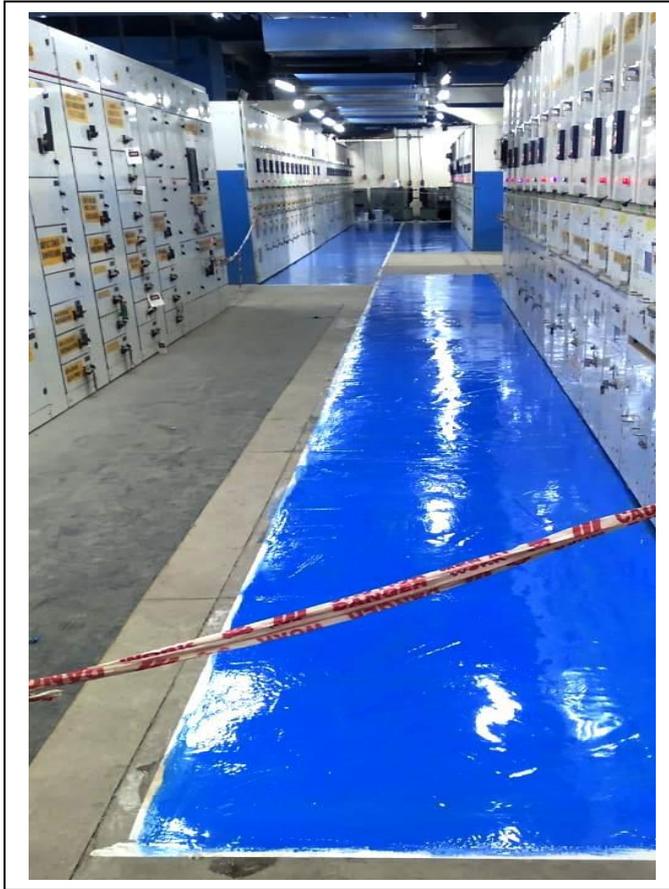
1) After surface preparation priming was done by **DIFF FLOOR PRIME**.



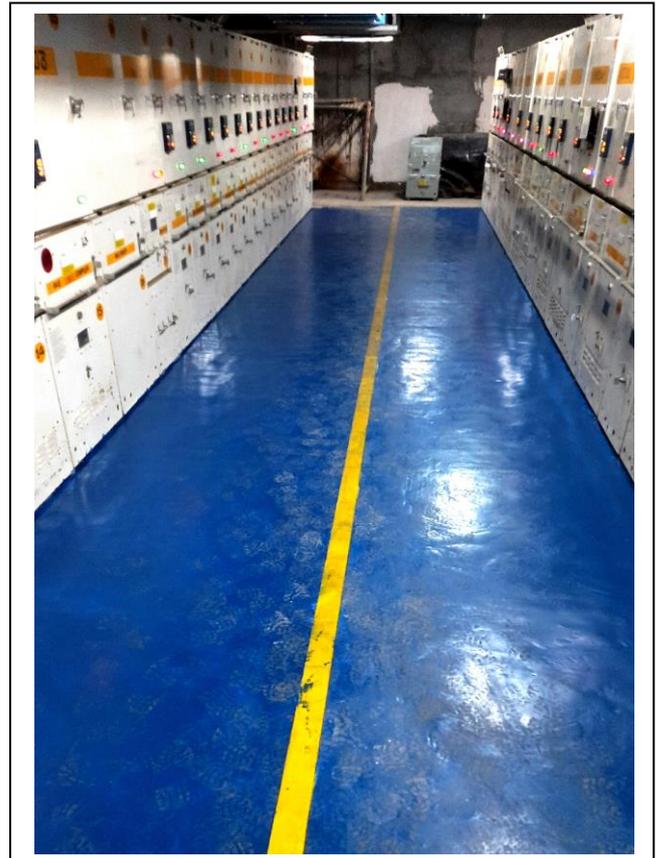
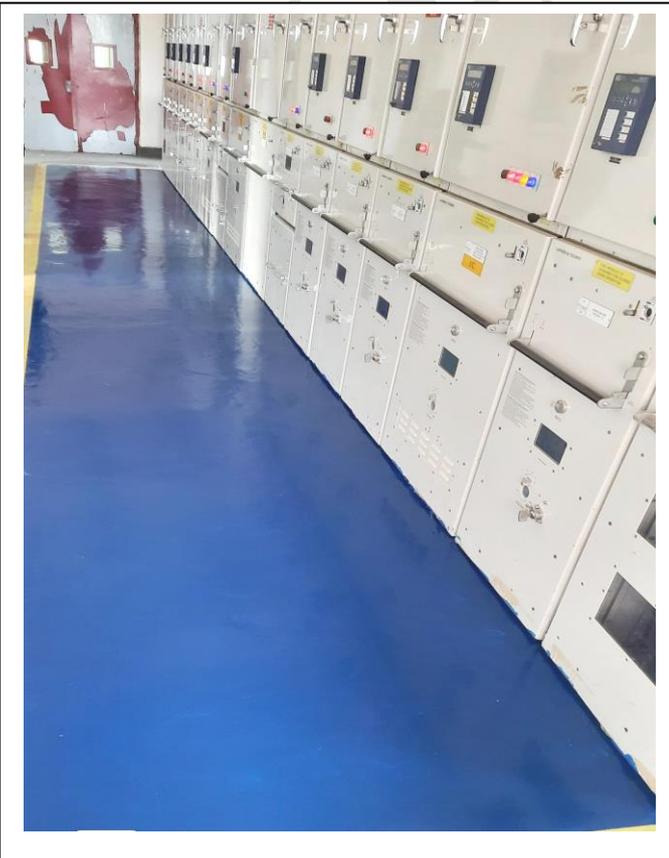
2) To fill pits and to get uniform surface, **DIFF FLOOR SCREED** was applied.



3) To give shock resistance property, **DIFF INSULATE** was applied as an insulation coat.

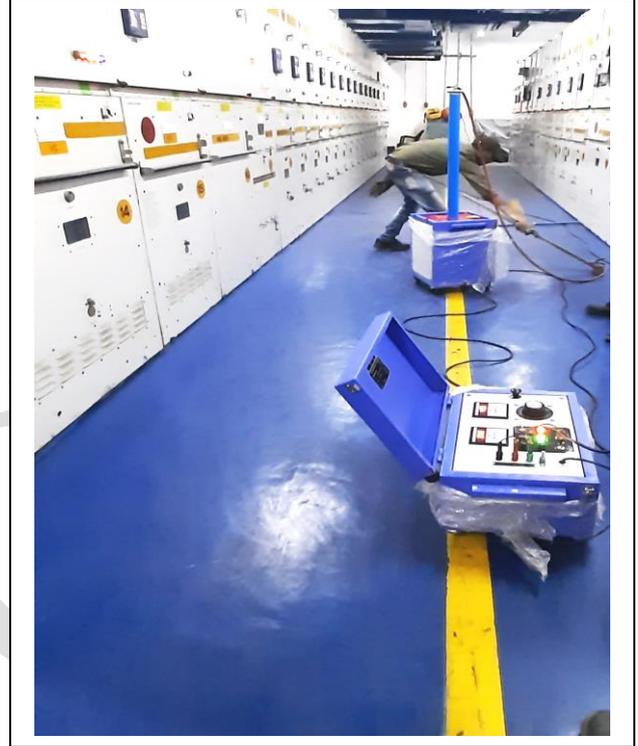


3) To give anti-slip protection, **DIFF FLOOR TOP** was applied as a Top coat.



## COATING INSPECTION:

Di-electric strength check at 45 kV along on HT switchgear insulation coating floor as per IS 15652-2006 for CLASS B Insulation.



**INSPECTION REPORT ON HT INSULATION SWITCHGEAR ROOM FLOOR TESTING**

Purchase order no. 4200054044-M82-1019 Date: 03.09.2020

Reference: Procurement of HT Insulation coating for NTPC Khargone

SR. NO.	LOCATION	COATING AREA	TESTING DATE	TESTING TIME	VOLTAGE(KV)	REMARKS
1	Fire water switch gear(3.3kv station Aux. switch gear)	370 sq. mtr.	29.12.2021	11.10 AM	45 kv	Di- electric strength Test ok on 45kv along on HT switchgear insulation floor
2	Ash Handling (AHP) switch gear SS1(3.3kv)		29.12.2021	11.55 AM	45 kv	Di- electric strength Test ok on 45kv along on HT switchgear insulation floor
3	Ash Handling (AHP) switch gear SS1(11kv)		29.12.2021	11.55 AM	45 kv	Di- electric strength Test ok on 45kv along on HT switchgear insulation floor
4	Coal Handling (CHP) switch gear MCC 1B(3.3kv)		29.12.2021	12.32 PM	45 kv	Di- electric strength Test ok on 45kv along on HT switchgear insulation floor
5	Coal Handling (CHP) switch gear MCC 1B(11kv)		29.12.2021	12.32 PM	45 kv	Di- electric strength Test ok on 45kv along on HT switchgear insulation floor
6	MGR switch gear MCC(11kv)		29.12.2021	01.32 PM	45 kv	Di- electric strength Test ok on 45kv along on HT switchgear insulation floor
7	Miscellaneous switch gear(11kv)		29.12.2021	03.00 PM	45 kv	Di- electric strength Test ok on 45kv along on HT switchgear insulation floor
8	Unit-2 switch gear(3.3kv unit switch gear 2UAA)		29.12.2021	03.42 PM	45 kv	Di- electric strength Test ok on 45kv along on HT switchgear insulation floor
9	Unit-2 switch gear(11kv station SWGR 2SA)		29.12.2021	03.42 PM	45 kv	Di- electric strength Test ok on 45kv along on HT switchgear insulation floor
10	Unit-2 switch gear(11kv station switch gear 2SB)		29.12.2021	03.42 PM	45 kv	Di- electric strength Test ok on 45kv along on HT switchgear insulation floor
11	Unit-2 switch gear(11kv unit SWGR 2UB)		29.12.2021	03.42 PM	45 kv	Di- electric strength Test ok on 45kv along on HT switchgear insulation floor
12	Unit-2 switch gear(11kv unit SWGR 2UA)		29.12.2021	03.42 PM	45 kv	Di- electric strength Test ok on 45kv along on HT switchgear insulation floor
13	Unit-1 switch gear (3.3kv unit switch gear 1UAA)		29.12.2021	04.50 PM	45 kv	Di- electric strength Test ok on 45kv along on HT switchgear insulation floor
14	Unit-1 switch gear(11kv station SWGR 1SA)		29.12.2021	04.50 PM	45 kv	Di- electric strength Test ok on 45kv along on HT switchgear insulation floor
15	Unit-1 switch gear(11kv station switch gear 1SB)		29.12.2021	04.50 PM	45 kv	Di- electric strength Test ok on 45kv along on HT switchgear insulation floor
16	Unit-1 switch gear(11kv unit SWGR 1UB)		29.12.2021	04.50 PM	45 kv	Di- electric strength Test ok on 45kv along on HT switchgear insulation floor
17	Unit-1 switch gear(11kv unit SWGR 1UA)		29.12.2021	04.50 PM	45 kv	Di- electric strength Test ok on 45kv along on HT switchgear insulation floor
18	Make up water switch gear(11 kv)		30.12.2021	10.30 AM	45 kv	Di- electric strength Test ok on 45kv along on HT switchgear insulation floor
19	Colony switch gear (11 kv)		30.12.2021	12.20 PM	45 kv	Di- electric strength Test ok on 45kv along on HT switchgear insulation floor

For Diffusion Engineers Limited, Nagpur

For NTPC Limited, STPP, Khargone

*Asish*  
30.12.2021  
Asish Ganvir

*Navdeep*  
30/12/2021  
Navdeep Mitbalkar  
Area Manager

*M.S. Meeng*  
30/12/2021  
DGM (EMD)  
M. S. Meeng

**CUSTOMER ORDER:**



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**NTPC Limited**

( A Government of India Enterprise )

SSC - WR-II(Sipat) Project

PO Ujwal Nagar

District Bilaspur

Chhattisgarh- 495555, India

Telephone No. : 07752-246552 Fax No. : 07752-246507

**PURCHASE ORDER**

CIN No. : L40101DL1975GOI007966

To:  
Diffusion Engineers Limited  
T 5&6 MIDC HINGNA INDL AREA, HINGNA  
NAGPUR  
Maharashtra -440016  
India  
Tel: 07104-236772/...

Vendor Code : 1001459 (SME Vendor)

PAN No : AAACD8008L

Fax: 07104 232085

E-Mail : INFO@DIFFUSIONENGINEERS.COM

Purchase Order No. : 4200054044-M82-1019 Date: 03.09.2020 ( version : 0 )

Reference : Procurement of HT Insulation Coating for NTPC Khargone

Our Enquiry No. : 9900202274 Date : 02.09.2020

Offer : GePNIC BID

Dear Sir,

We are pleased to accept your above cited offer along with correspondences thereof and place our Purchase Order No. 4200054044-M82-1019 dated 03.09.2020 for total order value of INR Please arrange to deliver the materials as detailed in Annexure-1 & 2 subject to terms and conditions specified in Annexure-3 and in our General Purchase Conditions, other specifications and requirement. Duplicate copy of the Purchase Order may please be signed and returned back to us within 15 days of its receipt in token of acceptance of the same. If no communication is received within 15 days of receipt of Purchase Order, it will be treated that order has been accepted in entirety.

Our general purchase conditions shall form part of Purchase Order for all other clauses.

For and on Behalf of NTPC Limited

  
Gautam Patil  
Manager-Purchase

Enclosures



**DIFFUSION ENGINEERS LIMITED**

Regd. Office & Works I : T-5 & 6, M.I.D.C., Hingna Industrial Area, Nagpur - 440 016, Maharashtra, INDIA

[t] 091-7104-232084, 234727 [f] 091-7104-232085.

Works II : N-78 & 79, M.I.D.C., Hingna Industrial Area, Nagpur - 440 016, Maharashtra, INDIA, [t] 091-7104-236036

Works III : T-12, M.I.D.C., Hingna Industrial Area, Nagpur - 440 016, Maharashtra, INDIA, [t] 091-7104-232984

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