



नेशनल ऑटोमोटिव टेस्ट ट्रैक्स

NATIONAL AUTOMOTIVE TEST TRACKS

Tender Document

For

NATRAX पंप हाउस (टी-5, टी-3, टी-4 और टी-11) की पेंटिंग का कार्य/

Painting of Pump House (T-5, T-3, T-4 & T-11)

at

NATRAX

PITHAMPUR, DIST. DHAR (Madhya Pradesh)

Tender No. - NATRAX/PROC/C&I/24-25/76

National Automotive Test Tracks (NATRAX)/ नेशनल ऑटोमोटिव टेस्ट ट्रैक्स
(NATRAX)

A unit of National Automotive Board (NAB)/ राष्ट्रीय मोटर वाहन बोर्ड (एनएबी) की
एक इकाई

NH-52, Old Agra- Mumbai Highway/ NH-52, पुराना आगरा-मुंबई राजमार्ग,

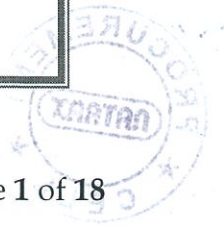
Next to Pithampur Flyover/ पीथमपुर फ्लाईओवर के बगल में,

Post Khandwa (Near Pithampur)/ पोस्ट खंडवा (पीथमपुर के पास)

Dhar District, Madhya Pradesh-454774/ धार जिला, मध्य प्रदेश -454774

Phone: +919893892310, Fax - 07292-256101

Email: a.prabhakar@natrip.in, anuj.kumar@natrip.in



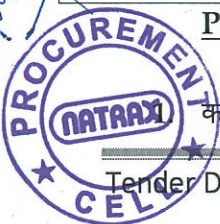
General Instructions:

<p>नेशनल ऑटोमोटिव टेस्ट ट्रैक्स (NATRAX) नेशनल ऑटोमोटिव बोर्ड (NAB) के तहत एक ऑटोमोटिव टेस्टिंग एंड सर्टिफिकेशन सेंटर है, जो भारी उद्योग मंत्रालय, भारत सरकार द्वारा गठित एक स्वायत्त निकाय है। NATRAX को लगभग 3000 एकड़ भूमि पर पीथमपुर, जिला धार, (मध्य प्रदेश, भारत) के पास, सभी प्रकार के ऑटोमोबाइल के व्यापक परीक्षण और मूल्यांकन के लिए स्थापित किया गया है।</p>	<p>National Automotive Test Tracks (NATRAX) is an Automotive Testing & Certification Centre under National Automotive Board (NAB) which is an autonomous body constituted by Ministry of Heavy Industries, Government of India. NATRAX has been set up on approx. 3000 acres of land for comprehensive testing and evaluation of all types of automobiles, near Pithampur, Dist. Dhar, (Madhya Pradesh, India).</p>
<p>नेशनल ऑटोमोटिव टेस्ट ट्रैक्स (NATRAX), ऐसे योग्य और अनुभवी बोलीदाताओं से पासवर्ड संरक्षित या सीलबंद कोटेशन / बोलियां आमंत्रित करता है, जो काम करने, निष्पादित करने और कार्यान्वित करने के लिए इस दस्तावेज़ में निर्दिष्ट पात्रता मानदंड को पूरा करते हैं। तथा निर्धारित शर्तों पर कार्य करने के इच्छुक हैं। कार्यों का संक्षिप्त विवरण और एनआईक्यू/निविदा की समय-सीमा नीचे दी गई तालिका में संक्षेप में दी गई है:</p>	<p>The National Automotive Test Tracks (NATRAX), invites Password Protected OR Sealed Quotations/Bids from the qualified and experience Bidder(s) who meets the specified eligibility criteria in this document in the prescribed Proforma for performing, executing and implementing the works on the terms and conditions contained in this Bid document. Brief description of works and the timelines for NIQ/tender are summarised in the table below:</p>

कार्य का वर्णन / Description of Work	अनुबंध की अवधि / Period of Contract	निविदा के फ्लोटिंग की शुरुआत की तिथि / Date of start of floating of tender	बोली जमा करने की अंतिम तिथि / Last date for submission of Bid	बोली खोलने की तिथि और समय / Date & Time of Bid opening	अनुमानित लागत / Estimated Cost
NATRAX पंप हाउस (टी-5, टी-3, टी-4 और टी-11) की पेंटिंग का कार्य / Painting of Pump House (T-5, T-3, T-4 & T-11) at NATRAX Pithampur, Dhar (MP)	30 Days from the date of Issue of Notice to Proceed (NTP).	11th July 2024	25th July 2024	25th July 2024 at 1530 Hrs	Rs. 3.85 Lakh

PRE BID MEETING- 18th July 2024 at 1100 hrs at NATRAX Office.

कोटेशन/बोली प्रस्तुत करने का विवरण/ Quotations/Bid Submission details:



<p>पासवर्ड से सुरक्षित बोली/कोटेशन बोलीदाता द्वारा निम्नलिखित ईमेल आईडी पर उपरोक्त समय और तारीख के बाद या पूर्व सूचना पर अगली सुविधाजनक तारीख और समय के रूप में प्रस्तुत किया जाना है।</p>	<p>Password-protected Bids (Technical Bid & Financial Bid) are to be submitted by the Bidder at the following email ID's not later than the aforesaid time & date or as next convenient date & time on pre-intimation</p>
<p>mail to: a.prabhakar@natrip.in, anuj.kumar@natrip.in,</p>	
<p>OR</p>	
<p>मोहरबंद बोलियां/कोटेशन भी पूर्वोक्त तिथि और समय पर NATRAX हब कार्यालय में सीलबंद लिफाफों में हार्ड कॉपी में जमा किए जा सकते हैं।</p>	<p>Sealed Bids (Technical Bid & Financial Bid in two different sealed envelope) may also be submitted in the hard copy in sealed envelops at NATRAX Hub office in the aforesaid date and time.</p>
<p>उक्त तिथि एवं समय के बाद कोई बोली स्वीकार नहीं की जायेगी। हालाँकि, असाधारण मामलों में, NATRAX के पास बोली खोलने से पहले बोली जमा करने के समय/अंतिम तिथि को अगली सुविधाजनक तिथि/समय तक बढ़ाने का अधिकार सुरक्षित है।</p>	<p>No Bids will be accepted after the aforesaid date and time. However, on exceptional cases, NATRAX reserves the right to extend the time/last date of submission of Bid to a next convenient date/time before opening of the Bids.</p>
<p>टेलीग्रफिक रूप से या ट्रांसमिशन के अन्य माध्यमों (टेलीफैक्स, आदि) के माध्यम से भेजी गई बोलियां जो पासवर्ड से सुरक्षित नहीं हैं, उन्हें दोषपूर्ण, अमान्य माना जाएगा और खारिज कर दिया जाएगा।/</p>	<p>Bids sent telegraphically or through other means of transmission (telefax, etc.) which are not Password Protected shall be treated as defective, invalid and shall stands rejected.</p>
<p>NATRAX गैर-प्राप्ति/गैर-वितरण/या किसी तकनीकी त्रुटि या गलत प्राप्तकर्ता के कारण किसी भी देरी के लिए जिम्मेदार नहीं होगा। बोलीकर्ता NATRAX से अपनी बोली प्रस्तुत करने की प्राप्ति की पुष्टि कर सकते हैं</p>	<p>NATRAX shall not be responsible for any delays for non-receipt /non-delivery/ or any technical errors or due to the wrong addressee. Bidders may confirm the receipt of their Bids submission from NATRAX</p>
<p>Disclaimer/ अस्वीकरण:</p>	
<p>NATRAX बिना कोई कारण बताए किसी या सभी प्रस्तावों को स्वीकार/अस्वीकार/संशोधित/विभाजित करने के सभी अधिकार सुरक्षित रखता है। NATRAX के किसी भी निर्णय के लिए बोलीदाताओं के पास कार्रवाई का कोई कारण या दावा नहीं होगा।</p>	<p>NATRAX reserves all rights to accept/reject/modify/split any or all proposals without assigning any reasons. Bidders shall not have any cause of action or claim against NATRAX for any of its decisions.</p>
<p style="text-align: right;">For NATRAX</p>	



Head Procurement & Stores	
<p>इस निविदा में आगे चार अनुबंध शामिल हैं/</p> <ul style="list-style-type: none">• अनुबंध-I (ए)-बोलीदाताओं के लिए निर्देश (आईटीबी)/• अनुबंध- I (बी) - अनुबंध की विशेष शर्तें/• अनुबंध-II- अनुबंध/विनिर्देश/ड्राइंग और डिजाइन की तकनीकी शर्तें/• अनुबंध-III- वित्तीय प्रस्ताव/• अनुबंध - IV- प्रस्तुत करने की विधि (ऑनलाइन माध्यम से)/	<p>This tender further contain four Annexures:</p> <ul style="list-style-type: none">• Annexure-I (A)-Instructions to Bidders (ITB).• Annexure-I (B)- Special conditions of contract.• Annexure-II- Technical Conditions of contract/Specification/Drawings & Design.• Annexure-III- Financial Proposal.• Annexure-IV- Method of submission (in case of Bid submission through online mode).

A. ANNEXURE I (A)- INSTRUCTION TO BIDDERS (ITB)**1. INSTRUCTION TO BIDDERS (ITB)**

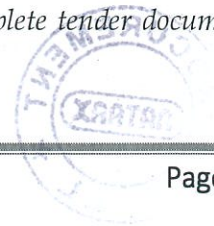
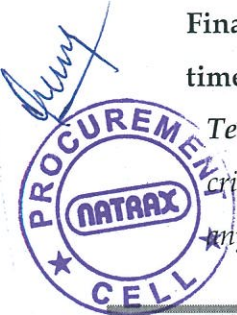
Bidders are required to submit their Bids in TWO Different Password Protected PDF files, named as "Technical Bid for Tender No. NATRAX/PROC/C&I/24-25/76" & "Financial Bid for Tender No. NATRAX/PROC/C&I/24-25/76" on the subject of the email, containing Password Protected PDF documents, as given below. The Password Protected bids shall be submitted at the mentioned email ID's before the closure of bid submission date/time.

OR

Sealed Bid/Quotation may also be submitted in the hard copy in two different sealed envelopes in the main envelope containing and namely "Technical Bid" and Financial Bid" and main envelope should name/marked as "Bid document for NATRAX/PROC/C&I/24-25/76" at NATRAX office, within the aforesaid date and time.

In-case of online Bid submission through email, the passwords of the technical bid and Financial Bid should be different and shall be disclosed/submitted by the bidder at the time of the opening of Bid.

Technical Bid- The details, documents, information pertaining to the Minimum eligibility criteria, technical competency, company/firm profile, signed copy of complete tender document or any other information should submitted in this portion.



Financial Bid: The details of Rates in the BOQ format and Letter of Financial Bid as given in this document should be submitted in this portion.

2. Bid Opening:

- a) The technical bid shall be opened NATRAX HUB in the presence of bidder (if available) on the above time and date.

3. Technical bid evaluation:

- a) NATRAX shall perform bid scrutiny, evaluation.
b) During the technical bid evaluation process, NATRAX may ask for clarifications from the bidder through E-mail or in writing for confirming and consolidating their technical bid.
c) All such clarifications are required to be answered by the bidder by E-mail, within the time specified by NATRAX.

4. The Contract shall be governed by the terms and conditions specified in this tender document including amendments thereof, work order etc.

5. All Bidders are hereby explicitly informed that "CONDITIONAL OFFERS" or "OFFERS WITH DEVIATIONS" from the conditions of Contract, the quotation not meeting the minimum eligibility criteria, technical specifications, or any other requirements as stipulated in the Tender documents are liable to be "REJECTED".

6. Bidder should give details of their technical soundness and provide list of customers/client of previous works of similar nature in Government Departments/ Undertakings/ Public / Private sectors/Autonomous etc.,

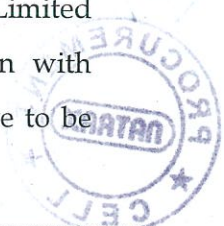
7. **Minimum Eligibility Criteria:** - The bidder should fulfil either of the following two:

The bidder should have valid registration with NATRAX under vendor registration; the copy of registration letter should be submitted in technical bid.

Or

The bidder should meet the following criteria:

- i. **MEC-I (Legal valid entity):** - Bidder shall be valid legal entity in form of Proprietor/partnership/LLP/Pvt. Ltd company/Govt. entity/Limited Company/autonomous body etc, and should have valid registration with appropriate governing authority. To supporting this, proof should have to be submitted along with quotation.



ii. MEC-II (Turnover): it should have minimum turnover of **Rs. 10 Lakh** during last 3 FY (2021-22, 2022-23 & 2023-24), to supporting this, bidder have to submit a copy of balance sheet/CA Certificate clearly indication the turnover and UDIN should also mandatorily mentioned on the same, along with quotation.

iii. MEC-III (Experience): Bidder should have minimum 7 years' experience in similar work*

Experience of having successfully completed similar works* during last 7 years ending last day of month previous to the one in which applications are invited should be either of the following: -

i. Three similar completed works costing not less than the amount equal to 40% of the estimated cost.

Or

ii. Two similar completed works costing not less than the amount equal to 50% of the estimated cost.

Or

iii. One similar completed work costing not less than the amount equal to 80% of the estimated cost.

Similar works*-successfully completed works pertaining to "Painting of Building/Pump House/ Pipe Line/structural works OR building Painting works etc" for any Govt Dept./Reputed firm Private Institution/Academic Institutions, copy of valid LOA/Agreement/work order & completion certificate should be submitted with quotation. *In case, work order & completion certificate issued by other than Govt. entity, NATRAX reserve the rights to seeking the 26AS or TDS certificate for the relevant period for authenticity of said order & certificates.*

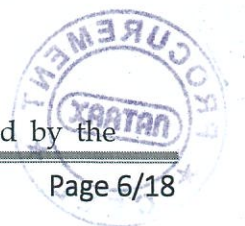
Relaxation for startup firm :

- a. Exempt from paying EMD mentioned in the tender document
- b. Relaxation in the requisite prior experience criteria &
- c. Relaxation under the Prior Turnover

The above shall be considered subject to submission of valid registration certificate and supporting documents for technical competency and if required power point presentation shall be sought.



Opening & Evaluation of Quotations: the Technical bids shall be opened by the



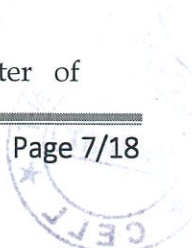
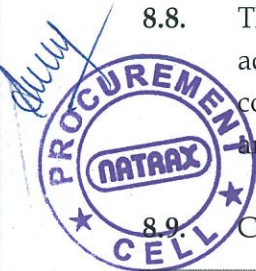
committee of NATRAX officials and shall be evaluated in following mannar:

- 7.1. If the bidder is registered vendor of NATRAX, the bids of such bidder shall be accepted & marked "Qualified" for further process.
- 7.2. If bidder is not registered vender of NATRAX, than the evaluation shall be done as per the MEC as mentioned in this document and the bidder meeting the mentioned criteria shall be accepted and Marked as "Qualified" for further process.

9. **Financial Bid opening & evaluation-**

- 8.1. The bids shall be opened by committee at NATRAX. Bidder or Bidder Authorized Representative are advised to attend the bid opening on the given date and time.
- 8.2. The L-1 bidder in the quoted rates shall be deemed as successful Bidder) to determine the successful Bidder.
- 8.3. For the evaluation of the Bids, the eventual Bid prices shall be ascertained after considering all the terms and conditions associated with the Bid price specified in the Bid document and after detailed scrutiny of the quotations/bids.
- 8.4. No Bidder shall be allowed to propose/carry out any revision / correction / modification in his Price Bid offer.
- 8.5. If there is a discrepancy between the sub total/s and the total price that is obtained by multiplying the unit price and quantity/adding the sub total/s, the sub total/s shall prevail and the total price shall be corrected, unless in the opinion of the Employer that there is an obvious misplacement of the decimal point in the sub total price, in which case the total price as quoted shall govern and the sub total/s shall be corrected;
- 8.6. If there is an error in a total, corresponding to the addition or subtraction of sub totals, the subtotal/s shall prevail and the total shall be corrected; and
- 8.7. The Bidder needs to fill the rates against each item in word as well as in figures as mentioned in BOQ (Financial Bid). In case of any discrepancy, the rate provided in word shall prevail and correct the amount against the item. **All the prices should be inclusive of all taxes and GST.**
- 8.8. The amount stated in the Letter to Bid will be adjusted by the Employer in accordance with the above procedure for the correction of errors and, shall be considered as binding upon the bidder. If the Bidder does not accept the corrected amount of Bid, the bid will be rejected.

- 8.9. Contract negotiations, if any, will be held before the issuance of Letter of



Acceptance/ Notification of Award. The negotiation shall conclude with a revised offer letter from the successful bidder, affecting the discounts if any and accepted by NATRAX.

9. Award of Work:

Prior to the expiry of the period of Bid validity prescribed, NATRAX will issue to the Successful Bidder, the Work Order. The Successful Bidder shall return one copy of the Work Order to NATRAX duly acknowledged and signed by the authorized signatory, within two [2] days of receipt of the same by him.

Notice to proceed (NIT) shall be issued to successful Bidder by EIC within 5 days from the date of acceptance of work order.

10. Validity of bids:

The rate quoted should be valid for a **minimum period of 90 days** from the last date of Submission of Quotation. No claim for escalation of rate will be considered at any point of time.

11. Prospective bidders requiring any clarification of the Tender may write to a.prabhakar@natrip.in; anuj.kumar@natrip.in,

12. The Bids / related correspondences shall be made in English language.

13. While all efforts have been made to avoid errors in drafting of the Tender documents, the Bidder is advised to check the same carefully. No claim on account of any errors detected in the Tender documents shall be entertained.

14. The Bidder shall carry out all the work strictly in accordance with Specification, Standard Practices and instructions of NATRAX or NATRAX's representative and deviation on any account will not be permitted. If in the opinion of NATRAX, changes have to be made and it desires the Bidder to carry out the same. The decision of NATRAX in such cases shall be final and shall not be open to arbitration.

15. The successful Bidder is bound to carry out associated work necessary for the completion of the job even though such items are not included in the quantities to achieve end results and deemed to be priced in the other items. No claim on this account shall be entertained.

16. Addendum / Corrigendum (if required) to the Tender may be issued prior to the date of opening of the Bid to clarify or to intimate any changes/modifications etc. All such addendum / corrigendum shall be treated as an integral part of the Tender.

17. Any effort by a Bidder to influence NATRAX or any of its functionaries in the process of examination, clarification, evaluation and comparison of tenders and in decisions concerning award of contract, may result in rejection of the Bid.



18. In order to afford prospective bidders, reasonable time for preparing their Quotes after taking into account such amendments, NATRAX may, at its discretion, extend the deadline for submission of Bids.
19. Information relating to the examination, clarification, evaluation and comparison of Bids and recommendations concerning the award of Contract shall not be disclosed to Bidders or other persons not officially concerned with such process.
20. NATRAX reserves the right to accept / reject or modify any Bids, and to annul the Tender process and reject all Bid(s)/quotation(s), at any time prior to award of Contract, or to divide the Contract between/amongst Bidders without thereby incurring any liability to the affected Bidder or Bidders or any obligations to inform the affected Bidder or Bidders of the grounds for NATRAX's action. Any Bidder not following ITB stands rejected.

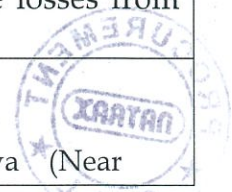
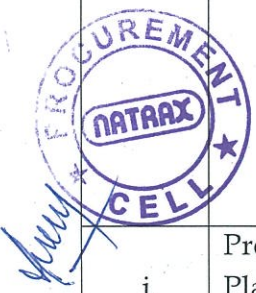
Annexure-I (B)

B. Special Conditions of contract:

a.	Scope of work	Painting of Pump House (T-5, T-3, T-4 &T-11) at NATRAX Pithampur, Dhar
b.	Contract Period	30 Days from the date of Issue of Notice to Proceed (NTP).
c.	Engineer In-charge (EIC)	Shall be notified to successful bidder.
d.	Rate Firmness	The charges/rate quoted by supplier must be firm throughout the Contract period and no escalation of any kind is permissible. The "final contract value" shall be derived on the completion of work at actual.
e.	Defect Liability Period	Six months from the date of completion of work.
	Payment, Mode and Retention	<ul style="list-style-type: none"> i. 95% Payment shall be made IPC Based on the submission of bills along with supporting document and certified by EIC. ii. 05% retention same shall be paid after successful completion of warrantee period of 6 months from the date of completion of work. iii. Payment shall be made after statutory deduction as applicable. iv. Advance payment: maximum 10% of contract value may be paid after receiving request from contractor and submission of bank guarantee of 110% of the requisite amount. An interest 10% per annum shall be charged on the outstanding advance payment. The said advance payment shall be released in minimum two instalments. Contractor has to submit a utilization certificate for the said advance payment. v. The GST/Taxes & duties of Govt. will be reimbursed on



		<p>actual basis upon the submission of original receipt / documentary evidence. All the payments shall be made through RTGS only.</p>
	<p>Quantity Variations / Revision Rates</p>	<p>NATRAX shall, having regard to the Scope of Works and the approved Contract Price, shall have power to order variations within the Scope of the Works as considers necessary or avoidable during the progress of the Works. Such variations shall form part of the Contract and the Contractor shall carry them out and include them in updated Programmes produced by the Contractor. Oral orders for Variations, unless followed by written confirmation, shall not be taken into account. There will not be any revision in rates for all the items provided in BOQ for any extent of variations, during the entire currency of the contract.</p> <p>New Rate or Price for NON BOQ items shall be finalized by the NATRAX representative based latest Applicable DSR or MPSoR.</p> <p align="center">or</p> <p>New rate or price shall be derived from any relevant rate or price in the contract BOQ.</p> <p align="center">or</p> <p>New rate or price shall be derived from market rate.</p> <p>During repairing, if anything other than the above is found, its payment will be made at the market rate as per the quantity required.</p>
h.	Liquidated Damages	0.1% of the Contract Price per day to a maximum of 10% of the Contract Price.
i.	Performance Bank Guarantee/Performance security	5% of contract piece should be submitted as Performance Security by the Successful Bidder on award of Contract. Performance Security may be furnished in the form of an A/C Payee Demand Draft/Fixed Deposit Receipt/Bank Guarantee from a Scheduled Commercial Bank favoring "National Automotive Test Tracks" & payable at Pithampur and should remain valid for at least 8 months from the date of submission to NATRAX. The performance security shall be returned after successfully completion of contract period/defect rectification period and recommendations of NATRAX officials. In case of any failure of the contractor/denied to do the work as per requirement, NATRAX reserve the right to forfeit the performance security and also can claim the losses from the contractor.
j.	Project Facility / Place of Installation/deliv	NATRAX Site NH-52, Old Agra- Mumbai Highway, Near to Pithampur Flyover, Post Khandwa (Near



	ery	Pithampur), Dhar District, Madhya Pradesh-454774
k.	Other Terms and conditions	<p>i. The bidder should submit list of the equipment's/machines with them. In case machines/equipment's are planned to hire from others the rent agreement for hiring the same should be submitted.</p> <p>ii. No extra charge is payable for to and fro, boarding and lodging for the service personnel coming to NATRAX.</p>
l.	Water supply & Electricity Charges	<p>i. Electricity - at one point shall be provided on chargeable basis.</p> <p>ii. Water supply: Free of Cost at the available point.</p>
m.	Termination of Contract	<p>If the work/service is found to be not satisfactory or not found as per the specification indicated in this document, the Contract will be terminated with short notice of 14 days in writing.</p> <p>In case of termination the balance work shall be completed by NATRAX through any other party on the risk & cost of contractor.</p>

C. The bidder should give the following, duly signed and sealed, failing to which the bids will be summarily rejected:

D. DECLARATION:

(To be executed on Bidder's letter head)

I/We having acquainted with the content & requirement of this Tender No. NATRAX/-----, dated _____ and do hereby accept to furnish the same in compliance with all terms & conditions. I/we have not tampered/modified the tender in any manner and breach of any such, will result in rejection of Tender and / or prosecuted.

I / We hereby declare that the firm/company has not been blacklisted or debarred in the past by any other Government organization from taking part in Government tenders.

In case the above information found false or in case of breach of any of terms and conditions at any stage of Tender or Contract, I/We are fully aware that the Tender/ Contract will be rejected / cancelled by NATRAX and Payments (for completed/partially completed), Retention, Bid Security (EMD), Performance Security, etc., shall be forfeited.

Signature of the Bidder: _____

Name and Designation: _____

Address: _____

Contact details: _____

Place:

Date:



Seal of the Bidder's Firm

ANNEXURE - II

TECHNICAL CONDITIONS OF CONTRACT/ SCOPE OF WORK

The scope of work and technical specifications shall be as per attached Appendix- A, BOQ and prevailing MPSOR/SOR clauses.



Form for the submission of Financial Bid



Financial Proposal Submission Form
(To be Executed on Letterhead of the Bidder)
FINANCIAL PROPOSAL SUBMISSION FORM

[Location, Date]

To:
The Head Procurement
NH-52, Old Agra- Mumbai Highway,
Near to Pithampur Flyover,
Post Khandwa (Near Pithampur)
Dhar District, Madhya Pradesh-454774

Dear Sir,

We, the undersigned, offer to provide the equipment & services in accordance with your Tender No. _____, dated _____ and our Technical Bid. Our attached Financial Bid includes the price in the format for financial bid provide as part of tender documents. The total price of our offer is _____ (in figures and words) and includes all the deliverables under this tender as per our Technical Bid.

We hereby declare that all the information and statements made in this Bid is true and complete in all respects and is as per the guidelines and terms & conditions laid down in the tender document. We further understand that any information which is found false or is not as per the guidelines and terms & conditions of the tender document may lead to our disqualification.

Our Financial Bid shall be binding upon us subject to the modifications resulting from Contract negotiations, up to expiration of the validity period of the Bid.

We understand NATRAX has right to accept or reject our Bid as per its discretion.

Yours sincerely,

Authorized Signature [In full]: _____

Authorized Signature [In initials]: _____

Name and Title of Signatory: _____

Name of Firm: _____

Address: _____

[Note : To be signed in blue ink]



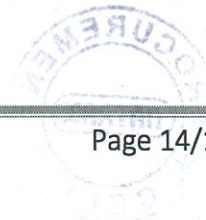
ANNEXURE-III
Bill of Quantities (BOQ)/Financial Bid

Item No	Item Description	Unit	Qty	Rates (in Rs) including all	Amount in Rs
1	Scrapping/sandpapering of existing surface with the help of mechanized sanding machine (having mechanical vacuum machine with bag for dust collection to make surface even and smooth) as per direction of Engineer-in-Charge.	Sqm	1671.21		
2	Finishing walls by any mechanical or manual means with Acrylic Smooth exterior paint (Economy Exterior) of required shade including all scaffolding. New work (Two or more coat applied @1.67ltr/10sqm over and including one coat undiluted exterior waterproofing coating @ 2.39 litre/10 sqm with crack bridging ability of upto 0.5mm on horizontal surfaces with an elongation of 150% and water proofing of upto 3 bars on vertical surface	Sqm	894.45		
3	Wall painting by any mechanical or manual means with premium acrylic emulsion paint of interior grade, having VOC (Volatile Organic Compound) content less than 50 grams/ litre. of approved brand and manufacture, including applying additional coats wherever required to achieve even shade.	Sqm	856.77		
4	Painting with synthetic enamel paint of approved brand and manufacture of required colour to give an even shade : One or more coats on old work	Sqm	645.88		
5	Applying priming coats with primer of approved brand and manufacture, having low VOC (Volatile Organic Compound) content. With ready mixed red oxide zinc chromatic on steel/ iron works having VOC content less than 250 grams/litre.	Sqm	645.88		
6	Structural steel work in single section, fixed with or without connecting plate,including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete.	Kg	500		
	Total Amount				

Note: the quoted rates should be inclusive of GST, Transportation, Labour charges etc all.



SEAL & SIGNATURE OF BIDDER'S

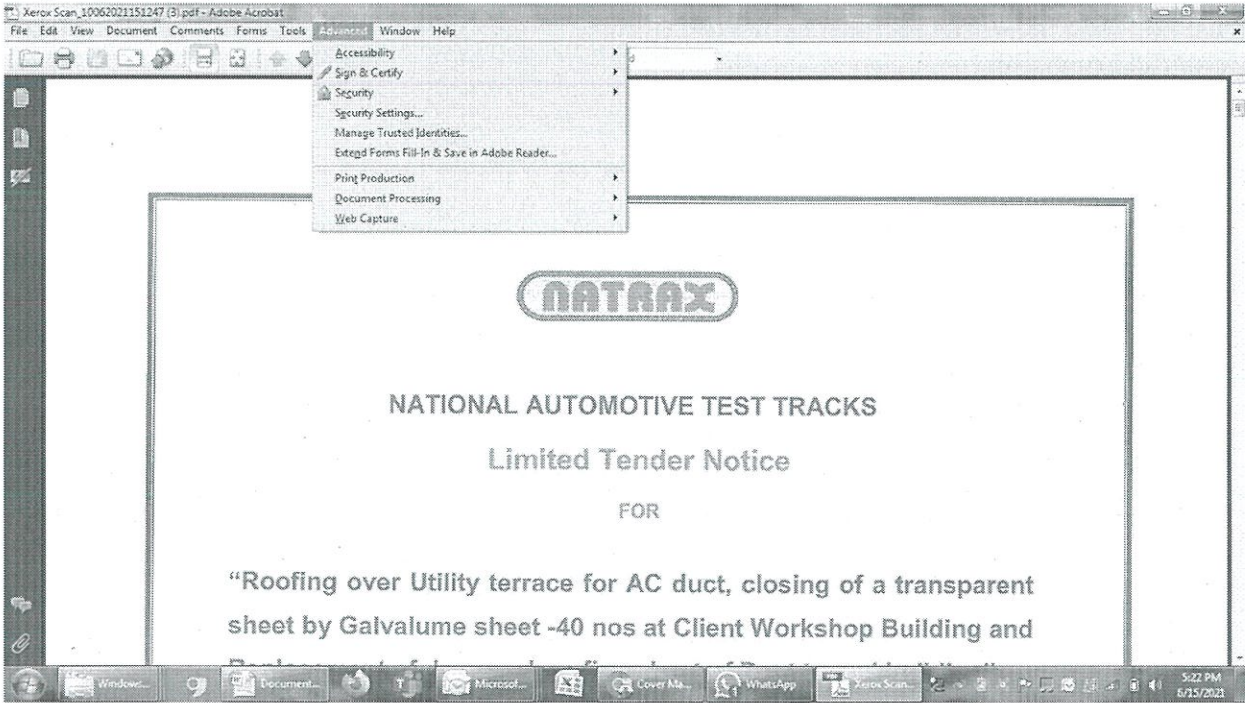


ANNEXURE -IV

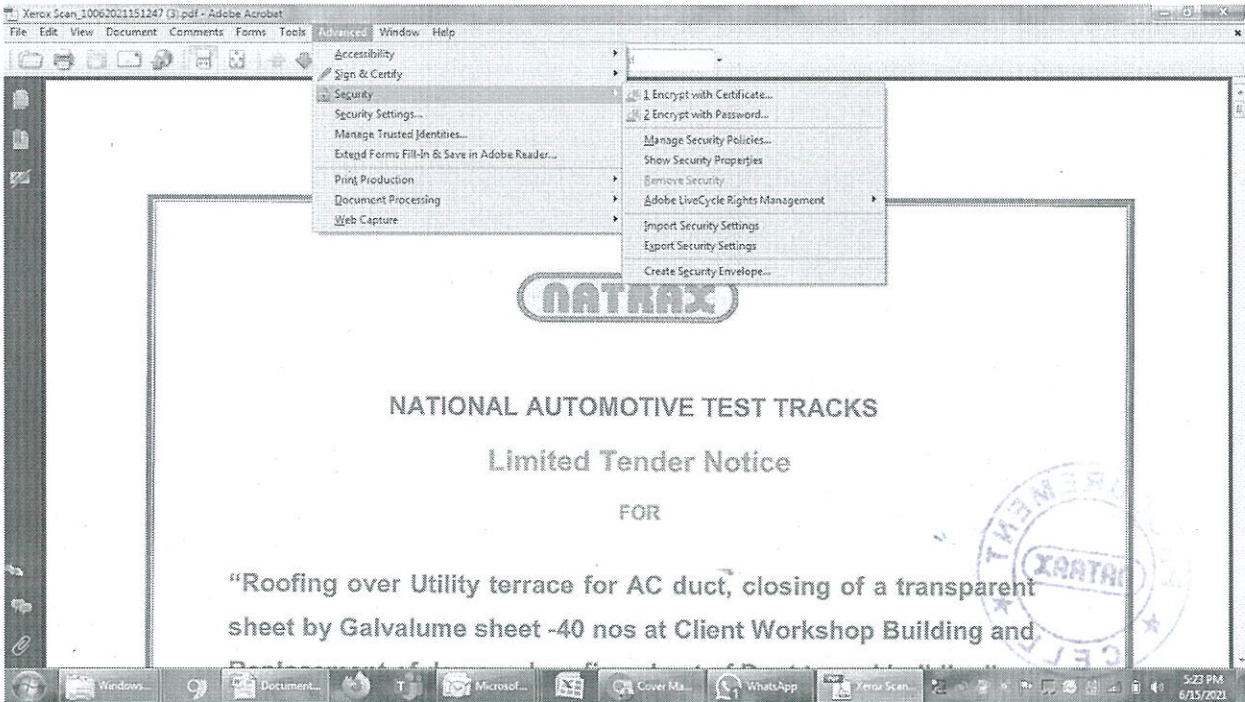
NATRAX Bank details to be used for submission of EMD/Tender Fee (if any) & procedure for passwords protection



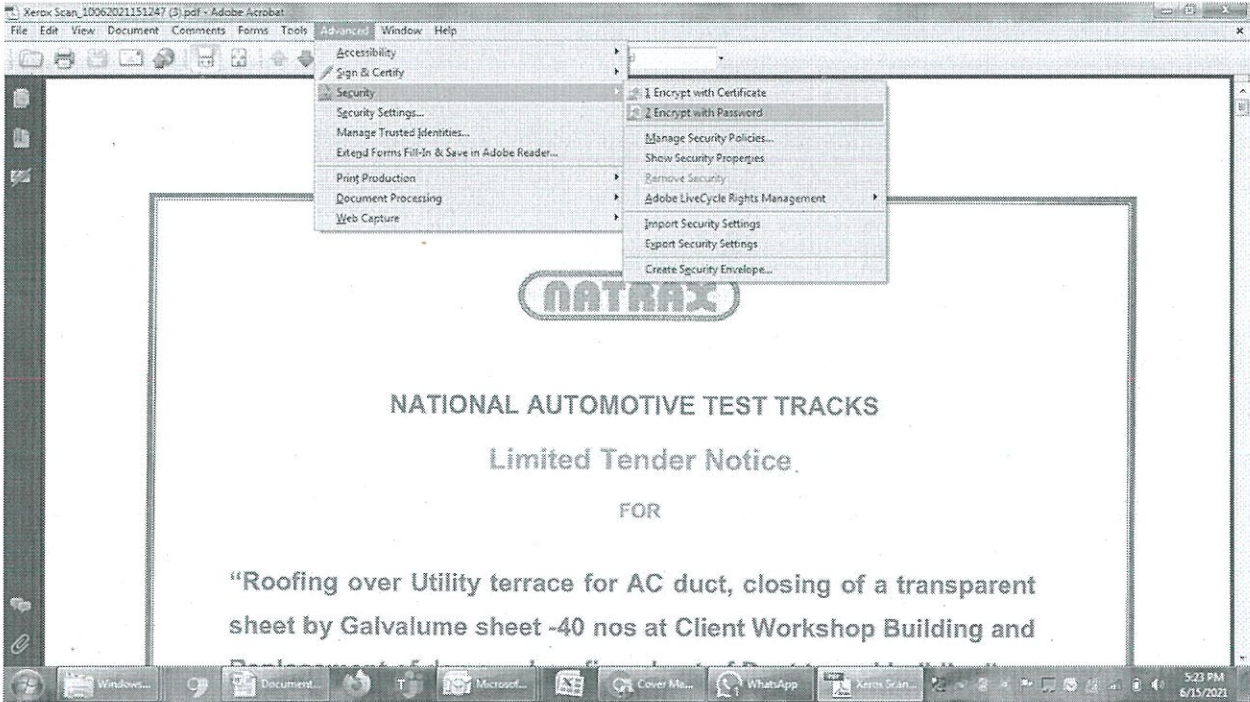
Step 1- please open PDF file and click on "Advance" tab.



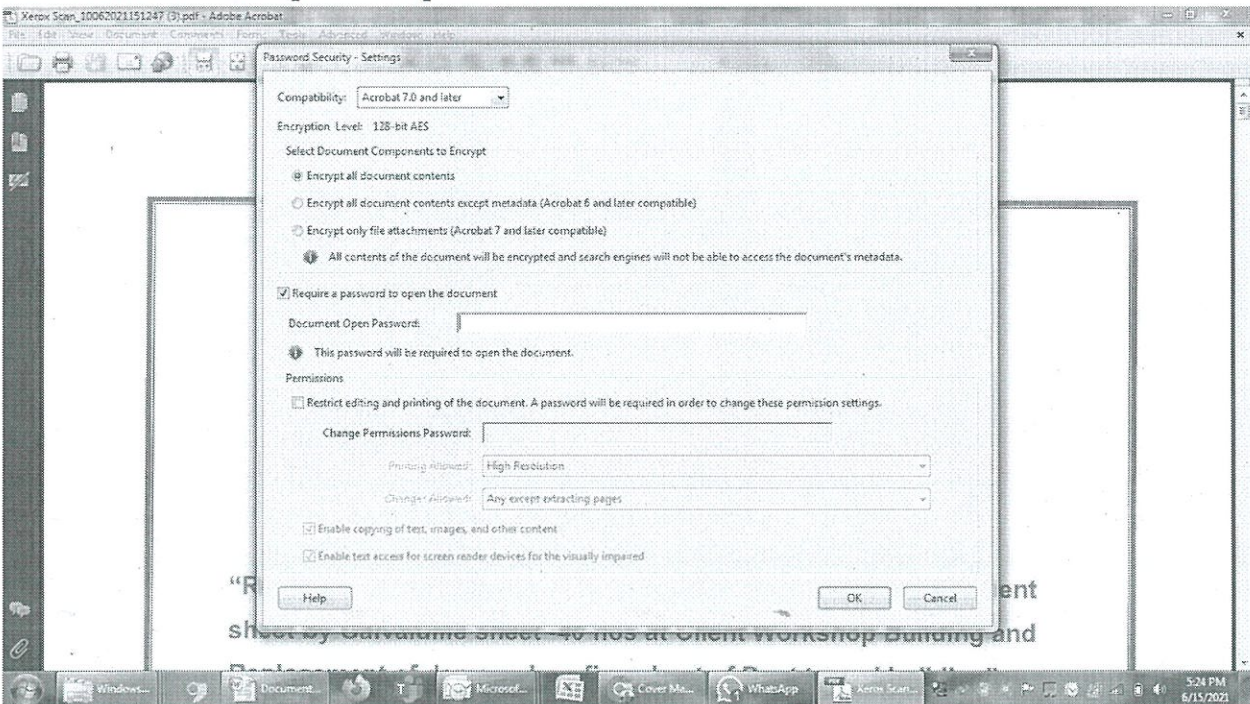
Step 2- in advance tab, please click on "Security" tab.



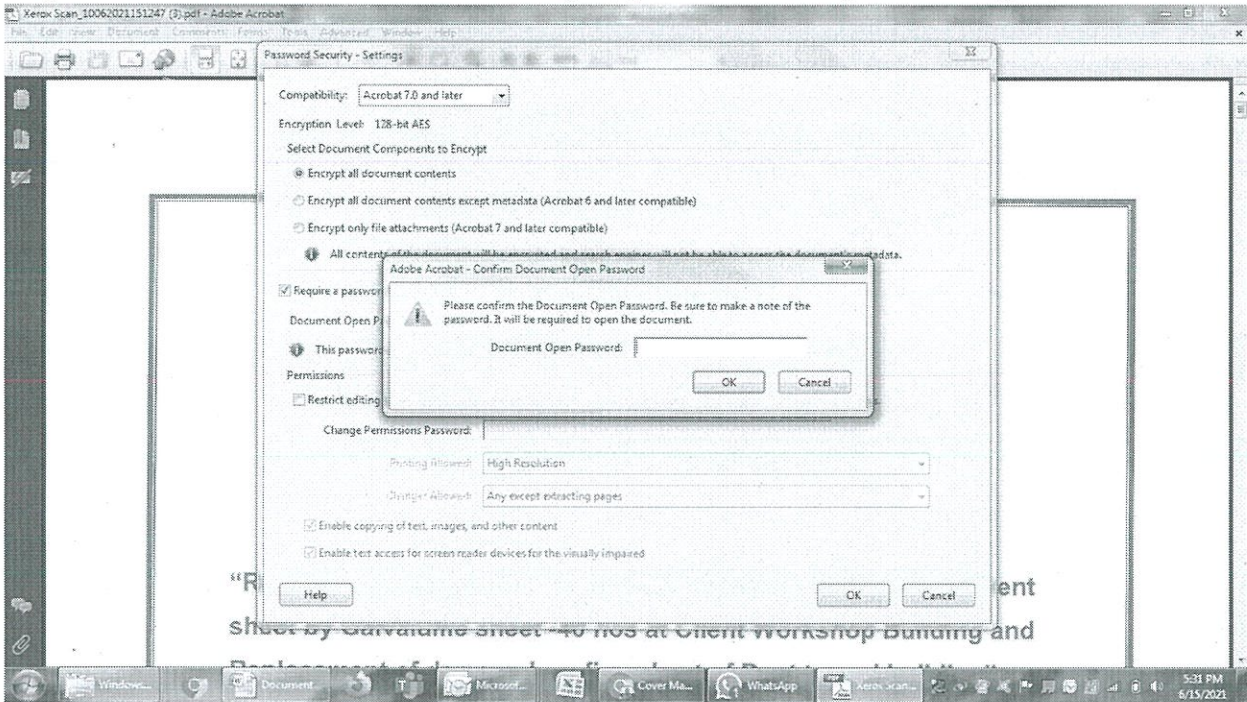
Step 3- in security tab, please click on "2 Encrypt with Password".



Step 4- after that below window will open, please check in option "Required a password to open the document". Then please fill password and click "ok".



Step 5- after that below window will be open, please fill same password again, and click "ok".





**TECHNICAL SPECIFICATION
FOR**

**“Execution of Painting Work of Pump House at NATRAX, Pithampur, Distt. Dhar
(MP)”**

TECHNICAL SPECIFICATION**For****“Execution of Painting Work of Pump House at NATRAX, Pithampur, Distt. Dhar (MP)”****Preamble**

1. The Technical Specifications shall be read in conjunction with the other Sections of the bid documents as specified in Instruction to Bidders and other related documents
2. In case of any conflict on unit of measurement and payment in this specification and that in the BOQ, the unit in BOQ shall prevail.
3. The quantity provided in BoQ derived from the scheme drawings provided with tender Document, the work shall be executed as per approved GFCD'S only which will be submitted by contractor based on input provided in the tender documents.
4. The work in general shall be carried out as per Specifications for CPWD specifications and its latest amendments for which specification are not included in the specification, all such works in general shall be carried out as per latest CPWD Specifications as describe below: -

I) The work in general shall be carried out as per latest CPWD Specifications (updated with correction slips issued Up to last date of submission of tender) unless otherwise specified in the nomenclature of the individual item or in the specifications for civil works and CPWD specification, and latest or 1994 for electrical work updated with correction slips issued Upto last date of submission of tender.

II) For items not covered under “CPWD Specifications (Civil Works)/ latest CPWD specification (Electrical works)”, the work shall be done as per latest relevant IS Codes of Practice. In any particular matter if CPWD specifications and IS specifications both are silent than any other relevant codes of practice like ASTM/AASTHO /DIN may be referred.

III) All electrical installation shall comply with the requirements of Indian Electricity Rules, 1956 and Indian Electricity Act - 1910 as amended Upto date, and byelaw of Pithampur & MPEB and any other concerned Department

5. In the absence of any definite provisions on any particular issue in the aforesaid Specifications, reference may be made to the latest BIS codes and specifications of BIS, BS, ASTM or AASTHO in that order. Where even these are silent, the construction and

completion of the works shall conform to sound engineering practice as approved by the Engineer in charge and in case of any dispute arising out of the interpretation of the above, the decision of the Engineer-in-charge shall be final and binding on the Contractor.

6. Whenever reference is made in the Contract to specific standards and codes to be met by the goods and materials to be furnished, and work performed or tested, the provisions of the latest current edition or revision of the relevant standards and codes in effect shall apply, unless otherwise expressly stated in the Contract. Where such standards and codes are national, or relate to a particular country or region, other authoritative standards which ensure an equal or higher quality than the standards and codes specified will be accepted subject to the Engineer's prior review and written approval. Differences between the standards specified and the proposed alternative standards must be fully described in writing by the Contractor and submitted to the Engineer's at least 28 days prior to the date when the Contractor desires the Engineer's approval. In the event the Engineer determines that such proposed deviations do not ensure equal or higher quality, the Contractor shall comply with the standards specified in the documents.

TECHNICAL SPECIFICATIONS FOR PAINTING WORKS

S. N.	CONTENT
A.	<u>PAINTING</u>
1.0	<u>SCOPE OF WORK</u>
2.0	EXTERIOR PAINTING ON WALL
3.0	DELUXE MULTI SURFACE PAINT FOR INTERIORS AND EXTERIORS
4.0	PAINTING SYNTHETIC ENAMEL PAINT
5.0	PAINTING PRIMING COAT ON WOOD, IRON OR PLASTERED SURFACES
B.	<u>STEEL WORK</u>
1.0	DEFINITIONS/ TERMINOLOGY
2.0	STEEL WORK IN SINGLE SECTION FIXED INDEPENDENTLY WITH CONNECTING PLATE

A. PAINTING**1.1 Scope of work:**

The work covered under these specifications consist of furnishing the various types of paints and also the workmanship for these items, in strict compliance with these specifications, which are given in detail hereinafter with the item of schedule of quantities.

1.2 Materials:

Paints, oils varnishes etc. of approved brand and manufacture shall be used. Ready mixed paints as recovered from the manufacturer without any admixture shall be used. If for any reason, thinning is necessary in case of ready mixed paint, the brand of thinner recommended by the manufacturer or as instructed by the Engineer-in-charge shall be used. Approved paints, oils or varnishes shall be brought to the site of work by the contractor in their original containers in sealed condition. The materials shall be brought in at a time in adequate quantities to suffice for the whole work or at least a fortnights work. The materials shall be kept in the joint custody of the contractor and the Engineer-in-charge. The empties shall not be removed from the site for work, till the relevant item of work has been completed and permission obtained from the Engineer-in-charge. The contractor shall associate the chemist of paint manufacturers before commencement of work, during and after the completion of work who shall certify the suitability of the surface to receive painting and the paint before use etc.

1.3 Commencing Work Scaffolding:

Wherever scaffolding is necessary, it shall be erected on double supports ties together by horizontal pieces, over which scaffolding planks shall be fixed. No bellies, bamboos or planks shall rest on or touch the surface which is being painted. Were ladders are used, pieces of old gunny bags shall be ties on their tops to avoid damage or scratches to walls. For painting of the ceiling, proper stage scaffolding shall be erected. Painting shall not be started until and unless the Engineer-in-charge has inspected the items of work to be painted, satisfied himself about their proper quality and given his approval to commence the painting work. Painting,

except the priming coat, shall generally be taken in hand after all other builder's work, practically finished. The rooms should be thoroughly swept out entire building cleaned up at least one day in advance of the paint work being started.

1.4 Preparation of Surface:

The surface shall be thoroughly cleaned. All dirt, rust, scales, smoke and grease shall be thoroughly removed before painting is started. Minor patches if any in plastered / form finished surfaces shall be repaired and finished in line and level in C.M/ 1:1 and cracks and crevices shall be filled with approved filler, by the contractor at no extra cost to the Department. The prepared surface shall have received the approval of the Engineer-in-charge after inspection, before painting is commenced.

1.5 Application:

Before pouring into smaller containers for use, the paint shall be stirred thoroughly in its containers. When applying also, the paint shall be continuously stirred in the smaller containers so that consistency is kept uniform. The external surfaces of the buildings under reference including the R.C.C. Jalli, fins and the panels above and the panels above and below the window etc. shall be finished in different colours of approved shade. The contractor will make suitable samples at site for Departments approval before taking up the work in hand and they will be allowed to proceed with the work only after getting Departments approval for the same. The painting shall be laid on evenly and smoothly by means of crossing and laying off, the later in the direction of the grain in case of wood. The crossing and laying off consists of covering the area with paint, brushing the surface hard for the first time and then brushing alternately in opposite directions two or three time and then finally brushing lightly in direction at right angles to the same. In this process, no brush marks shall be left after the laying off is finished. The full process of crossing and laying will constitute one coat. Where so stipulated, the painting shall be done with spraying. Spray machine used may be (a) a high pressure (small air aperture) type or (b) a low pressure (large air gap) type, depending on the nature and location of work to be carried out. Skilled and experienced workmen shall be employed for this class of work. Paints used shall be brought

to the requisite consistency by adding a suitable thinner. Spraying should be done only when dry condition prevails. Each coat shall be allowed to dry cut thoroughly and rubbed smooth before the next coat is applied. This should be facilitated by thorough ventilation. Each coat except the last coat, shall be tightly rubbed down with sand paper or fine pumice stone and cleaned of dust before the next coat is laid. No left-over paint shall be put back into the stock tins. When not in use, containers shall be kept properly closed.

The final painted surface shall present a uniform appearance and no streaks, blisters, hair marks from the brush or clogging of paint puddles in the corners of panels, angles of moldings etc. shall be left on the work. In case of cement-based paints / primers, the absorbent surfaces shall be evenly damped so as to give even suction. In any weather, freshly painted surfaces shall be kept damp for at least two days. In painting doors and windows, the putty around the glass panes must also be painted, but care must be taken to see that no paint stains etc. are left on the glass. Tops of shutters and surfaces in similar hidden locations shall not be left out while painting. Prospect covers of electrical switch boxes have to be painted from inside by removing them. Care shall be taken while removing them in position after painting with respective approved paints. In painting steel work, special care shall be taken while painting over bolts, nuts, rivets, overlaps etc. The additional specifications for primer and other coats of paints shall be as in accordance to the detailed specifications under the respective headings. Any damage caused during painting work to the existing works / surfaces shall be made good by the contractor at his own cost.

1.6 Brushes and Containers:

After work, the brushes shall be completely cleaned off paint and linseed oil by rinsing with turpentine. A brush in which paint has dried up is ruined and shall be kept at a place free from dust. When the paint has been used, the containers shall be washed with turpentine and wiped dry with soft clean cloth, so that they are clean and can be used again.

1.7 Measurement:

Painting, unless otherwise stated shall be measured by area in square meter. Length and breadth shall be measured correct up to two places of decimal of a meter. No deduction shall be made for opening not exceeding 0.05 sqm. and no addition shall be made for painting to

the beading, moulding edges, jambs, soffits, sils, architraves etc. of such openings. In measuring painting, varnishing, oiling etc. of joinery and steel work etc. the coefficient as in the following table shall be used to obtain the areas payable. The co-efficient shall be applied to the areas measured flat and not girthed in all cases. In case of painting of door shutter with push plates in plastic laminate, deduction will be made for area of such laminations.

1.8 Precautions:

All furniture, lightings, fixture, sanitary, fittings, glazing, floors etc. shall be protected by covering and stains, smears, splashing, if any shall be removed and any damage done shall be made good by the contractor at his cost.

2.0 EXTERIOR PAINTING ON WALL

2.1 Material

The paint shall be (Textured exterior paint/Acrylic smooth exterior paint/premium acrylic smooth exterior paint/100% premium acrylic emulsion paint) of approved brand and manufacture. This paint shall be brought to the site of work by the contractor in its original containers in sealed condition. The material shall be brought in at a time in adequate quantities to suffice for the whole work or at least a fortnight's work. The materials shall be kept in the joint custody of the contractor and the Engineer-in-Charge. The empty containers shall not be removed from the site of work till the relevant item of work has been completed and permission obtained from the Engineer-in-Charge.

Preparation of Surface

For new work, the surface shall be thoroughly cleaned off all mortar dropping, dirt dust, algae, fungus or moth, grease and other foreign matter of brushing and washing, pitting in plaster shall make good, surface imperfections such as cracks, holes etc. should be repaired using white cement. The prepared surface shall have received the approval of the Engineer in charge after inspection before painting is commenced.

Application

Base coat of water proofing cement paint

All specifications in respect of base coat of water proofing cement paint shall be as described under

Before pouring into smaller containers for use, the paint shall be stirred thoroughly in its container, when applying also the paint shall be continuously stirred in the smaller containers so that its consistency is kept uniform. Dilution ratio of paint with potable water can be altered taking into consideration the nature of surface climate and as per recommended dilution given by manufacturer. In all cases, the manufacturer's instructions & directions of the Engineer-in-charge shall be followed meticulously.

The lids of paint drums shall be kept tightly closed when not in use as by exposure to atmosphere the paint may thicken and also be kept safe from dust.

Paint shall be applied with a brush on the cleaned and smooth surface. Horizontal strokes shall be given, First and vertical strokes shall be applied immediately afterwards. This entire operation will constitute one coat. The surface shall be finished as uniformly as possible leaving no brush marks.

The specifications in respect of scaffolding, protective measures, measurements and rate shall be as described in respective CPWD specification.

3.0 DELUXE MULTI SURFACE PAINT FOR INTERIORS AND EXTERIORS

Material

The paint shall be (Deluxe multi surface paint for interiors and exteriors) of approved brand and manufacture. This paint shall be brought to the site of work by the contractor in its original containers in sealed condition. The material shall be brought in at a time in adequate quantities to suffice for the whole work or at least a fortnight's work. The materials shall be kept in the joint custody of the contractor and the Engineer-in- Charge. The empty containers shall not be removed from the site of work till the relevant item of work has been completed and permission obtained from the Engineer-in-Charge.

Preparation of Surface

For new work, the surface shall be thoroughly cleaned off all mortar dropping, dirt dust, algae, fungus or moth, grease and other foreign matter of brushing and washing, pitting in plaster shall make good, surface imperfections such as cracks, holes etc. should be repaired

using white cement. The prepared surface shall have received the approval of the Engineer in charge after inspection before painting commenced.

Application

Base coat of special primer of same manufacturer shall be used.

All specifications in respect of base coat of water proofing cement paint shall be as described under relevant CPWD specifications.

Before pouring into smaller containers for use, the paint shall be stirred thoroughly in its container, when applying also the paint shall be continuously stirred in the smaller containers so that its consistency is kept uniform. Dilution ratio of paint with potable water can be altered taking into consideration the nature of surface climate and as per recommended dilution given by manufacturer. In all cases, the manufacturer's instructions & directions of the Engineer-in-charge shall be followed meticulously.

The lids of paint drums shall be kept tightly closed when not in use as by exposure to atmosphere the paint may thicken and also be kept safe from dust.

Paint shall be applied with a brush on the cleaned and smooth surface. Horizontal strokes shall be given, First and vertical strokes shall be applied immediately afterwards. This entire operation will constitute one coat. The surface shall be finished as uniformly as possible leaving no brush marks.

The specifications in respect of scaffolding, protective measures, measurements and rate shall be as described under relevant CPWD specifications.

4.0 PAINTING SYNTHETIC ENAMEL PAINT OVER G.S. SHEETS & MS PIPES

Synthetic enamel

Paint, suitable for painting over G.S. sheets, of approved brand and manufacture and of the required shade shall be used. New or weathered G.S. sheets shall be painted with a priming coat of one coat of red oxide zinc chromate Paint. Primer shall be applied before fixing sheets in place. 13.25.1 Preparation of Surface

Painting New Surface : The painting of new G.S. sheets shall not usually be done till the sheets have weathered for about a year. When new sheets are to be painted before they have weathered they shall be treated with a mordant solution prepared by mixing 38 gm of copper acetate in a litre of soft water or 13 gm hydrochloric acid in a solution of 13 gm each of copper chloride, copper nitrate and ammonium chloride dissolved in a litre of soft water. This quantity of solution is sufficient for about 235 sqm. to 280 sqm of area and is applied for ensuring proper adhesion of Paint. The painting with the mordant solution will be paid for separately.

Before painting on new or weathered G.S. sheets, rust patches shall be completely cleaned with coarse emery paper and brush. All grease marks shall also be removed and the surface washed and dried and rusted surface shall be touched with synthetic enamel paint of approved brand, manufacturer and shade.

Painting Old Surface: If the old Paint is firm and sound, it shall be cleaned of grease, smoke etc. The surface shall then be rubbed down with sand paper and dusted. Rusty patches shall be cleaned up and touched with synthetic enamel paint.

If the old Paint is blistered and flaked, it shall be completely removed as described in 13.41. Such removal shall be paid for separately and painting shall be treated as on new work.

Application

The number of coats to be applied shall be as in the description of item. In the case of C.G.S. sheets, the crowns of the corrugations shall be painted first and when these get dried the general coat shall be given to ensure uniform finish over the entire surface without the crowns showing signs of thinning.

The second or additional coats shall be applied when the previous coat has dried.

The specifications described in above shall hold good so far as they are applicable.

5.0 Painting, Priming coat on Wood, Iron of Plastered Surfaces Primer

The primer for woodwork, iron work or plastered surface shall be as specified in the description of the item. Primer for woodwork / Iron & Steel / Plastered / Aluminum surfaces shall be as specified below:

Sl. No.	Surface	Primer to be used
1.	Wood work (hard and soft wood)	Pink conforming to IS 3536
2.	Resinour wood and plywood	Aluminium primer conforming to IS 3585
3.	(A) Aluminum and light alloys	Zinc chromate primer conforming to IS 104
	(B) Iron, Steel and Galvanized steel	Red Oxide Zinc chromate Primer conforming IS 2074
4.	Cement/Conc/RCC/brick work, Plastered surfaces, non-asbestos surfaces to receive Oil bound distemper or Paint finish.	Cement primer conforming to IS 109

Cement primer the primer shall be ready mixed primer of approved band and manufacture.

Preparation of Surface Wood work:

The wood work to be painted shall be dry and free from moisture. The surface shall be thoroughly cleaned. All unevenness shall be rubbed down smooth with sand paper and shall be well dusted. Knots, if any, shall be covered with preparation of red lead made by grinding red lead in water and mixing with strong glue sized and used hot. Appropriate filler material with same shade as paint shall be used where so desired by the Engineer-in-charge. The surface treated for knotting shall be dry before painting is applied. After the priming coat is applied, the holes and indentation on the surface shall be stopped with glaziers putty or wood putty (for specifications for glaziers putty and wood putty – refer as mentioned herein before). Stopping shall not be done before the priming coat is applied as the wood will absorb the oil in the stopping and the latter is therefore liable to crack.

Iron and Steel Work:

All rust and scales shall be removed by scrapping or by brushing with steel wire brushes. Hard skin of oxide formed on the surface of wrought iron during rolling which becomes

loose by rusting, shall be removed. All dust and dirt shall be thoroughly wiped away from the surface. If the surface is wet, it shall be dried before priming coat is undertaken.

Plastered Surface:

10.11.1 The surface shall ordinarily not be painted until it has dried completely. Trial patches of primer shall be laid at intervals and where drying is satisfactory, painting shall be taken in hand. Before primer is applied, holes and undulations, shall be filled up with plaster of Paris / putty and rubbed smooth.

Application:

The primer shall be applied with brushes, worked well into the surface and spread even and smooth. The painting shall be done by crossing and laying off as described herein before.

Other details:

The specifications for Painting (General) shall hold good so far it is applicable.

Painting with superior quality and Flat Oil ready mixed paints on new Surface Paint :

Ready mixed paints shall be of approved brand and manufacture and of the required shades. They shall conform in all respects to the relevant IS specifications.

Preparation of Surface Wood work :

The surface shall be cleaned, and all unevenness removed as in para 32.10.2 (a). Knots if visible shall be covered with a preparation of red lead. Holes and indentations on the surface shall be filled in with glaziers' putty or wood putty and rubbed smooth before painting is done. The surface should be thoroughly dry before painting.

Painting with synthetic enamel / Semi glossy Paint on new work Paint:

Synthetic enamel / semi glossy paint of approved brand and manufacture and required shade shall be used for the top coat and an under coat of shade to match the top coat as recommended by the manufacturer shall be used. The paint shall be conforming to IS: 1932 1964.

Preparation of Surface:

This shall be as per painting with superior quality ready mixed paint as mentioned herein before.

Application:

The number of coats including the under coat shall be as stipulated in the item.

Under Coat:

The coat of the specified paint of shade suited to the shade of the top coat shall be applied and allowed to dry overnight. It shall be rubbed next day with the finest grade of wet abrasive paper to ensure a smooth and even surface free from brush marks and all loose particles shall be dusted off. All the cracks, crevices, roughness etc. will be filled with approved putty as per manufacturers recommendations.

Top coat:

Finishing coats of specified paint of the desired colour and shade shall be applied after the under coat is thoroughly dried. Additional finishing coats shall be applied if found necessary to ensure a proper and uniform semi glossy surface.

Painting with Acrylic Emulsion/Plastic Emulsion Paint

This shall be polyvinyl based Acrylic / plastic emulsion paint of approved manufacture of the required shade conforming to IS 5411-1969.

Primer :

The primer to be used for the painting with acrylic emulsion on cement concrete surfaces, plastered surfaces, A.C. sheets, timber and metal surfaces, if necessary, shall be of approved base and as per recommendations of the manufacturers.

Putty:

Plaster filler to be used for filling up (putting) uneven surfaces, small cracks and holes etc. shall be of approved compound and as per recommendations of the manufacturers. No oil-based putty shall be used. The putty should be made from a mixture of whiting and plastic emulsion paint or as per manufacturers recommendations.

Finishing coats:

All the finishing coats shall be of matt finish or any other finish as required by the Engineer-in-charge. The number of finishing coats shall be as specified in the item.

Mode of measurement:

All the measurements for payment shall be taken on net surface area actually painted, unless otherwise specified. Deduction will be made from the areas for fixtures, frills, ventilation,

outlets, electrical boxes and such obstructions not painted, if they are individually more than 0.05 sqm. Acrylic emulsion paint is required to be provided on plastered and concrete surfaces in portions of the building. The Department shall reserve the option to delete or increase quantities in full or part from the scope of contract during progress of work. All wood surfaces are to be pointed with semi glossy synthetic enamel paint with an approved primer. All shades and colours of paints shall be subjected to review and prior approval of Engineer-in-charge shall be taken before the application.

B. M.S. GRILLS/PIPES/RAILING & ROLLING SHUTTERS**1.0 DEFINITIONS/ TERMINOLOGY****Bead**

A single run of weld metal deposited on surface.

Butt Weld

A weld in which the weld metal lies substantially within the extension of the planes arc the surfaces on the parts joined.

Crater

A depression left in weld metal where the arc was broken or the flame was removed.

End Crater

A crater at the end of a weld or at the end of a joint.

Fillet Weld

A weld of approximately triangular cross-section joining two surfaces approximately at the right angles to each other in a lap joint, tee joint or corner joint. It is of two types:

- (1) Continuous
- (2) Intermittent. Fusion Welding Any welding process in which the weld is made between metals in a state of fusion without hammering or pressure.

Non- fusion Welding

A term applied to the deposition, by the Oxy-Acetylene process of filler metal on parent metal without fusion of the latter.

Oxy-Acetylene Pressure Welding

Pressure welding in which any Oxy-Acetylene flame is used to make the surface to be united plastic. No filler metal is used.

Run

The metal deposited during one passage of the electrode or blow pipe in the making of a joint. **Throat thickness**

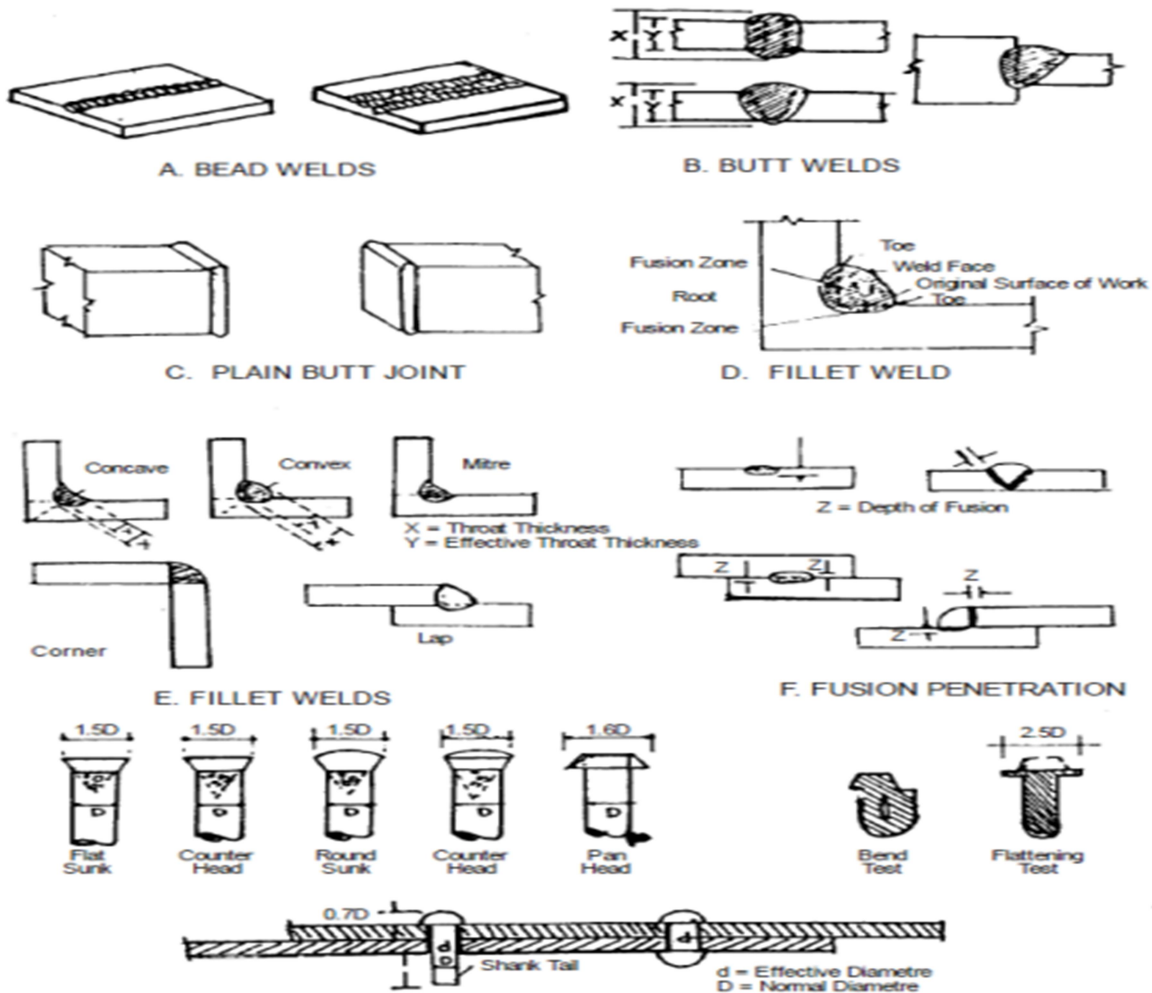


Fig. 1.1

Weld

A union between two pieces of metal at faces rendered plastic or liquid by heat or pressure, or both, Filler metal may be used to effect the union.

MATERIALS

Micro-Alloying Elements

Elements such as niobium, boron, vanadium and titanium added singly or in combination to obtain higher strength to weight ratio and better toughness, formability and weldability as compared to unalloyed steel of similar strength level.

Weldability

A metallic substance is considered to be weldable by a given process and for the given purpose, when metallic continuity to a stated degree can be obtained by welding using a suitable procedure, so that the joints comply with the requirements specified in regard to both their local properties and their influence on the construction of which they form a part.

Controlled Rolling

A hot rolling process in which the temperature of the steel and its reduction ratio are controlled, particularly during the final rolling passes, in order to achieve fine grain micro structure and optimum mechanical properties.

Normalizing Rolling

A hot rolling process in which the final rolling passes are carried out at a suitable higher temperature, followed by cooling in natural air to a temperature below the transformation temperature, in order to produce a structure, analogous to that obtained by a separate normalizing treatment of hot rolled product.

Steel

Supply of Material :

General requirements relating to supply of structural steel shall conform to IS 8910.

Grades : There shall be nine grades of steel as given in Tables 10.1 and 10.2. of CPWD specification While placing the order the steel should be designated by 'Designation' (See Table 10.1 and 10.2).

Manufacture : The processes used in the steel making and further hot rolling into steel plates, strips, sections, flats, bars, etc., are left to the discretion of the manufacturer/supplier. If required, secondary refining may follow steel making, as also normalizing rolling/controlled rolling during manufacturing of sections or as per the agreement between the purchaser and the manufacturer/ supplier.

Freedom from Defects

All finished materials shall be well and cleanly rolled to the dimensions, sections and masses specified. The finished material shall be reasonably free from surface flaws; laminations; rough/ jagged and imperfect edges and all other harmful defects.

Minor surface defects may be removed by the manufacturer/supplier by grinding provided the thickness is not reduced locally by more than 4 percent below the minimum specified thickness. Reduction in thickness by grinding greater than 4 percent but not exceeding 7 percent may be made subject to mutual agreement between the purchaser and manufacturer/supplier.

Subject to agreement with the purchaser, surface defects which cannot be dealt with as in 10.1.1.4.2 of CPWD specifications-2019 and may be repaired by chipping or grinding followed by welding and inspection by a mutually agreed procedure such that :

- a) After complete removal of the defects and before welding, the thickness of the item is not to be reduced by more than 20 percent at any place.
- b) Welding is carried out by procedure APPROVED by competent authority with approved electrodes and the welding is ground smooth to the correct nominal thickness; and
- c) Subsequent to the finish grinding, the item may be required to be normalized or otherwise heat-treated at the purchaser's discretion.

Welding as mentioned in 10.1.1.4.3 of CPWD specification-2019 is not permissible for grade designation E 250 material.

Chemical Composition : Ladle Analysis the ladle analysis of the steel, when carried out by the method specified in the relevant part of IS 228 or any other established instrumental /chemical method, shall be as given in CPWD specification Table 10.1. In case of dispute, the procedure given in IS 228 and its relevant parts shall be the referee method and where test methods are not specified shall be as agreed to between the purchaser and the manufacturer/supplier.

Rivets

Rivets shall be made from rivet bars of mild steel as per IS 1148.

Bolts

These are of two types namely turned and fitted bolts and black bolts. Turned & fitted bolts are turned to exact diameter in automatic lathe. For these bolts, whether reamed or drilled

bolts, the same unit stresses are allowed as for rivets. In case of black bolts which are not finished to exact sizes, a lower working stress other than for turned bolts is adopted. They shall conform to IS 1367 – Technical supply conditions for threaded steel fasteners.

Electrodes

The electrodes required for metal arc welding shall be covered electrodes and shall conform to IS 814.

2.0 STEEL WORK IN SINGLE SECTION FIXED INDEPENDENTLY WITH CONNECTING PLATE

The steel work in single section of R.S. joists, flats, Tees Angles fixed independently with or without connecting plate, is described in these clauses.

Fabrication

The steel sections as specified shall be straightened and cut square to correct lengths and measured with a steel tape. The cut ends exposed to view shall be finished smooth. No two pieces shall be welded or otherwise jointed to make up the required length of member. All straightening and shaping to form, shall be done by pressure. Bending or cutting shall be carried out in such a manner as not to impair the strength of the metal.

Painting

All surfaces which are to be painted, oiled or otherwise treated shall be dry and thoroughly cleaned to remove all loose scale and loose rust. Surfaces not in contact but inaccessible after shop assembly, shall receive the full specified protective treatment before assembly. This does not apply to the interior of sealed hollow sections. Part to be encased in concrete shall not be painted or oiled. A priming coat of approved steel primer such as Red Oxide/Zinc Chromate primer conforming to IS 2074 shall be applied before any member of steel structure are placed in position or taken out of workshop.

Erection

Steel work shall be hoisted and placed in position carefully without any damage to itself and other building work and injury to workmen. Where necessary mechanical appliances such as

lifting tackle winch etc. shall be used. The suitability and capacity of all plant and equipment used for erection shall be upto the satisfaction of the Engineer-in-charge.

Measurements

The work as fixed in place shall be measured in running metres correct to a millimetre and weights calculated on the basis of standard tables correct to the nearest kilogram. The standard weight of steel sections shall conform to IS 808 with tolerance in sizes as per IS 1852. Tolerance in weight is given in Table 10.3. Steel sections shall be acceptable within tolerance limits. Payment for steel sections shall be made as per actual weight within tolerances. Sections having weight on higher side than permissible tolerance, may be acceptable but payment shall be made on the basis of standard weight only. Steel sections having weight variations lower side than permissible variation shall not be acceptable.

Unless otherwise specified, weight of cleats, brackets, packing pieces, bolts, nuts, washers, distance pieces, separators, diaphragm gussets (taking overall square dimension) fish plates, etc. shall be added to the weight of respective items. In riveted work allowance is to be made for weight of rivet heads.

Unless otherwise specified an addition of 2.5% of the weight of structure shall be made for shop and site rivet heads in riveted steel structures.

No deduction shall be made for rivet/ or bolt holes (excluding holes for anchor or holding down bolts).

Deduction in case of rivet or bolt hole shall however be made if its area exceeds 0.02 sqm.

The weight of steel sheets, plates and strips shall be taken from relevant Indian standards based on 7.85 Kg/ m² for every millimetre sheet thickness. For rolled sections, steel rods and steel strips, weight given in relevant Indian Standards shall be used.

Rate

Rate includes the cost of labour and materials required for all the operations described above.

Specification to be considered for works

PAINTING

IS-427 Specification for French Polish

IS-428 Specification for Distemper, dry colour as required.

IS-147 Code of practice for painting of ferrous metal in buildings.

IS-2338 Code of practice for finishing of wood and wood-based materials.

IS-2395 Code of practice for painting concrete, masonry and plaster surface.

IS-2932 Specification for enamel, synthetic, exterior – a) undercoating, b) finishing.

IS-5410 Specification for cement paint.

IS-2933 Specification for enamel, exterior – a) undercoating, b) finishing.

STRUCTURAL STEEL WORK

Fabrication in general shall conform to the requirements of IS:800-2007 “Code of practice for use of structural steel in general building construction.”

IS-802 Part – I : Load and permissible stresses. Part – II : Fabrication, Galvanising, Inspection and Packing.

IS-808 Rolled steel beams, channels and angle sections.

IS-813 Scheme of symbols for welding.

IS-814 Covered electrodes for manual metal arc welding of carbon and carbon manganese steel.

IS-816 Code of practice for use of metal arc welding for general construction in mild steel.

IS-818 Code of practice for safety and health requirements in electric and gas welding and cutting operation.

IS-819 Code of practice for Resistance spot welding for light assemblies in Mild Steel.

IS-120 [Part – VIII] Method of measurement of steelwork and ironwork.

IS-1367 Technical supply conditions for threaded steel fasteners.

IS-1730 Dimensions for steel plate, sheet and strip for structural and general engineering purpose.

IS-1852 Rolling and cutting tolerances for hot rolled steel products.

IS-2016 Plain Washers.

IS-2074 Ready mixed paint, air drying, red oxide zinc-chrome, priming.

IS-3757 High strength structural bolts.

IS-2062 High strength bolts in steel structures.

IS-7215 Tolerances for fabrication of steel structures.

IS :5624 Foundation Bolts AWS D1.1 Structural Welding Code.

SAFETY CODES

IS 818-1968 Safety and healthy requirements in Electric and gas welding and cutting operations

IS 3698-(pt.I)-1987 Safety code for scaffolds

IS 3696(pt.II)-1966 Safety code for ladders

IS 3764-1966 Safety code for Excavation works

IS 4081-1986 Safety code for blasting and related drilling operation

IS 4130-1976 Safety code for demolition of building

IS 5916-1970 Safety code for construction involving use of hot bituminous materials

IS 6922-1973 Structure subject to underground blasts code of practice for safety and design

IS 7293-1974 Working with construction machinery safety code

Details missing and are essential will be provided at the time of construction. Missing information other than specified above to be referred to the Engineer-in-Charge for relevant IS codes / Manufacturer's recommendation with respect to the nature of work by the contractor.

All quantities in this schedule are provisional and likely to increase or decrease. Some of the items may be omitted altogether.

No claim whatsoever will be entertained on this account.

LIST OF APPROVED MANUFACTURES:

The contractor shall use the following approved list of manufacturer brands.

Equivalent ISI Marked brands may be permitted subject to prior approval of Engineer-in-Charge.

Sl. No.	Description of Items	Approved Maker
1	Structural Steel: IS-226,2062 Gr-A/B	SAIL, TISCO, RINL, ISSCO, ZINDAL
2	Paint	BERGER, ASIAN, NEROLAC