SPORTS AUTHORITY OF INDIA

Registered Office: Jawaharlal Nehru Stadium Complex (East Gate, Lodhi Road, New Delhi, Delhi - 110 003
https://sportsauthorityofindia.nic.in

TENDER FOR THE "Construction of Integrated facility, including Recovery Center, Conditioning, Bio-Mechanics and Athlete Habitat Complex (For 150 Athlete) in Guwahati, Assam"

Tender Reference Number: 01-11028/17/2025-HO - Infra Division

Date of Issue: 12-11-2025
Last Date of Submission: 29-11-2025

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PART - I TECHNICAL BID

SPORTS AUTHORITY OF INDIA

Registered Office: Jawaharlal Nehru Stadium Complex, East Gate, Lodhi Rd, New Delhi, Delhi - 110 003
https://sportsauthorityofindia.nic.in

Notice Inviting Bid

The Sports Authority of India through its Engineering wing is engaged in the development of Sports Infrastructure and as part of this endeavor, it has been decided to undertake Construction of Integrated facility, including Recovery Center, Conditioning, Bio-Mechanics and Athlete Habitat Complex (For 150 Athlete) in Guwahati, Assam through an Engineering, Procurement and Construction (EPC) Contract from the experienced and financially as well as technically sound agencies **(Joint Ventures are not Permitted**) working in Central /PSU/State Government Departments of National repute. The tenders shall be available on website https://etenders.gov.in/eprocure/app on dates as mentioned above in data sheet.
Tender document is also available for viewing on the "Notices and Tenders" link of SAI website http://sportsauthorityofindia.gov.in. and CPP portal.
Bids to this tender will be accepted only through ONLINE mode through the website https://eprocure.gov.in/eprocure/app. No other mode of bid will be considered and accepted. For applying online, the bidder should get itself registered at https://eprocure.gov.in/eprocure/app. Bid submission and System Requirement Manual are also available on https://eprocure.gov.in/eprocure/app.

Name of Work	Approx. Estimated Cost	Earnest Money Deposit (EMD) 3% of the Project cost	Completion Period (including rainy season)
Construction of Integrated facility, including Recovery Center, Conditioning, Bio-Mechanics and Athlete Habitat Complex (For 150 Athlete) in Guwahati, Assam	20,43,54,290.00	61,30,629.00	15 Months

The intending bidders may download tender documents from e-procurement portal https://eprocure.gov.in/eprocure/app from the date & time mentioned above. The technical bid and bid documents duly filled and digitally signed in all respects may be submitted online through the e-portal within the date and time (as per server clock) on as mentioned under Data Sheet. SAI does not take any responsibility for the delay caused due to non- availability of internet connection or traffic jam etc. for online bidding.

DISCLAIMER

(i) The information contained in this Request for Proposal ("RFP") or subsequently provided to Bidder (s), whether verbally or in documentary or any other form by or on behalf of SAI or any of its employees or advisers, is provided to Bidder(s) on the terms and conditions set out in this RFP and such other terms and conditions subject to which such information is provided.

(ii) This RFP is not an agreement or an offer by SAI to prospective Bidders or any other person. The purpose of this RFP is to provide interested parties with information that may be useful to them in the formulation of their Proposals pursuant to this RFP (the "Bid"). This RFP includes statements, which reflect various assumptions and assessments arrived at by SAI in relation to the Construction of Integrated facility, including Recovery Center, Conditioning, Bio-Mechanics and Athlete Habitat Complex (For 150 Athlete) in Guwahati, Assam Such assumptions, assessments and statements do not purport to contain all the information that each Bidder may require. This RFP may not be appropriate for all people, and it is not possible for SAI, its employees or advisers to consider the objectives, technical expertise and particular needs of each party who reads or uses this RFP. The assumptions, assessments, statements and information contained in this RFP, may not be complete, accurate, adequate or correct. Each Bidder should, therefore, conduct its own investigations and analysis and should check the accuracy, adequacy, correctness, reliability and completeness of the assumptions, assessments and information contained in this RFP and obtain independent advice from appropriate sources.

(iii) Information provided in this RFP to the Bidder(s) may be on a wide range of matters, some of which may depend upon interpretation of law. The information given is not intended to be an exhaustive account of statutory requirements and should not be regarded as a complete or authoritative statement of law. SAI accepts no responsibility for the accuracy or otherwise for any interpretation or opinion on the law expressed herein.

(iv) SAI, its employees and advisers make no representation or warranty and shall have no liability to any person including any Bidder under any law, statute, rules or regulations or tort, principles of restitution or unjust enrichment or otherwise for any loss, damages, cost or expense which may arise from or be incurred or suffered on account of anything contained in this RFP or otherwise, including the accuracy, adequacy, correctness, reliability or completeness of the RFP and any assessment, assumption, statement or information contained therein or deemed to form part of this RFP or arising in any way in this Selection Process.

(v) SAI also accepts no liability of any nature whether resulting from negligence or otherwise, howsoever caused, arising from reliance of any Bidder upon the statements contained in this RFP.

(vi) SAI may in its absolute discretion, but without being under any obligation to do so, update, amend or supplement the information, assessment or assumption contained in this RFP.

(vii) The issue of this RFP does not imply that SAI is bound to select a Bidder or to appoint the Selected Bidder, as the case may be, for the PMC and SAI reserves the right to reject all or any of the Bids without assigning any reasons whatsoever.

(viii) The Bidder shall bear all its costs associated with or relating to the preparation and submission of its Bid including but not limited to preparation, copying, postage, delivery fees, expenses associated with any demonstrations or presentations which may be required by SAI or any other costs incurred in connection with or relating to its Bid. All such costs and expenses will remain with the Bidder and SAI shall not be liable in any manner whatsoever for the same or for any other costs or other expenses incurred by a Bidder in preparation for submission of the Bid, regardless of the conduct or outcome of the Selection Process.

(ix) SAI reserves the right to, but without being under any obligation to do so, amend or supplement the statements, information, assessment or assumptions contained in this bid at any time during the bidding process by way of revision, deletion, update or supplement and annulment through issuance of appropriate addendum as SAI may deem fit without assigning any reason thereof.

(x) No objections raised by any Bidder(s) or any third party to such changes/modifications/additions/alterations as provided above, whether explicit or implicit, shall be entertained. Any such objection by the Bidder shall make the Bidder's Bid liable for rejection by SAI.

(xi) SAI reserves its right to withdraw from the process at any stage of the process and/or modify the process or any part thereof or to vary any terms at any time or stage without assigning any reasons whatsoever. In such an event, no financial obligation of whatsoever nature shall accrue to SAI or any of its respective officers, employees, advisors or agents.

(xii) This RFP document supersedes and replaces any previous public documentation & communications, and Bidders should place no reliance on such communications. The Bidders shall bear all its costs associated with or relating to the preparation and submission of Proposal pursuant to this RFP.

(xiii) SAI also accepts 'no liability' of any nature, whether resulting from negligence or otherwise howsoever caused, arising from the reliance of any Bidder upon the statements contained in this RFP.

GLOSSARY

Agreement	As defined in Clause 1.1.5
Authority	As defined in Clause 1.1.1
Bank Guarantee	As defined in Clause 2.20.1
BID(s)	As defined in Clause 1.2.2
Bidders	As defined in Clause 1.2.2
Bidding Documents	As defined in Clause 1.1.7
BID Due Date	As defined in Clause 1.1.7
Bidding Process	As defined in Clause 1.2.1
BID Security	As defined in Clause 1.2.4
BID Price or BID	As defined in Clause 1.2.6
Contractor	As defined in Clause 1.1.2
Conflict of Interest	As defined in Clause 2.2.1
EPC	As defined in Clause 1.1.1
EPC Contract	As defined in Clause 1.1.2
Estimated Project Cost	As defined in Clause 1.1.4
Feasibility Report	As defined in Clause 1.2.3
Owner	Sports Authority of India
Joint Venture	As defined in Clause 2.2.1
Lowest Bidder	As defined in Clause 1.2.6
LOA	As defined in Clause 3.3.4
Project	As defined in Clause 1.1.1
Re. or Rs. or INR	Indian Rupee
RFP or Request for Proposals	As defined in the Disclaimer

The words and expressions beginning with capital letters and defined in this document shall, unless repugnant to the context, have the meaning ascribed thereto herein.

SECTION 1
INTRODUCTION

1.1 Background

1.1.1 The Sports Authority of India (the "Authority") is engaged in the development of Sports Infrastructure and as part of this endeavor, the Authority has decided to undertake **Construction of Integrated facility, including Recovery Center, Conditioning, Bio-Mechanics and Athlete Habitat Complex (For 150 Athlete) in Guwahati, Assam** (the "Project") through an Engineering, Procurement and Construction (the EPC‖) Contract, and has decided to carry out the bidding process for selection of a bidder to whom the Project may be awarded. Brief particulars of the Project are as follows:

Name of Work	Approx. Estimated Cost	Earnest Money Deposit (EMD)- 3% of the Project cost	Completion Period (including rainy season)
Construction of Integrated facility, including Recovery Center, Conditioning, Bio-Mechanics and Athlete Habitat Complex (For 150 Athlete) in Guwahati, Assam	20,43,54,290.00	61,30,629.00	15 Months

1.1.2 The selected Bidder (the **Contractor**‖) shall be responsible for designing, engineering, procurement and construction of the Project under and in accordance with the provisions of an engineering, procurement and construction contract (the **—EPC Contract**‖) to be entered into between the Contractor and SAI in the form provided by SAI as part of the Bidding Documents pursuant hereto. The Contractor shall also be responsible for the maintenance of the project during the Defect Liability Period, which is expected to be as per clause 1.1.3.

1.1.3 The scope of work will broadly include rehabilitation, upgradation and augmentation of the existing site infrastructure with construction of new building/infrastructure and maintenance of the Project during the Defect Liability Period, which shall be 3 (three) years.

1.1.4 The estimated cost of the Project (the **"Estimated Project Cost"**) has been specified in the clause 1.1.1 above. The assessment of actual costs, however, will have to be made by the Bidders.

1.1.5 The Agreement sets forth the detailed terms and conditions for award of the project to the Contractor, including the scope of the Contractor's services and obligations.

1.1.6 The statements and explanations contained in this RFP are intended to provide a better

understanding to the Bidders about the subject matter of this RFP and should not be construed or interpreted as limiting in any way or manner the scope of services and obligations of the Contractor set forth in the Agreement or the Authority's rights to amend, alter, change, supplement or clarify the scope of work, the work to be awarded pursuant to this RFP or the terms thereof or herein contained. Consequently, any omissions, conflicts or contradictions in the Bidding Documents including this RFP are to be noted, interpreted and applied appropriately to give effect to this intent, and no claims on that account shall be entertained by SAI.

1.1.7 SAI shall receive BIDs pursuant to this RFP in accordance with the terms set forth in this RFP and other documents to be provided by SAI pursuant to this RFP (collectively the "**Bidding Documents**"), and all BIDs shall be prepared and submitted in accordance with such terms on or before the BID due date specified in Clause 1.3 for submission of BIDs (the ―**BID Due Date**‖).

1.2 **Brief description of Bidding Process**

1.2.1 SAI has adopted a single stage two-part system (referred to as the "Bidding Process") for selection of the Bidder for award of the Project. Under this process, the bid shall be invited under two parts. Eligibility and qualification of the Bidder will be first examined based on the details submitted under first part (Technical Bid) with respect to eligibility and qualifications criteria prescribed in this RFP. (The ―Bidder‖, which expression shall, unless repugnant to the context, include the members of the (JVs not permitted). The Financial Bid under the second part shall be opened of only those Bidders whose Technical Bids are responsive to eligibility and qualifications requirements as per this RFP.

1.2.2 Interested bidders are being called upon to submit their BID in accordance with the terms specified in this Bidding Document. The Bid shall be valid for a period of 120 days from the date specified in Clause 1.3 for submission of BIDs (the ―**Bid Due Date**‖).

1.2.3 The complete Bidding Documents including the draft Agreement for the Project is enclosed for the Bidders. The Feasibility Report / Detailed Project Report prepared by SAI/ consultants of SAI (the "**Feasibility Report/Detailed Project Report/Conceptual drawings**") is also enclosed. Subject to the provisions of Clause 2.1.3, the aforesaid documents and any addenda issued subsequent to this RFP Document, will be deemed to form part of the Bidding Documents.

1.2.4 A Bidder is required to submit, along with its BID, an EMD (the "**BID Security**"), refundable not later than 30 (Thirty) days after letter of Intent to the the selected bidder, except in the case of the Selected Bidder whose BID Security shall be retained till it has provided a Performance Security under the Agreement. The Bidders will have to submit EMD/Bid security online in following SAI Bank Account:

S. No.	Particulars	Details
1.	Name of Beneficiary	Secretary SAI
2.	Name of Bank	Union Bank of India
3.	Bank A/c No.	108510100032325
4.	IFSC Code	UBIN0810851

a. The bidder shall furnish Bid Security/EMD for an amount as shown in the bid document. The Bid Security is required to protect SAI against any non-compliance, misconduct, or withdrawal by the bidder. Failure to submit the Bid Security in the prescribed manner and within the stipulated timeline shall result in outright rejection of the bid, without any further consideration.

b. The bidder seeking EMD exemption, must submit the valid supporting document for the relevant category as along with the bid.

c. The Bid Security/ EMD shall be furnished in one of the following forms:

d. Account Payee Demand Draft

e. Fixed Deposit Receipt

f. Banker's cheque / Pay Order

g. Bank Guarantee (including e-PBG) from any of the commercial banks (as per the format at Annexure V),

h. NEFT transfer to "Secretary SAI, Union Bank of India Account No: 108510100032325, IFSC No. UBIN0810851 (Bidder has to upload challan/proof along with Bid one procurement portal).

i. Valid Insurance Surety Bonds

j. In case, submission of Bid Security in the form of a) to d) and f), following shall be ensured:

k. A scanned copy of the document shall be uploaded on e-Procurement Portal while applying to the tender.

l. The original document should be delivered to the official nominated as indicated in the tender document before closing date and time for submission of bids.

m. Non submission of scanned copy of bid security document with the bid on e-tendering portal and/or non-submission of original bid security document within the specified period shall lead to summary rejection of bid. Further. No request on account of postal delay shall be entertained

n. The Demand Draft, Fixed Deposit Receipt, Banker's Cheque, Insurance Surety Bonds or Bank Guarantee (including e-PBG) shall be drawn on any Nationalized/Scheduled Bank in India, in favour of the "Secretary, Sports Authority of India", payable at New Delhi. In case of Bank Guarantee, the same is to be obtained from any Nationalized /Scheduled bank in India as per the format specified under Annexure V of the Bid Document.

o. The Bid Security shall be valid for a period of forty-five (45) days beyond the validity period of the bid.

p. Bid Security of a bidder will be forfeited, if the bidder withdraws or amends its bid or impairs or derogates from the bid or is breach of any condition of the tender documents

in any respect within the period of validity of its bid without prejudice to other rights of SAI. Further, if a successful bidder fails to furnish the required Performance Security and sign the contract / agreement within the period as specified by SAI in the Letter of Intent/ Notification of Award (NoA), its Bid Security/EMD will be forfeited.

q. The EMD serves as a safeguard for SAI against any misconduct or non-compliance by the bidder. The Bid Security shall be forfeited without any further notice if the bidder withdraws, amends, revises, or modifies its bid in any manner within the bid validity period. It shall also be forfeited if the bidder submits false, misleading, forged, or incorrect information or documents, whether deliberately or due to negligence. Additionally, if the successful bidder fails to furnish the required Performance Security within the specified period or engages in fraudulent practices, misrepresentation, or attempts to unduly influence the bidding process at any stage, the Bid Security will be forfeited. Moreover, non-compliance with any conditions outlined in the tender document, as determined by SAI, shall also result in forfeiture of the EMD

r. Bid securities of the unsuccessful bidders shall be returned to them before expiry of the final bid validity and latest on or before the 30th day after the award of the contract. Bid securities of unsuccessful bidders during first stage i.e., technical evaluation etc. shall be returned within 30 days of declaration of result of first stage i.e., technical evaluation etc.

1.2.5 Bidders are advised to examine the Project in greater detail, and to carry out, at their cost, such studies as may be required for submitting their respective BIDs for award of the contract including implementation of the Project.

1.2.6 BIDs will be evaluated for the Project on the basis of the lowest cost required by a Bidder for implementing the Project (the "**BID Price**"). The total time allowed for completion of construction under the Agreement (the **—Construction Period**‖) and the period during which the Contractor shall be liable for maintenance and rectification of any defect or deficiency in the Project after completion of the Construction Period (the **—Defect Liability Period**‖) shall be pre-determined, and are specified in the draft Agreement forming part of the Bidding Documents.

In this RFP, the term **"Lowest Bidder"** shall mean the bidder who is quoting the lowest BID price.

1.2.7 Generally, the Lowest Bidder shall be the selected Bidder. In case such Lowest Bidder withdraws or is not selected for whatsoever reason, SAI shall annul the Bidding Process and invite fresh BIDs.

1.2.8 Other details of the process to be followed under this bidding process and the terms thereof are spelt out in this RFP.

1.2.9 Any queries or request for additional information concerning this RFP shall be submitted by e-mail to the officer designated in Clause 2.11.4 below with identification/ title: "Queries / Request for Additional Information: RFP for "Construction of Integrated facility, including Recovery Center, Conditioning, Bio-Mechanics and Athlete Habitat Complex (For 150 Athlete) in Guwahati, Assam ".

1.3 Schedule of Bidding Process

SAI shall endeavor to adhere to the following schedule:

S.No	Particular	Details
1.	Name of the work	Construction of Integrated facility, including Recovery Center, Conditioning, Bio-Mechanics and Athlete Habitat Complex (For 150 Athlete) in Guwahati, Assam
2.	Estimated cost of project management services (in figures And words)	20,43,54,290.00
3.	Estimated period for completion of project (In Months)	15 Months
4.	Date of publication:	12-11-2025
5.	Document downloading start date:	12-11-2025 from 06:00pm
6.	Last date and time of submission of queries for pre-bid conference	15-11-2025 till 05:00pm
7.	Virtual pre-bid conference	17-11-2025 at 11:00 am Link of pre bid: https://meet.google.com/fqu-dgjt-pyw
8.	Bid submission start date and time	19-11-2025 from 5:00 pm
9.	Bid submission end date and time	29-11-2025 till 5:00 pm
10.	Bid validity period	120 days from the last date of submission
11.	Mode of submission	Online submission on e-procurement portal
12.	Opening of technical bid date and time	01-12-2025 at 11:00 am
13.	Opening of financial bids	To be intimated later (minimum of 48 hours from opening of technical bid)
14.	Consortium/joint venture	Not allowed
15.	RFP document fee	Nil
16.	Bid security	INR 61,30,629.00 [3% of estimated amount].
17.	Bank account details of SAI	"Secretary SAI, Union Bank Of India, Account no: 108510100032325, IFSC no. UBIN0810851
18.	SAI's representative for this RFP purpose & address of correspondences	Deputy director (infra), sai email: infra-sai@gov.in

SECTION-2
INSTRUCTIONS TO BIDDERS

A. GENERAL

2.1. General terms of Bidding

2.1.1 No Bidder shall submit more than one BID for the Project. A Bidder bidding individually shall not be entitled to submit another BID.

2.1.2 An International Bidder bidding individually shall ensure that Power of Attorney is apostille by appropriate SAI and requirement of Indian Stamp Act is duly fulfilled.

2.1.3 The Feasibility Report / Detailed Project Report of the Project is being provided only as a preliminary reference document by way of assistance to the Bidders who are expected to carry out their own surveys, investigations and other detailed examinations of the Project before submitting their Bids. Nothing contained in the Feasibility Report/Detailed Project Report shall be binding on SAI nor confer any right on the Bidders, and SAI shall have no liability whatsoever in relation to or arising out of any or all contents of the Feasibility Report/Detailed Project Report.

2.1.4 Notwithstanding anything to the contrary contained in this RFP, the detailed terms specified in the draft Agreement shall have an overriding effect; provided, however, that any conditions or obligations imposed on the Bidder hereunder shall continue to have effect in addition to its obligations under the Agreement.

2.1.5 The BID shall be furnished in the format exactly as per this RFP i.e. Technical Bid as per Appendixes given in this RFP and Financial Bid as per format given in this RFP. BID amount shall be indicated clearly in both figures and words, in Indian Rupees in prescribed format of Financial Bid and it will be signed by the Bidder 's authorized signatory. In the event of any difference between figures and words, the amount indicated in words shall be taken into account.

2.1.6 The Bidder shall deposit a BID Security of Rs. 61,30,629.00 in accordance with the provisions of this RFP. The Bidder has to provide the BID Security in the form of a Bank Guarantee acceptable to SAI, as per format given in this RFP. The bidders shall also submit Demand Draft issued from a scheduled Bank in India in favor of Secretary, Sports Authority of India payable at New Delhi.

2.1.7 The validity period of the Bank Guarantee against Bid Security shall not be less than 165 (one hundred and Sixty five) days from the BID Due Date, and may be extended as may be mutually agreed between SAI and the Bidder. The BID shall be summarily rejected if it is not accompanied by the BID Security.

2.1.8 The Bidder should submit a Power of Attorney as per the format at given in this RFP, authorizing the signatory of the BID to commit the Bidder.

2.1.9 In case if applicable the Bidder is a Joint Venture, the Members thereof should furnish a Power of Attorney in favour of the Lead Member in the format given in this RFP. In case the Bidder is a Joint Venture, Joint Bidding Agreement in the format given in this

RFP shall be submitted by the bidder. (Not Applicable)

2.1.10 Any condition or qualification or any other stipulation contained in the BID shall render the BID liable to rejection as a non-responsive BID.

2.1.11 The BID and all communications in relation to or concerning the Bidding Documents and the BID shall be in English language.

2.1.12 The documents including this RFP and all attached documents provided by SAI are and shall remain or become the property of SAI and are transmitted to the Bidders solely for the purpose of preparation and the submission of a BID in accordance with this. Bidders are to treat all information as strictly confidential and shall not use it for any purpose other than for preparation and submission of their BID. The provisions of this Clause 2.1.12 shall also apply *mutatis mutandis* to BIDs and all other documents submitted by the Bidders, and SAI will not return to the Bidders any BID, document or any information provided along therewith.

2.1.13 This RFP is not transferable.

2.1.14 Any award of Project pursuant to this RFP shall be subject to the terms of Bidding Documents and also fulfilling the criterion as mentioned in clause 2.2.

2.1.15 In case if applicable the Bidder is a Joint Venture; it shall comply with the following additional requirements: (Not Applicable)

(a) Number of members in a Joint Venture shall not exceed 3 (Three);

(b) subject to the provisions of clause (a) above, the Bid should contain the information required for each Member of the Joint Venture;

(c) Members of the Joint Venture shall nominate one member as the lead member (the ―Lead Member‖). Lead Member shall met at least 60% of the requirement of General Capacity, Technical and Financial Capacity, required as per Clause 2.2.2.1, 2.2.2.2(i) & 2.2.2.3. The nomination(s) shall be supported by a Power of Attorney, as per the format given in this RFP, signed by all the other Members of the Joint Venture. Other Member(s) shall meet at least 20% requirement of Bid Capacity, Technical and Financial Capacity required as per Clause 2.2.2.1, 2.2.2.2(i) & 2.2.2.3 and the JV as a whole shall cumulatively/collectively fulfil the 100% requirement.

(d) the Bid should include a brief description of the roles and responsibilities of individual members, particularly with reference to financial, technical and defect liability obligations.

(e) an individual Bidder cannot at the same time be member of a Joint Venture applying for this Bid. Further, a member of a particular Bidder Joint Venture cannot be member of any other Bidder Joint Venture applying for this bid;

(f) Deleted,

(g) Members of the Joint Venture shall have entered into a binding Joint Bidding Agreement, substantially in the form given in this RFP (the JT. Bidding Agreement), for the purpose of making the Application and submitting a Bid in

the event of being pre-qualified. The Jt. Bidding Agreement, to be submitted along with the Application, shall, *inter alia*:

(i) convey the commitment(s) of the Lead Member in accordance with this RFP, in case the contract to undertake the Project is awarded to the Joint Venture; and clearly outline the proposed roles & responsibilities, if any, of each member.

(ii) commit the approximate share of work to be undertaken by each member.

(iii) include a statement to the effect that all members of the Joint Venture shall be liable jointly and severally for all obligations of the Contractor in relation to the Project until the completion of the Project (the ―Defects Liability Period) is achieved in accordance with the EPC Contract; and

(h) except as provided under this RFP, there shall not be any amendment to the Jt. Bidding Agreement.

(i) No Joint Venture up to Estimate Project Cost of Rs. 100 crores (One Hundred Crores).

2.1.16 Deleted.

2.1.17 Notwithstanding anything to the contrary contained herein, in the event that the Bid Due Date falls within three months of the closing of the latest financial year of a Bidder, it shall ignore such financial year for the purposes of its Bid and furnish all its information and certification with reference to the 5 (five) years or 1 (one) year, as the case may be, preceding its latest financial year. For the avoidance of doubt, financial year shall, for the purposes of a Bid hereunder, mean the accounting year followed by the Bidder in the course of its normal business.

2.1.18 Any entity which has been barred by the Sports Authority of India or its implementing agencies for the works and the bar subsists as on the date of Application, would not be eligible to submit the BID, either individually or as member of a Joint Venture.

2.1.19 The Bidder including individual or any of its Joint Venture Member should, in the last 2 (two) years, have neither failed to perform for the works by any State/central government, as evidenced by imposition of a penalty by an arbitral or judicial authority or a judicial pronouncement or arbitration award against the Bidder including individual or any of its Joint Venture Member, as the case may be, nor has been expelled or terminated by SAI or its implementing agencies for breach by such Bidder including individual or any of its Joint Venture Member.

2.1.19.1 The Bidder including individual or any of its Joint Venture Member may provide details of all their on-going projects along with updated stage of litigation, if so, against SAI / Governments.

2.1.19.2 The Bidder including individual or any of its Joint Venture Member may also provide details of updated on-going process of blacklisting if so, under any contract with SAI / Government.

2.1.19.3 SAI reserves the right to reject an otherwise eligible bidder on the basis of the information provided under clause 2.1.19. The decision of SAI in this case shall be final.

2.2 Eligibility and qualification requirements of Bidder

2.2.1 For determining the eligibility of Bidder the following shall apply:

(a) The Bidder may be a single entity or a group of entities (the **"Joint Venture"**), coming together to implement the Project. However, no Bidder applying individually or as a member of a Joint Venture, as the case may be, can be member of another Bidder. The term Bidder used herein would apply to both a single entity and a Joint Venture. However,in case the estimated cost of the project for which bid is invited is upto Rs. 100 Crore**, then Joint Venture shall not be allowed**.

(b) Bidder may be a natural person, private entity, or any combination of them with a formal intent to enter into a Joint Venture agreement or under an existing agreement to form a Joint Venture. A Joint Venture shall be eligible for consideration subject to the conditions set out in Clause 2.1.1 above.

(c) A Bidder shall not have a conflict of interest **(the "Conflict of Interest")** that affects the Bidding Process. Any Bidder found to have a Conflict of Interest shall be disqualified and liable for forfeiture of the BID Security or Performance Security as the case may be. A Bidder shall be deemed to have a Conflict of Interest affecting the Bidding Process, if:

(i) the Bidder, its Joint Venture Member (or any constituent thereof) and any other Bidder, its Member or any Member of its Joint Venture thereof (or any constituent thereof) have common controlling shareholders or other ownership interest; provided that this disqualification shall not apply in cases where the direct or indirect shareholding of a Bidder, or its Joint Venture Member thereof (or any shareholder thereof having a shareholding of more than 5% (five percent) of the paid up and subscribed share capital of such Bidder, or its Joint Venture Member, as the case may be), in the other Bidder, its Joint Venture Member is less than 5% (five percent) of the subscribed and paid up equity share capital thereof; provided further that this disqualification shall not apply to any ownership by a bank, insurance company, pension fund or a public financial institution referred to in section 4A of the Companies Act 1956. For the purposes of this Clause 2.2.1(c), indirect shareholding held through one or more intermediate persons shall be computed as follows: (aa) where any intermediary is controlled by a person through management control or otherwise, the entire shareholding held by such controlled intermediary in any other person (the **―Subject Person‖**) shall be taken into account for computing the shareholding of such controlling person in the Subject Person; and (bb) subject always to sub-clause (aa) above, where a person does not exercise control over an intermediary, which has shareholding in the Subject Person, the computation of indirect shareholding of such person in the Subject Person shall be undertaken on a proportionate basis; provided, however, that no such shareholding shall be reckoned under this sub-clause (bb) if the shareholding of such person in the intermediary is less than 26% of the subscribed and paid up equity shareholding of such intermediary; or

(ii) a constituent of such Bidder is also a constituent of another Bidder; or

(iii) such Bidder, or any of its Joint Venture Member thereof receives or has received any direct or indirect subsidy, grant, concessional loan or subordinated debt from any other Bidder, or any of its Joint Venture Member thereof or has provided any

such subsidy, grant, concessional loan or subordinated debt to any other Bidder, its member or any of its Joint Venture Member thereof; or

(iv) Such Bidder has the same legal representative for purposes of this Application as any other Bidder; or

(v) such Bidder, or any of its Joint Venture Member thereof has a relationship with another Bidder, or any of its Joint Venture Member thereof, directly or through common third party/ parties, that puts either or both of them in a position to have access to each other's information about, or to influence the Application of either or each other; or

(vi) such Bidder, or any of its Joint Venture Member thereof has participated as a consultant to SAI in the preparation of any documents, design or technical specifications of the Project.

(d) A Bidder shall be liable for disqualification and forfeiture of BID Security, if any legal, financial or technical adviser of SAI in relation to the Project is engaged by the Bidder, its Member or any Associate thereof, as the case may be, in any manner for matters related to or incidental to such Project during the Bidding Process or subsequent to the (i) issue of the LOA or (ii) execution of the Agreement.

In the event any such adviser is engaged by the selected Bidder or Contractor, as the case may be, after issue of the LOA or execution of the Agreement for matters related or incidental to the project, then notwithstanding anything to the contrary contained herein or in the LOA or the Agreement and without Prejudice to any other right or remedy or SAI, including the forfeiture and appropriation of the BID Security or Performance Security, as the case may be, which SAI may have there under or otherwise, the LOA or the Agreement, as the case may be, shall be liable to be terminated without SAI being liable in any manner whatsoever to the Selected Bidder or Contractor for the same. For avoidance or doubt, this disqualification shall not apply where such adviser was engaged by the Bidder, its Member or Associate in the past but its assignment expired or was terminated 6 (six) months prior to the date of issue of this RFP. Nor will this disqualification apply where such adviser is engaged after a period of 3 (three) years from the date of commercial operation of the Project.

2.2.2 **Minimum Qualification requirements of Bidders:**

2.2.2.1 **General Capacity**

(i) EPF Registration: Preferably the agency should have EPF registration, in case EPF registration is not there, the agency should obtain EPF registration on allotment of work. In case of failure, SAI will deduct EPF & deposit as per EPF norms.

(ii) Goods & Services Tax (GST) Registration: Bidder must have a valid Goods & Services Tax Registration.

(iii) Joint Venture: Joint Ventures are not permitted.

(iv) PAN: Bidder should have valid Permanent Account Number (PAN) of Income Tax.

(v) Registration: The Bidder must submit valid registration certificate of civil contractor in proper category issued by any Central/ State Government Organization.

(vi) Labor License: Bidder should have Labor License from Central or State Govt. If not, they

may participate in the tenders but on being awarded they must have to obtain License from Central Govt. within one month from the date of issue of Letter of Acceptance.

(vii) **ESI Registration:** Preferably, the agency should possess ESI registration. In case ESI registration is not available, the agency must obtain ESI registration upon allotment of work. Failure to comply will result in SAI deducting the applicable ESI contribution and depositing it as per prevailing ESI norms.

2.2.2.2 **Technical Capacity:**

(i) For Bidder, he should have the experience of completion of similar works during last 7 years, ending last day of month previous to the one in which tenders are invited should be either of the following:

a. Three similar completed works each costing not less than the amount equal to 40% of the estimated cost. Certificate should be attached.

Or

b. Two similar completed works each costing not less than the amount equal to 50% of the estimated cost. Certificate should be attached.

Or

c. One similar completed work costing not less than the amount equal to 80% of the estimated cost. Certificate should be attached.

(ii) Similar works mean: Civil work comprising – Establishment of an energy efficient, High-quality air-conditioned Hostel/ Residential Building/ Commercial malls/Assembly building in Steel/PEB/ Hybrid structure in a single contract as per approved standards in Central / State Govt/ Departments/PSUs

(iii) The value of executed works shall be brought to the current costing level by enhancing the actual value of work at a simple rate of 7% per annum calculated from the date of completion to last date of receipt of applications for tenders. Bidder should submit copies of Work order as well as completion certificate.

(iv) Existing commitment and ongoing works: Intending bidders must submit this information in a specified format uploaded with Tender Documents.

2.2.2.3 **Financial Capacity**:

(i) Turnover: Average Annual Financial Turnover on construction works during the last 3 years, ending 31st March of the previous financial year i.e. 2024-25, should be at least 100% of the estimated cost. Applicant has to attach the Balance Sheet along with profit & loss statement duly certified by Chartered Accountant for last five years.

Note: In case the Balance sheet for FY 2024-25 has not been audited yet then Audited balance sheet for FY 2021-22, FY 2022-23 and FY 2023-24 shall be considered for evaluation. Applicant has to attached Balance sheet along with profit and Loss Statement duly certified by Chartered Accountant

(ii) Profitability: The applicant should be a profit-making firm and have not incurred losses for more than two years out of last five years ending 31st March, 2025 duly certified by Chartered Accountant.

(iii) Bank Solvency: The Tenderer shall possess a solvency certificate for an amount equivalent to at least 40% of the estimated project cost, duly certified by a recognized bank. This certificate must be uploaded at the time of tender submission on the designated website. A solvency certificate issued within six (6) months prior to the last date of tender submission shall be considered valid.

2.2.2.4 In case of a Joint Venture: (Not Applicable)

(i) The General Capacity, Technical Capacity and Financial Capacity of all the Members of Joint Venture would be considered for satisfying the above conditions of eligibility. Further, Lead Member shall meet at least 60% requirement of General Capacity, Technical and Financial Capacity as per Clause 2.2.2.1, 2.2.2.2(i) and 2.2.2.3 and each of other JV members shall meet at least 20% requirement of General Capacity, Technical and Financial Capacity individually as per Clause 2.2.2.1, 2.2.2.2(i) and 2.2.2.3. For avoidance of doubt it is further clarified that the Joint Venture must collectively and individually satisfy the above qualification criteria i.e. JV shall cumulatively/collectively fulfill the 100% requirement.

(ii) For requirement of 2.2.2.2 (ii), one similar work of 25% of Estimated Project Cost should have been completed from the Eligible Projects specified in Clause 2.2.2.5 individually by any of the JV members as a single work.

2.2.2.5 **Submission in support of Technical Capacity**

(i) The Bidder should furnish the details of Eligible Experience (Work Order/MoU and completion certificate for the project issued by an officer of Executive Engineer or Equivalent rank)
(ii) The Bidder must provide the necessary information relating to Technical Capacity as per format at of this RFP
(iii) The Bidder should furnish the required Project-specific information and evidence in support of its claim of Technical Capacity, as per format of this RFP.

2.2.2.6 **Submission in support of financial capacity**
(i) The Technical Bid must be accompanied by the Audited Annual Reports of the Bidder (of each Member in case of a Joint Venture) for the last 5 (five) financial years, preceding the year in which the bid is submitted.
(ii) In case the annual accounts for the latest financial year are not audited and therefore the Bidder cannot make it available, the Bidder shall give an undertaking to this effect and the statutory auditor shall certify the same. In such a case, the Bidder shall provide the Audited Annual Reports for 5 (five) years preceding the year for which the Audited Annual Report is not being provided.

2.2.2.7 The Bidder shall enclose with its Technical Bid, to be submitted as per the format at

Appendixes, the following:

(i) Certificate(s) from its statutory auditors or the concerned client(s) stating the payments received in respect of the Eligible Projects. In case a particular job/ contract has been jointly executed by the Bidder (as part of a Joint Venture), it should further support its claim for the payments received or construction carried out by itself in Projects as applicable the share in work done for that particular job/ contract by producing a certificate from its statutory auditor or the client; and

(ii) Certificate(s) from its statutory auditors specifying the net worth of the Bidder, as at the close of the preceding financial year, and also specifying that the methodology adopted for calculating such net worth conforms to the provisions of this Clause. For the purposes of this RFP, net worth (the **"Net Worth"**) shall mean the aggregate value of the paid-up share capital and all reserves created out of the profits and securities premium account, after deducting the aggregate value of the accumulated losses, deferred expenditure and miscellaneous expenditure not written off, as per the audited balance sheet, but does not include reserves created out of revaluation of assets, write-back of depreciation and amalgamation.

2.3 Proprietary data

All documents and other information supplied by SAI or submitted by a Bidder to SAI shall remain or become the property of SAI. Bidders are to treat all information as strictly confidential and shall not use it for any purpose other than for preparation and submission of their Bid. SAI will not return any Bid or any information provided along therewith.

2.4 Cost of Bidding

The Bidders shall be responsible for all of the costs associated with the preparation of their BIDs and their participation in the Bidding Process. SAI will not be responsible or in any way liable for such costs, regardless of the conduct or outcome of the Bidding Process.

2.5 Site visit and verification of information

2.5.1 Bidders are encouraged to submit their respective BIDs after visiting the Project site and ascertaining for themselves the site conditions, traffic, location, surroundings, climate, availability of power, water & other utilities for construction, access to site, handling and storage of materials, weather data, applicable laws and regulations, and any other matter considered relevant by them. Bidders are advised to visit the site and familiarize themselves with the Project within the stipulated time of submission of the Bid. No extension of time is likely to be considered for submission of Bids.

2.5.2 It shall be deemed that by submitting a BID, the Bidder has:

(a) Made a complete and careful examination of the Bidding Documents, Schedules annexed to EPC agreement Document.
(b) Received all relevant information requested from SAI.
(c) Accepted the risk of inadequacy, error or mistake in the information provided

in the Bidding Documents or furnished by or on behalf of SAI relating to any of the matters referred to in Clause 2.5.1 above. No claim shall be admissible at any stage on this account.

(d) Satisfied itself about all matters, things and information including matters referred to in Clause 2.5.1 hereinabove necessary and required for submitting an informed BID, execution of the Project in accordance with the Bidding Documents and performance of all of its obligations thereunder.

(e) Acknowledged and agreed that inadequacy, lack of completeness or incorrectness of information provided in the Bidding Documents or ignorance of any of the matters referred to in Clause 2.5.1 hereinabove shall not be a basis for any claim for compensation, damages, extension of time for performance of its obligations, loss of profits etc. from SAI, or a ground for termination of the Agreement by the Contractor;

(f) Acknowledged that it does not have a Conflict of Interest; and

(g) Agreed to be bound by the undertakings provided by it under and in terms hereof.

2.5.3 SAI shall not be liable for any omission, mistake or error in respect of any of the above or on account of any matter or thing arising out of or concerning or relating to RFP, including any error or mistake therein or in any information or data given by SAI.

2.6 Verification and Disqualification

2.6.1 SAI reserves the right to verify all statements, information and documents submitted by the Bidder in response to the RFP and the Bidder shall, when so required by SAI, make available all such information, evidence and documents as may be necessary for such verification. Any such verification, or lack of such verification, by SAI shall not relieve the Bidder of its obligations or liabilities hereunder nor will it affect any rights of SAI thereunder.

2.6.2 SAI reserves the right to reject any BID and appropriate the BID Security if:

(a) At any time, a material misrepresentation is made or uncovered, or

(b) The Bidder does not provide, within the time specified by SAI, the supplemental information sought by SAI for evaluation of the BID.

(c) Such misrepresentation/ improper response shall lead to the disqualification of the Bidder. If the Bidder is a Joint Venture, then the entire Joint Venture and each Member of the Joint Venture may be disqualified/ rejected. If such disqualification/rejection occurs after the BIDs have been opened and the lowest Bidder gets disqualified / rejected, then SAI reserves the right to annul the Bidding Process and invites fresh BIDs.

2.6.3 In case it is found during the evaluation or at any time before signing of the Agreement or after its execution and during the period of defect liability, subsistence thereof, that one or more of the eligibility and /or qualification requirements have not been met by the Bidder, or the Bidder has made material misrepresentation or has given any materially incorrect or false information, the Bidder shall be disqualified forthwith if not yet appointed as the contractor either by issue of the LOA or

entering into of the Agreement, and if the Selected Bidder has already been issued the LOA or has entered into the Agreement, as the case may be, the same shall, notwithstanding anything to the contrary contained therein or in this RFP, be liable to be terminated, by a communication in writing by SAI to the Selected Bidder or the Contractor, as the case may be, without SAI being liable in any manner whatsoever to the Selected Bidder or the Contractor. In such an event, SAI shall be entitled to forfeit and appropriate the BID Security or Performance Security, as the case may be, as Damages, without prejudice to any other right or remedy that may be available to SAI under the Bidding Documents and / or the Agreement, or otherwise.

B. DOCUMENTS

2.7 Contents of the RFP

2.7.1 This RFP comprises the Disclaimer set forth hereinabove, the contents as listed below and will additionally include any Addenda issued in accordance with Clause 2.9.

Part –I

Invitation to BIDs

Section 1. Introduction
Section 2. Instructions to Bidders Section 3. Evaluation of BIDs
Section 4. Fraud and Corrupt Practices Section 5. Pre-BID Conference Section 6. Miscellaneous
Section 7. Taxes and Other Duties

Appendices

I. Tender Form
II. Acceptance of Tender Conditions
III. General Information
IV. List of Machineries
V. Financial Turnover
VI. Details of completed Similar work
VII. Details of Ongoing Work
VIII. Past Contractual Performance
IX. Bank Details
X. Sample formal for Banking reference
XI. Litigation History
XII. GST Details
XIII. Percentage of Local Content
XIV. Solvency Certificate
XV. Bank Guarantee
XVI. Format of POA
XVII. Format of POA (JV)
XVIII. Format of Joint Bidding
XIX. Format of Integrity Pact
XX. Bank Guarantee for MA
XXI. Anti-Termite Guarantee

Part –II
Agreement Document with schedules

Part – III
[Feasibility Report / Detailed Project Report provided by SAI]

2.7.2 The draft Agreement and the Feasibility / Detailed Project Report provided by SAI as part of the BID Documents shall be deemed to be part of this RFP.

2.8 Clarifications

2.8.1 Bidders requiring any clarification on the RFP may notify SAI in writing by e-mail in accordance with Clause 1.2.9. They should send in their queries on or before the date mentioned in the Schedule of Bidding Process specified in Clause 1.3. The responses will be uploaded in the e-tendering website.

2.8.2 SAI shall endeavor to respond to the questions raised or clarifications sought by the Bidders. However, SAI reserves the right not to respond to any question or provide any clarification, in its sole discretion, and nothing in this Clause shall be taken or read as compelling or requiring SAI to respond to any question or to provide any clarification.

2.8.3 SAI may also in its own motion, if deemed necessary, issue interpretations & clarifications to all Bidders. All clarifications & interpretations issued by SAI shall be deemed to be part of the Bidding Documents. Verbal clarifications and information given by SAI or its employees or representatives shall not in any way or manner be binding on SAI.

2.9 Amendment of RFP

2.9.1 At any time prior to the BID Due Date, SAI may, for any reason, whether at its own initiative or in response to clarifications requested by a Bidder, modify the RFP by the issuance of Addenda.

2.9.2 Any Addendum issued hereunder will be hosted on the [SAI website http://sportsauthorityofindia.gov.in.] and e-Tendering Portal (http://eprocure.gov.in/eprocure/app)].

2.9.3 In order to afford the Bidders a reasonable time for taking an Addendum into account, or for any other reason, SAI may, in its sole discretion, extend the BID Due Date.

C. PREPARATION AND SUBMISSION OF BIDS

2.10 Format and Signing of BID

The Bidder shall provide all the information sought under this RFP. The Authority will evaluate only those BIDs that are received online in the required formats and complete in all respects and Bid Security, Copy of online receipt towards payment of cost of Bid document , POA and Joint Bidding Agreement etc. are received in hard ccopies.

2.10.1 All the alterations, omissions, additions or any other amendments made to the BID shall be initialed/digitally signed by the person(s) signing the BID.

2.11 Documents comprising Technical and Financial BID

2.11.1 The Bidder shall submit the Technical BID & Financial Bid online through e-procurement portal comprising of the following documents along with supporting documents as appropriate:

Technical Bid

(a) Appendix-I to XXI and supporting certificates / documents.

(b) Power of Attorney for signing the BID as per the format of the RFP;

(c) if applicable, Power of Attorney for Lead Member of Joint Venture as per the format of the RFP;

(d) if applicable, Joint Bidding Agreement for Joint Venture as per the format ot the RFP;

(e) BID Security.

(f) Copy of online receipt towards payment of cost of Bid document. (Not Applicable)

(g) Proof of payment of tender processing fee. (Not Applicable)

(h) An undertaking from the person having PoA referred to in Sub. Clause-(b) above that they agree and abide by the Bid documents uploaded by SAI and amendments uploaded, if any; and

(i)

Financial Bid

(j) BOQ, Duly quoted and digitally signed in the file supplied by the employer shall be uploaded.

2.11.2 Deleted

2.11.3 Deleted
2.11.4 Deleted
2.11.5 Deleted
2.11.6 BIDs submitted by fax, telex, telegram or e-mail shall not be entertained and shall be summarily rejected.

2.12 BID Due Date

Technical & Financial BID comprising of the documents listed at clause 2.11.1 of the RFP shall be submitted online through e-procurement portal [http://eprocure.gov.in/eprocure/app] on or before the date and time mentioned in clause 2.11.2. A receipt thereof should be obtained from the person specified at Clause 2.11.4.

2.13 Late BIDs

E-procurement portal [http://eprocure.gov.in/eprocure/app] shall not allow submission of any Bid after the prescribed date and time at clause 2.12. Physical receipt of documents listed at clause 2.11.2 of the RFP after the prescribed date and time at clause 2.12 shall not be considered and the bid shall be summarily rejected.

2.14 Procedure for e-tendering

2.14.1 Accessing/ Purchasing of BID documents

2.14.1.1 It is mandatory for all the Bidders to have class-III Digital Signature Certificate (DSC)(in the name of Authorized Signatory / Firm or Organization / Owner of the Firm or organization) from any of the licensed Certifying Agency (Bidders can see the list of licensed CAs from the link www.cca.gov.in) to participate in e-tendering.
DSC should be in the name of the authorized signatory. It should be in corporate capacity (that is in Bidder capacity / in case of JV in the Lead Member capacity, as applicable).

2.14.1.2 To participate in the bidding, it is mandatory for the Bidders to get registered their firm / Joint Venture with e-procurement portal [[http://eprocure.gov.in/eprocure/app] to have user ID & password which has to be obtained by submitting an annual registration charges (Inclusive of all taxes) to the e-tendering service provider through their e-payment gateway. Validity of online registration is 1 (one) year. Following may kindly be noted:

(a) Registration with an e-procurement portal should be valid at least up to the date of submission of BID.

(b) BIDs can be submitted only during the validity of registration.

2.14.1.3 Deleted.

2.14.1.4 The complete BID document can be viewed / downloaded by the Bidder from e-procurement portal [http://eprocure.gov.in/eprocure/app].

2.14.1.5 Deleted.

2.14.2 **Preparation & Submission of BIDs:**

2.14.2.1 The Bidder may be submitted to his Bid online following the instruction appearing on the screen. A buyer manual containing the detailed guidelines for e-procurement is also available on e-procurement portal.

2.14.2.2 The documents listed in clause 2.11.1 shall be prepared and scanned in different files and uploaded during the on-line submission of BID.

2.14.2.3 Bid must be submitted online only through e-procurement portal [http://eprocure.gov.in/eprocure/app] using the digital signature of authorized representative of the Bidder.

2.14.3 **Modifications/ Substitution/ withdrawal of BIDs**

2.14.3.1 The Bidder may modify, substitute or withdraw its e- BID after submission prior to the BID Due Date. No BID can be modified, substituted or withdrawn by the Bidder on or after the BID Due Date & Time.

2.14.3.2 For modification of e-BID, Bidder has to detach its old BID from e-procurement portal and upload / resubmit digitally signed modified BID. For withdrawal of BID, bidder has to click on withdrawal icon at e-procurement portal and can withdraw its e-BID. Before withdrawal of a BID, it may specifically be noted that after withdrawal of a BID for any reason, Bidder cannot re-submit e-BID again.

2.15 Online Opening of BIDs.

2.15.1 Opening of BIDs will be done through online process.

2.15.2 SAI shall open Technical BIDs online. SAI will subsequently examine and evaluate the BIDs in accordance with the provisions of Section 3 of RFP.

2.16 Rejection of BIDs

2.16.1 Notwithstanding anything contained in this RFP, SAI reserves the right to reject any BID and to annul the Bidding Process and reject all BIDs at any time without any liability or any obligation for such acceptance, rejection or annulment, and without assigning any reasons thereof. In the event that SAI rejects or annuls all the BIDs, it may, in its discretion, invite all eligible Bidders to submit fresh BIDs hereunder.

2.16.2 SAI reserves the right not to proceed with the Bidding Process at any time, without notice or liability, and to reject any BID without assigning any reasons.

2.17 Validity of BIDs

The BIDs shall be valid for a period of not less than 120 (one hundred and twenty) days from the BID Due Date. The validity of BIDs may be extended by mutual consent of the respective Bidders and SAI.

2.18 Confidentiality

Information relating to the examination, clarification, evaluation and recommendation for the Bidders shall not be disclosed to any person who is not officially concerned with the process or is not a retained professional advisor advising SAI in relation to, or matters arising out of, or concerning the Bidding Process. SAI will treat all information submitted as part of the BID, in confidence and will require all those who have access to such material to treat the same in confidence. SAI may not divulge any such information unless it is directed to do so by any statutory entity that has the power under law to require its disclosure or is to enforce or assert any right or privilege of the statutory entity and/ or SAI or as may be required by law or in connection with any legal process.

2.19 Correspondence with the Bidder

Save and except as provided in this RFP, SAI shall not entertain any correspondence with any Bidder in relation to acceptance or rejection of any BID.

However, SAI would display the result of technical evaluation on the web portal and the financial bid will be opened thereafter.

2.19.1 **Performance Guarantee**

To ensure due performance of the contract, the successful bidder shall furnish a Performance Security in the form of a Unconditional Performance Bank Guarantee (PBG) or other acceptable instruments. The Performance Security shall be:

- **Amount:** Equivalent to five percent (5%) of the total contract value.
- **Forms Accepted:** Insurance Surety Bond, Account Payee Demand Draft, Fixed Deposit Receipt from a commercial bank, Unconditional Bank Guarantee issued/confirmed by any commercial bank in India, or online payment in an acceptable form.
- **Joint Ventures (JV):** In case of a JV, the Performance Security shall be provided by all partners in proportion to their participation in the project.

The Performance Security must be submitted within fourteen (14) days from the date of notification of award and shall remain valid for sixty (60) days beyond the completion of all contractual obligations, including the Defect Liability Period (DLP).

In the event of breach of contract by the contractor, the Performance Security shall be forfeited and credited to the SAI's account. Upon successful completion of all contractual obligations, the Performance Security shall be refunded to the contractor without interest, no later than three hundred sixty-five (365) days from the completion of the DLP.

SECTION-3
EVALUATION OF TECHNICAL BIDS AND OPENING & EVALUATION OF FINANCIAL BIDS

3.1 Evaluation of Technical Bids

3.1.1 SAI shall open the BIDs received online as per details given specified in Clause 2.11.4..

3.1.2 Technical Bids of those Bidders who have not submitted their Bid online, shall not be considered for opening and evaluation.

3.1.3 If any information furnished by the Bidder is found to be incomplete, or contained in formats other than those specified herein, SAI may, in its sole discretion, exclude the relevant information for consideration of eligibility and qualification of the Bidder.

3.1.4 To facilitate evaluation of Technical BIDs, SAI may, at its sole discretion, seek clarifications in writing from any Bidder regarding its Technical BID. Such clarification(s) shall be provided within the time specified by SAI for this purpose. Any request for clarification(s) and all clarification(s) in response thereto shall be in writing.

3.1.5 If a Bidder does not provide clarifications sought under Clause 3.1.4 above within the prescribed time, its Bid may be liable to be rejected. In case the Bid is not rejected, SAI may proceed to evaluate the Bid by construing the particulars requiring clarification to the best of its understanding, and the Bidder shall be barred from subsequently questioning such interpretation of SAI.

3.1.6 **Tests of responsiveness**

3.1.6.1 As a first step towards evaluation of Technical BIDs, SAI shall determine whether each Technical BID is responsive to the requirements of this RFP. A Technical BID shall be considered responsive only if:

a. Technical BID is received online as per the format of this RFP;
b. Documents listed at clause 2.11.2 are received
c. Technical Bid is accompanied by the BID Security as specified in Clause 2.1.6 and 2.1.7;
d. Technical Bid is accompanied by the Power of Attorney as specified in Clauses 2.1.8;
e. Technical Bid is accompanied by Power of Attorney for Lead Member of Joint Venture and the Joint Bidding Agreement as specified in Clause 2.1.9, if so required;(Not applicable) Technical Bid contains all the information (complete in all respects);
f. Technical Bid does not contain any condition or amendment; and

3.1.6.2 SAI reserves the right to reject any Technical BID which is non-responsive and no request for alteration, modification, substitution or withdrawal shall be entertained by SAI in respect of such BID.

3.1.7 In the event that a Bidder claims credit for an Eligible Project, and such claim is determined by SAI as incorrect or erroneous, SAI may reject / correct such claim for the purpose of qualification requirements.

3.1.8 SAI will get the BID security verified from the issuing SAI and after due verification, SAI will evaluate the Technical BIDs for their compliance to the eligibility and qualification requirements pursuant to clause 2.2.1 & 2.2.2 of this RFP.

3.1.9 After evaluation of Technical Bids, SAI will publish a list of Technically Eligible Bidders whose financial bids shall be opened. SAI shall notify other bidders that they have not been technically responsive. SAI will not entertain any query or clarification from Applicants who fail to qualify.

3.2 Opening and Evaluation of Financial Bids

SAI shall inform the venue and time of online opening of the Financial Bids to the technically eligible Bidders through e-procurement portal and e-mail. SAI shall open the online Financial Bids of the eligible bidders only on schedule date and time.

3.3 Selection of Bidder

3.3.1 Subject to the provisions of Clause 2.16.1, the Bidder whose BID is adjudged as responsive in terms of Clause 3.1.6 and who quotes lowest price shall be declared as the selected Bidder (the ―**Selected Bidder**‖).

3.3.2 In case there is tie i.e. two or more than two bidders quoted the same rate and are lowest then final selection will be based on lottery among the bidders who have quoted the same rate.

3.3.3 In the event that the Lowest Bidder is not selected for any reason, SAI shall annul the Bidding Process and invite fresh BIDs. In the event that SAI rejects or annuls all the BIDs, it may, in its discretion, invite all eligible Bidders to submit fresh BIDs hereunder.

3.3.4 After selection, a Letter of Intent (the ―LOI) shall be issued, in duplicate, by SAI to the Selected Bidder and the Selected Bidder shall, within 7(seven) days of the receipt of the LOI, sign and return the duplicate copy of the LOI in acknowledgement thereof. In the event the duplicate copy of the LOI duly signed by the Selected Bidder is not received by the stipulated date, SAI may, unless it consents to extension of time for submission thereof, appropriate the BID Security of such Bidder as Damages on account of failure of the Selected Bidder to acknowledge the LOAI

3.3.5 After acknowledgement of the LOA as aforesaid by the Selected Bidder, it shall cause the Bidder to execute the Agreement within the period prescribed in Clause 1.3. The Selected Bidder shall not be entitled to seek any deviation, modification or amendment in the Agreement.

3.3.6 SAI shall return Bid Security of all bidders except L-1 within 30 Days from opening of

financial bid.

3.4 Contacts during BID Evaluation

BIDs shall be deemed to be under consideration immediately after they are opened and until such time SAI makes official intimation of award/ rejection to the Bidders. While the BIDs are under consideration, Bidders and/ or their representatives or other interested parties are advised to refrain, save and except as required under the Bidding Documents, from contacting by any means, SAI and/ or their employees/ representatives on matters related to the BIDs under consideration.

3.5 Correspondence with Bidder

Save and except as provided in this RFP, SAI shall not entertain any correspondence with any Bidder in relation to the acceptance or rejection of any Bid.

3.6 Any information contained in the Bid shall not in any way be construed as binding on SAI, its agents, successors or assigns, but shall be binding against the Bidder if the Project is subsequently awarded to it on the basis of such information.

3.7 SAI reserves the right not to proceed with the Bidding Process at any time without notice or liability and to reject any or all Bid(s) without assigning any reasons.

SECTION-4

4. FRAUD AND CORRUPT PRACTICES

4.1 The Bidders and their respective officers, employees, agents and advisers shall observe the highest standard of ethics during the Bidding Process and subsequent to the issue of the LOA and during the subsistence of the Agreement. Notwithstanding anything to the contrary contained herein, or in the LOA or the Agreement, SAI may reject a BID, withdraw the LOA, or terminate the Agreement, as the case may be, without being liable in any manner whatsoever to the Bidder, if it determines that the Bidder, directly or indirectly or through an agent, engaged in corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice in the Bidding Process. In such an event, SAI shall be entitled to forfeit and appropriate the BID Security or Performance Security, as the case may be, as Damages, without prejudice to any other right or remedy that may be available to SAI under the Bidding Documents and/ or the Agreement, or otherwise.

4.2 Without prejudice to the rights of SAI under Clause 4.1 hereinabove and the rights and remedies which SAI may have under the LOA or the Agreement, or otherwise if a Bidder or Contractor, as the case may be, is found by SAI to have directly or indirectly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice during the Bidding Process, or after the issue of the LOA or the execution of the Agreement, such Bidder shall not be eligible to participate in any tender or RFP issued by SAI during a period of 2 (two) years from the date such Bidder, or Contractor, as the case may be, is found by SAI to have directly or indirectly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practices, as the case may be.

4.3 For the purposes of this Section 4, the following terms shall have the meaning hereinafter respectively assigned to them:

(a) Corrupt practice‖ means (i) the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the actions of any person connected with the Bidding Process (for avoidance of doubt, offering of employment to or employing or engaging in any manner whatsoever, directly or indirectly, any official of SAI who is or has been associated in any manner, directly or indirectly, with the Bidding Process or the LOA or has dealt with matters concerning the Agreement or arising therefrom, before or after the \ execution thereof, at any time prior to the expiry of one year from the date such official resigns or retires from or otherwise ceases to be in the service of SAI, shall be deemed to constitute influencing the actions of a person connected with the Bidding Process); or (ii) save and except as permitted under the Clause 2.2.1(d) of this RFP, engaging in any manner whatsoever, whether during the Bidding Process or after the issue of the LOA or after the execution of the Agreement, as the case may be, any person in respect of any matter relating to the Project or the LOA or the Contract Agreement, who at any time has been or is a legal, financial or technical adviser of SAI in relation to any matter concerning the Project;

(b) Fraudulent practice‖ means a misrepresentation or omission of facts or suppression of facts or disclosure of incomplete facts, in order to influence the Bidding Process;

(c) Coercive practice‖ means impairing or harming, or threatening to impair or harm, directly or indirectly, any person or property to influence any person's participation or action in the Bidding Process;

(d) Undesirable practice‖ means (i) establishing contact with any person connected with or employed or engaged by SAI with the objective of canvassing, lobbying or in any manner influencing or attempting to influence the Bidding Process; or (ii) having a Conflict of Interest; and

(e) Restrictive practice‖ means forming a cartel or arriving at any understanding or arrangement among Bidders with the objective of restricting or manipulating a full and fair competition in the Bidding Process.

SECTION-5

5. PRE-BID CONFERENCE

5.1 Clarification, if any required, may be obtained from the office of the Engineering Wing, SAI, Jawaharlal Nehru Stadium Complex (East Gate, Lodhi Rd, New Delhi, Delhi - 110 003.

5.2 Pre-BID conference of the Bidders shall be convened at the designated date, time and place. A maximum of two representatives of prospective Bidders shall be allowed to participate on production of authority letter from the Bidder.

5.3 During the course of Pre-Bid conference(s), the Bidders will be free to seek clarifications and make suggestions for consideration of SAI. SAI shall endeavor to provide clarifications and such further information as it may, in its sole discretion, consider appropriate for facilitating a fair, transparent and competitive Bidding Process.

SECTION-6

6. MISCELLANEOUS

6.1 The Bidding Process shall be governed by, and construed in accordance with, the laws of India and the Courts at New Delhi shall have exclusive jurisdiction over all disputes arising under, pursuant to and/ or in connection with the Bidding Process.

6.2 SAI, in its sole discretion and without incurring any obligation or liability, reserves the right, at any time, to;

(a) suspend and/ or cancel the Bidding Process and/ or amend and/ or supplement the Bidding Process or modify the dates or other terms and conditions relating thereto;
(b) consult with any Bidder in order to receive clarification or further information;
(c) retain any information and/ or evidence submitted to SAI by, on behalf of, and/ or in relation to any Bidder; and/ or
(d) independently verify, disqualify, reject and/ or accept any and all submissions or other information and/ or evidence submitted by or on behalf of any Bidder.

6.3 It shall be deemed that by submitting the Bid, the Bidder agrees and releases SAI, its employees, agents and advisers, irrevocably, unconditionally, fully and finally from any and all liability for claims, losses, damages, costs, expenses or liabilities in any way related to or arising from the exercise of any rights and/ or performance of any obligations hereunder, pursuant hereto and/ or in connection with the Bidding Process and waives, to the fullest extent permitted by applicable laws, any and all rights and/ or claims it may have in this respect, whether actual or contingent, whether present or in future.

SECTION-7

7. TAXES AND DUTIES

7.1 The contract price is inclusive of all taxes, duties, cess and statutory levies payable under any law including but not restricted to Goods and Service Tax (GST) levied by Union and State Governments (CGST, SGST, UTGST, IGST), EPF, ESI, Labour Cess, Royalty, Toll Tax and any other such taxes and duties leviable by local/State/Union Government from time to time on all such articles, materials which may be used for this work or any other tax (duty etc.) paid by the contractor.

7.2 In case of any change in rate of tax or any provision relating levy of tax resulting in increase in burden of tax on the contractor, the contractor shall not be entitled to receive any compensation for such increase in quantum of tax on the contractor unless otherwise specified. Similarly, no recovery shall be made from the contractor on account of decrease of rate of tax or any provision relating to levy of tax.

7.3 Contractor must be registered under Goods and Service tax (GST) laws, and copy of the registration certificate of the same shall be submitted to SAI.

7.4 Apart from the registration above contractors shall also obtain all other necessary registrations required under any other Local/State/Union Government Statute, for the execution of this contract, if any.

7.5 Contractor must submit as a compliance of GST Laws, Tax Invoice, as per applicable rules and regulations under the GST Act(s), failing which GST amount will be recovered by SAI without any recourse or prior notice from the next Invoices/ Security Deposit/ Bank Guarantees and/or available dues with SAI.

7.6 The contractor/service provider shall be responsible for issuing of Tax Invoices, filing of statutory return and deposit of statutory taxes within the time limit as prescribed in law. Any interest/penalty/taxes (non availment of Input Tax Credit due to mismatch to GSTR2) which is required to be paid by SAI due to default by the Contractor/service provider to comply with the above-mentioned activity/provisions as prescribed in laws, rules and regulations shall be recovered from the Contractor/Service provider and adjustment shall be made when mismatch is attended and solved and credit is extended to SAI.

7.7 Apart from compliance, in the event of nonpayment/default in payment of taxes and duties and any other statutory compliances, under any other Local/State/Union Government Statute, SAI reserves the right to withhold the dues/payment of contractor and make payment to Local/State/Union Government authorities or to Labourers, as may be applicable.

APPENDIX

APPENDIX I
TENDER FORM

To,
Sports Authority of India (SAI),
Jawaharlal Nehru Stadium Complex East Gate,
Lodhi Rd, New Delhi, Delhi - 110 003

(i) I/We, …… [Name & address of the Bidder] ….....have read the various terms and conditions of the Bid documents together with Addendum no(s)/Errata no(s) attached here with duly signed by me/us and agree to abide by the same.

(ii) I/We hereby declare that we are aware of the site of work and have made ourselves fully conversant of the conditions therein and including the topography of area, soil strata at site of work, sources and availability of construction materials, rates of construction materials, water, electricity, all local taxes, royalties, octrois etc., availability of local labour (both skilled and unskilled), relevant labour rates and labour laws, the existing road and approaches to the site of work, requirements for further service roads / approaches to be constructed by me / us, the availability and rates of private land etc. that may be required by me / us for various purposes, climatic conditions, law and order situation and availability of working days.

(iii) I/We hereby tender for execution of work the establishment of Fitness Centre/Gym Building at Warm-up Athletic Track within JNL Stadium Complex as per tender documents within the time schedule of completion of work as per separately signed and accepted rates in the bill of quantities quoted by me/us for the whole work in the accordance with the Notice Inviting Tenders, conditions of contract, specifications of materials and workmanship, bill of quantities, Drawings, time schedule of completion of jobs and other documents and papers, all as in tender documents.

(iv) It has been explained to me/ us that the time stipulated for jobs and completion of works in all respects and in different stages mentioned in the "Time Schedule for Completion of Job" and signed and accepted by me/us is the essence of the contract. I/We agree that in case of failure on my/our part to strictly observe the time of completion mentioned for jobs or any of them and the final completion of works in all respects according to the schedule sat out in SAId "Time Schedule for Completion" of stipulations contained in the contract the recovery being made as specified therein. In exceptional circumstances extensions of time which shall always being in writing way, however be granted by SAI at its entire discretion for some items and I/we agree that such extension of time will not be counted for the final completion of work as stipulated in SAId "Time Schedule of Completion of Jobs."

(v) I/we agree to pay the Earnest Money Deposit, Performance Guarantee and Security Deposit and accept the terms and condition as laid down in the memorandum below in this respect.

MEMORANDUM

S. No.	Description	Values/ Description to be applicable for relevant clause(s)
1.	Name of Work	Construction of Integrated facility, including Recovery Center, Conditioning, Bio-Mechanics and Athlete Habitat Complex (For 150 Athlete) in Guwahati, Assam
2.	Client/Owner	Sports Authority of India (SAI)
3.	Type of Tender	Engineering, Procurement and Construction ('EPC') Mode 1
4.	Estimated Cost	20,43,54,290.00
5.	EarnestMoney Deposit	61,30,629.00
6.	Time for completion	Total work is to be completed within 15 months including rainy season in accordance with the time schedule of completion of work in the tender document.
7.	Mobilization Advance	Mobilization Advance is payable maximum up to 10 (Ten) % of contract value subject to conditions stipulated in Clause No. 8.0 of GCC.
8.	Interestrate on Mobilization Advance	Simple Interest Rate of 12% (Twelve percent only) per annum.
9.	Schedule of Rates applicable	DSR-2023
10.	Validity of Tender	120 (One Hundred Twenty) days
11.	Performance Guarantee	5% of contract value to be submitted within 21days from the date of issue of LOI. Refer Clause No. 9.0 of GCC.
12.	Security Deposit/ Retention Money	To be deducted @ 5% of each R.A. bill and will be restricted up to 5% of the contract value.
13.	Time allowed for starting the work	Date of start of contract shall be reckoned 10 days after the date of issue of letter/Fax/E-mail of intent/ acceptance of tender.

14.	Defect Liability Period	36 Months from the date of handing over of works to Owner/SAI.

(vi) Should this tender be accepted, I/We agree to abide by and fulfill all terms and conditions referred to above and in default thereof, to forfeit, and pay SAI or its successors or its authorized nominees such sums of money as are stipulated in the notice inviting tender documents.

(vii) If I/We fail to commence the work immediately on issue of LOI, or I/We fail to submit the Performance Guarantee as per Clause 9.0 of General Conditions of Contract I/We agree that SAI shall, without prejudice to any other right or remedy, be at liberty to forfeit SAId earnest money deposited with SAI besides any other action as per terms of registration with SAI. SAI shall also be at liberty to cancel the notice of acceptance of tender if we fail to deposit the Performance Guarantee as contained elsewhere in the tender documents.

(viii) I/We are also enclosing herewith the Acceptance Letter on the prescribed pro- forma as referred to in condition of e-NIT.

(ix) Dated the day of

SIGNATURE OF TENDERER
NAME IN CAPITAL LETTERS
ADDRESS
TELEPHONE & FAX NO.
E-mail ID

SEAL OF TENDERER

APPENDIX – II

ACCEPTANCE OF TENDER CONDITION

To,

Sports Authority of India (SAI), Jawaharlal Nehru Stadium Complex East Gate, Lodhi Rd,
New Delhi, Delhi - 110 003

Sir,
The tender documents for the work the establishment of ……been downloaded by me/us/ from official website/ e-tendering site of Sports Authority of India and I/We hereby unconditionally accept the tender conditions and tender documents in its entirety for the above work.
The contents of the Tender documents have been noted wherein it is clarified that after unconditionally accepting the tender condition in its entirety, it is not permissible to put any remark(s)/conditions(s) (except unconditional rebate on price, if any) in the tender enclosed in "Envelope-2 and the same has been followed in the present case. In case this provision of the tender is found violated at any time after opening of the Envelope 2, I/we agree that the tender shall be summarily rejected and SAI shall, without prejudice to any other right or remedy be at liberty to forfeit the full said earnest money absolutely.
I/we have not made any misleading or false representation in the forms, statements and attachments in proof of the qualification requirements. In case this provision of the tender is found violated at any time before or after opening of the Price Bid/ Award, I/we agree that the Tender/ Award shall be summarily rejected and SAI shall, without prejudice to any other right or remedy be at liberty to forfeit the full said earnest money/ any other amount payable under this contract absolutely.
The required earnest money for this work is enclosed herewith.

If I/we will not fulfil the minimum qualifying criteria of the tender I/we not lodge any claim for opening of Envelope 2 of the tender.
Yours faithfully,

Dated:

(Signature of the tenderer) with rubber stamp

APPENDIX – III

GENERAL INFORMATION

All individual firms and each partner of a joint venture participating in this Bid are requested to complete the information in this form.

1	Name of Bidder	
2	Head Office Address	
	Tel. No.	
	Mobile No.	
	Fax No.	
	E-mail address	
3	Address on which correspondence should be made	
	Tel. No.	
	Mobile No.	
	Fax No.	
	E-mail address	
4	Place of Incorporation / Registration	
5	Legal status of the applicant (attach copies of original documents defining the legal status)	
i)	Specify, if the bidder is	
	a) An individual	
	b) A proprietary firm	
	c) A firm in partnership	
	d) A Limited Company or Corporation	
	e) A group of firms / joint venture (if yes, give complete information in respect of each member)	Not Applicable
ii)	Attach a copy of Proprietorship or Partnership Deed or Article of Association or Incorporation of Company or JV Agreement as the case may be	
6	Name of Proprietor / Partners / Directors with their addresses, Mobile & Telephone numbers, Fax No., E-mail address.	
7	Designation of individuals authorized to act for the organization with the address, Mobile & Telephone numbers, Fax, E-mail address. (Enclose legal Power of Attorney along with Board Resolution in case of Companies).	

8	Was the applicant ever required to suspend any construction for a period of more than six months continuously after commencement of the construction? If so, give the name of the project & reasons of suspension of work.		
9	Has the applicant of any constituent partner in case of partnership firm, ever abandoned the awarded work before its completion? If so, give name of the project and reasons for abandonment.		
10	i) Has the applicant, or any constituent partner in case of partnership firm ever been debarred / black listed for tendering in any organization at any time? If so, give details.		
	ii) Debarment/black listing shall be as per Ministry of Finance, Procurement policy division office memorandum dated 02.11.2021. Provide details accordingly in Proforma-III.		
11	Has the applicant or any constituent partner in case of partnership firm, ever been convicted by a court of Law? If so, give details.		
12	Credit Facility/ Bank Solvency		
13	Turn Over / Net Profit for the years given below: Copies of Audited Balance Sheets are to be enclosed with Proforma V.	Turn Over in Lakhs	Profit in Lakhs
	2019-20		
	2020-21		
	2021-22		
	2022-23		
	2023-24		
14	Other details: (Copies to be enclosed)		
	a) EPF No. valid up to:		
	b) Goods & Service Tax Registration No.		
	c) PAN No.		
15	Give particulars of registration with Govt./Semi Govt./Public Sector Undertakings/Local Bodies.		
16	Preference to Make in India: The bidder shall follow percentage of local content used during the execution of work as per the order of Public Procurement (Preference to		

	Make in India) Order 2017 & amendments time to time which issued by Department of Industrial Policy and Promotion under Ministry of Commerce & Industry vide No: P45021/2/2017-B.E-II dated 15.06.2017	

Note: Use separate sheets for providing more information if any.

Date & Place

Signature & seal of the applicant

APPENDIX – IV

LIST OF MAJOR PLANT AND MACHINERY IN POSSESSION OF THE FIRM

S.No.	Name of Plant & Machinery / Equipment	Available Owned	*Other than Column No. C
A	B	C	D
1.	Excavator		
2.	Dozer		
3.	Dumper		
4.	Truck		
5.	Tractor with Trolley		
6.	Water Tanker		
7.	Batching Plant: Capacity-------		
8.	Transit Mixer		
9.	Site Mixers with Weigh Batcher		
10.	Skip hoist/ Tower crane		
11.	Dewatering / Water Pumps		
12.	Survey Equipment:		
	a) Total Station,		
	b) Theodolite		
	c) Level Instruments		
13.	Details of Shuttering & Staging Materials		
14.	Any other information**		

Date & Place
Signature & seal of the applicant

Note:
* In case of any arrangement for getting the equipment on lease, etc., authenticated proof of the same is to be submitted.
** Use separate sheets for providing more information.

APPENDIX – V
FINANCIAL TURNOVER

Date:

ANNUAL TURN OVER FOR THE LAST FIVE YEARS				
S. No.	YEAR	Turnover from Engineering Construction Works (In Rs. Lakh)	Net Profit (In Rs. Lakh)	Remarks (if any)
1	2020-21			
2	2021-22			
3	2022-23			
4	2023-24			
5	2024-25			

Note:

The bidder shall submit the attested copies of the Audited Balance Sheets along with Profit and Loss Statements and Auditors Report and Schedules duly certified by the bidder and Chartered Accountant. Certificate from the Chartered Accountant, wherever the Annual Turnover is certified for the relevant financial year in which the minimum criteria of Annual Turnover is satisfied should also be submitted.

APPENDIX – VI

DETAILS OF THE SIMILAR WORKS COMPLETED IN LAST SEVEN YEARS

S. No.	Description of the Work with Contract No.	Name and address of the Employer with Contact No.	Date of award	Stipulated date of completion	Date of actual completion	Value of completed work	Reasons for delays, penalty if any	Any other relevant information
1								
2								
3								
4								
5								
6								

Note:
The Bidder shall submit the attested Copies of the MoU/Work order and Completion Certificates from the Client.
The value of work executed should be inclusive of the value of free supply items.

APPENDIX – VII
DETAILS OF ON-GOING/EXISTING WORKS

S. No.	Description of the Work with Contract No.	Name and address of the Employer	Date of award	Stipulated date of completion	Value of work as per order (In Rs.)	Value of work completed so far (In Rs.)	Anticipated date of completion of work	Any other relevant information
1								
2								
3								
4								
5								
6								
7								
8								
9								

Note:
The copies of certificates of ongoing-awarded works issued by the owner shall be attached. Only those works shall be considered for evaluation for which copies of the certificates issued by the owner are attached.

APPENDIX – VIII

PAST CONTRACTUAL PERFORMANCE

(Affidavit on non-judicial stamp paper of Rs 10/- duly attested by Notary/Magistrate)

This is to certify that We, M/s [Name of the Bidder with address], in submission of the Bid, [Name of Bid with Bid No.]

(i) have not made any misleading or false representation in the forms, statements and attachments in proof of the qualification requirements;

(ii) do not have records of poor performance such as abandoning the work, not properly completing the contract, inordinate delays in completion, litigation history or financial failures etc.;

(iii) have never been banned by any Central/State Govt. Departments/Public Sector Undertakings or Enterprises of Central/State Govt.;

(iv) have submitted all the supporting documents and furnished the relevant details as per the prescribed format; and

(v) have submitted all the information and the requisite documents with the Bid and further certify that we are fully responsible for the correctness of the information and documents submitted by us.

SIGNATURE OF THE BIDDER
SEAL

Note:
Exceptions of the above, if any, shall be clearly mentioned with details by the bidder for evaluation/consideration if any.

APPENDIX – IX

BANK ACCOUNT PARTICULARS FOR REFUND OF EMD THROUGH ELECTRONIC MODE

S. No.	Description	Particulars
1	Name of the Beneficiary	
2	Bank Name	
3	Bank Address	
4	Bank Branch code	
5	Account No.	
6	IFSC Code	
7	MICR No.	

Date & Place
Signature & seal of the applicant

APPENDIX – X

SAMPLE FORMAT FOR BANKING REFERENCE FOR LIQUIDITY BANK CERTIFICATE

This is to certify that M/s…….is a reputed company with a good financial standing.

If the contract for the work, namely……..is awarded to the above firm, we shall be willing to provide overdraft / credit facilities to the extent of ₹……..to meet their working capital requirements for executing the above contract.

Sd.
Name of Bank:
Senior Bank Manager
Address of the Bank

APPENDIX – XI

LITIGATION HISTORY
(On the letter head of the Tenderer)

S. No.	Name of Work	Client	Type of Case (Court Case/Arbitration Case)	Date of Registering of Case	Name & Address of Court / Arbitrator	Amount involved	Present Status	Remarks (if any)
1	2	3	4	5	6	7	8	9

Date & Place
Signature & seal of the applicant

Note: Applicant has to submit the details of last 5 years in respect of Court Cases / Arbitration Cases.

APPENDIX – XII

GST REGISTRATION DETAIL

S. NO.	CONTRACTOR/VENDOR DETAILS	
1	Name	
2	Address (As per registration with GST)	
	City	
	Postal Code	
	Region/State (Complete State Name)	
3	GSTIN ID/Provisional ID No. (Copy of Acknowledgement required)	
4	Type of Business (As per registration with GST)	
5	Service Accounting Code/HSN Code	
6	Contact person	
	Phone number and Mobile number	
	Email id	
	Compliance Rating (if undated by GSTN)	

APPENDIX – XIII

UNDERTAKING REGARDING PERCENTAGE OF LOCAL CONTENT

Self-Certification under preference to Make in India order Certificate

(i) In line with Government Public Procurement Order No. P-45021/2017-PP (BE-II) dated 04.06.2020 and its amendments, we hereby certify that we M/s……..are local suppliers and the offered item having local content of % (excluding Net Domestic Indirect Taxes, Transportation, Insurance, Installation, Commissioning, Training and after sales service support like AMC/CMC etc.) as defined in above orders for the material against Tender/Bid No. Dated

(ii) Details of location at which local value addition will be made as follows:

(iii) We also understand, false declaration will be breach of the code of integrity under the rule 175(1)(i)(h) of the General Financial Rules for which a bidder or its successors can be debarred for up to two years as per rule 151 (iii) of the General Financial Rules along with such other actions as maybe permissible under law.

Thanking You

_____

(Signature, name and designation of the authorized signatory)
(Name and seal of the Bidder)

APPENDIX – XIV

SOLVENCY CERTIFICATE
(ON BANKER'S LETTER HEAD)

Dispatch number of bank/date

This is to state that to the best of our knowledge and information that M/s ……. having /registered office address is customer of bank and has been maintaining his accounts with our branch since……As per records available with the bank, M/s …… can be treated as solvent up to a limit of INR……..(Rupees in words).

It is clarified that the above information is issued / furnished to SAI at Customer's request for their empanelment & participation in various tenders.

Signature, Name & Designation Address of Bank

BANK'S SEAL

NOTE:
(i) The above certificate shall be from the RBI Scheduled Bank.
(ii) In case of Partnership firm, Certificate should include names of all partners as recorded with the bank.
(iii) The Certificate should have been issued within 6 months from original last date of the submission of tender but in the current financial year.
(iv) Original certificates are to be submitted along with the bid documents.

APPENDIX - XV

Bank Guarantee for BID Security

To,

.

WHEREAS (Name and address of the supplier) (Hereinafter called "the supplier") has undertaken, in pursuance of contract no. dated for (description of services) (herein after called "the contract"). AND WHEREAS it has been stipulated by you in SAId contract that the supplier shall furnish you with a bank guarantee from a scheduled commercial bank recognized by you for the sum specified therein as security for compliance with its obligations in accordance with the contract; AND WHEREAS we have agreed to give the supplier such a bank guarantee;

NOW THEREFORE we hereby affirm that we are guarantors and responsible to you, on behalf of the supplier, up to a total of. (Amount of the guarantee in words and figures), and we undertake to pay you, upon your first written demand declaring the supplier to be in default under the contract and without cavil or argument, any sum or sums within the limits of (amount of guarantee) as aforesaid, without your needing to prove or to show grounds or reasons for your demand or the sum specified therein.

We hereby waive the necessity of your demanding SAId debt from the supplier before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the contract to be performed there under or of any of the contract documents which may be made between you and the supplier shall in any way release us from any liability under this guarantee and we hereby waive notice of any such change, addition or modification.

This guarantee shall be valid up to days beyond the date of expiry of contract period as per RFP.

(Signature with date of the authorized officer of the Bank)
…….
Name and designation of the officer
…….

…….
Seal, name & address of the Bank and address of the Branch

APPENDIX-XVI

Format for Power of Attorney for signing of BID

(Refer Clause 2.1.8)

Know all men by these presents, We…….. (name of the firm and address of the registered office) do hereby irrevocably constitute, nominate, appoint and authorize Mr./ Ms (name), …… son/daughter/wife of …… and presently residing at ……., who is presently employed with us/ the Lead Member of our Joint Venture and holding the position of ……. , as our true and lawful attorney (hereinafter referred to as the ―Attorney‖) to do in our name and on our behalf, all such acts, deeds and things as are necessary or required in connection with or incidental to submission of our BID for the Project proposed or being developed by the Sports Authority of India (the ―SAI including but not limited to signing and submission of all applications, BIDs and other documents and writings, participate in Pre-BID and other conferences and providing information/ responses to SAI, representing us in all matters before SAI, signing and execution of all contracts including the agreement and undertakings consequent to acceptance of our BID, and generally dealing with SAI in all matters in connection with or relating to or arising out of our BID for Said Project and/ or upon award thereof to us and/or until the entering into of the EPC Contract with SAI.

AND we hereby agree to ratify and confirm and do hereby ratify and confirm all acts, deeds and things done or caused to be done by our said Attorney pursuant to and in exercise of the powers conferred by this Power of Attorney and that all acts, deeds and things done by our said Attorney in exercise of the powers hereby conferred shall and shall always be deemed to have been done by us.

IN WITNESS WHEREOF WE, ……., THE ABOVE NAMED PRINCIPAL HAVE EXECUTED THIS POWER OF ATTORNEY ON THIS …… DAY OF ……. 2…..
For …….. (Signature, name, designation and address) of person authorized by Board Resolution
(in case of Firm/ Company)/ partner in case of Partnership firm

Witnesses:
1.
2.
Accepted
…… (Signature)
(Name, Title and Address of the Attorney)
(Notarised)
Person identified by me/ personally appeared before me/
Attested/ Authenticated* (*Notary to specify as applicable) (Signature Name and Address of the Notary)

Seal of the Notary Registration No. of the Notary
Date:……

Notes:

- *The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executant(s) and when it is so required, the same should be under common seal affixed in accordance with the required procedure.*
- *Wherever required, the Bidder should submit for verification the extract of the charter documents and documents such as a board or shareholders' resolution/ power of attorney in favour of the person executing this Power of Attorney for the delegation of power hereunder on behalf of the Bidder.*
- *For a Power of Attorney executed and issued overseas, the document will also have to be legalised by the Indian Embassy and notarised in the jurisdiction where the Power of Attorney is being issued.However, the Power of Attorney provided by Bidders from countries that have signed the Hague Legislation Convention 1961 are not required to be legalised by the Indian Embassy if it carries a conforming Appostille certificate.*

APPENDIX-XVII

Format for Power of Attorney for Lead Member of Joint Venture

(Refer Clause 2.1.9)

Whereas the Sports Authority of India (―SAI) has invited BIDs for the…….. Project(the ―Project‖).

Whereas, ……., ……., and ..... (collectively the ―Joint Venture‖) being Members of the Joint Venture are interested in bidding for the Project in accordance with the terms and conditions of the Request for Proposal (RFP) and other BID documents including agreement in respect of the Project, and

Whereas, it is necessary for the Members of the Joint Venture to designate one of them as the Lead Member with all necessary power and authority to do for and on behalf of the Joint Venture, all acts, deeds and things as may be necessary in connection with the Joint Venture's BID for the Project and its execution.

NOW THEREFORE KNOW ALL MEN BY THESE PRESENTS

We, …… having our registered office at ……., M/s. ….. having our registered office at …, M/s. … having our registered office at ….., and ….. having our registered office at ..... , (hereinafter collectively referred to as the ―Principals‖) do hereby irrevocably designate, nominate, constitute, appoint and authorize M/S ……. having its registered office at ..... , being one of the Members of the Joint Venture, as the Lead Member and true and lawful attorney of the Joint Venture (hereinafter referred to as the ―Attorney‖). We hereby irrevocably authorize the Attorney (with power to sub-delegate) to conduct all business for and on behalf of the Joint Venture and any one of us during the bidding process and, in the event the Joint Venture is awarded the contract, during the execution of the Project and in this regard, to do on our behalf and on behalf of the Joint Venture, all or any of such acts, deeds or things as are necessary or required or incidental to the pre-qualification of the Joint Venture and submission of its BID for the Project, including but not limited to signing and submission of all applications, BIDs and other documents and writings, participate in pre BID and other conferences, respond to queries, submit information/ documents, sign and execute contracts and undertakings consequent to acceptance of the BID of the Joint Venture and generally to represent the Joint Venture in all its dealings with SAI, and/ or any other Government Agency or any person, in all matters in connection with or relating to or arising out of the Joint Venture's BID for the in all respect Project and/ or upon award thereof till the EPC Contract is entered into with the Authority & Compelled.

AND hereby agree to ratify and confirm and do hereby ratify and confirm all acts, deeds and things done or caused to be done by our said Attorney pursuant to and in exercise of the powers conferred by this Power of Attorney and that all acts, deeds and things done by our said Attorney in exercise of the powers hereby conferred shall and shall always be deemed to have been done by us/ Joint Venture.

IN WITNESS WHEREOF WE THE PRINCIPALS ABOVE NAMED HAVE EXECUTED THIS POWER OF ATTORNEY ON THIS ……. DAY OF ……. 2..…

For …….. (Signature) …….. (Name & Title)	For …….. (Signature) …….. (Name & Title)	For …….. (Signature) …….. (Name & Title)

(Executants) (To be executed by all the Members of the Joint Venture)

Witnesses:
1.
2.

Notes:

- *The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executant(s) and when it is so required, the same should be under common seal affixed in accordance with the required procedure.*
- *Also, wherever required, the Bidder should submit for verification the extract of the charter documents and documents such as a board or shareholders' resolution/ power of attorney in favour of the person executing this Power of Attorney for the delegation of power hereunder on behalf of the Bidder.*
- *For a Power of Attorney executed and issued overseas, the document will also have to be legalised by the Indian Embassy and notarised in the jurisdiction where the Power of Attorney is being issued. However, the Power of Attorney provided by Bidders from countries that have signed the Hague Legislation Convention 1961 are not required to be legalised by the Indian Embassy if it carries a conforming Appostille certificate.*

APPENDIX – XVIII (Not Applicable)

Format for Joint Bidding Agreement for Joint Venture

(To be executed on Stamp paper of appropriate value)

THIS JOINT BIDDING AGREEMENT is entered into on this the …… day of …… 20…

AMONGST

1. {…… Limited, and having its registered office at .....} (hereinafter referred to as the **—First Part‖** which expression shall, unless repugnant to the context include its successors and permitted assigns)

AND

2. {…… Limited, having its registered office at.....}and (hereinafter referred to as the **—Second Part‖** which expression shall, unless repugnant to the context include its successors and permitted assigns)

AND

3. {…… Limited, and having its registered office at..... } (hereinafter referred to as the **—Third Part‖** which expression shall, unless repugnant to the context include its successors and permitted assigns)

The above mentioned parties of the FIRST, {SECOND and THIRD} PART are collectively referred to as the **"Parties"** and each is individually referred to as a **"Party‖**

WHEREAS,

(A) [SPORTS AUTHORITY OF INDIA, (hereinafter referred to as the **—SAI‖** which expression shall, unless repugnant to the context or meaning thereof, include its administrators, successors and assigns) has invited bids (the **Bids‖**) by its Request for Proposal No. …… dated ……(the **—RFP‖**) for award of contract for rehabilitation and augmentation of***** Project (the **—Project‖**) through an EPC Contract.

(B) The Parties are interested in jointly bidding for the Project as members of a Joint Venture and in accordance with the terms and conditions of the RFP document and other bid documents in respect of the Project, and

(C) It is a necessary condition under the RFP document that the members of the Joint Venture shall enter into a Joint Bidding Agreement and furnish a copy thereof with the Application.

NOW IT IS HEREBY AGREED as follows:

1. Definitions and Interpretations

In this Agreement, the capitalised terms shall, unless the context otherwise requires, have the meaning ascribed thereto under the RFP.

2. Joint Venture

2.1 The Parties do hereby irrevocably constitute a Joint Venture (the **—Joint Venture**‖) for the purposes of jointly participating in the Bidding Process for the Project.

2.2 The Parties hereby undertake to participate in the Bidding Process only through this Joint Venture and not individually and/ or through any other Joint Venture constituted for this Project, either directly or indirectly.

3. Covenants

The Parties hereby undertake that in the event the Joint Venture is declared the selected Bidder and awarded the Project, it shall enter into an EPC Contract with SAI for performing all its obligations as the Contractor in terms of the EPC Contract for the Project.

4. Role of the Parties

The Parties hereby undertake to perform the roles and responsibilities as described below:

(a) Party of the First Part shall be the Lead member of the Joint Venture and shall have the power of attorney from all Parties for conducting all business for and on behalf of the Joint Venture during the Bidding Process and until the Appointed Date under the EPC Contract;

(b) Party of the Second Part shall be {the Member of the Joint Venture; and}

(c) Party of the Third Part shall be {the Member of the Joint Venture.}

5. Joint and Several Liability

The Parties do hereby undertake to be jointly and severally responsible for all obligations and liabilities relating to the Project and in accordance with the terms of the RFP and the EPC Contract, till such time as the completion of the Project is achieved under and in accordance with the EPC Contract.

6. Share of work in the Project

The Parties agree that the proportion of construction in the EPC Contract to be allocated among the members shall be as follows:

First Party:
Second Party:
{Third Party:}
.

7. Representation of the Parties

Each Party represents to the other Parties as of the date of this Agreement that:

(a) Such Party is duly organised, validly existing and in good standing under the laws of its incorporation and has all requisite power and authority to enter into this Agreement;

(b) The execution, delivery and performance by such Party of this Agreement has been authorised by all necessary and appropriate corporate or governmental action and a copy of the extract of the charter documents and board resolution/ power of attorney in favour of the person executing this Agreement for the delegation of power and authority to execute this Agreement on behalf of the Joint Venture Member is annexed to this Agreement, and will not, to the best of its knowledge:

(i) require any consent or approval not already obtained;

(ii) violate any Applicable Law presently in effect and having applicability to it;

(iii) violate the memorandum and articles of association, by-laws or other applicable organisational documents thereof;

(iv) violate any clearance, permit, concession, grant, license or other governmental authorisation, approval, judgement, order or decree or any mortgage agreement, indenture or any other instrument to which such Party is a party or by which such Party or any of its properties or assets are bound or that is otherwise applicable to such Party; or

(v) create or impose any liens, mortgages, pledges, claims, security interests, charges or Encumbrances or obligations to create a lien, charge, pledge, security interest, encumbrances or mortgage in or on the property of such Party, except for encumbrances that would not, individually or in the aggregate, have a material adverse effect on the financial condition or prospects or business of such Party so as to prevent such Party from fulfilling its obligations under this Agreement;

(c) this Agreement is the legal and binding obligation of such Party, enforceable in accordance with its terms against it; and

(d) there is no litigation pending or, to the best of such Party's knowledge, threatened to which it or any of its Affiliates is a party that presently affects or which would have a material adverse effect on the financial condition or prospects or business of such Party in the fulfillment of its obligations under this Agreement.

8. Termination

This Agreement shall be effective from the date hereof and shall continue in full force and effect until Project completion (the ―Defects Liability Period‖) is achieved under and in accordance with the EPC Contract, in case the Project is awarded to the Joint Venture. However, in case the Joint Venture is either not pre-qualified for the Project or does not get selected for award of the Project, the Agreement will stand terminated in case the Applicant is not pre-qualified or upon return of the Bid Security by SAI to the Bidder, as the case may be.

9. Miscellaneous

9.1 This Joint Bidding Agreement shall be governed by laws of {India}.

9.2 The Parties acknowledge and accept that this Agreement shall not be amended by the Parties without the prior written consent of SAI.

IN WITNESS WHEREOF THE PARTIES ABOVE NAMED HAVE EXECUTED AND
DELIVERED THIS AGREEMENT AS OF THE DATE FIRST ABOVE WRITTEN.SIGNED,
For and on behalf of

LEAD MEMBER by:	SECOND PART	THIRD PART
(Signature)	(Signature)	(Signature)
(Name)	(Name)	(Name)
(Designation)	(Designation)	(Designation)
(Address)	(Address)	(Address)

In the presence of:

Notes:

1. *The mode of the execution of the Joint Bidding Agreement should be in accordance with the procedure, if any, laid down by the Applicable Law and the charter documents of the executant(s) and when it is so required, the same should be under common seal affixed in accordance with the required procedure.*

2. *Each Joint Bidding Agreement should attach a copy of the extract of the charter documents and documents such as resolution / power of attorney in favour of the person executing this Agreement for the delegation of power and authority to execute this Agreement on behalf of the Joint Venture Member.*
3. *For a Joint Bidding Agreement executed and issued overseas, the document shall be legalised by the Indian Embassy and notarized in the jurisdiction where the Power of Attorney has been executed.*

APPENDIX - XIX

INTEGRITY PACT FORMAT

(To be executed on plain paper and submitted alongwith Technical Bid/Tender documents for tenders having a value ofRs 5 cr or above for Consultancy projects and 100 cr. or above for Construction projects. To be signed by the bidder and same signatory competent/ authorized to sign the relevant contract on behalf of SAI)

This integrity Pact is made at _____on this _____day of _____2016.

BETWEEN

[Sports Authority of India], (hereinafter referred to as the ―**SAI**‖ which expression shall, unless repugnant to the context or meaning thereof, include its administrators, successors and assigns)

AND

{Name and address of the Firm/Company}, (hereinafter referred to as ―The Bidder(s)/Contractor(s)/Concessionaire(s)/Consultant(s)‖ and which expression shall unless repugnant to be meaning or context thereof include its successors and permitted assigns.)

Preamble

Whereas, the Principal has floated the Tender {*NIT No……dtd… ..... }* (hereinafter referred to as ―Tender/Bid‖) and intends to award, under laid down organizational procedure, contract/s for *{Name of the work}*(hereinafter referred to as the ―Contract‖).

And Whereas SAI values full compliance with all relevant laws of the land, rules of land, regulations, economic use of resources and of fairness/ transparency in its relations with its Bidder(s) and/ or Contractor(s)/Concessionaire(s)/Consultant(s).

And whereas to meet the purpose aforesaid, both the parties have agreed to enter into this Integrity Pact (hereafter referred to as ―Integrity Pact‖ or ―Pact‖) the terms and conditions of which shall also be read as integral part and parcel of the Tender documents and contract between the parties.

Now, therefore, in consideration of mutual covenants contained in this pact, the parties hereby agree as follows and this pact witnesses as under:

Article-1:Commitments of SAI

(1) The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles:-

(a) No employee of SAI, personally or through family members, will in connection with the Tender for, or the execution of a Contract, demand, take a promise for or accept, for self, or third person, any material of immaterial benefit which the person is not legally entitled to.

(b) SAI will, during the Tender process treat all Bidder(s) with equity and reason. SAI will in particular, before and during the Tender process, provide to all Bidder(s) the same information and will not provide to any

Bidder(s) confidential/ additional information through which the Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.

(c) SAI will exclude all known prejudiced persons from the process, whose conduct in the past has been of biased nature.

(2) If SAI obtains information on the conduct of any of its employees which is a criminal offence under the IPC/PC Act or any other Statutory Acts or if there be a substantive suspicion in this regard, the Principal will inform the Chief Vigilance Officer and in addition can initiate disciplinary actions as per its internal laid down Rules/Regulations.

Article – 2: Commitments of the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s).

The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) commit himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the tender process and during the contract execution.

(a) The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) will not, directly or through any other person or firm, offer, promise or give to any of the Principal's employees involved in the tender process or the execution of the contract or to any third person any material or other benefit which he/she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.

(b) The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) will not enter with other Bidders into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contract, submission or nonsubmission or bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.

(c) The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) will not commit any offence under the relevant IPC/PC Act and other Statutory Acts; further the Bidder(s)/Contractor(s)/Concessionaire(s)/Consultant(s) will not use improperly, for purposes of completion or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.

(d) The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) of foreign origin shall disclose the name and address of the Agents/ Representatives in India, if any. Similarly the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) of Indian Nationality shall furnish the name and address of the foreign principle, if any.

(e) The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) will, when presenting his bid, disclose any and all payments he has made, is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract. He shall also disclose the details of services agreed upon for such payments.

(f) The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.

(g) The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) will not bring any outside influence through any Govt. bodies/quarters directly or indirectly on the bidding process in furtherance of his bid.

Article - 3 Disqualification from tender process and exclusion from future contracts.

(1) If the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s), before award or during execution has committed a transgression through a violation of any provision of Article-2, above or in any other form such as to put his reliability or credibility in question, the Principal is entitled to disqualify the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) from the tender process.

(2) If the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s)has committed a transgression through a violation of Article-2 such as to put his reliability or credibility into question, SAI shall be entitled to exclude including blacklist and put on holiday the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s)for any future tenders/ contract award process. The imposition and duration of the exclusion will be determined by the severity of the transgression. The severity will be determined by SAI taking into consideration the full facts and circumstances of each case particularly taking into account the number of transgressions, the position of the transgressors within the company hierarchy of the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) and the amount of the damage. The exclusion will be imposed for a maximum of 3 years.

(3) A transgression is considered to have occurred if SAI after due consideration of the available evidence concludes that ―On the basis of facts available there are no material doubts‖.

(4) The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s)with its free consent and without any influence agrees and undertakes to respect and uphold SAI‘s absolute rights to resort to and impose such exclusion and further accepts and undertakes not to challenge or question such exclusion on any ground, including the lack of any hearing before the decision to resort to such exclusion is taken. This undertaking is given freely and after obtaining independent legal advice.

(5) The decision of SAI to the effect that a breach of the provisions of this Integrity Pact has been committed by the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s)shall be final and binding on the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) can approach IEM(s) appointed for the purpose of this Pact.

(6) On occurrence of any sanctions/ disqualification etc arising out from violation of integrity pact, the Bidder(s)/ Contractor(s)/ Consultant(s) shall not be entitled for any compensation on this account.

(7) Subject to full satisfaction of SAI, the exclusion of the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) could be revoked by SAI if the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s)can prove that he has restored/ recouped the damage

caused by him and has installed a suitable corruption prevention system in his organization.

Article – 4: Compensation for Damages.

(1) If the Principal has disqualified the Bidder(s) from the tender process prior to the award according to Arcticle-3, SAI shall be entitled to forfeit the Earnest Money Deposit/ Bid Security or demand and recover the damages equivalent to Earnest Money Deposit/ Bid Security apart from any other legal right that may have accrued to SAI.

(2) In addition to 1 above, SAI shall be entitled to take recourse to the relevant provisions of the contract related to Termination of Contract due to Contractor/ Concessionaire/Consultant's Default. In such case, SAI shall be entitled to forfeit the Performance Bank Guarantee of the Contractor/ Concessionaire/ Consultant and/ or demand and recover liquidated and all damages as per the provisions of the contract/concession agreement against Termination.

Article – 5: Previous Transgressions

(1) The Bidder declares that no previous transgressions occurred in the last 3 years immediately before signing of this Integrity Pact with any other Company in any country conforming to the anti-corruption/ Transparency International (TI) approach or with any other Public Sector Enterprise/ Undertaking in India or any Government Department in India that could justify his exclusion from the tender process.

(2) If the Bidder makes incorrect statement on this subject, he can be disqualified from the tender process or action for his exclusion can be taken as mentioned under Article-3 above for transgressions of Article-2 and shall be liable for compensation for damages as per Article-4 above.

Article – 6: Equal treatment of all Bidders/ Contractors/ Concessionaires/ Consultants/ Subcontractors.

(1) The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) undertake(s) to demand from all sub-contractors a commitment in conformity with this Integrity Pact, and to submit it to SAI before contract signing.

(2) SAI will enter into agreements with identical conditions as this one with all Bidders/ Contractors/ Concessionaires/ Consultants and subcontractors.

(3) SAI will disqualify from the tender process all Bidders who do not sign this Pact or violate its provisions.

Article – 7: Criminal charges against violating Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s)/ Sub-contractor(s).

If SAI obtains knowledge of conduct of a Bidder/ Contractor/ Concessionaire/ Consultant or subcontractor, or of an employee or a representative or an associate of a Bidder/ Contractor/ Concessionaire/ Consultant or Subcontractor, which constitutes corruption, or if SAI has substantive suspicion in this regard, the Principal will inform the same to

the Chief Vigilance Officer.

Article- 8: Independent External Monitor (IEM)

(1) The Name and contact details of Independent External Monitor (IEM) is as below:

a) Sh. P Mallikharjuna Rao, IFOS(Retd) 72,
Prashasan Nagar, Jubileehills, Hyderabad,
M. No – 9440576170
Email: pmkrao72@gmail.com

b) Sh. Janak Digal, Plot No. 1B/2,
Sector-l1, CDA, Markat Nagar, Cuttack, Odisha – 75301,
M. No.- 09971116084,
Email: janakdigal85@gmail.com

(2) The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s)accepts that the Monitor has the right to access without restriction to all project documentation of the Principal including that provided by the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s). The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s)will also grant the Monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his project documentation. The same is applicable to Subcontractors. The Monitor is under contractual obligation to treat the information and documents of the Bidder(s)/Contractor(s)/Subcontractor(s) with confidentiality.

(3) SAI will provide to the Monitor sufficient information about all meetings among the parties related to the Project provided such meetings could have an impact on the contractual relations between SAI and the Contractor. The parties offer to the Monitor the option to participate in such meetings**.**

(4) As soon as the Monitor notices, or has reason to believe, a violation of this Pact, he will so inform the Management of SAI and request the Management to discontinue or take corrective action, or to take other relevant action. The monitor can in this regard submit non-binding recommendations. Beyond this, the Monitor has no right to demand from the parties that they act in a specific manner, refrain from action or tolerate action.

(5) The Monitor will submit a written report to the Sports Authority of India within 8 to 10 weeks from the date of reference or intimation to him by SAI and, should the occasion arise, submit proposals for correcting problematic situations.

(6) If the Monitor has reported to SAI, a substantiated suspicion of an offence under relevant IPC/PC Act, and the Sports Authority of India has not, within the reasonable time taken visible action to proceed against such offence or reported it to the Chief Vigilance Officer, the Monitor may also transmit this information directly to the Central Vigilance Commissioner.

(7) The word 'Monitor' would include both singular and plural.

Article – 9 Pact Duration

This Pact begins when both parties have legally signed it (in case of EPC i.e. for projects

funded by SAI and consultancy services). It expires for the Contractor/ Consultant 12 months after his Defect Liability period is over or 12 months after his last payment under the contract whichever is later and for all other unsuccessful Bidders 6 months after this Contract has been awarded.

If any claim is made/ lodged during his time, the same shall be binding and continue to be valid despite the lapse of this pact as specified above, unless it is discharged/ determined by SAI

Article - 10 Other Provisions.

(1) This pact is subject to Indian Law. Place of performance and jurisdiction is the Registered Office of SAI, i.e. New Delhi.

(2) Changes and supplements as well as termination notices need to be made in writing.

(3) If the Bidder/Contractor/Concessionaire/Consultant is a partnership or a consortium, this pact must be signed by all partners or consortium members.

(4) Should one or several provisions of this agreement turn out to be invalid, the remainder of this agreement remains valid. In this case, the parties will strive to come to an agreement to their original intentions.

(5) Any disputes/ differences arising between the parties with regard to term of this pact, any action taken by SAI in accordance with this Pact or interpretation thereof shall not be subject to any Arbitration.

(6) The actions stipulated in this Integrity Pact are without prejudice to any other legal action that may follow in accordance with the provision of the extent law in force relating to any civil or criminal proceedings.

In the witness whereof the parties have signed and executed this Pact at the place and date first done mentioned in the presence of following witness:-

(For & On behalf of SAI) (Office Seal) Place: Date:	(For & On behalf of the Bidder/ Contractor/ Concessionaire/ Consultant)
Witness 1 : (Name & Address):	Witness 2: (Name & Address):

{COUNTERSIGNED and accepted by JV Partner}

APPENDIX – XX

PROFORMA OF BANK GUARANTEE (FOR MOBILIZATION ADVANCE)

SPORTS AUTHORITY OF INDIA,

In consideration of SAI (hereinafter called "the Corporation" which expression shall unless repugnant to the subject or context include his successor and assigns) having agreed under the terms and conditions of Contract dated made between ……..…… and the Corporation in connection with (Hereinafter called "SAId contract") to make at the request of the Contractor a Mobilization Advance of Rs…….for utilizing it for the purpose of the Contract on his furnishing a unconditional bank guarantee acceptable to the Corporation, we the Bank (hereinafter referred to the "SAId Bank") and having our Registered Office at ……..… do hereby guarantee the due recovery by the Corporation of SAId advance as provided according to the terms and conditions of the Contract. We ……..do hereby undertake to pay the amount due and payable under this Guarantee without any demur, merely on a demand from the Corporation stating that the amount claimed is due to the Corporation under SAId Agreement. Any such demand made on the ……..... shall be conclusive as regards the amount due and payable by the ……. under this guarantee and …..... agree that the liability of the ..... to pay the Corporation the amount so demanded shall be absolute and unconditional notwithstanding any dispute or disputes raised by the Contractor and notwithstanding any legal proceeding pending in any Court or Tribunal relating thereto. However, our liability under this Guarantee shall be restricted to an amount not exceeding Rs ……...

We……Bank further agree that the Corporation shall be the sole judge of and as to whether the amount claimed has fallen due to the corporation under SAId agreement or whether SAId Contractor has not utilized SAId advance or any part thereof for the purpose of the Contract and the extent of loss or damage caused to or suffered by the Corporation on account of SAId advance together with interest not being recovered in full and the decision of the Corporation that the amount has fallen due from contractor or SAId Contractor has not utilized SAId advance or any part thereto for the purpose of the contract and as to the amount or amounts of loss or damage caused to or suffered by the Corporation shall be final and binding on us.

We, SAId Bank, further agree that the Guarantee herein contained shall remain in full force and effect till SAId advance has been fully recovered and its claims satisfied or discharged and till SAI certify that SAId advance has been fully recovered from SAId Contractor, and accordingly discharges this Guarantee subject, however, that the Corporation shall have no claims under this Guarantee after SAId advance has been fully recovered, unless a notice of the claims under this Guarantee has been served on the Bank before the expiry of Said Bank Guarantee in which case the same shall be enforceable against the Bank.

The Corporation shall have the fullest liberty without affecting in any way the liability of the Bank under this Guarantee or indemnity from time to time to vary any of the terms and conditions of

SAId Contract or the advance or to extend time of performance by SAId Contractor or to postpone for any time and from time to time of the powers exercisable by it against SAId Contractor and either to enforce or forbear from enforcing any of terms and conditions governing SAId Contract or the advance or securities available to the Corporation and SAId Bank shall not be released from its liability under these presents by any exercise by the Corporation of the liberty with reference to the matters aforesaid or by reasons of time being given to SAId Contractor or any other forbearance, act or omission on the part of the Corporation or any indulgence by the Corporation to SAId Contractor or of any other matter or thing whatsoever which under the law relating to sureties would but for this provision have the effect of so releasing the bank from its such liability.
It shall not be necessary for the Corporation to proceed against the Contractor before proceeding against the Bank and the Guarantee herein contained shall be enforceable against the Bank notwithstanding any security which the Corporation may have obtained or obtain from the Contractor or shall at the time when proceedings are taken against the Bank hereunder be outstanding or unrealized.
We, SAId Bank, lastly undertake not to revoke this Guarantee during its currency except with the previous consent of the Corporation in writing and agree that any change in the constitution of SAId Contractor or SAId Bank shall not discharge our liability hereunder.

Dated this …….... day of …….....

For and on behalf of Bank (NAME AND DESIGNATION)
Dated:

APPENDIX- XXI

GUARANTEE TO BE EXECUTED BY CONTRACTOR FOR ANTI-TERMITE TREATMENT

THIS AGREEMENT made this Day of Two Thousand between M/s (hereinafter called the guarantor of the one part) and SPORTS AUTHORITY OF INDIA, (hereinafter called SAI) the OWNER of the other part.

Whereas this agreement is supplementary to the contract hereinafter called the contract dated ……..made between the guarantor of the one part and Sports Authority of India, of the other part whereby the contractor inter-alia, understood to render the buildings and structures in SAId contract recited, completed, termite proof. And whereas the guarantor agreed to give a guarantee to the effect that SAId structure will remain termite proof for TEN YEARS to be so reckoned from the date after the maintenance period prescribed in the contract expires.

During this period of guarantee, the guarantor shall make good all defects and for that matter shall replace at his risk and cost such wooden member as may be damaged by termite and in case of any other defect being found, he shall render the building termite proof at his cost to the satisfaction of the Engineer-In-Charge and shall commence the works of such rectification within seven days from date of issuing notice from the Engineer- In-Charge calling upon him to rectify the defects failing which the work shall be got done by SAI by some other contractor at the guarantor's cost and risk and in the later case the decision of the Engineer-In-Charge as to the cost recoverable from the guarantor shall be final and binding.

That if the Guarantor fails to execute the Anti-Termite Treatment or commits breaches hereunder then the Guarantor will indemnify SAI against all losses damages, cost expenses or otherwise which may be incurred by him by reasons of any default on the part of the guarantor in performance and observance of this supplemental Agreement. As to the amount of loss and or damage and/or cost incurred by SAI decision of the Engineer-In-Charge will be final and binding on the parties.

In witness where of these presents have been executed by the guarantor and by for and on behalf of SAI on the day of month and year first above written.

Signed sealed and delivered by (Guarantor)

IN THE PRESENCE OF:
1.
2.

Signed for and on behalf of SAI by/ in presence of: 1. 2.

Appendix – XXII
Form of Surety Bond - Bid Security

1. In consideration of you, ……..[Name of the Executing Agency], having its office at ……, (hereinafter referred to as the "Owner", which expression shall unless it be repugnant to the subject or context thereof include its, successors and assigns) having agreed to receive the Bid of ……..[Name of the Bidder, including names of all Joint Venture Participants (if applicable)/ Lead Partner] and having its registered office at …… (and acting on behalf of its Consortium) (hereinafter referred to as the "Bidder" which expression shall unless it be repugnant to the subject or context thereof include its/their executors, administrators, successors and assigns), for …….. [Name of the Project] on EPC (hereinafter referred to as "the Project") pursuant to the RFP document dated …… issued in respect of the Project and other related documents including without limitation the draft concession agreement (hereinafter collectively referred to as "Bidding Documents"), we …… [Name of the Surety Insurer] having our registered office at ….. and one of its branches at ….. (hereinafter referred to as the "Surety Insurer"), at the request of the Bidder, do hereby in terms of Clause 15 of the Bidding Documents, irrevocably, unconditionally and without reservation guarantee the due and faithful fulfilment and compliance of the terms and conditions of the Bidding Documents (including the RFP document) by SAId Bidder and unconditionally and irrevocably undertake to pay forthwith to SAI and amount of Rs.…… (Rupees ……. only) (hereinafter referred to as the "Surety Bond") as our primary obligation without any demur, reservation, recourse, contest or protest and without reference to the Bidder, if the Bidder shall fail to fulfil or comply with all or any of the terms and conditions contained in SAId Bidding Documents.
2. Any such written demand made by SAI stating that the Bidder is in default of the due and faithful fulfilment and compliance with the terms and conditions contained in the Bidding Documents shall be final, conclusive and binding on the Surety Insurer.
3. We, the Surety Insurer, do hereby unconditionally undertake to pay the amounts due and payable under this Surety Bond without any demur, reservation, recourse, contest or protest and without any reference to the Bidder or any other person and irrespective of whether the claim of SAI is disputed by the Bidder or not, merely on the first demand from SAI stating that the amount claimed is due to SAI by reason of failure of the Bidder to fulfil and comply with the terms and conditions contained in the Bidding Documents including the following:
    a) failure of SAId Bidder to keep its Bid open during the Bid validity period as set forth in SAId Bidding Documents for any reason whatsoeverif SAId Bidder, having been notified of the acceptance on its Bid by SAI during the period of Bid Validity;
        i. *fails to sign the Form of Contract Agreement*
        ii. *fails to provide the performance security to SAI*

        Any such demand made on the Bank shall be conclusive as regards amount due and payable by the Surety Insurer under this Surety Bond. However, our liability under this Surety Bond shall be restricted to an amount not exceeding Rs. …… (Rupees…… only).

4. This Surety Bond shall be irrevocable and remain in full force for a period of 45 (fortyfive) days beyond the Bid Validity Period and a claim period of 60 (sixty) days or for such extended period as may be mutually agreed between SAI and the Bidder, and agreed to by

the Surety Insurer, and shall continue to be enforceable till all amount under this Surety Bond have been paid.

5. We, the Surety Insurer, further agree that SAI shall be the sole judge to decide as to whether the Bidder is in default of due and faithful fulfilment and compliance with the terms and conditions contained in the Bidding Documents including, inter alia, the failure of the Bidder to keep its Bid open during the Bid validity period set forth in SAId Bidding Documents, and the decision of SAI that the Bidder is in default as aforesaid shall be final and binding on us, notwithstanding any differences between SAI and the Bidder or any dispute pending before any Court, Tribunal, Arbitrator or any other SAI.
6. The Surety Bond shall not be affected by any change in the constitution or winding up of the Bidder or the Surety Insurer or any absorption, merger or amalgamation or the Bidder or the Surety Insurer with any other person.
7. In order to give full effect to this Surety Bond, SAI shall be entitled to treat the Surety Insurer as the principal debtor. SAI shall have the fullest liberty without affecting in any way the liability of the Surety Insurer under this Surety Bond from time to time to vary any of the terms and conditions contained in SAId Bidding Documents or to extend time for submission of the Bids or the Bid Validity period or the period for conveying acceptance of Letter of Award by the Bidder or the period for fulfillment and compliance with all or any of the terms and conditions contained in SAId Bidding Documents by SAId Bidder or to postpone for any time and from time to time any of the powers exercisable by it against SAId Bidder and either to enforce or forbear from enforcing any of the terms and conditions contained in SAId Bidding Documents or the securities available to SAI, and the Surety Insurer shall not be released from its liability under these presents by any exercise by SAI of the liberty with reference to the matters aforesaid or by reason of time being given to SAId Bidder or any other forbearance, act or omission on the part of SAI or any indulgence by SAI to SAId Bidder or by any change in the constitution of SAI or its absorption, merger or amalgamation with any other person or any other matter or thing whatsoever which under the law relating to sureties would but for this provision have the effect of releasing the Surety Insurer from its such liability.
8. Any notice by way of request, demand or otherwise hereunder shall be sufficiently given in writing or made if addressed to the Surety Insurer and sent by courier or by registered post or by certified e-mail to the Surety Insurer at the address or e-mail set forth herein.
9. We undertake to make the payment on receipt of your notice of claim on us addressed to name of Surety Insurer along with branch address and delivered at our above branch who shall be deemed to have been duly authorized to receive SAId notice of claim.
10. It shall not be necessary for SAI to proceed against SAId Bidder before proceeding against the Surety Insurer and the Surety Bond herein contained shall be enforceable against the Surety Insurer, notwithstanding any other security which SAI may have obtained from SAId Bidder or any other person and which shall, at the time when proceedings are taken against the Surety Insurer hereunder, be outstanding or unrealised.
11. We, the Surety Insurer, further undertake not to revoke this Surety Bond during its currency except with the previous express consent of SAI in writing.
12. The Surety Insurer declares that it has power to issue this Surety Bond and discharge the obligations contemplated herein, the undersigned is duly authorized and has full power to execute this Surety Bond for and on behalf of the Surety Insurer.
13. For the avoidance of doubt, the Surety Insurer's liability under this Surety Bond shall be

restricted to Rs…… (Rupees…… only). The Surety Insurer shall be liable to pay SAId amount or any part thereof only if SAI serves a written claim on the Surety Insurer in accordance with paragraph 9 hereof, on or before……..[indicate date falling 45 days beyond the bid validity period].

14. This Surety Bond shall also be operatable at our ……, branch at New Delhi, from whom, confirmation regarding the issue of this Surety Bond or extension/renewal thereof shall be made available on demand. In the contingency of this Surety Bond being invoked and payment hereunder claimed, SAId branch shall accept such invocation letter and make payment of amounts so demanded under SAId invocation.
15. The Insurance Surety Bond shall be verified from the specific portal created for this purpose (portal address…….).

Signed Delivered by …… Company
By the hand of Mr./Ms……, its …… and authorized official.
(Signature of the Authorised Signatory)
(official seal)

Notes:

i. The Insurance Surety Bond should contain the name, designation and code number of the Authorised Signatory signing the Insurance Surety Bond.
ii. The Address, telephone number, email ID and other details of the head office of the Insurance Company as well as issuing branch should be mentioned on the covering letter of issuing branch.

Appendix – XXIII
Sports Authority Of India

State :
Administration :
Division : Sub-Division :

INDENTURE FOR SECURED ADVANCES

(Central PWA Code, paragraph 226 and 228a)

(For use in cases in which the contract is for finished work and the contractor has entered into an agreement for the execution of a certain specified quantity of work in a given time)

THIS INDENTURE made the…… day of ……..20……. BETWEEN ……(hereinafter called the Contractor which expression shall where the context so admits or implies be deemed to include his executors administrators and assigns) of the one part and the Sports Authority of India (hereinafter called the SAI which expression shall where the context so admits or implies be deemed to include his successors in office and assigns) of the other part.

WHEREAS by an agreement dated…….. (hereinafter called the said agreement) the Contractor has agreed AND WHEREAS the Contractor has applied to the SAI that he may be allowed advances on the security of materials absolutely belonging to him and brought by him to the site of the works the subject of the said agreement for use in the construction of such of the works as he has undertaken to execute at rates fixed for the finished work (inclusive of the cost of materials and labour and other charges) AND WHEREAS the SAI has agreed to advance to the Contractor the sum of Rupees …….. on the security of materials the quantities and other particulars of which are detailed in Accounts of Secured Advances attached to the Running Account Bill for the said works signed by the Contractor on ……and the SAI has reserved to himself the option of making any further advance or advances on the security of other materials brought by the Contractor to the site of the said works.

Now THIS INDENTURE WITNESSETH that in pursuance of the said agreement and in consideration of the sum of Rupees ……on or before the execution of these presents paid to the Contractor by the SAI (the receipt whereof the Contractor both hereby acknowledge) and of such further advances (if any) as may be made to him as aforesaid the Contractor doth hereby covenant and agree with the SAI and declare as follows: -

(1) That the said sum of Rupees ……..so advanced by the SAI to the Contractor as aforesaid and all or any further sum or sums advanced as aforesaid shall be employed by the Contractor in or towards expediting the execution of the said works and for no other purpose whatsoever.

(2) That the materials detailed in the said Account of Secured Advances which have been offered to and accepted by the SAI as security are absolutely the Contractor's own property and free from encumbrances of any kind and the contractor will not make any application for or receive a further advance on the security of materials which are not absolutely his own property and free from encumbrances of any kind and the Contractor indemnifies the SAI against all claims to any materials in respect of which an advance has been made to him as aforesaid.

(3) That the materials detailed in the said Account of Secured Advances and all other materials on the security of which any further advance or advances may hereafter be made as aforesaid (hereinafter called the said materials) shall be used by the Contractor solely in the execution of the said works in accordance with the directions of the Divisional Officer …….. Division (hereinafter called the Divisional Officer) and in the term of the said agreement.

(4) That the Contractor shall make at his own cost all necessary and adequate arrangements for the proper watch, safe custody and protection against all risks of the said materials and that until used in construction as aforesaid the said materials shall remain at the site of the said works in the Contractor's custody and on his own responsibility and shall at all times be open to inspection by the Divisional Officer or any officer authorised by him. In the event of the said materials or any part thereof being stolen, destroyed or damaged or becoming deteriorated in a greater degree than is due to reasonable use and wear thereof the Contractor will forthwith replace the same with other materials of like quality or repair and make good the same as required by the

Divisional Officer.
(5) That the said materials shall not on any account be removed from the site of the said works except with the written permission of the Divisional Officer or an officer authorised by him on that behalf.
(6) That the advances shall be repayable in full when or before the Contractor receives payment from the SAI of the price payable to him for the said works under the terms and provisions of the said agreement. Provided that if any intermediate payments are made to the Contractor on account of work done than on the occasion of each such payment the SAI will be at liberty to make a recovery from the Contractor's bill for such payment by deducting therefrom the value of the said materials then actually used in the construction and in respect of which recovery has not been made previously, the value for this purpose being determined in respect of each description of materials at the rates at which the amounts of the advances made under these presents were calculated.
(7) That if the Contractor shall at any time make any default in the performance or observance in any respect of any of the terms and provisions of the said agreement or of these presents the total amount of the advance or advances that may still be owing to the SAI shall immediately on the happening of such default be repayable by the Contractor to the SAI together with interest thereon at twelve per cent per annum from the date or respective dates of such advance or advances to the date of repayment and with all costs charges, damages and expenses incurred by the SAI in or for the recovery thereof or the enforcement of this security or otherwise by reason of the default of the Contractor and the Contractor hereby covenants and agrees with the SAI to repay and pay the same respectively to him accordingly.
(8) That the Contractor hereby charges all the said materials with the repayment to the SAI of the said sum of Rupees ……and any further sum or sums advanced as aforesaid and all costs charges, damages and expenses payable under these presents PROVIDED ALWAYS and it is hereby agreed and declared that notwithstanding anything in the said agreement and without prejudice to the powers contained therein if and whenever the covenant for payment and repayment herein before contained shall become enforceable and the money owing shall not be paid in accordance therewith the SAI may at any time thereafter adopt all or any of the following courses as he may deem best :

(a) Sieze and utilise the said materials or any part thereof in the completion of the said works on behalf of the Contractor in accordance with the provisions in that behalf contained in the said agreement debiting the Contractor with the actual cost of effecting such completion and the amount due in respect of advances under these presents and crediting the Contractor with the value of work done as if he had carried it out in accordance with the said agreement and at the rates thereby provided. If the balance is against the Contractor he is to pay same to the SAI on demand.

(b) Remove and sell by public auction the seized materials or any part thereof and out of the moneys arising from the sale retain all the sums aforesaid repayable or payable to the SAI under these presents and pay over the surplus (if any) to the Contractor.
(c) Deduct all or any part of the moneys owing out of the security deposit or any sum due to the Contractor under the said agreement.

(9) That except in the event of such default on the part of the Contractor as aforesaid interest on the said advance shall not be payable.

(10) That in the event of any conflict between the provisions of these presents and the said agreement the provisions of these presents shall prevail and in the event of any dispute or difference arising over the construction or effect of these presents the settlement of which has not been herein before expressly provided for the same shall be referred to the Superintending Engineer.

Circle whose decision shall be final and the provision of the Indian Arbitration Act for the time being in

force shall apply to any such reference.

In witness whereof the said ……and ……by the order and under the direction of the SAI have hereunto set their respective hands the day and year first above written.

Signed, sealed and delivered by

the said contractor.

In the presence of :-

Witness { Signature / Name / Address

Signed by

by the order and direction of the SAI

In the presence of

Witness { Signature / Name / Address

PART II GENERAL CONDITIONS OF CONTRACT

General Rules & Directions

1. All works proposed for execution by contract will be notified in the form of invitation to tender posted on website. This form will state the work to be carried out, as well as the date for submitting and opening tenders and the time allowed for carrying out the work, also the amount of earnest money to be deposited with the tender, and the amount of the security deposit and Performance guarantee to be deposited by the successful tenderer and the percentage, if any, to be deducted from bills. Copies of the specifications, designs, drawings and any other document applicable to the work shall be open for inspection by the contractor in the office of officer inviting tender during office hours.

   The work involves execution as per name of work under either EPC Mode I or Mode II or Mode III as specified in Schedule F.

   Mode I : involves preparation of detailed Architectural, structural, MEP design and drawings and shop drawings, procurement & construction by the EPC contractor based on basic architectural drawings prepared after considering statutory requirements by SAI.

   Mode II : involves preparation of structural, MEP design and drawings and shop drawings based on detailed Architectural drawings provided by SAI as well as procurement and construction by the EPC contractor. SAI/client may appoint consultant depending upon requirement and availability of staff.

   Mode III : involves procurement & construction by the EPC contractor based on Conceptual/Tender drawings provided by SAI. SAI/client may appoint consultant depending upon requirement and availability of staff.

   The Type of building i.e Permanent or Semi-Permanent, based on the expected economic life of the building, shall be as specified in Schedule-F.

   Tenders invited in Mode I and Mode II are technology neutral. Bidders can choose any of the approved technologies depending upon type of building, other suitability conditions (such as seismic zone, number of storeys etc.) as per Schedule F under Mode I and II as per structural design, subject further to the condition that the structural system technologies categorized under Pre-cast Construction System and adopted for buildings under Seismic Zone IV as per IS 1893(Part-I) :2016 amended from time to time, shall have passed the full scale type testing for pseudo-static reversed cyclic test as detailed below:

   Pseudo-Static Reversed -Cyclic Test

The test shall be conducted on typical three storeys of multi-storey building, which (a) are built with the full-scale components as per technology (b) are the weakest and/or most flexible, and (c) have all the typical connections of the building in precast, namely interior, exterior and corner wall to wall (vertical) connections, wall to slab (horizontal) connections and wall to wall (horizontal) connections, if any, as built in the original system with minimum four room layout plan.

The bottom of the first storey shall be connected to the strong floor of the test facility, and the floors of the upper storeys to the Displacement-controlled actuators of the requisite Displacement (and force) capacity. This proto-type shall be loaded with the due vertical gravity load representing service level dead and live loads. The profile of displacement loading shall be as per the force distribution profile specified in IS 1893 (part I):2016 in the Equivalent Static Method of design.

Displacement controlled loading: At least 3 loading cycles (Full positive and Full negative) at Each of the displacement excursions of 0.1%, 0.2%, 0.3%,0.4%, 0.5%,
0.75%, 1%, 1.5%, 2%, 2.5%, 3%, 3.5%, 4%, 5% and 6% drift of specimen, or failure of the specimen, whichever is earlier.

(i) 6% drift requirement is an upper limit. Actual drift is expected to be lesser than 6% depending on:

Deformability of the building, and Flexibility of the connections.

The test may be stopped when either 6% drift or the maximum lateral force of 3 times the design base shear is reached.

(ii) Pseudo-static reversed cyclic test does not require a Shake Table facility.

Number of samples and Frequency: One sample shall be tested unless the structure shows premature failure before reaching at least 6% overall drift, either elastically or in elastically. If the structure fails to meet 6% drift requirement, then another sample be tested to reconfirm the failure pattern observed in the first specimen. If both samples fail, said configuration of the technology shall not be adopted in the work.

One test for every new type of connection system adopted shall be conducted. If the connection type / combination of elements under approved technology are changed, either in part or in full, the system will be treated as new.

The test should have been already got conducted from any government academic institute of repute or government R&D organization in India.

The testing charges shall be borne by the contractor.

2. In the event of tender being submitted by a firm/company, it must be signed separately by each partner/director thereof or in the event of the absence of any partner/director, it must be signed on his behalf by a person holding a power of attorney authorizing him to do so, such power of attorney to be produced with the tender, and it must disclose that the firm/company is duly registered under the applicable Indian Partnership Act 1932/ Companies Act 2013.

3. Receipts for payment made on account of work, when executed by a firm/company, must also be signed by all the partners/directors, except where contractors are described in their tender as a firm/company, in which case the receipts must be signed in the name of the firm by one of the partners/directors (duly authorized by the firm/company), or by some other person having due authority to give effectual receipts for the firm/company.

Definitions	1. The EPC Contract means the documents forming the tender and acceptance thereof and the formal agreement executed between the competent authority on behalf of the Competent authority or officer nominated by him/her and the Contractor, together with the documents referred to therein including conditions, specifications, designs, drawings and instructions issued from time to time by the Engineer-in- Charge and all these documents taken together, shall be deemed to form one contract and shall be complementary to one another. 2. In the contract, the following expressions shall, unless the context otherwise requires, have the meanings, hereby respectively assigned to them: (i) The expression, works or work shall, unless there be something either in the subject or context repugnant to such construction, be construed and taken to mean the works by or by virtue of the contract contracted to be executed whether temporary or permanent, and whether original, altered, substituted or additional. (ii) The Site shall mean the land, places on, into or where work is to be executed under the contract or any adjacent land, path or street or where work is to be executed under the contract or any adjacent land, path or street which may be temporally allotted or used for the purpose of carrying out the contract.

	(iii) The Contractor shall mean the individual, firm or company, whether incorporated or not, undertaking the works and shall include the legal personal representative of such individual or the persons composing such firm or company, or the successors of such firm or company and the permitted assignees of such individual, firm or company. (iv) The Engineer-in-charge means the Engineer Officer who shall supervise and be in charge of the work and who shall sign the contract on behalf of the Competent authority as mentioned in Schedule 'F' hereunder. (v) Accepting Authority shall mean the authority mentioned in Schedule F '/ Director, Engineering Division (vi) Excepted Risk are risks due to riots (other than those on account of contractor's employees), war (whether declared or not) invasion, act of foreign enemies, hostilities, civil war, rebellion revolution, insurrection, military or usurped power, any acts of Government, damages from aircraft, acts of God, such as earthquake, lightening, unprecedented floods and other causes over which the contractor has no control and accepted as such by the Accepting Authority or causes solely due to use or occupation by Government of the part of the works in respect of which a certificate of completion has been issued or a cause solely due to Government's faulty design of works. (vii) Market Rate shall be the rate as decided by the Engineer-in-charge on the basis of the cost of materials and labour at the site where the work is to be executed plus applicable overheads and profits as mentioned in schedule F. (viii) Provided that no extra overheads and profits shall be payable on the part(s) of work assigned to other agency(s) by the contractor as per terms of contract. (b) Schedule(s) referred to in these conditions shall mean the relevant schedule(s) annexed to the tender documents or the standard Schedule of Rates of the government (Delhi Sechdule of Rates) mentioned in Schedule 'F' hereunder, with the amendments thereto issued previous day of the last date of submission of the tender. Department means SAI (ix) District Specifications means the specifications followed by the State Government in the area where the work is to be executed.

	(x) Tendered value means the value of the entire work as stipulated in the letter of award. (xi) Date of commencement of work: The date of commencement of work shall be the date of start as specified in schedule ' F ' or the first date of handing over of the site, whichever is later, in accordance with the phasing if any, as indicated in the tender document. (xii) GST shall mean Goods and Service Tax - Central, State and Inter State. (xiii) Concurrent delay: Concurrent delays are those delays occurring in the work concurrently in any combination or combination of all delay fall under different sub clauses 5.2, 5.3 and 5.5. (xiv) Adolescent Person: A person who has completed his/her fourteenth year of age but has not completed his eighteenth year. (xv) Hazardous works: Hazardous process/works are the works as defined in the clause (cb) of the Factory Act, 1948.
Scope and Performance	3. Where the context so requires, words imparting the singular only also include the plural and vice versa. Any reference to masculine gender shall whenever required include feminine gender and vice versa. 4. Headings and Marginal notes to these General Conditions of Contract shall not be deemed to form part thereof or be taken into consideration in the interpretation or construction thereof or of the contract. 5. The contractor shall be furnished, free of cost one certified copy of the contract documents except standard specifications, Schedule of Rates and such other printed and published documents, together with all drawings as may be forming part of the tender documents. None of these documents shall be used for any purpose other than that of this contract.
Works to be carried out	6. The work to be carried out under the Contract shall, except as otherwise provided in these conditions, include all labourers, materials, tools, plants, equipment and transport which may be required for full and entire execution and completion of the works. The descriptions given in the Schedule of Quantities/Scope of work shall, unless otherwise stated, be held

	to include wastage on materials, carriage and cartage, carrying and 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 of the work as aforesaid in accordance with good practice and recognized principles.
Sufficiency of Tender	7. The Contractor shall be deemed to have satisfied himself before tendering as to the correctness and sufficiency of his tender for the works and of the rates quoted in the Schedule of Quantities, which rates and prices shall, except as otherwise provided, cover all his obligations under the Contract and all matters and things necessary for the proper completion and maintenance of the works.
Discrepancies and Adjustment of Errors	8. The several documents forming the Contract are to be taken as mutually explanatory of one another, detailed drawings being followed in preference to small scale drawing and figured dimensions in preference to scale and special conditions in preference to General Conditions. (i) In the case of discrepancy between the schedule of Quantities, the Specifications and/ or the Drawings, the following order of preference shall be observed: (a) Description of Schedule of Quantities. (b) Particular Specification and Special Condition, if any. (c) Drawings. (d) General condition of contract (e) SAI/CPWD Specifications. (f) Indian Standard Specifications of B.I.S. (ii) If there are varying or conflicting provisions made in any one document forming part of the contract, the Accepting Authority shall be the deciding authority with regard to the intention of the document and his decision shall be final and binding on the contractor. (iii) Any error in description, quantity or rate in Schedule of Quantities or any omission therefrom shall not vitiate the Contract or release the Contractor from the execution of the whole or any part of the works comprised therein according to drawings and specifications or from any of his obligations under the contract.

Signing of Contract	9. The successful tenderer/contractor, on acceptance of his tender by the Accepting Authority, shall, within 15 days from the stipulated date of start of the work, sign the contract consisting of: (i) the notice inviting tender, all the documents including drawings, if any, forming the tender as issued at the time of invitation of tender and acceptance thereof together with any correspondence leading thereto. (ii) Standard Form as mentioned in Schedule 'F' consisting of: (a) Various standard clauses with corrections up to the date stipulated in Schedule ' F ' along with annexures thereto. (b) CPWD Safety Code. (c) Model Rules for the protection of health, sanitary arrangements for workers employed by SAI or its contractors. (d) CPWD Contractor's Labour Regulations. (e) List of Acts and omissions for which fines can be imposed. (iii) No payment for the work done will be made unless contract is signed by the contractor. (iv) In the event of successful tenderer being a firm/company, then the agreement shall be signed by all the partners or directors thereof individually. In the event of the absence of any partner/director, it shall be signed on his behalf by a person holding a power of attorney (duly notarized by notary public or board resolution in case of company) authorizing him to do so.
Performance Guarantee	**Clause 1** (i) The contractor shall submit an irrevocable Performance Guarantee at 5% percentage of the tendered amount as mentioned in addition to other deposits mentioned elsewhere in the contract for his proper performance of the contract agreement, (not withstanding and/or without prejudice to any other provisions in the contract) within period specified in Schedule 'F' from the date of issue of letter of acceptance. This period can be further extended by the Engineer- in-Charge up to a maximum period as specified in schedule 'F' on written request of the contractor stating the reason for delays in submitting the Performance Guarantee, to the satisfaction of the Engineer-in-Charge. This Guarantee shall be in the form of Insurance Surety Bonds, Account Payee Demand

	Draft, Fixed Deposit Receipt or Unconditional Bank Guarantee from any of the Commercial Banks. In case a fixed deposit receipt of any Bank is furnished by the contractor to the Government as part of the performance guarantee and the Bank is unable to make payment against said fixed deposit receipt, the loss caused thereby shall fall on the contractor and the contractor shall forthwith on demand furnish additional security to the Government to make good the deficit. (ii) The Performance Guarantee shall be submitted by the contractor on format as mentioned and The Performance Security must be submitted within Fourteen (14) days from the date of notification of award and shall remain valid for sixty (60) days beyond the completion of all contractual obligations, including the Defect Liability Period (DLP).The Engineer-in-Charge shall not make a claim under the performance guarantee except for amounts to which the competent authority is entitled under the contract (not withstanding and/or without prejudice to any other provisions in the contract agreement) in the event of: (a) Failure by the contractor to extend the validity of the Performance Guarantee as described herein above, in which event the Engineer-in-Charge may claim the full amount of the Performance Guarantee. (b) Failure by the contractor to pay SAI any amount due, either as agreed by the contractor or determined under any of the Clauses/Conditions of the agreement, within 30 days of the service of notice to this effect to the contractor by Engineer-in-Charge. (iii) In the event of the contract being determined or rescinded under provision of any of the Clause/Condition of the agreement, the performance guarantee shall stand forfeited in full and shall be absolutely at the disposal of the SAI. (iv) As per requirement of the client or otherwise specified in the contract, part completion certificate may be issued for the building(s)/ infrastructure project for the part(s) which have been completed in all respect and are ready for use. However, statutory approvals, Completion drawing of various services, wherever required, shall be obtained before handing over of building(s)/ part(s) of the project. Scope of the completed part(s) shall be mentioned in such part completion certificate. The part completion certificate shall include outstanding balance work that need to be completed in accordance with the provisions of the contract. This part completion certificate shall be recorded by the authority as per contract value of work. After recording of the part

	Completion Certificate for the work by the competent authority, the proportionate amount of 80% of performance guarantee shall be returned to the contractor, without any interest. However in case of contracts involving Maintenance of building and services /any other work after construction of same building and services/ other work, then proportionate amount of 40% of performance guarantee shall be returned to the contractor without any interest after recording the part Completion certificate.
Recovery of Security Deposit	**Clause 1A** In addition to the Performance Security, contracts for works shall include a provision for Security deposit/retention money, whereby five percent (5%) of the value of each running bill (periodic/interim payment) shall be withheld as Security Deposit until final acceptance of the works. Replacement with Bank Guarantee: The contractor may, at their discretion, replace the accumulated retention amount with an unconditional Bank Guarantee (BG) from a bank acceptable to the Procuring Entity at the following stages: • Upon reaching 50% of the retention money limit. • Upon reaching the full retention money limit. **Release of Retention Money / BG:** One-half of the retention money (or BG replacing it) shall be released upon issuance of the Taking Over Certificate (TOC). If TOCs are issued in parts, the release shall be in proportion to the value of the respective part or section, as determined by the Engineer. The remaining half shall be released upon expiration of 365 days after the Defect Liability Period (DLP) or final payment, whichever is earlier, subject to certification by the Engineer. Multiple DLPs: In cases where different DLPs apply to different sections or parts of the works, the final release shall be based on the latest applicable DLP.
Compensation for Delay/ Incentives	**Clause 2** If the contractor fails to maintain the required progress in terms of clause 5 or to complete the work and clear the site on or before the stipulated completion date or justified extended date of completion determined as per clause 5 (excluding any extension under clause 5.5)

	also considering any extension granted under clauses 12 and 15, he shall, without prejudice to any other right or remedy available under the law to the Government on account of such breach, pay as compensation, the amount calculated as below : (i) Compensation for delay of work @ 0.75% of accepted tendered amount per month of delay (to be computed on per day basis) Provided further that the total amount of compensation for delay to be paid under this condition shall not exceed 5% (five percent) of the accepted Tendered Value of work or of the accepted Tendered Value of the Sectional part of work as mentioned in Schedule 'F' for which a separate period of completion is originally given. The period of delay solely attributable to contractor shall be computed as the time taken by contractor going beyond the 'justified date of completion' as determined by the authority specified in schedule F under clause 5. Further, in case where the contractor is entitled to additional time under clause 12 and /or clause 15, that shall also be accounted for while deciding the net period of delay. In case, the authority specified in schedule F decides to levy compensation during the progress of work, the period of delay attributable to contractor shall be computed (by such authority) as the period by which the progress is behind the schedule on date of such decision, after due consideration of justified extension at that stage of work. In case no compensation has been decided by the authority in Schedule 'F' during the progress of work, this shall be no waiver of right to levy compensation by SAI if the work remains incomplete on final justified extended date of completion. If the Engineer in Charge decides to give further extension of time allowing performance of work beyond the justified extended date the contractor shall be liable to pay compensation for such extended period. The levy of compensation under this clause shall be without prejudice to the right of action by the Engineer-in-charge under clause 3 or any other clause in contract. In case action under clause 2 has not been finalized and the work has been determined under clause 3, the right of action under clause 2 shall remain post determination of contract and in such case the levy of compensation shall be for days the progress is behind the schedule on date of determination, as assessed by the authority in Schedule F, after due consideration of justified extension. The compensation for delay, if not decided before the determination of contract, shall be decided after of determination of contract. Further, in such case where the contract has been determined, the total amount of recovery against compensation under clause 2 plus that under clause 3 (i.e. forfeiture of security deposit,

	performance guarantee) shall not exceed 10 % of the accepted tendered value of work. The amount of compensation may be adjusted or set-off against any sum payable to the Contractor under this or any other contract with the SAI. In case, the contractor does not achieve a particular milestone mentioned in schedule F, or the re-scheduled milestone(s) in terms of Clause 5, the amount shown against that milestone shall be withheld, to be adjusted against the compensation levied as above. With-holding of this amount on failure to achieve a milestone, shall be automatic without any notice to the contractor. However, if the contractor catches up with the progress of work on the subsequent milestone(s), the withheld amount shall be released. In case the contractor fails to make up for the delay in subsequent milestone(s), amount mentioned against each milestone missed subsequently also shall be withheld. The amount so withheld can be released against BG/ FDR from a commercial bank of equivalent amount. Further, no interest, whatsoever, shall be payable on such withheld amount. In recognition of timely and efficient execution, If the construction completion date for a facility occurs prior to the scheduled construction completion date then the contractor shall be eligible for an incentive for early completion of the of work under the contract, subject to the following conditions: • If the contractor completes the work ahead of the scheduled completion date, an incentive shall be payable at the rate of 0.75 percent (0.75%) of the contract value for each full block of thirty (30) calendar days of early completion up to a maximum 2.25% of the tendered values • Periods of early completion less than thirty (30) days shall be disregarded for the purpose of calculating the bonus. • The bonus shall be calculated based on the actual date of completion certified by the Engineer-in-Charge and the originally stipulated completion date as per the contract. The total incentive payable shall not exceed the 2.25% of project cost. This incentive shall not affect the contractor's obligations regarding quality, safety, or compliance with specifications. To qualify for any early completion incentive, the contractor shall mandatorily report the actual date of completion to the Engineer in charge. The Engineer shall confirm and communicate the actual date of completion to the SAI via fax or email within seven (7) calendar days of completion. Incentives for early completion may be offered only where a demonstrable and tangible benefit to the procuring entity is established.

	If applicable, such incentives shall be explicitly stated in monetary terms within the contract. In the event that the Contractor has received any incentive or bonus for early completion of works and, during the Defect Liability Period (DLP), any defect, deficiency, or non-conformity arises in the executed works, it shall be the Contractor's responsibility to rectify such defects within the time frame stipulated by the Engineer-in-Charge. Failure of the Contractor to carry out the necessary rectification within the prescribed period shall render the Contractor liable for recovery of the incentive amount previously granted. The said amount shall be deducted from the Performance Bank Guarantee (PBG) or any other dues payable to the Contractor, without prejudice to any other rights of the Employer under the Contract.
When Contract can be Determined	**Clause 3** Subject to other provisions contained in this clause, the Engineer-in-Charge may, without prejudice to his any other rights or remedy against the contractor in respect of any delay, not following safety norms , inferior workmanship, any claims for damages and/or any other provisions of this contract or otherwise, and whether the date of completion has or has not elapsed, by notice in writing absolutely determine the contract in any of the following cases: (i) If the contractor having been given by the Engineer-in-charge a notice in writing to rectify, reconstruct or replace any defective work or that the work is being performed in an inefficient or otherwise improper or un-workman like manner shall omit to comply with the requirement of such notice for a period of seven days thereafter. (ii) If the contractor has, without reasonable cause, suspended the progress of the work or has failed to proceed with the work with due diligence and continues to do so after a notice in writing of seven days from the Engineer-in-Charge. (iii) If the contractor fails to complete the work or section of work with individual date of completion on or before the stipulated or justified extended date, on or before such date of completion; and the Engineer in Charge without any prejudice to any other right or remedy under any other provision in the contract has given further reasonable time in a notice given in writing in that behalf as either mutually agreed or in absence of such mutual agreement by his own assessment making such time essence of contract and in the opinion of Engineer-in-Charge the contractor will be unable to complete the same or does not complete the same within the period specified. (iv) If the contractor persistently neglects to carry out his obligations under the contract and/ or commits default in complying with any of

	the terms and conditions of the contract and does not remedy it or take effective steps to remedy it within 7 days after a notice in writing is given to him in that behalf by the Engineer-in-Charge. (v) If the contractor shall offer or give or agree to give to any person in Government service or to any other person on his behalf any gift or consideration of any kind as an inducement or reward for doing or forbearing to do or for having done or forborne to do any act in relation to the obtaining or execution of this or any other contract for Government. (vi) or entered into any engagements or made any advances on account or with a view to the execution of the work or the performance of the contract. And in case action is taken under any of the provision aforesaid, the contractor shall not be entitled to recover or be paid any sum for any work thereof or actually performed under this contract unless and until the Engineer-in-Charge has certified in writing the performance of such work and the value payable in respect thereof and he shall only be entitled to be paid the value so certified. **Clause 3A** In case, the work including planning designing and execution as per scope of contract cannot be started due to reasons not within the control of the contractor within 1/8th of the stipulated time for completion of work or 180 days whichever is higher, either party may close the contract by giving notice to the other party stating the reasons. In such eventuality, the Performance Guarantee of the contractor shall be refunded within 30 days of closing of the contract. Neither party shall claim any compensation for such eventuality. This clause is not applicable for any breach of the contract by either party.
Contractor liable to pay compensation even if action not taken under Clause 3	**Clause 4** In any case in which any of the powers conferred upon the Engineer-in-Charge by Clause3 thereof, shall have become exercisable and the same are not exercised, the non-exercise thereof shall not constitute a waiver of any of the conditions hereof and such powers shall notwithstanding be exercisable in the event of any future case of default by the contractor and the liability of the contractor for compensation shall remain unaffected. In the event of the Engineer-in-Charge putting in force all or any of the powers vested in him under the preceding clause he may, if he so desires after giving a notice in writing to the contractor, take possession of (or at the sole discretion of the Engineer-in-Charge which shall be final and binding on the contractor) use as on hire (the amount of the hire money being also in the final determination of the Engineer-in-Charge) all or any tools, plant, materials and stores, in or upon the works, or the site thereof belonging to the contractor or procured by the contractor

	and intended to be used for the execution of the work/or any part thereof, paying or allowing for the same in account at the contract rates, or, in the case of these not being applicable, at current market rates to be certified by the Engineer-in-Charge, whose certificate thereof shall be final, and binding on the contractor, clerk of the works, foreman or other authorized agent to remove such tools, plant, materials, or stores from the premises (within a time to be specified in such notice) in the event of the contractor failing to comply with any such requisition, the Engineer-in-Charge may remove them at the contractor's expense or sell them by auction or private sale on account of the contractor and his risk in all respects and the certificate of the Engineer-in-Charge as to the expenses of any such removal and the amount of the proceeds and expenses of any such sale shall be final and conclusive against the contractor.
Time and Extension for Delay	**Clause 5** The time allowed for execution of the Works as specified in the Schedule 'F' or the extended time in accordance with these conditions shall be the essence of the Contract. The execution of the work shall commence from such date as mentioned in schedule 'F' or from the date of handing over of the site, as notified by the Engineer-in-Charge, whichever is later. If the Contractor commits default in commencing the execution of the work as aforesaid and such default continues even after time period specified in the notice in writing by the Engineer in charge then the performance guarantee shall be forfeited by the Engineer in Charge and shall be absolutely at the disposal of the Government without prejudice to any other right or remedy available in law. The contract shall stand determined when such decision regarding the forfeiture of the performance guarantee is issued to the contractor. **5.1** The contractor as soon as possible but within 10 Ten days of issue of letter of Intent of work shall submit a time and progress chart to the Engineer-in-Charge. Such chart shall be made in due consideration of : (a) Schedule of handing over of site as specified in the Schedule 'F' (b) Schedule of issue of design(s) and drawing(s) as specified in the Schedule 'F', (i) The Contractor shall submit a Time and Progress Chart for each milestone. The Engineer-in- Charge may within 15 (Fifteen) days of receipt of such chart, make modifications thereafter, if any, and communicate the approved chart to the contractor, failing which the chart submitted by the contractor shall be deemed to be approved by the Engineer-in- Charge.

The Chart shall be prepared in direct relation to the time stated in the Contract documents for completion of items of the work(s). It shall indicate the forecast of the dates of commencement and completion of various trades of sections of the work and may be amended as necessary by agreement between the Engineer-in-Charge and the Contractor within the limitations of time imposed in the Contract documents.

(ii) In case of non-submission of time and progress chart by the contractor, the chart prepared by the Engineer-in- Charge shall be deemed to be final.

(iii) Such program by the Engineer-in-Charge shall not relieve the contractor of any of the obligations under the contract.

(iv) The contractor shall submit the Time and Progress Chart containing upto date progress of work using the mutually agreed software or in the format decided by Engineer-in-Charge. Such chart shall be submitted by the contractor on or before 5th day of each month failing which a recovery as mentioned in Schedule 'F' shall be made at the earliest from the next running account bill without any notice in this regard.

(v) While recording the hindrances in the progress of the work, due consideration should be given to the cause of hindrance. The hindrances shall be segregated in following categories :

(a) delays due to reasons beyond the control of both parties (sub- clause 5.2)

(b) delays attributable to the Department and concurrent delays (sub-clause 5.3).

(c) delays solely attributable to the contractor (sub-clause 5.5)

5.2 Delays due to reasons beyond the control of both parties:

If the work(s) are delayed by:-

(i) force majeure, or

(ii) abnormally bad weather, or

(iii) serious loss or damage by fire, or

(iv) civil commotion, local commotion of workmen, strike or lockout, affecting any of the trades employed on the work, or

(v) delay on the part of other contractors or tradesmen engaged by Engineer-in- Charge in executing work not forming part of the Contract, or

(vi) any other cause like above which, in the reasoned opinion of the Engineer-in-Charge is beyond the Contractor's control.

	Then upon the happening of any such event causing delay, the contractor shall within 03 (three) days give online notice thereof through Through proper communication channel to the Engineer-in-Charge but shall nevertheless use constantly his best endeavors to prevent or make good the delay and shall do all that may be reasonably required to the satisfaction of the Engineer-in-Charge to proceed with the work(s). The contractor shall have no claim on account of any hindrance in case notice(s) are not given by the contractor through Through proper communication channel. The Engineer-in-Charge, on receipt of such notice(s) after considering the factual ground situation, shall either acknowledge or reject the notice(s). In case of rejection, the reason(s) for rejection shall be communicated by Engineer-in-Charge to the agency. The decision of Engineer-in-Charge with regard to nature of event causing delay, its start date and end date, as has been finalized during acknowledgement of notice, shall be final and binding. The end date of such events shall be recorded by Engineer-in-Charge either during acknowledgment of notice or subsequent to acknowledgement if end date of hindrance is after the date of acknowledgement of notice. In absence of notice by the contractor, Engineer-in-Charge or his representative(s) may record the events causing delay within 05 (five) days of occurrence of hindrance on Through proper communication channel provided further that not recording of events causing delay by the Engineer-in-Charge does not ipso facto entitle the contractor for any hindrance. The contractor shall have no claim of damages against the delays listed in this sub clause i.e. sub clause 5.2. The contractor shall have no claim of damages for extension of time granted or rescheduling of milestone/s for events listed in sub clause 5.2. **5.3 Delays attributable to the Department and the Concurrent delays:** In case the work is hindered, in the opinion of the contractor, by the Department or for any reason / event, for which the Department is responsible, then upon the happening of such event causing delay, the Contractor shall within 3 (three) days give online notice through proper communication channel to SAI but shall nevertheless use constantly his best endeavors to prevent any type of the delay and shall do all that may be reasonably required to the satisfaction of the Engineer-in- Charge to proceed with the work.

	The contractor shall not be entitled for any hindrance in case notice(s) are not given by the contractor through proper communication channel. The Engineer-in-Charge, on receipt of such notice(s) after considering the factual ground situation, shall either acknowledge or reject the notice(s). In case of rejection, the reason(s) for rejection shall be communicated by Engineer-in-Charge to the agency. The decision of Engineer-in-Charge with regard to nature of event causing delay, its start date and end date, as has been finalized during acknowledgement of notice, shall be final and binding. The end date of such events shall be recorded by Engineer-in-Charge either during acknowledgment of notice or subsequent to acknowledgement if end date of hindrance is after the date of acknowledgement of notice. In absence of notice by the contractor, Engineer-in-Charge or his representative(s) may record the events causing delay within 05 (five) days of occurrence of hindrance on Through proper communication channel provided further that not recording of events causing delay by the Engineer-in-Charge does not ipso facto entitle the contractor for any hindrance. Such extension of time or rescheduling of milestone(s) shall be without prejudice to any other right or remedy of the parties in contract or in law, provided further that for concurrent delay(s) under this sub clause and sub clause 5.2 to the extent the delay is covered under sub clause 5.2, the contractor shall be entitled to only extension of time and shall have no claim of damages. **5.4 Rescheduling of milestone(s) and 'Justified extended date of completion'** The request for rescheduling the Milestone(s) and extension of time, shall be made by the Contractor through Through proper communication channel once in a month on the basis of hindrances accepted by Engineer-in-Charge under sub- clause 5.2 and sub-clause 5.3. The Contractor shall indicate in such a request number of days by which rescheduling of milestone(s) and/or extension of time is desired. The authority as indicated in Schedule 'F', after examining the request, shall give a fair and reasonable 'justified extension of time for completion of work and simultaneously reschedule the milestone(s), if required so. The authority shall consider all the hindrances accepted by Engineer-in-Charge as per sub- clauses 5.2, 5.3 and 5.5.

	The authority shall decide rescheduling of milestone(s) and extension of time within 30 (Thirty) days of the request submitted by the contractor through Through proper communication channel. In event of no request by the contractor for rescheduling of milestone(s) and extension of time, the authority as indicated in Schedule F, after affording opportunity to the contractor, may give fair and reasonable extension of time based on hindrances accepted by Engineer-in-Charge and reschedule the milestone(s) once in a month. Such justified extension of time shall determine the 'justified extended date' of completion of work. **5.4.1** Provided that the end date of any event causing delay shall not fall beyond the date of request for extension of time or rescheduling of milestone(s) by the contractor. In case end date of event falls beyond the date of submission of said request, then period for extension up to date of application shall be considered in said request for events eligible for consideration and remaining period shall be applied in subsequent request of extension of time or rescheduling of milestone(s). Engineer-in-Charge shall finalize/ reschedule a particular mile stone before taking action against subsequent milestone. Such extension or rescheduling of the milestones shall be communicated to the Contractor by the authority as indicated in Schedule 'F' in writing, within 30 (Thirty days) of the date of receipt of such request from the Contractor on Through proper communication channel. **5.5 Delays attributable solely to the contractor** In case the work is delayed by reasons solely attributable to the contractor, then Engineer-in-Charge or his representative(s) may record the event causing delay within 07 (Seven) days of occurrence of delay in the Through proper communication channel. Contractor shall take the notice of the same for necessary action. He may submit his version, if any within 07 (Seven) days. Engineer-in-Charge, considering the version of the contractor, will take decision on such recording of the event and the decision of the Engineer-in- Charge shall be final and binding. The contractor shall be liable for levy of compensation for such delays i.e. for the period beyond the justified extended date of completion as determined in sub clause 5.4 and this default of contractor shall be dealt in conjunction with clause 2 of the contract.

	In case the work is delayed, due to hindrances attributable solely to the contractor, beyond the justified extended date (as stated in sub clause 5.4), the authority indicated in Schedule 'F', without prejudice to provisions to take action under Clause 3, may grant extension of time required for completion of work without rescheduling of milestone(s) and extend the date of completion.
Computerized Measurement Book	**Clause 6** Engineer-in-Charge shall, except as otherwise provided, ascertain and determine by measurement the value of work done in accordance with the contract. All measurements as per the stage payments mentioned in Schedule F having financial value shall be entered by the contractor and compiled in the shape of the Computerized Measurement Book having pages of A-4 size as per the format of the department so that a complete record is obtained of all the stages of works performed under the contract. All such measurements recorded by the contractor or his authorized representative from time to time, during the progress of the work, shall be got checked by the contractor from the Engineer-in-Charge or his authorized representative as per interval or program fixed in consultation with Engineer-in-Charge or his authorized representative. After the necessary corrections made by the Engineer-in-Charge, the measurement sheets shall be returned to the contractor for incorporating the corrections and for resubmission to the Engineer-in- Charge for the dated signatures by the Engineer-in- Charge and the contractor or their representatives in token of their acceptance. Whenever bill is due for payment, the contractor would initially submit draft computerized measurement sheets and these measurements would be got checked/test checked from the Engineer-in-Charge and/or his authorized representative. The contractor will, thereafter, incorporate such changes as may be done during these checks/test checks in his draft computerized measurements, and submit to the department a computerized measurement book, duly bound, and with its pages machine numbered. The Engineer-in- Charge and/or his authorized representative would thereafter check this MB, and record the necessary certificates for their checks/test checks. The final, fair, computerized measurement book given by the contractor, duly bound, with its pages machine numbered, should be 100% correct. No cutting or over-writing in the measurements would thereafter be allowed. If at all any error is noticed, the contractor shall have to submit a fresh computerized MB with its pages duly machine numbered and bound, after getting the earlier MB cancelled by the department. Thereafter, the MB shall be taken in the Office records, and allotted a number as per the Register of Computerized

	MBs. This should be done before the corresponding bill is submitted to the Division Office for payment. The contractor shall submit two spare copies of such computerized MB's for the purpose of reference and record by the various officers of the department. The contractor shall also submit to the Engineer-in-Charge separately his computerized Abstract of Cost and the bill based on these measurements, duly bound, and its pages machine numbered along with two spare copies of the bill. Thereafter, this bill will be processed by SAI and allotted a number as per the computerized record in the same way as done for the measurement book meant for measurements. The contractor shall, without extra charge, provide all assistance with every appliance, labour and other things necessary for checking of measurements by the Engineer-in- Charge or his representative. Except where any general or detailed description of the work expressly shows to the contrary, measurements shall be taken in accordance with the procedure set forth in the contract notwithstanding any provision in the relevant Standard Method of measurement or any general or local custom. The contractor shall give not less than seven days' notice to the Engineer-in-Charge or his authorized representative in charge of the work before covering up or otherwise placing beyond the reach of checking and/or test checking the measurement of any work in order that the same may be checked and/or test checked and correct dimensions thereof be taken before the same is covered up or placed beyond the reach of checking and/or test checking measurement and shall not cover up and place beyond reach of measurement any work without consent in writing of the Engineer-in-Charge or his authorized representative in charge of the work who shall within the aforesaid period of seven days inspect the work, and if any work shall be covered up or placed beyond the reach of checking and/or test checking measurements without such notice having been given or the Engineer-in-Charge's consent being obtained in writing the same shall be uncovered at the Contractor's expense, or in default thereof no payment or allowance shall be made for such work or the materials with which the same was executed. Engineer-in-Charge or his authorized representative may cause either themselves or through another officer of the department to check the measurements recorded by contractor and all provisions stipulated herein above shall be applicable to such checking of measurements or levels. It is also a term of this contract that checking and/or test checking the measurements of any item of work in the measurement book and/or its payment in the interim, on account of final bill shall not be considered

	as conclusive evidence as to the sufficiency of any work or material to which it relates nor shall it relieve the contractor from liabilities from any over measurement or defects noticed till completion of the defects liability period.
Payment on intermediate certificate to be regarded as Advances	**Clause 7** The running account bills shall be submitted by the contractor for the work executed on the basis of such recorded measurements as per Clause 6 on the format of the Department in triplicate on or before the date of every month fixed for the same by the Engineer-in-Charge. The contractor shall not be paid any such interim payment if the gross work done together with net payment/ adjustment of advances for material collected, if any, since the last such payment is less than the amount specified in Schedule 'F', in which case the interim bill shall be prepared on the appointed date of the month after the requisite progress is achieved. However, to expedite the progress of work, Engineer-in-Charge, on the request of contractor, may make interim payment(s) even before the net payment limit specified in schedule 'F' is achieved. In such case(s) no interest / compensation shall be recoverable from contractor. Such payment by Engineer-in-Charge shall not be construed as waiver of limit specified in schedule 'F' for subsequent interim payment(s). Engineer-in-Charge shall arrange to have the bill verified In the event of the failure of the contractor to submit the bills, no claims whatsoever due to delays on payment including that of interest shall be payable to the contractor. Payment on account of amount admissible shall be made by the Engineer-in-Charge certifying the sum to which the contractor is considered entitled by way of interim payment at such rates as decided by the Engineer-in-Charge. An amount of ad-hoc payment not less than 75% of the net amount of the bill under check, shall be made within 10 working days of submission of the bill. The remaining payment is also to be made after final checking of the bill within 28 working days of submission of bill by the contractor. In case of delay in payment of intermediate bills after 30 days of submission of bill by the contractor, provided the bill submitted by the contractor found to be in order, a simple interest @ 5% (five percent) per annum shall be paid to the contractor from the date of expiry of prescribed time limit. **Clause 7A** No Running Account Bill shall be paid for the work till the applicable labour licenses, registration with EPFO, ESIC and BOCW Welfare Board, whatever applicable are submitted by the contractor to the Engineer-in-Charge.
Payment to third party	**Clause 7B** If the exigencies of the work so demand, the engineer-in-charge may allow payment to a third party, who is creditor to the contractor, after fulfilling the following conditions.

	(a) The contractor gives an authority letter addressed to the engineer-in-charge on a non- judicial stamp paper of Rs.100 in the format given below. I/We authorize the Engineer-in-Charge, ... Division, SAI to pay directly on my/our behalf to ..... (name of the third party) an amount of Rs.....(Rupees.....in words) for the work done or supplies made by . .....(name of the third party). I/We shall be responsible for the quality and quantity of the same under the provisions of agreement number ..... Signature of the contractor (b) The total payment to third party (or parties) shall not exceed 10% of the agreement cost of the work.
Completion Certificate and Completion Plans	**Clause 8** Within ten days of the completion of the work or on part completion of one or more building(s) out of independent building in a project or infrastructure project, as per requirement of client or otherwise specified in schedule F, the contractor shall give notice of such completion to the Engineer-in-Charge and within thirty days of the receipt of such notice, the Engineer-in- Charge shall inspect the work and shall furnish the contractor with a part or final completion certificate as the case may be, indicating defects (a) to be rectified by the contractor and/or (b) for which payment will be made at reduced rates. But no final certificate of completion shall be issued, nor shall the work be considered to be complete until the contractor shall have removed from the premises on which the work shall be executed all scaffolding, surplus materials, rubbish and all huts and sanitary arrangements required for his/their work people on the site in connection with the execution of the works as shall have been erected or constructed by the contractor(s) and cleaned off the dirt from all wood work, doors, windows, walls, floor or other parts of the building, in, upon, or about which the work is to be executed or of which he may have had possession for the purpose of the execution, thereof, and not until the work shall have been measured by the Engineer-in-Charge. If the contractor fails to comply with the requirements of this Clause as to removal of scaffolding, surplus materials and rubbish and all huts and sanitary arrangements as aforesaid and cleaning off dirt on or before the date fixed for the completion of work, the Engineer-in-Charge may at the expense of the contractor remove such scaffolding, surplus materials and rubbish etc., and dispose

	off the same as he thinks fit and clean off such dirt as aforesaid, and the contractor shall have no claim in respect of scaffolding or surplus materials or final cleaning work as aforesaid except for any sum actually realized by the sale thereof.
Completion Plans to be Submitted by the Contractor	**Clause 8A** The contractor shall submit completion plans for Internal and External Civil, Electrical and Mechanical Services within thirty days of the completion of the work. In case, the contractor fails to submit the completion plan as aforesaid, he shall be liable to pay a sum of 0.1 % (zero point one percent) of Tendered Value or limit prescribed in Schedule F whichever is more as may be fixed by the authority as mentioned in Schedule F and in this respect the decision of the that authority shall be final and binding on the contractor.
Payment of Final Bill	**Clause 9** The final bill shall be submitted by the contractor in the same manner as specified in interim bills within three months of physical completion of the work or within one month of the date of the final certificate of completion furnished by the Engineer-in-Charge whichever is earlier. No further claims shall be made by the contractor after submission of the final bill and these shall be deemed to have been waived and extinguished. Payments of those items of the bill in respect of which there is no dispute and of items in dispute, for quantities and rates as approved by Engineer-in-Charge, will, as far as possible be made within the period of three months the period being reckoned from the date of receipt of the bill by the Engineer-in Charge. If the final bill is submitted by the contractor within the period specified above and delay in payment of final bills is made by the department after prescribed time limit, a simple interest @ 5 % (five percent) per annum shall be paid to the contractor from the date of expiry of prescribed time limit, provided the final bill submitted by the contractor is found to be in order.
Payment of Contractors Bills to Banks	**Clause 9A** Payments due to the contractor may, if so desired by him, be made to his bank, registered financial, co-operative or thrift societies or recognized financial institutions instead of direct to him provided that the contractor furnishes to the Engineer-in-Charge (1) an authorization in the form of a legally valid document such as a power of attorney conferring authority on the bank, registered financial, co-operative or thrift societies or recognized financial institutions to receive payments and (2) his own acceptance of the correctness of the amount made out as being due to him by SAI or his signature on the bill or other claim preferred against SAI before settlement by the Engineer-in-Charge of the account or claim by

	payment to the bank, registered financial, co-operative or thrift societies or recognized financial institutions. While the receipt given by such banks registered financial, co-operative or thrift societies or recognized financial institutions shall constitute a full and sufficient discharge for the payment, the contractor shall whenever possibly present his bills duly receipted and discharged through his bank, registered financial, co-operative or thrift societies or recognized financial institutions. Nothing herein contained shall operate to create in favor of the bank, registered financial, co-operative or thrift societies or recognized financial institutions any rights or equities vis-a- vis the President of India.
Materials to be provided by the Contractor	**Clause 10A** The contractor shall, at his own expense, provide all materials, required for the works other than those which are stipulated to be supplied by the SAI. The contractor shall, at his own expense and without delay supply to the Engineer-in-Charge samples of materials to be used on the work and shall get these approved in advance. All such materials to be provided by the Contractor shall be in conformity with the specifications laid down or referred to in the contract. The contractor shall, if requested by the Engineer-in- Charge furnish proof, to the satisfaction of the Engineer-in-Charge that the materials so comply. The Engineer-in-Charge shall within thirty (30) days of supply of samples or within such further period as he may require intimate to the Contractor in writing whether samples are approved by him or not. If samples are not approved, the Contractor shall forthwith arrange to supply to the Engineer-in-Charge for his approval, fresh samples complying with the specifications laid down in the contract. When materials are required to be tested in accordance with specifications, approval of the Engineer-in-Charge shall be issued after the test results are received. The Contractor shall at his cost submit the samples of materials to be tested or analyzed and shall not make use of or incorporate in the work any materials represented by the samples until the required tests or analysis have been made and materials finally accepted by the Engineer-in-Charge. The Contractor shall not be eligible for any claim or compensation either arising out of any delay in the work or due to any corrective measures required to be taken on account of and as a result of testing of materials. The contractor shall, at his cost, make all arrangements and shall provide all facilities as the Engineer-in-Charge may require for collecting and preparing the required number of samples for such tests at such time and to such place or places as may be directed by the Engineer- in-Charge and bear all charges including testing charges. The Engineer -in- Charge

	or his authorized representative shall always have access to the works and to all workshops and places where work component is being prepared or from where materials, manufactured articles or machinery are being obtained for the works and the contractor shall afford every facility and every assistance in obtaining the right to such access. The Engineer-in-Charge shall have full powers to require the removal from the premises of all materials which in his opinion are not in accordance with the specifications and in case of default, the Engineer-in-Charge shall be at liberty to employ at the expense of the contractor, other persons to remove the same without being answerable or accountable for any loss or damage that may happen or arise to such materials. The Engineer-in-Charge shall also have full powers to require other proper materials to be substituted thereof and in case of default, the Engineer-in-Charge may cause the same to be supplied and all costs which may attend such removal and substitution shall be borne by the Contractor. The contractor shall at his own expense, provide a material testing lab at the site for conducting routine field tests. The lab shall be equipped at least with the testing equipment as specified in schedule F.
Secured Advance on Materials	**Clause 10B** (i) The contractor, on signing an indenture form specified in appendix XXIII, shall be entitled to be paid during the progress of the execution of the work up to 75% of the assessed value of any materials, which are in the opinion of the Engineer-in- charge non-perishable, non-fragile and non-combustible and are in accordance with the contract and which have been brought on the site in connection therewith and are adequately stored and/or protected against damage by weather or other causes but which have not at the time of advance been incorporated in the works. When materials on account of which an advance has been made under this sub-clause are incorporated in the work, the amount of such advance shall be recovered/deducted from the next payment made under any of the clause or clauses of this contract. Such secured advance shall also be payable on other items of perishable nature, fragile and combustible with the approval of the Engineer-in-charge provided the contractor provides a comprehensive insurance cover for the full cost of such materials. The decision of the Engineer-in-charge shall be final and binding on the contractor in this matter. No secured advance, shall however, be paid on high-risk materials such as ordinary glass, sand, petrol, diesel.
Mobilization advance	(ii) Mobilization advances not exceeding 10% of the tendered amount may be given, if requested by the contractor in writing within six months of the order to commence the work. Such advance shall be released in two or more instalments to be determined by the

	Engineer-in-Charge. The amount of any instalment shall not exceed 5% of the tendered amount of the work. The first instalment of such advance shall be released by the Engineer-in-charge to the contractor on his request. The second and subsequent instalment(s) shall be released by the Engineer-in-Charge only after the contractor furnishes a proof of the satisfactory utilization of full amount of the earlier instalment(s) to the satisfaction of the Engineer-in-Charge. The mobilization advance will be utilized for the following: Establishment of site office for contractor and SAI staff, testing lab, testing lab equipment, labour camps & basic amenities, services for labour/staff, cement godown, reinforcement yard and stores etc. Any other item as mentioned in NIT by the NIT approving authority. 90% of the price of new items and 50% of the depreciated price of old items will be considered for assessing the utilized amount of mobilization advance. Expenditure incurred on items/ materials which are measureable and payable under agreement/extra items as well as materials eligible for secured advance will be excluded from utilized amount of mobilization advance, if any. The assessment of Engineer-in-Charge in this respect shall be final and binding. However clause 10B (ii) and clause 10B (iii) are mutually exclusive i.e. both cannot be operated for same material simultaneously. Before any installment of advance is released, the contractor shall execute unconditional Bank Guarantee not more than 6 (six) in number from commercial Bank for the amount equal to 110% of the amount of advance and valid for the period till recovery of advance. This (Unconditional bank Guarantee from commercial Bank on prescribed format for the amount equal to 110% of the balance amount of advance) shall be kept renewed from time to time to cover the balance amount and likely period of complete recovery.
Plant Machinery & Shuttering Material Advance (Not Applicable)	(iii) An advance for plant, machinery & shuttering material required for the work and brought to site by the Contractor may be given if requested by the contractor in writing within one month of bringing such plant and machinery to site. Such advance shall be given on such plant and machinery which in the opinion of the Engineer-in-charge will add to the expeditious execution of work and improve the quality of work. The amount of advance shall be restricted to 5% of the tender value. In the case of new plant and equipment to be purchased for the work, the advance shall be restricted to 90% of the price of such new plant and equipment paid by the contractor for which the contractor shall produce evidence satisfactory to the

	Engineer-in-Charge. In the case of second hand and used plants and equipment, the amount of such advance shall be limited to 50% of the depreciated value of plant and equipment as may be decided by the Engineer-in- Charge. The contractor shall, if so required by the Engineer-in-Charge, submit the statement of value of such old plant and equipment duly approved by a Registered Valuer recognized by the Central Board of Direct Taxes under the Income Tax Act, 1961. No such advance shall be paid on any plant and equipment of perishable nature and on any plant and equipment of a value less than Rs. 50,000/-. Seventy five percent of such amount of advance shall be paid after the plant & equipment is brought to site and balance twenty five percent on successfully commissioning the same. Leasing of equipment shall be considered at par with purchase of equipment and shall be covered by tripartite agreement with the following: (a) Leasing company which gives certificate of agreeing to lease equipment to the contractor. (b) Engineer in Charge, and (c) The contractor. This advance shall further be subject to the condition that such plant and equipment (a) Are considered by the Engineer-in-Charge to be necessary for the works; (b) and are in working order and are maintained in working order; (c) hypothecated to SAI as specified by the Engineer-in-Charge before the payment of advance is released. The contractor shall not be permitted to remove from the site such hypothecated plant and equipment without the prior written permission of the Engineer in- Charge. The contractor shall be responsible for maintaining such plant and equipment in good working order during the entire period of hypothecation failing which such advance shall be entirely recovered in lump sum. For this purpose, steel scaffolding and form work shall be treated as plant and equipment The contractor shall insure the Plant and Machinery for which mobilization advance is sought and given, for a sum sufficient to provide for their replacement at site. Any amounts not recovered from the insurer will be borne by the contractor. The Plant, Machinery & Shuttering Material Advance will be utilized for the following: For purchase of any type of tool, plant and machinery required for execution of work such as concrete batch mix plant, mixtures, transit mixtures, loader, excavators, dumpers, DG sets, vibrators, hot mix bitumen plant, paver, rollers and any other equipment etc.

	Barricading of site and procurement of centring / shuttering / staging material etc. Any other item as mentioned in NIT by the NIT approving authority. 90% of the price of new items and 50% of the depreciated price of old items will be considered for assessing the utilized amount of Plant, Machinery & Shuttering Material Advance. The assessment of Engineer-in-Charge in this respect shall be final and binding. However clause 10B (ii) and clause 10B (iii) are mutually exclusive i.e. both cannot be operated for same material simultaneously.
Interest & Recovery	(iv) The mobilization advance in (ii) & (iii) above bear simple interest at the rate of 8 percent per annum and shall be calculated from the date of payment to the date of recovery, both days inclusive, on the outstanding amount of advance. Recovery of such sums advanced shall be made by the deduction from the contractors bills commencing after first ten percent of the gross value of the work is executed and paid, on pro-rata percentage basis to the gross value of the work billed beyond 10% in such a way that the entire advance is recovered by the time eighty percent of the gross value of the contract is executed and paid, together with interest due on the entire outstanding amount up to the date of recovery of the installment. (v) If the circumstances are considered reasonable by the Engineer-in-Charge, the period mentioned in (ii) and (iii) for request by the contractor in writing for grant of mobilization advance and plant and equipment advance may be extended at the discretion of the Engineer-in-Charge.
Price adjustment for works	**Clause 10CC** If the prices of materials and/or wages of labour required for execution of the work increase, the contractor shall be compensated for such increase as per provisions detailed below and the amount of the contract shall accordingly be varied, subject to the condition that such compensation for escalation in prices and wages shall be available only for the work done during the stipulated period of the contract including the justified period extended under the provisions of clause 5 of the contract without any action under clause 2. Such compensation for escalation in the prices of materials and labour, when due, shall be worked out based on the following provisions: (i) The base date for working out such escalation shall be the last stipulated date of receipt of tenders including extension, if any. (ii) The cost of work on which escalation will be payable shall be reckoned as below :

	(a) Gross value of work done up to this quarter : (**A**) (b) Gross value of work done up to the last quarter : (**B**) (c) Gross value of work done since previous quarter (**C**)= (A-B) (d) Full assessed value of Secured Advance fresh paid in this quarter : (**D**) (e) Full assessed value of Secured Advance recovered in this quarter : (**E**) (f) Full assessed value of Secured Advance for which escalation Payable in this quarter, (**F**)= (D-E) (g) Advance payment made during this quarter: (**G**) (h) Advance payment recovered during this quarter: (**H**) (i) Advance payment for which escalation is payable in this Quarter (**I**)= (G-H) (j) Amount paid based on prevailing market rates due to deviations/variations as per clause 12 during this quarter:(**J**) Then, **M** = C+F+I-J Cost of work for which escalation is applicable(**W**)=0.85M Components for materials, labour, etc. shall be pre-determined for every work and incorporated in the conditions of contract attached to the tender documents included in Schedule 'F'. The decision of the Engineer-in-Charge in working out such percentage shall be binding on the contractors. (iii) The following principles shall be followed while working out the payment/recovery on account of variation of prices of materials and/ or wages of labour. (a) The compensation for escalation shall be worked out at quarterly intervals and shall be with respect to the cost of work done as per bills paid during the three calendar months of said quarter. The date of submission of bill by the contractor to the department shall be the guiding factor to decide the bills relevant to the quarterly interval. The first such payment shall be made at the end of three months after the month (excluding the month in which the letter of commencement of work is issued by the Engineer-in-Charge) and thereafter at three months' interval. At the time of completion of the work, the last period for payment might become less than 3 months, depending on the actual date of completion.

(b) The indices as defined below (excluding LI) relevant to any quarter/period for which such compensation is to be paid shall be the arithmetical average of the indices relevant to the three calendar months. If the period up to the date of completion after the quarter covered by the last such installment of payment, is less than three months, the indices shall be the average of the indices for the months falling within that period.

(c) The minimum wage of an unskilled Mazdoor shall be the higher of the wage notified by Government of India, Ministry of Labour and that notified by the local administration both relevant to the place of work and the period of reckoning.

(d) The escalation for labour also shall be paid at the same quarterly intervals when escalation due to increase in cost of materials is paid under this clause. If such revision of minimum wages takes place during any such quarterly intervals, the escalation compensation shall be payable at revised rates only for work done in subsequent quarters;

(e) Irrespective of variations in minimum wages of any category of labour, for the purpose of this clause, the variation in the rate for an unskilled Mazdoor alone shall form the basis for working out the escalation compensation payable on the labour component.

(iv) In the event the price of materials and/or wages of labour required for execution of the work decreases, there shall be a downward adjustment of the cost of work so that such price of materials and/or wages of labour shall be deductible from the cost of work under this contract and in this regard the formula herein stated below under this Clause 10CC shall mutatis mutandis apply.

(v) The contract price shall be adjusted for increase or decrease in rates and prices of labour, cement, steel reinforcement bar, fuel and lubricants and other input materials as per percentage of materials/labour specified in schedule F and in accordance with the principles, procedures and formulae specified below:

(a) Price adjustment for change in cost shall be paid in accordance with the following formulae:

(i) For Construction:

$V_W = W*(1/100)*[C_P * (C_I-C_O)/C_O + L_P*(L_I-L_O)/L_O+CM_P*(CM_I-CM_O)/ CM_O+EM_P*(EM_I-$

	EM_O)/ EM_O +F_P* (F_I-F_O)/F_O+S_P* (S_I- S_O)/S_O+ Bp *(B_I- B_o)/B_O] (ii) For Maintenance: V_W= W *(1/100)*[L_P* (L_I-L_O)/L_O +CM_P* (CM_I-CM_O)/CM_O+EM_P* (EM_I-EM_O)/ EM_O + B_p*(B_I-B_o)/B_O] Where, W=cost of work done as per para (ii) above. V_W (Variation of cost of Work) =Increase or decrease in the cost of works during the period under consideration due to change in the rates for relevant components. Percentage components of materials & labour as specified in the schedule F are defined as under:- C_P- Cement component, L_P - Labour component, CM_P- Civil component of other construction materials, EM_P- E & M component of construction materials F_P-POL (Diesel) component S_P- Reinforcement steel bars/TMT bars/structural steel (including strands and cables) component B_P- Bitumen component Indices for various components of materials & labour to be used for the purpose of this Clause are defined as under: C_O= Wholesale Price Index for Pozzolana Cement published by office of the Economic Adviser, Ministry of Industry & Commerce valid for the month of last date of receipt of tender including extension, if any. C_I= Wholesale Price Index for Pozzolana Cement published by office of the Economic Adviser, Ministry of Industry & Commerce for the period under consideration. L_O= Minimum daily wage in rupees of an unskilled adult mazdoor, fixed under any law, statutory rule or order as on the last date of receipt of tender including extension, if any.

	L_I= Minimum wage in rupees of an unskilled adult mazdoor, fixed under any law, statutory rule or order as applicable on the last date of the quarter previous to the one under consideration. CM_O= Price Index for civil components of other construction materials valid for the month of the last date of receipt of tender including extension, if any, as issued by the office of CE CSQ (Civil) or successor. CM_I= Price Index for civil components of other construction materials for the period under consideration and as issued by the office of CE CSQ (Civil) or successor. EM_O= Price Index for E & M components of construction materials valid for the month of the last date of receipt of tender including extension, if any, as issued by the office of CE CSQ (Electrical) or successor. EM_I= Price Index for E & M components of construction materials for the period under consideration and as issued by the office of CE CSQ (Electrical) or successor. F_O= Wholesale Price Index of HSD (High Speed Diesel)published by office of the Economic Adviser, Ministry of Industry & Commerce valid for the month of the last date of receipt of tender including extension, if any. F_I= Wholesale Price Index of HSD (High Speed Diesel) published by office of the Economic Adviser, Ministry of Industry & Commerce for the period under consideration. S_O= Wholesale Price Index of Mild Steel-long products published by office of the Economic Adviser, Ministry of Industry & Commerce valid for the month of the last date of receipt of tender including extension, if any S_I= Wholesale Price Index of Mild Steel-long products published by office of the Economic Adviser, Ministry of Industry & Commerce for the period under consideration. B_O= Wholesale Price Index of Bitumen published by office of the Economic Adviser, Ministry of Industry & Commerce valid for the month of the last date of receipt of tender including extension, if any

	B_I= Wholesale Price Index of Bitumen published by office of the Economic Adviser, Ministry of Industry & Commerce for the period under consideration.
Dismantled Material Govt. Property	**Clause 10D** The contractor shall treat all materials obtained during dismantling of a structure, excavation of the site for a work, etc. as SAI's property and such materials shall be disposed off to the best advantage of SAI according to the instructions in writing issued by the Engineer-in-Charge at his own cost.
Work to be Executed in Accordance with Specifications, Drawings, Orders as per mode mentioned in schedule F	**Clause 11** The contractor shall execute the whole and every part of the work in the most substantial and workmanlike manner both as regards materials and otherwise in every respect in strict accordance with the specifications. The contractor shall also conform exactly, fully and faithfully to the design, drawings and instructions in writing in respect of the work issued by the Engineer-in-Charge. Contractor shall be furnished free of charge one copy of the contract documents. The contractor shall comply with the provisions of the contract and with the care and diligence execute and maintain the works and provide all labour and materials, tools and plants including for measurements and supervision of all works, structural plans and other things of temporary or permanent nature required for such execution and maintenance in so far as the necessity for providing these, is specified or is reasonably inferred from the contract. The Contractor shall take full responsibility for adequacy, suitability and safety of all the works and methods of construction. The 3D Architectural Models of the project will be prepared on any BIM applications with minimum LOD 350 and IFC format of the same shall be made available for interoperability of building information to all stake holders of the project. The 3D Architectural BIM Model Information(s) shall be used for structural, MEP services and horticulture design. The comprehensive BIM model with minimum LOD 350 of project shall have all the architectural, structural, horticulture and MEP services element. All architectural and MEP drawings (2 D) shall be generated from BIM model. All the structural drawings shall be in conformity with BIM model. Project or work shall be executed using 2D drawings generated from BIM model.

	The provisions of BIM shall be applicable in the project only if, the same is mentioned in schedule 'F'. The contractor shall submit architectural, structural, and MEP (Mechanical, Electrical, and Plumbing) drawings to the Sports Authority of India (SAI) for review and approval as per the project schedule. SAI shall approve or provide comments on the submitted drawings within fifteen (15) calendar days from the date of submission. In the event that SAI fails to approve or respond within the stipulated timeline, the delay shall be deemed excusable, and the contractor shall be entitled to an extension of time equivalent to the number of days exceeding the ten-day approval period. Such extension shall not attract any penalties and shall be considered while assessing the overall project timeline. The contractor shall maintain records of submission and communication to support any claims for time extension due to delayed approvals.
Deviations/ Variations Extent and Pricing	**Clause 12** SAI have power (i) to make alterations in, additions to or substitutions for the original scope of work as defined in the contract, that may appear to him to be necessary or advisable during the progress of the work, and (ii) to omit a part of the works in case of non- availability of a portion of the site or due to any other reason (save except Clause-13), the contractor shall be bound to carry out the works in accordance with any instructions given to him in writing signed by the Engineer-in-Charge and such alterations, omissions, additions or substitutions shall form part of the contract as if originally provided therein and any change in the scope of work as defined in the contract, which the contractor may be directed to do in the manner specified above as part of the works, shall be carried out by the contractor on the same terms and conditions in all respects, except for increase/decrease in the cost and additional time due to change of scope, to be determined based on the sub-clauses hereunder : **12.1** The time for completion of the works shall, in the event of any deviations resulting in additional cost over the tendered value sum being ordered, be extended, if requested by the contractor, as follows : (i) In the proportion which the additional cost of the altered, additional or substituted work, bears to the original tendered value plus

(ii) 25% of the time calculated in (i) above or such further additional time as may be considered reasonable by the Engineer-in-Charge.

12.2 Payment of deviations/variations beyond 1% of the accepted tendered amount.

In case there is any change in scope as defined in the contract, the contractor shall carry out the changes as per direction of Engineer in Charge and nothing extra shall be payable to the contractor on account of same if the additional cost of such work is up to 1% (one percent) of the accepted tendered amount and worked out as per sub-clause 12.3 below. Variations/deviations upto 1% (one percent) of the accepted tendered amount shall be deducted from overall variations/ deviations for making payment.

12.3 DETERMINATION OF RATES

In the event, there is any deviations/variations in work as defined in the contract, the contractor shall submit the complete proposal to Engineer-in-charge within 15 days duly supported with :-

(a) Analysis of rates for items involved, along with relevant documents, rates of materials, tools/plants and labour, etc.

(b) The impact, if any, which the deviations/variations is likely to have on the project completion schedule,

On receipt of such proposal, either individually or covering group of items, the Engineer-in-charge shall examine the proposal regarding its admissibility and finalize the proposal/rates within 45 days after receipt of proposal with all requisite details and documents from the contractors, after giving due consideration to the proposal, analysis and rates of materials and labours, etc.

12.3.1 The increase/decrease in the rates due to deviations/variations shall be decided based on the following criteria:-

(i) Pricing of deviations

(a) If the item of work as stipulated in the schedule of quantity/ scope of work deviates on plus side, then the rate for the deviated quantity shall be paid at the agreement rate upto the deviation limit as specified in schedule "F" with the same terms & conditions of the contract. Beyond deviation limit as specified in the schedule "F" , rate shall be payable on market rates to be determined based on the

	relevant documents and prevailing market rates, as per Para (ii) below (b) If the item of work as stipulated in the schedule of quantity/ scope of work deviates on minus side, then the amount for such deviated quantity shall be deducted proportionately at the agreement rate. (ii) Pricing of variations If there are changes in the quantity/specifications/ alterations/ substitutions/additions, etc. in the items, other than mentioned in para-(i) above, the rates shall be determined based on detailed analysis of rates with original stipulated scope of items & newly proposed/provided items. The difference of rates so determined shall be payable to/recoverable from the contractor. The rates for both the components i.e. materials & labour shall be based on prevailing market rates. The rate finalized by the Engineer-in- Charge shall be final and binding. **12.3.2** In case of either non-submission of timely proposal or incomplete proposal by the contractor for deviations/variations, the Engineer-in- Charge shall give final opportunity to the Contractor to submit the complete proposal for change of cost within next 15 days. In case of non-submission or further incomplete submission by the contractor within the stated period, the Engineer-in-Charge shall initiate the proposal and decide the change of cost. In such case the proposal finalized by the Engineer-in-Charge shall be final and binding on the contractor. **12.4 Restrictions on Deviations/Variations** (i) Work(s) due to deviations/variations shall be executed only after getting the instructions of Engineer-in-charge, save except to meet any work of emergent nature. (ii) Notwithstanding anything to the contrary in this clause 12, any change arising from default of the contractor in the performance of his obligations under this agreement shall not be deemed to be deviations/variations, and shall not result in any adjustment of the contract price or the project completion schedule.
Foreclosure of contract due to Abandonment or	**Clause 13** If at any time after acceptance of the tender or during the progress of work, the purpose or object for which the work is being done changes due to any supervening cause and as a result of which the work has to be

Reduction in Scope of Work	abandoned or reduced in scope, the Engineer-in-Charge shall give notice in writing to that effect to the contractor stating the decision as well as the cause for such decision and the contractor shall act accordingly in the matter. The contractor shall have no claim to any payment of compensation or otherwise whatsoever, on account of any profit or advantage which he might have derived from the execution of the works in full but which he did not derive in consequence of the foreclosure of the whole or part of the works. The contractor shall be paid at contract rates, full amount for works executed at site and, in addition, a reasonable amount as certified by the Engineer-in-Charge for the items hereunder mentioned which could not be utilized on the work to the full extent in view of the foreclosure; (i) Any expenditure incurred on preliminary site work, e.g. temporary access roads, temporary labour huts, staff quarters and site office; storage accommodation and water storage tanks. (ii) SAI shall have the option to take over contractor's materials or any part thereof either brought to site or of which the contractor is legally bound to accept delivery from suppliers (for incorporation in or incidental to the work) provided, however SAI shall be bound to take over the materials or such portions thereof as the contractor does not desire to retain. For materials taken over or to be taken over by SAI, cost of such materials as detailed by Engineer-in- Charge shall be paid. The cost shall, however, take into account purchase price, cost of transportation and deterioration or damage which may have been caused to materials whilst in the custody of the contractor. (iii) Reasonable compensation for transfer of T & P from site to contractor's permanent stores or to his other works, whichever is less. If T & P are not transported to either of said places, no cost of transportation shall be payable. (iv) Reasonable compensation for repatriation of contractor's site staff and imported labour to the extent necessary. The contractor shall, if required by the Engineer- in-Charge, furnish to him, books of account, wage books, time sheets and other relevant documents and evidence as may be necessary to enable him to certify the reasonable amount payable under this condition. The reasonable amount of items on (i), (iii) and (iv) above shall not be in excess of 2% of the cost of the work remaining incomplete on the date of closure, i.e. total stipulated cost of the work as per accepted tender less the cost of work actually executed under the contract and less the cost of contractor's materials at site taken over by the Government as per item (ii) above. Provided always that against any payments due to the

	contractor on this account or otherwise, the Engineer-in-Charge shall be entitled to recover or be credited with any outstanding balances due from the contractor for advance paid in respect of any tool, plants and materials and any other sums which at the date of termination were recoverable by the Government from the contractor under the terms of the contract. In the event of action being taken under Clause 13 to reduce the scope of work, the contractor may furnish fresh Performance Guarantee on the same conditions, in the same manner and at the same rate for the balance tendered amount and initially valid up to the extended date of completion or stipulated date of completion if no extension has been granted plus minimum 180 days beyond that. Wherever such a fresh Performance Guarantee is furnished by the contractor the Engineer-in-Charge may return the previous Performance Guarantee.
Pre-Construction Activities	**Clause 14** The data supplied by the SAI, if any, are for General Guidance only. The contractor shall be responsible for carrying out pre- construction activities for construction of work as defined in the tender documents. The contractor shall also carry out site investigations to verify site details / Data at his own cost. Since start of pre-construction activities contractor has to deploy Building Information Model (BIM) professional having knowledge of using Building Information Model (BIM) of minimum LOD 350.
Suspension of Work	**Clause 15** (i) The contractor shall, on receipt of the order in writing of the Engineer-in-Charge, (whose decision shall be final and binding on the contractor) suspend the progress of the works or any part thereof for such time and in such manner as the Engineer-in-Charge may consider necessary so as not to cause any damage or injury to the work already done or endanger the safety thereof for any of the following reasons: (a) on account of any default on the part of the contractor or; (b) for proper execution of the works or part thereof for reasons other than the default of the contractor; or (c) for safety of the works or part thereof. The contractor shall, during such suspension, properly protect and secure the works to the extent necessary and carry out the instructions given in that behalf by the Engineer in- Charge. (ii) If the suspension is ordered for reasons (b) and (c) in sub-para (i) above: (a) the contractor shall be entitled to an extension of time equal to the period of every such suspension plus 25%, for

	completion of the item or group of items of work for which a separate period of completion is specified in the contract and of which the suspended work forms a part, and; (b) If the total period of all such suspensions in respect of an item or group of items or work for which a separate period of completion is specified in the contract exceeds thirty days, the contractor shall, in addition, be entitled to such compensation as the Engineer-in- Charge may consider reasonable in respect of salaries and/or wages paid by the contractor to his employees and labour at site, remaining idle during the period of suspension, adding thereto 2% to cover indirect expenses of the contractor provided the contractor submits his claim supported by details to the Engineer-in-Charge within fifteen days of the expiry of the period of 30 days. (iii) If the works or part thereof is suspended on the orders of the Engineer-in-Charge for more than three months at a time, except when suspension is ordered for reason (a) in sub para (i) above, the contractor may after receipt of such order serve a written notice on the Engineer-in-Charge requiring permission within fifteen days from receipt by the Engineer in- Charge of said notice, to proceed with the work or part thereof in regard to which progress has been suspended and if such permission is not granted within that time, the contractor, if he intends to treat the suspension, where it affects only a part of the works as an omission of such part by SAI or where it affects whole of the works, as an abandonment of the works by Government, shall within ten days of expiry of such period of 15 days give notice in writing of his intention to the Engineer-in-Charge. In the event of the contractor treating the suspension as an abandonment of the contract by Government, he shall have no claim to payment of any compensation on account of any profit or advantage which he might have derived from the execution of the work in full but which he could not derive in consequence of the abandonment. He shall, however, be entitled to such compensation, as the Engineer-in-Charge may consider reasonable, in respect of salaries and/or wages paid by him to his employees and labour at site, remaining idle in consequence adding to the total thereof 2% to cover indirect expenses of the contractor provided the contractor submits his claim supported by details to the Engineer-in-Charge within 30 days of the expiry of the period of 3 months.
Action in case Work not done as per Specifications	**Clause 16** All works under or in course of execution or executed in pursuance of the contract, shall at all times be open and accessible to the inspection and supervision of the Engineer-in charge, his authorized subordinates in

	charge of the work and all the superior officers, officer of the Quality Assurance Unit of the SAI or any organization engaged by the Department for Quality Assurance and of the Chief Technical Examiner's Office, and the contractor shall, at all times, during the usual working hours and at all other times at which reasonable notice of the visit of such officers has been given to the contractor, either himself be present to receive orders and instructions or have a responsible agent duly accredited in writing, present for that purpose. Orders given to the Contractor's agent shall be considered to have the same force as if they had been given to the contractor himself. If it shall appear to the Engineer-in-charge or his authorized subordinates in charge of the work or to the Engineer in charge of Quality Assurance or his subordinate officers or the officers of the organization engaged by the Department for Quality Assurance or to the Chief Technical Examiner or his subordinate officers, that any work has been executed with unsound, imperfect, or unskillful workmanship, or with materials or articles provided by him for the execution of the work which are unsound or of a quality inferior to that contracted or otherwise not in accordance with the contract, the contractor shall, on demand in writing which shall be made within thirty six months (Twelve months in the case of work costing Rs. 10 Lac and below except road work) of the completion of the work from the Engineer-in-Charge specifying the work, materials or articles complained of, notwithstanding that the same may have been passed, certified and paid for, forthwith rectify, or remove and reconstruct the work so specified in whole or in part, as the case may require or as the case may be, remove the materials or articles so specified and provide other proper and suitable materials or articles at his own charge and cost. In the event of the failing to do so within a period specified by the Engineer-in- Charge in his demand aforesaid, then the contractor shall be liable to pay compensation at the same rate as specified under clause 2 of the contract (for non-completion of the work in time) for this default. In such case the Engineer-in-Charge may not accept the item of work at the rates applicable under the contract but may accept such items at reduced rates as the authority specified in schedule 'F' may consider reasonable during the preparation of on account bills or final bill or any other amount due to the contractor, if the item is so acceptable without detriment to the safety and utility of the item and the structure or he may reject the work outright without any payment and/or get it along with other connected and incidental items rectified, or removed and re-executed at the risk and cost of the contractor. Decision of the Engineer-in-Charge to be conveyed in writing in respect of the same will be final and binding on the contractor.

Damages and Defects liability	**Clause 17** **17.1 During progress of work** If the contractor or his working staff or workers damage any part of the work in the scope of contract, or any building, road, road kerb, fence, enclosure, water pipe, cables, drains, electric or telephone post or wires, trees, grass, grassland, cultivated ground, etc. contiguous to the premises on which the work or any part of it is being executed, the contractor shall make good the same at his own cost. Contractor shall repair/replace and restore the damaged structures/services in a time bound manner as required and as directed by the Engineer-in-Charge. Contractor shall not be given any benefit of hindrance caused in the execution of the work owing to such damaged structure/service and time taken in its restoration by the contractor. **17.2 During defect liability period** The contractor shall be responsible for all the defects and deficiencies in the work within the scope of this contract, during the defect liability period which shall be for 3 (three) years after the date of actual completion of work as recorded by the Engineer- in-Charge. The liability of contractor for defects and deficiencies may arise due to: (a) Improper planning and design of the project, if in the scope of contract. (b) Works, Tools, Plant & Machinery, Materials or Workmanship not being in accordance with this contract. (c) Improper upkeep & maintenance during construction of the work. (d) Improper upkeep, operation and/or maintenance during defect liability period, if these are in the scope of this contract. (e) Failure by the contractor to comply with any other obligation under this contract. Such defects and deficiencies shall be made good by the contractor at his own cost after getting instructions/notice from the Engineer-in-Charge within the period specified in such instructions/notice. However, contractor needs not wait for instructions/notice from Engineer-in-Charge for rectification of defects in work which come to his notice and he should initiate action for needful rectification of defect on priority, under intimation to Engineer-in-Charge, to avoid any untoward incident. It is to be noted that Warranties for specific products/services/works shall be applicable.

17.3 Structural soundness

The contractor shall follow the good engineering practice for safety, serviceability and structural soundness of the building/ structure/road work etc. as covered in the scope of contract.

17.3.1 Structure design in the scope of contract

The contractor shall have obligation to rectify all defects in the structural elements or any other part of building/structure/road etc. due to design deficiency at his own cost for 10 (ten) years from the date of completion as recorded in the completion certificate by the Engineer-in-Charge. Such defects shall be made good by the contractor at his own cost after getting instructions/ notice from the Engineer-in-Charge within the period specified in such instructions/notice and as per the methodology duly approved by the Engineer- in-Charge.

17.3.2 Structure design is in the scope of contractor

Structure and vetting of all the structure design from IIT/NIT is in the scope of the contractor only.

17.3.3 Liability for execution

The contractor shall be fully liable for any deficiency in structural soundness of work owing to execution of the work under the scope of this contract. The contractor shall have obligation to rectify all defects in the structural elements owing to any deficiency in execution of work at his own cost for 10 (ten) years from the date of completion as recorded in the completion certificate by Engineer-in-Charge. Such defects shall be made good by the contractor at his own cost after getting instructions/notice from the Engineer-in-Charge within the time period specified in such instructions/notice and as per methodology duly approved by the Engineer-in-Charge.

17.4 Methodology for rectification of defects

The design, methodology and quality of rectification of defects carried out by the contractor shall be as per sound engineering practice.

17.5 Contractor's failure to rectify defects as defined in the sub-clauses 17.1, 17.2,17.3 & 17.4.

In the event that the contractor fails to repair or rectify the defect or deficiency within the period specified by the Engineer-in-Charge, the Engineer-in-Charge shall be entitled to get the same repaired, rectified or remedied at the contractor's cost and recover such

	amount from any dues like performance guarantee, security deposits etc. available with Engineer-in-Charge. Engineer-in-Charge may take action for debarment of contractor from tendering in the department by following due process. For inaction or failure to rectify the defects covered under sub clause 17.3 within specified time limit, the Engineer-in-Charge may also initiate legal and/or other actions under other applicable laws in addition to other remedies available in the contract. **17.6 Release of security deposit** • One-half of the retention money (or BG replacing it) shall be released upon issuance of the Taking Over Certificate (TOC). If TOCs are issued in parts, the release shall be in proportion to the value of the respective part or section, as determined by the Engineer. • The remaining half shall be released upon expiration of 365 days after the Defect Liability Period (DLP) or final payment, whichever is earlier, subject to certification by the Engineer.
Recovery of Compensation paid to Workmen	**Clause 18A** In every case in which by virtue of the provisions under sub- section (1) of section 12 of the Workmen's Compensation Act. 1923, SAI is obliged to pay compensation to a workman employed by the contractor, in execution of the works , SAI will recover from the contractor , the amount of the compensation so paid and, without prejudice to the rights of the SAI under sub- section(2) of section 12 of said Act, SAI shall be at liberty to recover such amount or any part thereof by deducting it from the security deposit or from any sum due by SAI to the contractor whether under this contract or otherwise. SAI shall not be bound to contest any claim made against it under sub- section (1) of section 12, of said Act, except on the written request of the contractor and upon his giving to SAI full security for all costs for which SAI might become liable in consequence of contesting such claim.
Ensuring Payment and Amenities to Workers if Contractor fails	**Clause 18B** In every case in which by virtue of the provisions of the Contract Labour (Regulation and Abolition) Act, 1970, and the Contract Labour (Regulation and Abolition) Central Rules, 1971, SAI is obliged to pay any amounts of wages to a workman employed by the contractor in execution of the works, or to incur any expenditure in providing welfare and health amenities required to be provided under the above said Act, and the rules, under Clause 19H or under SAI/CPWD Contractor's Labour Regulations, or under the Rules framed by Government from time to time for the protection of health and sanitary arrangements for workers employed by SAI Contractors, SAI will recover from the contractor, the amount of wages so paid or the amount of expenditure so incurred; and

	without prejudice to the rights of the SAI under sub-section(2) of Section 20, and sub-section (4) of Section 21, of the Contract Labor (Regulation and Abolition) Act, 1970, Government shall be at liberty to recover such amount or any part thereof by deducting it from the security deposit or from any sum due by Government to the contractor whether under this contract or otherwise Government shall not be bound to contest any claim made against it under sub- section (1) of Section 20, sub-section (4) of Section 21, of said Act, except on the written request of the contractor and upon his giving to the Government full security for all costs for which Government might become liable in contesting such claim.
Labour Laws to be complied by the Contractor	**Clause 19** The contractor shall comply with the provisions of the Contract Labour (Regulation and Abolition) Act, 1970, and the Contract Labour (Regulation and Abolition) Central Rules, 1971. The contractor shall also obtain a valid license under said act before the commencement of the work, and continue to have a valid license until its completion. The contractor shall also comply with provisions of the Inter-State Migrant Workmen (Regulation of Employment and Conditions of Service) Act, 1979. The contractor shall also abide by the provisions of the Child and Adolescent Labour (Prohibition and Regulation) Act, 1986, amended by Amendment Act No. 35 of 2016 and thereafter time to time. The contractor shall also comply with the provisions of the building and other Construction Workers (Regulation of Employment & Conditions of Service) Act, 1996 and the building and other Construction Workers Welfare Cess Act, 1996. The contractor shall also comply with the provisions of Sexual Harassment of Women at Workplace (Prevention Prohibition and Redressal) Act, 2013 and amendment thereafter time to time. Any failure to fulfil these requirements shall attract the penal provisions of the relevant act and in this contract. **Clause 19A** No person below the age of fourteen years shall be employed on the work. However Adolescent Persons can be employed on non-hazardous works/process.
Payment of Wages	**Clause 19B** (i) The contractor shall pay to labour employed by him either directly or through subcontractors, wages not less than fair wages as defined

	in the C.P.W.D. Contractor's Labour Regulations or as per the provisions of the Contract Labour (Regulation and Abolition) Act, 1970 and the contract Labour (Regulation and Abolition) Central Rules, 1971 and Gazette Notification 19.01.2017, S.O 188 (E) extra ordinary part 2 – sec. 3 (ii) amended time to time. Thus higher of the wages either notified by Govt. of India, Ministry of Labour and/or that notified by the local administration of the State Govt. both relevant to the place of work and the period of reckoning shall be paid by the contractor to the laborer. (ii) The contractor shall, notwithstanding the provisions of any contract to the contrary, cause to be paid fair wage to labour indirectly engaged on the work, including any labour engaged by his sub-contractors in connection with Said work, as if the labor had been immediately employed by him. (iii) In respect of all labour directly or indirectly employed in the works for performance of the contractor's part of this contract, the contractor shall comply with or cause to be complied with the Central Public Works Department contractor's Labour Regulations made by Government from time to time in regard to payment of wages, wage period, deductions from wages recovery of wages not paid and deductions unauthorizedly made, maintenance of wage books or wage slips publication of scale of wage and other terms of employment, inspection and submission of periodical returns and all other matters of the like nature or as per the provisions of the Contract Labour (Regulation and Abolition) Act, 1970, and the Contract Labour (Regulation and Abolition) Central Rules, 1971, wherever applicable (ii) (a) The Engineer-in-Charge concerned shall have the right to deduct from the moneys due to the contractor any sum required or estimated to be required for making good the loss suffered by a worker or workers by reason of nonfulfillment of the conditions of the contract for the benefit of the workers, nonpayment of wages or of deductions made from his or their wages which are not justified by their terms of the contract or non-observance of the Regulations. (b) Under the provision of Minimum Wages (Central) Rules, 1950, the contractor is bound to allow to the labours directly or indirectly employed in the works one day rest for 6 days continuous work and pay wages at the same rate as for duty. In the event of default, the Engineer-in-Charge shall have the right to deduct the sum or sums not paid on account of wages for weekly holidays to any labours and pay the same to the

	persons entitled thereto from any money due to the contractor by the Engineer-in-Charge concerned. In the case of Union Territory of Delhi, however, as the all-inclusive minimum daily wages fixed under the Notification of the Delhi Administration No.F.12(162)MWO/DAB/ 43884-91, dated 31-12-1979 as amended from time to time are inclusive of wages for the weekly day of rest, the question of extra payment for weekly holiday would not arise. (iii) The contractor shall comply with the provisions of the Payment of Wages Act, 1936, Minimum Wages Act, 1948, Employees Liability Act, 1938, Workmen's Compensation Act, 1923, Industrial Disputes Act, 1947, Maternity Benefits Act, 1961, and the Contractor's Labour (Regulation and Abolition) Act 1970, Gazette Notification 19.01.2017, S.O 188 (E) extra ordinary part 2 – sec. 3 (ii) and the modifications thereof or any other laws relating thereto and the rules made there under from time to time. (iv) The contractor shall indemnify and keep an indemnified Government against payments to be made under and for the observance of the laws aforesaid and SAI/CPWD Contractor's Labour Regulations without prejudice to his right to claim indemnity from his sub- contractors. (v) The laws aforesaid shall be deemed to be a part of this contract and any breach thereof shall be deemed to be a breach of this contract. (vi) Whatever is the minimum wage for the time being, or if the wage payable is higher than such wage, such wage shall be paid by the contractor to the workmen directly without the intervention of Jamadar and that Jamadar shall not be entitled to deduct or recover any amount from the minimum wage payable to the workmen as and by way of commission or otherwise. (vii) The contractor shall ensure that no amount by way of commission or otherwise is deducted or recovered by the Jamadar from the wage of workmen. **Clause 19C** In respect of all labour directly or indirectly employed in the work for the performance of the contractor's part of this contract, the contractor shall at his own expense arrange for the safety provisions as per CPWD Safety Code framed from time to time and shall at his own expense provide for all facilities in connection therewith. In case the contractor fails to make arrangement and to provide necessary facilities as aforesaid, he shall be liable to pay a penalty as mentioned in Schedule 'F' for each default and in addition, the Engineer-in- Charge shall be at liberty to make arrangement

	and provide facilities as aforesaid and recover the cost incurred in that behalf from the contractor. **Clause 19D** The contractor shall submit by the 4th and 19th of every month, to the Engineer-in-Charge, a true statement showing in respect of the second half of the preceding month and the first half of the current month respectively: (1) the number of labourers employed by him on the work, (2) their working hours, (3) the wages paid to them, (4) the accidents that occurred during said fortnight showing the circumstances under which they happened and the extent of damage and injury caused by them, and (5) the number of female workers who have been allowed maternity benefit according to Clause 19F and the amount paid to them. Failing which the contractor shall be liable to pay to SAI, a sum as mentioned in Schedule F for each default or materially incorrect statement. The decision of the SAI shall be final in deducting from any bill due to the contractor, the amount levied as fine and be binding on the contractor. **Clause 19E** In respect of all labour directly or indirectly employed in the works for the performance of the contractor's part of this contract, the contractor shall comply with or cause to be complied with all the rules framed by SAI/CPWD/Government from time to time for the protection of health and sanitary arrangements for workers employed by SAI and its contractors. **Clause 19F** Leave and pay during leave shall be regulated as follows: 1. Leave : (i) in the case of delivery - maternity leave not exceeding 8 weeks, 4 weeks up to and including the day of delivery and 4 weeks following that day, (ii) in the case of miscarriage - up to 3 weeks from the date of miscarriage. 2. Pay : (i) in the case of delivery - leave pay during maternity leave will be at the rate of the women's average daily earnings, calculated on total wages earned on the days when full time work was done

during a period of three months immediately preceding the date on which she gives notice that she expects to be confined.

(ii) in the case of miscarriage - leave pay at the rate of average daily earning calculated on the total wages earned on the days when full time work was done during a period of three months immediately preceding the date of such miscarriage.

3. Conditions for the grant of Maternity Leave:

No maternity leave benefit shall be admissible to a woman unless she has been employed for a total period of not less than six months immediately preceding the date on which she proceeds on leave.

4. The contractor shall maintain a register of Maternity (Benefit) in the Prescribed Form as shown in appendix -I and II, and the same shall be kept at the place of work.

Clause 19G

In the event of the contractor(s) committing a default or breach of any of the provisions of SAI, Contractor's Labour Regulations and Model Rules for the protection of health and sanitary arrangements for the workers as amended from time to time or furnishing any information or submitting or filing any statement under the provisions of the above Regulations and' Rules which is materially incorrect, he/they shall, without prejudice to any other liability, pay to SAI a sum as mentioned in Schedule F for every default, breach or furnishing, making, submitting, filing such materially incorrect statements and in the event of the contractor(s) defaulting continuously in this respect, the penalty may be enhanced to as mentioned in Schedule F per day for each day of default subject to a maximum of 5 percent of the estimated cost of the work put to tender. The decision of the Engineer-in-Charge shall be final and binding on the parties.

Should it appear to the Engineer-in-Charge that the contractor(s) is/are not properly observing and complying with the provisions of SAI Contractor's Labour Regulations and Model Rules and the provisions of the Contract Labour (Regulation and Abolition) Act 1970, and the Contract Labour (R& A) Central Rules 1971, for the protection of health and sanitary arrangements for work-people employed by the contractor(s) (hereinafter referred as "said Rules") the Engineer-in-Charge shall have power to give notice in writing to the contractor(s) requiring that said Rules be complied with and the amenities prescribed therein be provided to the work-people within a reasonable time to be specified in the notice. If the contractor(s) shall fail within the period specified in the notice to comply with and/ observe said Rules and to provide the amenities to the work-people as aforesaid, the Engineer-in-Charge shall have the power to provide the amenities hereinbefore mentioned at the cost of the contractor(s). The contractor(s) shall erect, make and maintain at his/

	their own expense and as per approved standards all necessary huts and sanitary arrangements required for his/their work-people on the site in connection with the execution of the works, and if the same shall not have been erected or constructed according to approved standards, the Engineer-in-Charge shall have power to give notice in writing to the contractor(s) requiring that said huts and sanitary arrangements be remodeled and/or reconstructed according to approved standards, and if the contractor(s) shall fail to remodel or reconstruct such huts and sanitary arrangements according to approved standards within the period specified in the notice, the Engineer-in-Charge shall have the power to remodel or reconstruct such huts and sanitary arrangements according to approved standards at the cost of the contractor(s). **Clause 19H** The contractor(s) shall at his/their own cost provide his/their labour with a sufficient number of huts (hereinafter referred to as the camp) of the following specifications on a suitable plot of land to be approved by the Engineer-in-Charge. (i) The minimum height of each hut at the eaves level shall be 2.10m (7 ft.) and the floor area to be provided will be at the rate of 2.7 sq.m. (30 sq.ft.) for each member of the worker's family staying with the laborer. • The contractor(s) shall in addition construct suitable cooking places having a minimum area of 1.80m x 1.50m (6'x5') adjacent to the hut for each family. • The contractor(s) shall also construct temporary latrines and urinals for the use of the laborers each on the scale of not less than four per each one hundred of the total strength, separate latrines and urinals being provided for women. • The contractor(s) shall construct enough bathing and washing places, one unit for every 25 persons residing in the camp. These bathing and washing places shall be suitably screened. (ii) All the huts shall have walls of sun-dried or burnt-bricks laid in mud mortar or other suitable local materials as may be approved by the Engineer-in-Charge. In case of sun-dried bricks, the walls should be plastered with mud gobri on both sides. The floor may be kutcha but plastered with mud gobri and shall be at least 15 cm (6") above the surrounding ground. The roofs shall be laid with thatch or any other materials as may be approved by the Engineer-in-Charge and the contractor shall ensure that throughout the period of their occupation, the roofs remain water-tight.

		• The contractor(s) shall provide each hut with proper ventilation. • All doors, windows, and ventilators shall be provided with suitable leaves for security purposes. • There shall be kept an open space of at least 7.2m (8 yards) between the rows of huts which may be reduced to 6m (20 ft.) according to the availability of site with the approval of the Engineer-in-Charge. Back-to-back construction will be allowed.
	(iii)	Water Supply - The contractor(s) shall provide adequate supply of water for the use of laborers. The provisions shall not be less than two gallons of pure and wholesome water per day for drinking purposes and three gallons of clean water per head per day for bathing and washing purposes. Where piped water supply is available, supply shall be at stand posts and where the supply is from wells or river, tanks which may be of metal or masonry, shall be provided. The contractor(s) shall also at his/ their own cost make arrangements for laying pipe lines for water supply to his/ their labour camp from the existing mains wherever available, and shall pay all fees and charges therefore.
	(iv)	The site selected for the camp shall be high ground, with removed from jungle clearances, if required.
	(v)	Disposal of Excreta - The contractor(s) shall make necessary arrangements for the disposal of excreta from the latrines by trenching or incineration which shall be according to the requirements laid down by the Local Health Authorities. If trenching or incineration is not allowed, the contractor(s) shall make arrangements for the removal of the excreta through the Municipal Committee/authority and inform it about the number of laborers employed so that arrangements may be made by such Committee/authority for the removal of the excreta. All charges on this account shall be borne by the contractor and paid direct by him to the Municipality/authority. The contractor shall provide one sweeper for every eight seats in case of dry system.
	(vi)	Drainage - The contractor(s) shall provide efficient arrangements for draining away sullage water so as to keep the camp neat and tidy.
	(vii)	The contractor(s) shall make necessary arrangements for keeping the camp area sufficiently lighted to avoid accidents to the workers.

	(viii) Sanitation - The contractor(s) shall make arrangements for conservancy and sanitation in the labour camps according to the rules of the Local Public Health and Medical Authorities. **Clause 19I** The Engineer-in-Charge may require the contractor to dismiss or remove from the site of the work any person or persons in the contractors' employ upon the work who may be incompetent or misconduct himself and the contractor shall comply with such requirements. In respect of maintenance/repair or renovation works etc. where the labour have an easy access to the individual houses, the contractor shall issue identity cards to the laborers, whether temporary or permanent and he shall be responsible for any untoward action on the part of such labor. **Clause 19J** It shall be the responsibility of the contractor to see that the building under construction is not occupied by unauthorized person(s) during construction and is handed over to the Engineer- in-Charge with vacant possession of complete building. If such building though completed is occupied illegally, then the Engineer-in-Charge shall have the option to refuse to accept said building/buildings in that position. Any delay in acceptance on this account will be treated as the delay in completion and for such delay, compensation shall be levied as per clause 2 of the agreement, by the Superintending Engineer/ Chief Engineer whose decision shall be final both with regard to the justification and quantum and be binding on the contractor. However, the Superintending Engineer/ Chief Engineer, through a notice, may require the contractor to remove the illegal occupation any time on or before construction and delivery.
Employment of skilled/semi-skilled workers	**Clause 19K** The contractor shall, at all stages of work, deploy skilled/semi-skilled tradesmen who are qualified and possess certificate in particular trade from National Academy, Industrial Training Institute, National Institute of construction Management and Research (NICMAR), National Academy of Construction, CIDC or any similar reputed and recognized Institute managed or certified by State/Central Government. The number of such qualified tradesmen shall not be less than 20% of total skilled/semi-skilled workers required in each trade at any stage of work. The contractor shall submit number of man days required in respect of each trade, its scheduling and the list of qualified tradesmen along with requisite certificate from recognized Institute to Engineer in charge for

	approval. Notwithstanding such approval, if the tradesmen are found to have inadequate skill to execute the work of respective trade, the contractor shall substitute such tradesmen within two days of written notice from Engineer- in- Charge. Failure on the part of contractor to obtain approval of Engineer-in-Charge or failure to deploy qualified tradesmen will attract a compensation to be paid by contractor at the rate specified in schedule 'F' per such tradesman per day. Decision of Engineer in Charge as to whether particular tradesman possesses requisite skill and amount of compensation in case of default shall be final and binding. .
Contribution of EPF and ESI	**Clause 19L** The ESI and EPF contributions on the part of the employer in respect of this contract shall be paid by the contractor. These contributions on the part of the employer paid by the contractor shall be reimbursed by the Engineer-in-charge to the contractor on actual basis. The verification of deployment of labor will be done through biometric attendance system or any other suitable method by the Engineer-in-charge. The applicable and eligible amount of EPF & ESI shall be reimbursed preferably within 7 days but not later than 30 days of submission of documentary proof of payment provided same are in order.
Sexual Harassment of Women at Workplace	**Clause 19 M** The contractor shall comply with all provision(s) and guideline(s) of Sexual Harassment of Women at Workplace (Prevention Prohibition and Redressal) Act, 2013 and amendment thereafter time to time or any other rules framed under any labour law affecting women worker(s).
Minimum Wages Act to be Complied With	**Clause 20** The contractor shall comply with all the provisions of the Minimum Wages Act, 1948, and Contract Labour (Regulation and Abolition) Act, 1970, Gazette Notification 19.01.2017, S.O 188 (E) extra ordinary part 2 – sec. 3 (ii) amended from time to time and rules framed there under and other labour laws affecting contract labour that may be brought into force from time to time.
Work not to be sublet, Action in case of in solvency	**Clause 21** The contract shall not be assigned or sublet without the written approval of the Engineer-in- Charge. And if the contractor shall assign or sublet his contract, or attempt to do so, or become insolvent or commence any insolvency proceedings or make any composition with his creditors or

	attempt to do so, or if any bribe, gratuity, gift, loan, perquisite, reward or advantage pecuniary or otherwise, shall either directly or indirectly, be given, promised or offered by the contractor, or any of his servants or agent to any public officer or person in the employment of SAI in any way relating to his office or employment, or if any such officer or person shall become in any way directly or indirectly interested in the contract, the Engineer-in-Charge on behalf of the SAI shall have power to adopt the course specified in Clause 3 hereof in the interest of SAI and in the event of such course being adopted, the consequences specified in said Clause 3 shall ensue
Quality Assurance and Supervision for Execution Part of Work	**CLAUSE 22** **22.1 Quality of Materials and Workmanship** (i) The Contractor shall ensure that the Materials and workmanship are in accordance with the requirements specified in this Agreement, Specifications and Standards and Sound Engineering practice. The work shall be of the specified quality and standard, both in respect of the ingredients as well as the intended functions it is supposed to perform for service life. (ii) The Contract warrants that all Materials shall be new, unused, not reconditioned, unless otherwise allowed as per contract or by Engineer-in-Charge, and in conformity with Specification and Standards, Applicable Laws and Sound Engineering Practice, and that the Contractor shall not use any materials which are generally recognized as being deleterious under Sound Engineering Practice. **22.2 Quality Assurance System** The Contractor shall devise a quality assurance mechanism to ensure compliance with the provisions of this Agreement (the "Quality Assurance Plan" or "QAP"). **(i)** The Contractor shall, submit to the Engineer-in-Charge, its Quality Assurance Plan 15(fifteen) days in advance of start of the execution stage specified in the NIT. The Engineer-in-Charge shall convey its comments to the Contractor, if any, required and the Contractor shall incorporate those in the QAP conforming with the provisions of this clause. The QAP shall include the following: (i) Contractor's Organization & structure, duties and responsibilities of individual key personnel, quality policy of contractor, procedure for control of non- conformities and corrective action, inspections and documentation. (ii) Internal quality audit system.

(iii) Machinery, Shuttering, other Tool & Plants, etc. required to be deployed at site.

(iv) Method statement of important activities. These can be submitted as per the sequencing of the activities of the work.

(v) Quality control mechanism including sampling and testing of Materials, test frequencies, standards, acceptance criteria, testing facilities, reporting, recording and interpretation of test results, approvals, proforma for testing and calibration in accordance with the Specifications and Standards and Sound Engineering Practice; and Material Lot size, number of required tests and frequency of testing for different construction materials.

All the relevant and applicable codes, specifications and standards, as well as the acceptance criteria for various items of work, workmanship, materials and process employed needs to be mentioned.

(vi) Check-list for various items and materials.

(vii) Formats for site documentation, monthly reports on implementation of QAP.

(ii) Sampling of materials

All samples of materials including Cement Concrete Cubes shall be taken by the QA engineers deployed by the Contractor and shall be witnessed by the Engineer- in-Charge or his authorized representatives as specified in NIT. All the necessary assistance, facilities and safety shall be provided by the contractor. Cost of sample of materials and testing charges shall be borne by the contractor and he/she is responsible for safe custody of samples to be tested at site.

(iii) Testing of Materials

The contractor shall establish temporary field laboratory of adequate size with all necessary facilities. Field laboratory shall be equipped with the testing equipment for conducting routine field tests as per this contract. It will also have copies of standards, BIS codes, IRC codes, relevant publications.

All the tests in field lab setup at construction site shall be carried out by the QA Staff deployed by the contractor and shall be witnessed by the Engineer-in-Charge or his authorized subordinates as specified in NIT. The contractor shall provide all necessary facility to them for witnessing the tests in the field laboratory. In general, contractor shall carry out 90% of field

	tests in site laboratory and 10% tests shall be got carried out from outside NABL approved laboratory as indicated below. Contractor shall endeavour to obtain test reports for tests conducted from outside laboratory in a reasonable time. **(iv) Maintenance of Register of Test –** (a) All the entries in the register of test are to be made by the designated QA Engineers of the contractor and same is to be regularly reviewed by thefield officers as well as the Engineer-in-Charge. The contractor shall allow inspection of such records any time as desired by Engineer-in-Charge or his authorized representative. (b) All the tests carried out at construction site or outside laboratories are to be maintained by the contractor in the prescribed format in the test registers provided by the contractor and duly authenticated by Engineer-in-Charge.The test reports shall also be maintained in hard file. (c) Contractor is responsible for maintenance and safe custody of all the test registers and test records. (d) Mandatory test conducted as per approved proforma shall be attached with each Running bill. Submission of copy of all test registers and material at site register along with each alternate Running Account Bill and with Final Bill is mandatory. **(v) Maintenance of Material at Site (MAS) Register-** MAS register of the key materials including Cement and Steel Registers shall be maintained in the proforma approved by Engineer-in-Charge. All the entries in the MAS registers are made by the designated staff of the contractor and same is regularly reviewed by the field officers as well as the Engineer-in-Charge. Contractor is responsible for maintenance and safe custody of MAS registers. **(vi)** The Contractor shall procure all relevant codes, publications, apparatus and instruments, fuel, consumables, water, electricity, labour, materials, samples and qualified personnel as are necessary for examining and testing the Works, Materials and workmanship in accordance with the Quality Assurance Plan. **(vii)** All the cost of testing including cost of samples, packaging, transportation, testing charges of Construction, Materials and workmanship under this clause shall be borne by the contractor.

(viii) The contractor shall submit monthly quality progress report on implementation of the provisions of Quality Assurance Plan on the format approved by the Engineer- in-Charge.

22.3 Samples

The Contractor shall, at its own expense and without delay, provide the samples of Materials and relevant information like Manufacturer's test reports, standard samples of manufactured Materials and Samples of such other Materials as the Engineer-in-Charge may require for review and approvals in accordance with Clause 10A of GCC before actual use.

22.4 Test

(i) For determining that the Works conform to the Specifications and Standards, the Engineer-in-Charge shall require the Contractor to carry out or cause to be carried out tests, at such time and frequency and in such manner as specified in this Agreement and in accordance with sound engineering practice for quality assurance. Frequency and the manner in which tests shall be conducted shall be in the following order of preference:

(a) Contract provisions.

(b) CPWD specifications.

(c) BIS codes.

(d) IRC codes.

(e) MoRTH Specifications.

(f) International Codes.

(g) Manufacturer's specifications.

(h) Sound Engineering Practices

Outside tests shall be conducted at Government labs /IITs/NITs and other approved laboratories by the Engineer-in-Charge for testing of materials

(ii) The Contractor shall, with due diligence, carry out all the tests in accordance with the Agreement and furnish the results thereof to the Engineer-in-Charge. The Engineer-in-Charge or his authorized representative shall witness or participate during the testing as specified in NIT. The contractor shall provide all necessary assistance for witnessing/participating in the field tests.

(iii) In the event that results of any tests conducted under this clause establish any defects or deficiencies in the Works, the

Contractor shall carry out remedial measures at its own cost and furnish a report to the Engineer-in-Charge in this regard. The Engineer-in-Charge shall require the Contractor to carry out or cause to be carried out tests to determine that such remedial measures have brought the works into compliance with the Specifications and standards and the procedure shall be repeated until such Works conform to the Specifications and Standards.

22.5 Method Statement

The 'Method statement' is a statement by which the construction procedures for important activities are stated, checked, and approved. The method statement shall be prepared for important activities as identified by the contractor as mentioned in QAP or any other activity as instructed by Engineer-in Charge. The 'Method statement', should have a description of the item with elaborate procedure in steps to implement the same, the specifications of the materials involved, equipment to be deployed, measures for ensuring safety, their testing and acceptance criteria, precautions to be taken, mode of measurement, etc. The Contractor shall, at least 15 (fifteen) days prior to the commencement of activities, submit to the Engineer-in-Charge for review, the method statements proposed to be adopted for executing the various items of work. The Engineer- in-Charge shall complete the review and convey its comments, if any, to the Contractor .

22.6 Inspection & review by the Engineer-in-Charge and External Audit.

The Engineer-in-Charge, his authorized subordinates, senior officers of department, QA unit or any other third party may inspect and review the progress and quality of the work and issue appropriate directions to the Contractor for taking remedial action in the event the work is not in accordance with the provisions of this Agreement. The work may be inspected at any time/stage by external inspection teams like CTE or TE, Third Party Quality assurance agency, SAI team etc. may conduct inspection of the quality of the works. The findings of the inspections shall be notified to the Contractor for taking remedial action in accordance with the agreement. The Contractor shall provide all assistance as may be required by the inspection teams in the conduct of its inspection here under.

Suitable actions shall be taken as per the provisions contained in the relevant clauses of the agreement, if the work is not found to be as per specifications or quality as specified in the agreement.

22.7 Inspection of records

The Engineer-in-Charge or his authorized representative shall have the right to inspect the records of the Contractor relating to the works.

22.8 Inspection of Works

(i) The Engineer-in-Charge and his authorized subordinates shall at all times;

(a) have full access to all parts of the site and to all places from which natural materials are being obtained for use in the works; and

(b) during production, manufacture and construction at the site and at the place of production, be entitled to examine, inspect, measure and test the materials and workmanship and to check the progress of the manufacturer of Materials.

(ii) The Contractor shall give the Engineer-in-Charge and its authorized representative access, facilities and safety equipment for carrying out their obligations under this Agreement.

22.9 Examination of work before covering up/ Test Check of item of Work

In respect of the work which the Engineer-in-Charge or his authorized representatives are required to examine, inspect, measure or test before it is covered up or put out of view or any part of the work is placed thereon, the Contractor shall give notice to the Engineer-in-Charge whenever any such work is ready and before it is covered up. The Engineer-in-Charge shall then either carry out the examination, inspection or testing without unreasonable delay within 7 days, or promptly give notice to the Contractor that the Engineer-in-Charge does not require him to do so. Provided, however, that if any work is of a continuous nature where it is not possible or prudent to keep it uncovered or incomplete, the Contractor shall notify the schedule of carrying out such work to give sufficient opportunity, not being less than 3(three) business days' notice, to the Engineer-in-Charge to conduct its inspection, measurement or test while the work is continuing. Provided further that in the event the Contractor receives no response from the Engineer-in-Charge within a period of 3 (three) business days from the date on which the Contractor's notice hereunder is delivered to the Engineer-in-Charge, the Contractor shall be entitled to assume that the Engineer-in-Charge would not undertake SAId inspections.

22.10 Rejection

(i) If, as a result of an examination, inspection, measurement or testing, any Plant, Materials, design or workmanship is

found to be defective or otherwise not in accordance with the provisions of this Agreement, the Engineer-in-Charge may reject such piece of work, Plant, Materials, design or workmanship by giving notice to the Contractor, with reasons. The Contractor shall then promptly make good the defect and ensure that the rejected item complies with the requirements of this Agreement.

(ii) If the Engineer-in-Charge requires a Piece of work, Plant, Material, design or workmanship to be retested, the tests shall be repeated on the same terms and conditions, as applicable in each case. If the rejection and retesting cause the department to incur any additional costs, such costs shall be recoverable by the Engineer-in-Charge from the Contractor and may be deducted by the Engineer-in-Charge from any amount due to be paid to the Contractor.

(iii) The Contractor shall not be entitled to any extension of time on account of rectifying any defect or retesting as specified in this clause.

(iv) Examination, inspection, measurement or testing of any Plant, Material, design or workmanship by the Engineer-in-Charge or its failure to convey its observations or to examine, inspect, measure or test shall neither relieve the Contractor of its obligations and liabilities under this Agreement in any manner nor shall the Engineer-in-Charge be liable for the same in any manner.

22.11 Remedial work

(i) Notwithstanding any previous test or certification, the Engineer-in-Charge may instruct the Contractor to:

(a) remove from the site and replace any piece of work, plant or materials which are not in accordance with the provisions of this Agreement.

(b) remove and re-execute any work which is not in accordance with the provisions of this Agreement and the Specification and Standards; and

(c) execute any work which is urgently required for the safety of the Project, whether because of an accident, unforeseeable event or otherwise.

(ii) If the Contractor fails to comply with the instructions issued by the Engineer- in-Charge under aforesaid para, within the time specified in the notice or as mutually agreed, the Engineer-in-Charge may get the work executed by another agency. The cost so incurred by the Engineer-in-Charge for

undertaking such work shall, without prejudice to the rights of the Engineer-in-Charge to recover damages in accordance with the provisions of this Agreement, be recoverable from the Contractor and may be deducted by the Engineer-in-Charge from any amount due to be paid to the Contractor.

22.12 Quality Control Records

The Contractor shall hand over authenticated copy of all its quality control records and documents to the Engineer-in-Charge before the Completion Certificate is issued.

22.13 Video recording

During the Construction Period, the Contractor shall provide to the Engineer-in-Charge for every calendar quarter, a video recording which will be compiled into a 15 (fifteen) minutes digital video covering the status and progress of work in that quarter. Video recording should show different activities, stage of work, quality assurance activities etc. including animation, graphs, digital maps, commentary, sub titles, etc. spread over the quarter. The video recording shall be provided to the Engineer-in-Charge no later than 15 (fifteen) days after the close of each quarter to be reckoned from next full month of date of start of work.

22.14 Suspension of unsafe Construction Works

(i) Upon recommendation of the Engineer-in-Charge to this effect, or on his own volition in cases of emergency or urgency, the Engineer-in-Charge may by notice require the Contractor to suspend forthwith the whole or any part of the Works if, in the reasonable opinion of Engineer-in-Charge, as the case may be, such work threatens the safety of the Users and or other persons on or about the Project. Provided, however, that in case of an emergency, the Engineer- in-Charge may suomoto issue the notice referred to hereinabove.

(ii) The Contractor shall, pursuant to the notice under above para, suspend the Works or any part thereof for such time and in such manner as may be specified by the Engineer-in-Charge and thereupon carry out remedial measures to secure the safety of suspended works, the Users, other persons and vehicles on or about the Project. The Contractor by notice require the Engineer-in-Charge to inspect such remedial measures forthwith and request for revocation of suspension. Upon reviewing the remedial measures, the Engineer-in-Charge shall either revoke such suspension or instruct the Contractor to carry out such other and further remedial measures as may be necessary and reasonable and the procedure

	set forth in this Clause shall be repeated until the suspension hereunder is revoked. (iii) Subject to other provisions of the agreement, all reasonable cost incurred for maintaining and protecting the Works or part thereof during the period of suspension (the "Preservation Costs") shall be borne by the contractor, if in the opinion of Engineer-in-Charge suspension is on account of reasons attributable to the contractor. (iv) If suspension of Work is for reasons not attributable to the Contractor, the Engineer-in-Charge shall determine any Time Extension, if required, in accordance with the provisions of clause-5. **22.15 Online maintenance of Site records including testing records.** The Engineer-in-Charge may require the contractor to upload all the site records in any online system devised by him. The contractor shall have to ensure that all the required site records, as desired by the Engineer-in-Charge shall be uploaded in this online system. Nothing extra on this account shall be payable to the contractor. In case these records are to be maintained in any online module then contractor shall comply with this.
Changes in firm's Constitution to be Intimated	**Clause 23** Where the contractor is a partnership firm/company/LLP, the prior approval in writing of the Engineer-in-charge shall be obtained before any change is made in the constitution of the firm/company/LLP. Where the contractor is an individual or a Hindu undivided family business concern, such approval as aforesaid shall likewise be obtained before the contractor enters into any partnership agreement where under the partnership firm would have the right to carry out the works hereby undertaken by the contractor. If previous approval as aforesaid is not obtained, the contract shall be deemed to have been assigned in contravention of clause 21 hereof and the same action may be taken, and the same consequences shall ensue as provided in said clause 21.
Life Cycle Cost	**Clause 24** Deleted
Settlement of Disputes by	**Clause 25:** Except where otherwise provided in the contract, all questions and disputes relating to the meaning of the specifications, designs, drawings

Conciliation and Arbitration	and instructions hereinbefore mentioned and as to the quality of workmanship or materials used in the work or as to any other question, claim, right, matter or thing whatsoever in any way arising out of or relating to the contract, designs, drawings, specifications, estimates, instructions, orders or otherwise concerning the works or the execution or failure to execute the same whether arising during the progress of the work or after the cancellation, termination, completion or abandonment thereof shall be dealt with as mentioned hereinafter. **25.1** **Conciliation:** If the contractor considers any work demanded of him to be outside the requirements of the contract, or disputes any drawing, record or decision given in writing by the Engineer-in-Charge; or if the Engineer-in-Charge considers any act or decision of the contractor on any matter in connection with or arising out of the contract or carrying out of the work to be unacceptable and disputed; such party may promptly refer such disputes and amount claimed for each dispute to the Conciliator (Special Director General or the Additional Director General concerned with the work, as applicable) in the proforma prescribed in Appendix XVII mentioned in Schedule F, under intimation to the other party. The Conciliator may then request each party to submit to him a brief written statement describing the disputes and the points at issue. Each party shall send a copy of such statement to the other party. At any stage of the conciliation proceedings, the Conciliator may request a party to submit to him such additional information as he deems appropriate. When it appears to the Conciliator that there exist elements of a settlement which may be acceptable to the parties, he shall formulate the terms of a possible settlement and submit them to the parties for their observations. After receiving the observations of the parties, he may re-formulate the terms of a possible settlement in the light of such observations. If the parties reach agreement on a settlement of the disputes, they may draw up and sign a written settlement agreement on non-judicial stamp paper as per Stamp Act. The Conciliator shall authenticate the settlement agreement and furnish a copy thereof to each party. The termination of conciliation proceedings shall be in accordance with Section 76 of The Arbitration and Conciliation Act, 1996. No party shall be represented before SAId Conciliator by an advocate or legal counsel. The conciliation proceedings shall be completed within 45 days from the receipt of reference. This time may be enlarged by 15 days by the Conciliator. The conciliation proceedings shall be deemed to have been terminated at the end of 60 days from the receipt of reference. **25.2** **Arbitration:** If the aforesaid conciliation proceedings fail or the Conciliator fails to give proposal for settlement within the

aforesaid period, either party may promptly give notice in the proforma prescribed in Appendix XVIII, under intimation to the other party, to the Chief Engineer or the Superintending Engineer concerned with the work (as applicable), hereinafter referred to as the Arbitrator Appointing Authority as indicated in Schedule F, for appointment of Arbitrator.

However, a party may seek appointment of Arbitrator without taking recourse to the process of conciliation mentioned in sub-clause 25.1 above.

In the event of either party giving a notice to the Arbitrator Appointing Authority for appointment of Arbitrator, SAId Authority shall appoint Arbitrator as per the procedure given below and refer such disputes to arbitration.

(a) **Number of Arbitrators:** If the contract amount is less than Rs.100 crore, the disputes may be referred for adjudication by a sole Arbitrator. If the contract amount is Rs.100 crore or more, the disputes may be referred to an Arbitral Tribunal of three Arbitrators.

(b) **Qualification of Arbitrators:** It is a term of this contract that each member of the Arbitral Tribunal shall be Graduate Engineer with experience in execution of public works engineering contracts, and he should have worked earlier at a level not lower than the Chief Engineer (equivalent to level of Joint Secretary to the Government of India).

The aforesaid educational qualification and work experience shall be mandatory for appointment as Arbitrator.

The age of Arbitrator at the time of appointment shall not exceed 75 years. An Arbitrator may be appointed notwithstanding the total number of active arbitration cases with him.

(c) **Parties to select Arbitrator:** Based on the criteria specified above, a list of empanelled Arbitrators has been prepared in SAI, and the parties shall have option to select an Arbitrator from the list sent to them.

25.3 **Appointment of Sole Arbitrator:** The parties may opt for appointment of the Arbitrator of the Ministry of Housing and Urban Affairs. In such cases, the party seeking arbitration has to submit an express agreement in writing as per Appendix XIX towards waiver of Section 12(5) of the Arbitration and Conciliation Act, 1996 along with the notice for appointment of Arbitrator in the proforma prescribed in Appendix XVIII, under intimation to the other party. The Arbitrator Appointing Authority

	shall, within 30 days of receipt of SAId notice, appoint Arbitrator of the Ministry of Housing and Urban Affairs as Arbitrator in the matter, provided the other party also submits waiver of Section 12(5), ibid in Appendix XIX within 7 days of the receipt of Said notice. Where any one of the parties does not opt for the Arbitrator of the Ministry of Housing and Urban Affairs, or does not submit the waiver agreement, the Arbitrator Appointing Authority shall propose five Arbitrators from the list of SAI Empaneled Arbitrators to the party seeking arbitration under intimation to the other party within 15 days of receiving the notice. The party seeking arbitration shall give his choice for one of them within 15 days of receiving the list, and the Arbitrator Appointing Authority shall appoint the chosen person as the Sole Arbitrator within 15 days of the receipt of choice. It is a term of this arbitration agreement that if the parties fail to select, within the period prescribed above, an Arbitrator of their choice from the list of SAI Empaneled Arbitrators forwarded to them, the Arbitrator Appointing Authority shall himself select and appoint Arbitrator from Said list. **25.4** **Appointment of Arbitral Tribunal of three Arbitrators:** The Arbitrator Appointing Authority shall prepare two separate lists of five Arbitrators each from the list of SAI Empaneled Arbitrators, and send one to the party seeking arbitration and other to the responding party, within 15 days of the receipt of notice. The parties will then choose any one Arbitrator from the list provided to them within 15 days of receipt of the list. The Arbitrator Appointing Authority shall then appoint those chosen by the respective parties as Arbitrators and also a third Arbitrator from the list of SAI Empaneled Arbitrators to act as presiding Arbitrator, within 15 days of receipt of choice from both the parties. It is a term of this arbitration agreement that if the parties fail to select, within the period prescribed above, an Arbitrator of their choice from the list of SAI Empaneled Arbitrators forwarded to them, the Arbitrator Appointing Authority shall himself select and appoint Arbitrator from Said list. **25.5** **Applicable Law:** The provisions of the Arbitration and Conciliation Act, 1996 (Act 26 of 1996) and any further statutory modification or re-enactment thereof shall be applicable. Further, the fast-track procedure for arbitration contained in Section 29B of SAId Act shall apply.

	25.6 **Fee payable to Arbitrator(s):** The fee payable to the arbitral tribunal shall be as per SAI dated 19.11.2019 (or latest amendment), and shall be shared equally by both the parties. **25.7** **Place of Arbitration:** The place of arbitration shall preferably be as mentioned in Schedule F. However, the Arbitral Tribunal may decide the place in consultation with both the parties. **25.8** **Terms of reference:** The Arbitral Tribunal shall adjudicate on only such disputes as are referred to it by the Arbitrator Appointing Authority and give separate award against each dispute referred to him and shall give reasons for the award in all cases where the total amount of the claim by any party exceeds Rs.1,00,000. **25.9** **Interest on Arbitration award:** It is also a term of this arbitration agreement that where the Arbitral award against any dispute is for the payment of money, no pre-suit and pendent elite interest shall be payable on any part of the Arbitral award.
Contractor to indemnify Govt. against Patent Rights	**Clause 26** The contractor shall fully indemnify and keep indemnified the President of India against any action, claim or proceeding relating to infringement or use of any patent or design or any alleged patent or design rights and shall pay any royalties which may be payable in respect of any article or part thereof included in the contract. In the event of any claims made or action brought against Government in respect of any such matters as aforesaid, the contractor shall be immediately notified thereof and the contractor shall be at liberty, at his own expense, to settle any dispute or to conduct any litigation that may arise there from, provided that the contractor shall not be liable to indemnify the President of India if the infringement of the patent or design or any alleged patent or design right is the direct result of an order passed by the Engineer-in-charge in this behalf.
Withholding and lien in respect of sum due from Contractor	**Clause 27** (i) Whenever any claim or claims for payment of a sum of money arises out of or under the contract or against the contractor, the Engineer-in-charge or the SAI shall be entitled to withhold and also have a lien to retain such sum or sums in whole or in part from the security, if any deposited by the contractor and for the purpose aforesaid, the Engineer-in-charge or the SAI shall be entitled to withhold the security deposit, if any, furnished as the case may be and also have a lien over the same pending finalization or adjudication of any such claim. In the event of the security being insufficient to cover the claimed amount or amounts or if no

	security has been taken from the contractor, the Engineer-in-Charge or the SAI shall be entitled to withhold and have a lien to retain to the extent of such claimed amount or amounts referred to above, from any sum or sums found payable or which may at any time thereafter become payable to the contractor under the same contract or any other contract with the Engineer-in-Charge of the SAI or any contracting person through the Engineer-in-Charge pending finalization of adjudication of any such claim. It is an agreed term of the contract that the sum of money or moneys so withheld or retained under the lien referred to above by the Engineer-in-Charge or SAI will be kept withheld or retained as such by the Engineer-in-Charge or SAI till the claim arising out of or under the contract is determined by the arbitrator(if the contract is governed by the arbitration clause) by the competent court, as the case may be and that the contractor will have no claim for interest or damages whatsoever on any account in respect of such withholding or retention under the lien referred to above and duly notified as such to the contractor. For the purpose of this clause, where the contractor is a partnership firm or a limited company, the Engineer-in-charge or the Government shall be entitled to withhold and also have a lien to retain towards such claimed amount or amounts in whole or in part from any sum found payable to any partner/limited company as the case may be, whether in his individual capacity or otherwise. (ii) SAI shall have the right to cause an audit and technical examination of the works and the final bills of the contractor including all supporting vouchers, abstract, etc., to be made after payment of the final bill and if as a result of such audit and technical examination any sum is found to have been overpaid in respect of any work done by the contractor under the contract or any work claimed to have been done by him under the contract and found not to have been executed, the contractor shall be liable to refund the amount of over-payment and it shall be lawful for Government to recover the same from him in the manner prescribed in sub-clause (i) of this clause or in any other manner legally permissible; and if it is found that the contractor was paid less than what was due to him under the contract in respect of any work executed by him under it, the amount of such under payment shall be duly paid by Government to the contractor, without any interest thereon whatsoever.
Lien in respect of claims in other Contracts	**Clause 28** Any sum of money due and payable to the contractor (including the security deposit returnable to him) under the contract may be withheld or retained by way of lien by the Engineer-in- charge or the SAI or any other contracting person or persons through Engineer-in- charge against any

	claim of the Engineer-in-charge or SAI or such other person or persons in respect of payment of a sum of money arising out of or under any other contract made by the contractor with the Engineer- in-charge or the SAI or with such other person or persons. It is an agreed term of the contract that the sum of money so withheld or retained under this clause by the Engineer-in-charge or the SAI will be kept withheld or retained as such by the Engineer-in-charge or the SAI or till his claim arising out of the same contract or any other contract is either mutually settled or determined by the arbitration clause or by the competent court, as the case may be and that the contractor shall have no claim for interest or damages whatsoever on this account or on any other ground in respect of any sum of money withheld or retained under this clause and duly notified as such to the contractor.
Employment of coal mining or controlled area labour not Permissible	**Clause 29** The contractor shall not employ coal mining or controlled area labour falling under any category whatsoever on or in connection with the work or recruit labour from area within a radius of 32 km (20 miles) of the controlled area. Subject as above the contractor shall employ imported labour only i.e., deposit imported labour or labour imported by contractors from area, from which import is permitted. Where ceiling price for imported labour has been fixed by State or Regional Labour Committees, not more than that ceiling price shall be paid to the labour by the contractor. The contractor shall immediately remove any labourer who may be pointed out by the Engineer in-Charge as being a coal mining or controlled area labourer. Failure to do so shall render the contractor liable to pay to Government a sum calculated at the rate of Rs.100/- per day per labourer. The certificate of the Engineer-in-Charge about the number of coal mining or controlled area labourer and the number of days for which they worked shall be final and binding upon all parties to this contract. It is declared and agreed between the parties that the aforesaid stipulation in this clause is one in which the public are interested within the meaning of the exception in Section 74 of Indian Contract Act, 1872. Explanation:- Controlled Area means the following areas: Districts of Dhanbad, Hazaribagh, Jamtara - a Sub-Division under Santhal Pargana Commissionery, Districts of Bankuara, Birbhum, Burdwan, District of Bilaspur. Any other area which may be declared a Controlled Area by or with the approval of the Central Government.
Water for Works	**Clause 30**

	The contractor(s) shall make his/their own arrangements for water required for the work and nothing extra will be paid for the same. This will be subject to the following conditions. (i) That the water used by the contractor(s) shall be fit for construction purposes to the satisfaction of the Engineer-in-Charge. (ii) The Engineer-in-Charge shall make alternative arrangements for supply of water at the risk and cost of contractor(s) if the arrangements made by the contractor(s) for procurement of water are in the opinion of the Engineer-in-Charge, unsatisfactory.
Alternate water arrangements	**Clause 31** The contractor shall be allowed to construct temporary wells on land for taking water for construction purposes only after he has got permission of the Engineer-in- charge in writing. No charges shall be recovered from the contractor on this account, but the contractor shall be required to provide necessary safety arrangements to avoid any accidents or damage to adjacent buildings, roads and service lines. He shall be responsible for any accidents or damage caused due to construction and subsequent maintenance of the wells and shall restore the ground to its original condition after the wells are dismantled on completion of the work.
Employment of Technical Staff and employees	**Clause 32** Contractors Superintendence, Supervision, Technical Staff & Employees (i) The contractor shall provide all necessary superintendence during execution of the work and all along thereafter as may be necessary for proper fulfilling of the obligations under the contract. As per tendered amount (worked out on the basis of quoted rate of individual items) and before commencement of the work, intimate in writing to the Engineer-in-Charge, the name(s), qualifications, experience, age, address(s) and other particulars along with certificates, of the principal technical representative to be in charge of the work and other technical representative(s) who will be supervising the work. Minimum requirement of such technical representative(s) and their qualifications and experience shall not be lower than specified in Schedule 'F'. Even of the contractor (or partner(s) in case of firm/ company)is himself / herself an Engineers, it is necessary on the part of the contractor to Employ principal technical representative / technical representative (s) as per stipulation in Schedule 'F'. The Engineer-in-Charge shall within 3 days of receipt of such communication intimate in writing his approval or otherwise of

	such a representative(s) to the contractor. Any such approval may at any time be withdrawn and in case of such withdrawal, the contractor shall appoint another such representative(s) according to the provisions of this clause. Decision of the tender accepting authority shall be final and binding on the contractor in this respect. Such a principal technical representative and other technical representative(s) shall be appointed by the contractor soon after receipt of the approval from Engineer-in-charge and shall be available at site before start of work. All the provisions applicable to the principal technical representative under the Clause will also be applicable to other technical representative(s) The principal technical representative and other technical representative(s) shall be present at the site of work for supervision at all times when any construction activity is in progress and also present himself/themselves, as required, to the Engineer-in-Charge and/or his designated representative to take instructions. Instructions given to the principal technical representative or other technical representative(s) shall be deemed to have the same force as if these have been given to the contractor. The principal technical representative and other technical representative(s) shall be actually available at site fully during all stages of execution of work, during recording/checking/test checking of measurements of works and whenever so required by the Engineer-in-Charge and shall also note down instructions conveyed by the Engineer-in-Charge or his designated representative(s) in the site order book and shall affix his/their signature in token of noting down the instructions and in token of acceptance of measurements/checked measurements/ test checked measurements. The representative(s) shall not look after any other work. Substitutes, duly approved by Engineer-in-Charge of the work in similar manner as aforesaid shall be provided in event of absence of any of the representative(s) by more than two days. If the Engineer-in-Charge, whose decision in this respect is final and binding on the contractor, is convinced that no such technical representative(s) is/are effectively appointed or is/are effectively attending or fulfilling the provision of this clause, a recovery (non-refundable) shall be effected from the contractor as specified in Schedule 'F' and the decision of the Engineer-In-Charge as recorded in the site order book and measurement recorded checked/test checked in Measurement Books shall be final and binding on the contractor. Further if the contractor fails to appoint suitable technical Principal technical representative and/or other technical representative(s) and if such appointed persons are not effectively present or are absent by more than two days without duly approved substitute or do not discharge their responsibilities

	satisfactorily, the Engineer-in-Charge shall have full powers to suspend the execution of the work until such date as suitable other technical representative(s) is/are appointed and the contractor shall be held responsible for the delay so caused to the work. The contractor shall submit a certificate of employment of the technical representative(s) (in the form of copy of Form-16 or CPF deduction issued to the Engineers employed by him) along with every on account bill/ final bill and shall produce evidence if at any time so required by the Engineer-in-Charge. (ii) The contractor shall provide and employ on the site only such technical assistants as are skilled and experienced in their respective fields and such foremen and supervisory staff as are competent to give proper supervision to the work. The contractor shall provide and employ skilled, semiskilled and unskilled labour as is necessary for proper and timely execution of the work. The Engineer-in-Charge shall be at liberty to object to and require the contractor to remove from the works any person who in his opinion misconducts himself, or is incompetent or negligent in the performance of his duties or whose employment is otherwise considered by the Engineer-in-Charge to be undesirable. Such person shall not be employed again at works site without the written permission of the Engineer-in- Charge and the persons so removed shall be replaced as soon as possible by competent substitutes. (iii) For works with estimated cost more than Rs. 10 Crores and stipulated time period more than 6 months : The contractor shall ensure that at least one deployed technical representative shall be trained in courses related to SA specifications, labour laws, safety rules etc. of duration not less than 5 working days either through National CPWD Academy (NCA) or National Institute of Construction Management and Research (NICMAR) or CIDC or any other similar reputed and recognized Institute managed or certified by State/ Central Government. The training cost and other cost related to training shall be borne by the contractor. The contractor shall ensure that at least one technical representative is trained within six months of start of work. The time period of six months can be relaxed by the Engineer-in-Charge depending upon the frequency of training course organized by NCA.

	If the contractor fails to ensure that at least one technical representative is trained in the above mentioned course till completion of work or one year from start of work, whichever is earlier, then a non-refundable recovery of Rs. 50,000/- shall be made from the bill of the contractor. Decision of Engineer-in-Charge in this regard shall be final and binding on the contractor. (iv) Building Information Model (BIM) professional shall be deployed by the contractor for the work wherever BIM is applicable. The BIM professional shall be available exclusively for this work from stipulated date of start and till actual date of completion of project. The recovery shall be made from bill of contractor in case of non-deployment of BIM Professional as mentioned in Schedule 'F' of NIT without giving any notice in writing. The decision of Engineer-in-Charge in this respect shall be final and binding on the contractor.
Levy/Taxes payable by Contractor	**Clause 33** (i) GST, Building and other Construction Workers Welfare Cess or any other tax, levy or Cess in respect of input for or output by this contract shall be payable by the contractor and SAI shall not entertain any claim whatsoever in this respect except as provided under Clause 34. (ii) The contractor shall deposit royalty and obtain necessary permit for supply of the red bajri, stone, kankar, stone aggregate, earth, sand etc. from local authorities. (iii) If pursuant to or under any law, notification or order any royalty, cess or the like becomes payable by the SAI and does not any time become payable by the contractor to the State Government, Local authorities in respect of any material used by the contractor in the works, then in such a case, it shall be lawful to SAI and it will have the right and be entitled to recover the amount paid in the circumstances as aforesaid from dues of the contractor.
Conditions for reimbursement of levy/taxes if levied after receipt of Tenders	**Clause 34** (i) All tendered rates shall be inclusive of any tax,GST, levy or cess applicable on last stipulated date of receipt of tender including extension if any. No adjustment i.e. increase or decrease shall be

	made for any variation in the rate of GST, Building and Other Construction Workers Welfare Cess or any tax, levy or cess applicable on inputs. However, effect of variation in rates of GST or Building and Other Construction Workers Welfare Cess or imposition or repeal of any other tax, levy or cess applicable on output of the works contract shall be adjusted on either side, increase or decrease.
Termination of Contract on death of contractor	**Clause 35** Without prejudice to any of the rights or remedies under this contract, if the contractor dies, the Engineer-in-charge on behalf of the SAI shall have the option of terminating the contract without compensation to the contractor.
If relative working in SAI then the contractor is not allowed to participate in the tendering process	**Clause 36** The contractor shall not be allowed to participate in the tender for work(s) in SAI Zone/circle /Division/Sub-Division responsible for award and/or execution of contract(s) in which his near relative is posted as Divisional Accountant or as an officer in any capacity between the grades of the Secretary/Director/Deputy Director/Assistant Director and Engineer. He shall also intimate the names of persons who are working or are subsequently employed by him and who are near relatives to any Officer working in SAI. Any breach of this condition by the contractor would render him liable to be debarred for a period upto two years from tendering in SAI as decided by the accepting authority mentioned in Schedule F and his decision will be excepted from clause 25. NOTE: By the term "near relatives" is meant wife, husband, parents and grandparents, children and grandchildren, brothers and sisters, uncles, aunts and cousins and their corresponding in-laws.
No employee to work as Contractor within one year of retirement	**Clause 37** No Engineer/officer employed in engineering or administrative duties in SAI shall work as a contractor or employee of a contractor for a period of one year after his retirement from government service without the previous permission of SAI in writing. This contract is liable to be cancelled if either the contractor or any of his employees is found at any time to be such a person who had not obtained the permission of SAI as aforesaid, before submission of the tender or engagement in the contractor's service, as the case may be.
Theoretical consumption of Material	**Clause 38** (i) After completion of the work and also at any intermediate stage in the event of Non reconciliation of materials issued theoretical

	quantity of materials used in the work shall be calculated on the basis and method given hereunder: (a) Quantity of cement & bitumen shall be calculated on the basis of quantity of cement & bitumen required for different items of work as shown in the Schedule of Rates mentioned in Schedule 'F'. In case any item is executed for which standard constants for the consumption of cement or bitumen are not available in the above mentioned schedule/statement or cannot be derived from the same shall be calculated on the basis of standard formula to be laid down by the Engineer-in-Charge. (b) Theoretical quantity of steel reinforcement or structural steel sections shall be taken as the quantity required as per design or as authorized by Engineer-in- Charge, including authorized lappages, chairs etc. plus 3% wastage due to cutting into pieces, such theoretical quantity being determined and compared with the actual, each diameter wise, section wise and category wise separately. (c) Theoretical quantity of G.I. & C.I. or other pipes, conduits, wires and cables, pig lead and G.I./M.S. sheets shall be taken as quantity actually required and measured plus 5% for wastage due to cutting into pieces (except in the case of G.I./M.S. sheets it shall be 10%), such determination & comparison being made diameter wise & category wise. (d) For any other material as per actual requirements. Over the theoretical quantities of materials so computed a variation shall be allowed as specified in Schedule 'F' For nonscheduled items, the decision of the Superintending Engineer regarding theoretical quantities of materials which should have been actually used, shall be final and binding on the contractor. (ii) Said action under this clause is without prejudice to the right of the SAI to take action against the contractor under any other conditions of contract for not doing the work according to the prescribed specifications.
Compensation during warlike situations	**Clause 39** The work (whether fully constructed or not) and all materials, machines, tools and plants, scaffolding, temporary buildings and other things connected therewith shall be at the risk of the contractor until the work has been delivered to the Engineer-in-Charge and a certificate from him to that effect obtained. In the event of the work or any materials properly brought to the site for incorporation in the work being damaged or destroyed in consequence of hostilities or warlike operation, the contractor

	shall when ordered (in writing) by the Engineer-in-Charge to remove any debris from the site, collect and properly stack or remove in store all serviceable materials salvaged from the damaged work and shall be paid at the contract rates in accordance with the provision of this agreement for the work of clearing the site of debris, stacking or removal of serviceable material and for reconstruction of all works ordered by the Engineer- in-Charge, such payments being in addition to compensation upto the value of the work originally executed before being damaged or destroyed and not paid for. In case of works damaged or destroyed but not already measured and paid for, the compensation shall be assessed by the Engineer in Charge upto Rs.2,00,000/- and by the next higher officer concerned for a higher amount. The contractor shall be paid for the damages/destruction suffered and for restoring the material at the rate based on analysis of rates tendered for in accordance with the provision of the contract. The certificate of the Engineer-in-Charge regarding the quality and quantity of materials and the purpose for which they were collected shall be final and binding on all parties to this contract. Provided always that no compensation shall be payable for any loss in consequence of hostilities or warlike operations (a) unless the contractor had taken all such precautions against air raid as are deemed necessary by the A.R.P. (Air Raid Precaution) Officers or the Engineer-in-Charge (b) for any material etc. not on the site of the work or for any tools, plant, machinery, scaffolding, temporary building and other things not intended for the work. In the event of the contractor having to carry out reconstruction as aforesaid, he shall be allowed such extension of time for its completion as is considered reasonable by the Divisional Officer.
Apprentices Act provisions to be complied with	**Clause 40** The contractor shall comply with the provisions of the Apprentices Act, 1961 and the rules and orders issued there under from time to time. If he fails to do so, his failure will be a breach of the contract and the Superintending Engineer may, in his discretion, cancel the contract. The contractor shall also be liable for any pecuniary liability arising on account of any violation by him of the provisions of said Act.
Release of Security deposit after labour clearance	**Clause 41** The Security Deposit of the work shall be refunded if no labour complaint has been received from the labour officer till the due date of its payment. lf a labour complaint is received during this period, the Engineer-in-Charge shall, after issue of notice in this regard to the contractor, deduct the amount required to settle the complaint from his security deposit and refund the balance amount. In case, if part completion certificate of work is recorded then security deposit shall be released only after recording final completion certificate

	of the work and after completion of defect liability period whichever is later or specified otherwise in the contract. Note: - In case of any discrepancies between Hindi and English version, English version shall prevail.

1. Suitable scaffolds should be provided for workmen for all works that cannot safely be done from the ground, or from solid construction except such short period work as can be done safely from ladders. When a ladder is used, an extra mazdoor shall be engaged for holding the ladder and if the ladder is used for carrying materials as well suitable footholds and handhold shall be provided on the ladder and the ladder shall be given an inclination not steeper than ¼ to 1(¼ horizontal and 1 vertical.)
2. Scaffolding of staging more than 3.6 m (12ft.) above the ground or floor, swung or suspended from an overhead support or erected with stationary support shall have a guard rail properly attached or bolted, braced and otherwise secured at least 90 cm. (3ft.) high above the floor or platform of such scaffolding or staging and extending along the entire length of the outside and ends there of with only such opening as may be necessary for the delivery of materials. Such scaffolding or staging shall be so fastened as to prevent it from swaying from the building or structure.
3. Working platforms, gangways and stairways should be so constructed that they should not sag unduly or unequally, and if the height of the platform or the gangway or the stairway is more than 3.6 m (12ft.) above ground level or floor level, they should be closely boarded, should have adequate width and should be suitably fastened as described in (2) above.
4. Every opening in the floor of a building or in a working platform shall be provided with suitable means to prevent the fall of person or materials by providing suitable fencing or railing whose minimum height shall be 90 cm. (3ft.)
5. Safe means of access shall be provided to all working platforms and other working places. Every ladder shall be securely fixed. No portable single ladder shall be over 9m. (30ft.) in length while the width between side rails in rung ladder shall in no case be less than 29 cm. (11½") for ladder upto and including 3 m. (10 ft.) in length. For longer ladders, this width should be increased at least ¼"for each additional 30 cm. (1 foot) of length. Uniform step spacing of not more than 30 cm shall be kept. Adequate precautions shall be taken to prevent danger from electrical equipment. No materials on any of the sites or work shall be so stacked or placed as to cause danger or inconvenience to any person or the public. The contractor shall provide all necessary fencing and lights to protect the public from accident and shall be bound to bear the expenses of defence of every suit, action or other proceedings at law that may be brought by any person for injury sustained owing to neglect of the above precautions and to pay any damages and cost which may be awarded in any such suit; action or proceedings to any such person or which may, with the consent of the contractor, be paid to compensate any claim by any such person.
6. (a) Excavation and Trenching - All trenches 1.2 m. (4ft.) or more in depth, shall at all times be supplied with at least one ladder for each 30 m. (100 ft.) in length or fraction thereof, Ladder shall extend from bottom of the trench to at least 90 cm. (3ft.) above the surface of the ground. The side of the trenches which are 1.5 m. (5ft.) or more in depth shall be stepped back to give suitable slope or securely held by timber bracing, so as to avoid the danger of sides collapsing. The excavated materials shall not be placed within 1.5 m. (5ft.) of the edges of the trench or half of the depth of the trench whichever is more.

Cutting shall be done from top to bottom. Under no circumstances, undermining or undercutting shall be done.

(b) Safety Measures for digging bore holes:-

(i) If the bore well is successful, it should be safely capped to avoid caving and collapse of the bore well. The failed and the abandoned ones should be completely refilled to avoid caving and collapse;

(ii) During drilling, Sign boards should be erected near the site with the address of the drilling contractor and the Engineer in-charge of the work;

(iii) Suitable fencing should be erected around the well during the drilling and after the installation of the rig on the point of drilling, flags shall be put 50m alround the point of drilling to avoid entry of people;

(iv) After drilling the borewell, a cement platform (0.50m x 0.50m x 1.20m) 0.60m above ground level and 0.60m below ground level should be constructed around the well casing;

(v) After the completion of the borewell, the contractor should cap the bore well properly by welding steel plate, cover the bore well with the drilled wet soil and fix thorny shrubs over the soil. This should be done even while repairing the pump;

(vi) After the borewell is drilled the entire site should be brought to the ground level.

7. **Demolition -** Before any demolition work is commenced and also during the progress of the work,

(i) All roads and open areas adjacent to the work site shall either be closed or suitably protected.

(ii) No electric cable or apparatus which is liable to be a source of danger or a cable or apparatus used by the operator shall remain electrically charged.

(iii) All practical steps shall be taken to prevent danger to persons employed from risk of fire or explosion or flooding. No floor, roof or other part of the building shall be so overloaded with debris or materials as to render it unsafe.

8. All necessary personal safety equipment as considered adequate by the Engineer-in-Charge should be kept available for the use of the person employed on the site and maintained in a condition suitable for immediate use, and the contractor should take adequate steps to ensure proper use of equipment by those concerned:- The following safety equipment shall invariably be provided.

(i) Workers employed on mixing asphaltic materials, cement and lime mortars shall be provided with protective footwear and protective goggles.

(ii) Those engaged in white washing and mixing or stacking of cement bags or any material which is injurious to the eyes, shall be provided with protective goggles.

(iii) Those engaged in welding works shall be provided with welder's protective eyeshields.

(iv) Stone breaker shall be provided with protective goggles and protective clothing and

seated at sufficiently safe intervals.

(v) When workers are employed in sewers and manholes, which are in active use, the contractors shall ensure that the manhole covers are opened and ventilated atleast for an hour before the workers are allowed to get into the manholes, and the manholes so opened shall be cordoned off with suitable railing and provided with warning signals or boards to prevent accident to the public. In addition, the contractor shall ensure that the following safety measure are adhered to :-

(a) Entry for workers into the line shall not be allowed except under supervision of the JE or any other higher officer.

(b) At least 5 to 6 manholes upstream and downstream should be kept open for at least 2 to 3 hours before any man is allowed to enter into the manhole for working inside.

(c) Before entry, presence of Toxic gases should be tested by inserting wet lead acetate paper which changes colour in the presence of such gases and gives indication of their presence.

(d) Presence of Oxygen should be verified by lowering a detector lamp into the manhole. In case, no Oxygen is found inside the sewer line, workers should be sent only with Oxygen kit.

(e) Safety belt with rope should be provided to the workers. While working inside the manholes, such rope should be handled by two men standing outside to enable him to be pulled out during emergency.

(f) The area should be barricaded or cordoned of by suitable means to avoid mishaps of any kind. Proper warning signs should be displayed for the safety of the public whenever cleaning works are undertaken during night or day.

(g) No smoking or open flames shall be allowed near the blocked manhole being cleaned.

(h) The malba obtained on account of cleaning of blocked manholes and sewer lines should be immediately removed to avoid accidents on account of slippery nature of the malba.

(i) Workers should not be allowed to work inside the manhole continuously. He should be given rest intermittently. The Engineer-in-Charge shall decide the time up to which a worker may be allowed to work continuously inside the manhole.

(j) Gas masks with Oxygen Cylinder should be kept at site for use in emergency.

(k) Air-blowers should be used for flow of fresh air through the manholes. Whenever called for, portable air blowers are recommended for ventilating the manholes. The Motors for these shall be vapour proof and of totally enclosed type. Non sparking gas engines also could be used but they should be placed at least 2 meters away from the opening and on the leeward side protected from wind so that they will not be a source of friction on any inflammable gas that might be present.

(l) The workers engaged for cleaning the manholes/sewers should be properly trained

before allowing to work in the manhole.

(m) The workers shall be provided with Gumboots or non-sparking shoes bump helmets and gloves non sparking tools safety lights and gas masks and portable air blowers (when necessary). They must be supplied with barrier cream for anointing the limbs before working inside the sewer lines.

(n) Workmen descending a manhole shall try each ladder stop or rung carefully before putting his full weight on it to guard against insecure fastening due to corrosion of the rung fixed to manhole well.

(o) If a man has received a physical injury, he should be brought out of the sewer immediately and adequate medical aid should be provided to him.

(p) The extent to which these precautions are to be taken depend on individual situation but the decision of the Engineer-in-Charge regarding the steps to be taken in this regard in an individual case will be final.

(vi) The Contractor shall not employ men and women below the age of 18 years on the work of painting with products containing lead in any form. Wherever men above the age of 18 are employed on the work of lead painting, the following precaution should be taken:-

(a) No paint containing lead or lead products shall be used except in the form of paste or readymade paint.

(b) Suitable face masks should be supplied for use by the workers when paint is applied in the form of spray or a surface having lead paint is dry rubbed and scrapped.

(c) Overalls shall be supplied by the contractors to the workmen and adequate facilities shall be provided to enable the working painters to wash during and on the cessation of work.

((vii) Workmen executing work on scaffolds or other structures above specified height shall be provided with full body harness and fall arresters.

9. An additional clause (viii)(i) of Central Public Works Department Safety Code (iv) the Contractor shall not employ women and men below the age of 18 on the work of painting with product containing lead in any form, wherever men above the age of 18 are employed on the work of lead painting, the following principles must be observed for such use :

(i) White lead, sulphate of lead or product containing this pigment, shall not be used in painting operation except in the form of pastes or paint ready for use.

(ii) Measures shall be taken, wherever required in order to prevent danger arising from the application of a paint in the form of spray.

(iii) Measures shall be taken, wherever practicable, to prevent danger arising out of from dust caused by dry rubbing down and scraping.

(iv) Adequate facilities shall be provided to enable working painters to wash during and on cessation of work.

(v) Overall, shall be worn by working painters during the whole of working period.

(vi) Suitable arrangement shall be made to prevent clothing put off during working hours being spoiled13 by painting materials.

(vii) Cases of lead poisoning and suspected lead poisoning shall be notified and shall be subsequently verified by medical man appointed by competent authority of SAI.

(viii) SAI may require, when necessary medical examination of workers.

(ix) Instructions with regard to special hygienic precautions to be taken in the painting trade shall be distributed to working painters.

10. When the work is done near any place where there is risk of drowning, all necessary equipments should be provided and kept ready for use and all necessary steps taken for prompt rescue of any person in danger and adequate provision, should be made for prompt first aid treatment of all injuries likely to be obtained during the course of the work.

11. Use of hoisting machines and tackle including their attachments, anchorage and supports shall conform to the following standards or conditions :-

(i) (a) These shall be of good mechanical construction, sound materials and adequate strength and free from patent defects and shall be kept repaired and in good working order.

(b) Every rope used in hoisting or lowering materials or as a means of suspension shall be of durable quality and adequate strength, and free from patent defects.

(ii) Every crane driver or hoisting appliance operator, shall be properly qualified and no person under the age of 21 years should be in charge of any hoisting machine including any scaffolding winch or give signals to operator.

(iii) In case of every hoisting machine and of every chain ring hook, shackle swivel and pulley block used in hoisting or as means of suspension, the safe working load shall be ascertained by adequate means. Every hoisting machine and all gear referred to above shall be plainly marked with the safe working load. In case of a hoisting machine having a variable safe working load each safe working load and the condition under which it is applicable shall be clearly indicated. No part of any machine or any gear referred to above in this paragraph shall be loaded beyond the safe working load except for the purpose of testing.

(iv) In case of departmental machines, the safe working load shall be notified by the Electrical Engineer-in- Charge. As regards contractor's machines the contractors shall notify the safe working load of the machine to the Engineer-in-Charge whenever he brings any machinery to site of work and get it verified by the Electrical Engineer concerned.

12. Motors, gearing, transmission, electric wiring and other dangerous parts of hoisting appliances should be provided with efficient safeguards. Hoisting appliances should be provided with such means as will reduce to the minimum the risk of accidental descent of the load. Adequate precautions should be taken to reduce to the minimum the risk of any part of a suspended load becoming accidentally displaced. When workers are employed on electrical installations

which are already energized, insulating mats, wearing apparel, such as gloves, sleeves and boots as may be necessary should be provided. The worker should not wear any rings, watches and carry keys or other materials which are good conductors of electricity.

13. All scaffolds, ladders and other safety devices mentioned or described herein shall be maintained in safe condition and no scaffold, ladder or equipment shall be altered or removed while it is in use. Adequate washing facilities should be provided at or near places of work.

14. These safety provisions should be brought to the notice of all concerned by display on a notice board at a prominent place at work spot. The person responsible for compliance of the safety code shall be named therein by the contractor.

15. To ensure effective enforcement of the rules and regulations relating to safety precautions the arrangements made by the contractor shall be open to inspection by the Labour Officer or Engineer-in-Charge of the department or their representatives.

16. Notwithstanding the above clauses from (1) to (15), there is nothing in these to exempt the contractor from the operations of any other Act or Rule in force in the Republic of India.

Model Rules for the Protection of Health and Sanitary Arrangements for Workers Employed by SAI or its Contractors

1. APPLICATION

These rules shall apply to all buildings and construction works in charge of SAI in which twenty or more workers are ordinarily employed or are proposed to be employed in any day during the period during which the contract work is in progress.

2. DEFINITION

Work place means a place where twenty or more workers are ordinarily employed in connection with construction work on any day during the period during which the contract work is in progress.

3. FIRST-AID FACILITIES

(i) At every work place, there shall be provided and maintained, so as to be easily accessible during working hours, first-aid boxes at the rate of not less than one box for 150 contract labour or part thereof ordinarily employed.

(ii) The first-aid box shall be distinctly marked with a red cross on white back ground and shall contain the following equipment:-

(a) For work places in which the number of contract labour employed does not exceed 50- Each first-aid box shall contain the following equipments :-

1. 6 small sterilised dressings.
2. 3 medium size sterilised dressings.
3. 3 large size sterilised dressings.
4. 3 large sterilised burn dressings.
5. 1 (30 ml.) bottle containing a two per cent alcoholic solution of iodine.
6. 1 (30 ml.) bottle containing salvolatile having the dose and mode of administration indicated on the label.
7. 1 snakebite lancet.
8. 1 (30 gms.) bottle of potassium permanganate crystals.
9. 1 pair scissors.
10. 1 copy of the first-aid leaflet issued by the Director General, Factory Advice Service and Labour Institutes, Government of India.
11. 1 bottle containing 100 tablets (each of 5 gms.) of aspirin.
12. Ointment for burns.
13. A bottle of suitable surgical antiseptic solution.

(b) For work places in which the number of contract labour exceed 50. Each first-aid box shall contain the following equipment's.

1. 12 small sterilized dressings.
2. 6 medium size sterilized dressings.
3. 6 large size sterilized dressings.
4. 6 large size sterilized burn dressings.
5. 6 (15 gms.) packets sterilized cotton wool.
6. 1 (60 ml.) bottle containing a two per cent alcoholic solution iodine.
7. 1 (60 ml.) bottle containing Sal volatile having the dose and mode of administration indicated on the label.
8. 1 roll of adhesive plaster.
9. 1 snake bite lancet.
10. 1 (30 gms.) bottle of potassium permanganate crystals.
11. 1 pair scissors.
12. 1 copy of the first-aid leaflet issued by the Director General Factory Advice Service and Labour Institutes /Government of India.
13. A bottle containing 100 tablets (each of 5 gms.) of aspirin.
14. Ointment for burns.
15. A bottle of suitable surgical antiseptic solution.

(iii) Adequate arrangements shall be made for immediate recoupment of the equipment when necessary.

(iv) Nothing except the prescribed contents shall be kept in the First-aid box.

(v) The first-aid box shall be kept in charge of a responsible person who shall always be readily available during the working hours of the workplace.

(vi) A person in charge of the First-aid box shall be a person trained in First-aid treatment in the workplaces where the number of contract labour employed is 150 or more.

(vii) In workplaces where the number of contract workers employed is 500 or more and hospital facilities are not available within easy distance from the works. First-aid posts shall be established and run by a trained compounder. The compounder shall be on duty and shall be available at all hours when the workers are at work.

(viii) Where work places are situated in places which are not towns or cities, suitable motor transport shall be kept readily available to carry an injured person or person suddenly taken ill to the nearest hospital.

4. DRINKING WATER

(i) In every workplace, there shall be provided and maintained at suitable places, easily

accessible to labour, a sufficient supply of cold water fit for drinking.

(ii) Where drinking water is obtained from an Intermittent public water supply, each workplace shall be provided with storage where such drinking water shall be stored.

(iii) Every water supply or storage shall be at not less than 50 feet from any latrine drain or other source of pollution. Where water has to be drawn from an existing well which is within such proximity of latrine, drain or any other source of pollution, the well shall be properly chlorinated before water is drawn from it for drinking. All such wells shall be entirely closed in and be provided with a trap door which shall be dust and waterproof.

(iv) A reliable pump shall be fitted to each cover well; the trap door shall be kept locked and opened only for cleaning or inspection which shall be done at least once a month.

5. WASHING FACILITIES

(i) In every work place adequate and suitable facilities for washing should be provided and maintained for the use of contract labour employed therein.

(ii) Separate and adequate cleaning facilities shall be provided for the use of male and female workers.

(iii) Such facilities shall be conveniently accessible and shall be kept in clean and hygienic condition.

6. LATRINES AND URINALS

(i) Latrines shall be provided in every workplace on the following scale namely: -

(a) Where female are employed, there shall be at least one latrine for every 25 females.

(b) Where males are employed, there shall be at least one latrine for every 25 males.

Provided that, where the number of males or females exceeds 100, it shall be sufficient if there is one latrine for 25 males or females up to the first 100, and one for every 50 thereafter.

(ii) Every latrine shall be under cover and so partitioned off as to secure privacy and shall have a proper door and fastening.

(iii) Construction of latrines: The inside walls shall be constructed of masonry or some suitable heat-resisting non-absorbent materials and shall be cement washed inside and outside at least once a year, Latrines shall not be of a standard lower than borehole system.

(iv) (a) Where workers of both sexes are employed, there shall be displayed outside each block of latrine and urinal, a notice in the language understood by the majority of the workers "For Men only" or "For Women Only" as the case may be.

(b) The notice shall also bear the figure of a man or of a woman, as the case may be.

(v) There shall be at least one urinal for male workers up to 50 and one for female workers upto fifty employed at a time, provided that where the number of male or female

workmen, as the case may be exceeds 500, it shall be sufficient if there is one urinal for every 50 males or females upto the first 500 and one for every 100 or part thereafter.

(vi) (a) The latrines and urinals shall be adequately lit and shall be maintained in a clean and sanitary condition at all times.

(b) Latrines and urinals other than those connected with a flush sewage system shall comply with the requirements of the Public Health Authorities.

(vii) Water shall be provided by means of tap or otherwise so as to be conveniently accessible in or near the latrines and urinals.

(viii) Disposal of excreta :- Unless otherwise arranged by the local sanitary authority, arrangements for proper disposal of excreta by incineration at the work place shall be made by means of a suitable incinerator. Alternately excreta may be disposed of by putting a layer of night soil at the bottom of a pucca tank prepared for the purpose and covering it with a 15 cm. layer of waste or refuse and then covering it with a layer of earth for a fortnight (when it will turn to manure).

(ix) The contractor shall at his own expense, carry out all instructions issued to him by the Engineer-in-Charge to effect proper disposal of night soil and other conservancy work in respect of the contractor's workmen or employees on the site. The contractor shall be responsible for payment of any charges which may be levied by the Municipal or Cantonment Authority for execution of such on his behalf.

7. PROVISION OF SHELTER DURING REST

At every place there shall be provided, free of cost, four suitable sheds, two for meals and the other two for rest separately for the use of men and women labour. The height of each shelter shall not be less than 3 meters (10 ft.) from the floor level to the lowest part of the roof. These shall be kept clean and the space provided shall be based on 0.6 sq.m. (6 sft) per head.

Provided that the Engineer-in-Charge may permit subject to his satisfaction, a portion of the building under construction or other alternative accommodation to be used for the purpose.

8. CRECHES

(i) At every workplace, at which 20 or more women worker are ordinarily employed, there shall be provided two rooms of reasonable dimensions for the use of their children under the age of six years. One room should be used as a playroom for the children and the other as their bedroom. The rooms shall be constructed with specifications as per clause 19H (ii) a,b & c.

(ii) The rooms shall be provided with suitable and sufficient openings for light and ventilation. There shall be adequate provision of sweepers to keep the places clean.

(iii) The contractor shall supply an adequate number of toys and games in the playroom and sufficient number of cots and bedding in the bedroom.

(iv) The contractor shall provide one Aya to look after the children in the creche when the number of women workers does not exceed 50 and two when the number of women workers exceed 50.

(v) The use of the rooms earmarked as creches shall be restricted to children, their attendants and mothers of the children.

9. CANTEENS

(i) In every workplace where the work regarding the employment of contract labour is likely to continue for six months and where in contract labour numbering one hundred or more are ordinarily employed, an adequate canteen shall be provided by the contractor for the use of such contract labour.

(ii) The canteen shall be maintained by the contractor in an efficient manner.

(iii) The canteen shall consist of at least a dining hall, kitchen, storeroom, pantry and washing places separately for workers and utensils.

(iv) The canteen shall always be sufficiently lighted when any person has access to it.

(v) The floor shall be made of smooth and impervious materials and inside walls shall be lime-washed or colour washed at least once in each year.

Provided that the inside walls of the kitchen shall be lime-washed every four months.

(vi) The premises of the canteen shall be maintained in a clean and sanitary condition.

(vii) Waste water shall be carried away in suitable covered drains and shall not be allowed to accumulate so as to cause a nuisance.

(viii) Suitable arrangements shall be made for the collection and disposal of garbage.

(ix) The dining hall shall accommodate at a time 30 per cent of the contract labour working at a time.

(x) The floor area of the dining hall, excluding the area occupied by the service counter and any furniture except tables and chairs shall not be less than one square metre (10 sft) per diner to be accommodated as prescribed in sub-Rule 9.

(xi) (a) A portion of the dining hall and service counter shall be partitioned off and reserved for women workers in proportion to their number.

(b) Washing places for women shall be separate and screened to secure privacy.

(xii) Sufficient tables stools, chair or benches shall be available for the number of diners to be accommodated as prescribed in sub-Rule 9.

(xiii) (a) 1. There shall be provided and maintained sufficient utensils crockery, furniture and any other equipment's necessary for the efficient running of the canteen.

2. The furniture, utensils and other equipment shall be maintained in a clean and hygienic condition.

(b) 1. Suitable clean clothes for the employees working in the canteen should be provided and

maintained.

2. A service counter, if provided, shall have top of smooth and impervious material.

3. Suitable facilities including an adequate supply of hot water shall be provided for the cleaning of utensils and equipments.

(xiv) The food stuffs and other items to be served in the canteen shall be in conformity with the normal habits of the contract labour.

(xv) The charges for food stuffs, beverages and any other items served in the canteen shall be based on 'No profit, No loss' and shall be conspicuously displayed in the canteen.

(xvi) In arriving at the price of foodstuffs, and other article served in the canteen, the following items shall not be taken into consideration as expenditure namely:-

(a) The rent of land and building.

(b) The depreciation and maintenance charges for the building and equipments provided for the canteen.

(c) The cost of purchase, repairs and replacement of equipments including furniture, crockery, cutlery and utensils.

(d) The water charges and other charges incurred for lighting and ventilation.

(e) The interest and amounts spent on the provision and maintenance of equipments provided for the canteen.

(xvii) The accounts pertaining to the canteen shall be audited once every 12 months by registered accountants and auditors.

10. ANTI-MALARIAL PRECAUTIONS

The contractor shall at his own expense, conform to all anti-malarial instructions given to him by the Engineer- in-Charge including the filling up of any borrow pits which may have been dug by him.

11. The above rules shall be incorporated in the contracts and in notices inviting tenders and shall form an integral part of the contracts.

12. AMENDMENTS

Government may, from time to time, add to or amend these rules and issue directions - it may consider necessary for the purpose of removing any difficulty which may arise in the administration thereof.

13. EPIDEMIC SITUATION

In such situation contractor shall deploy special labour to keep the site, worker's hutments, rest rooms etc. neat and clean including sanitization. Contractor shall provide all epidemic related arrangements (at his cost following the guidelines issued by State/ Central Government in this regard.

CPWD Contractor's Labour Regulations

1. SHORT TITLE

These regulations may be called Contractors Labour Regulations.

2. DEFINITIONS

(i) Workman means any person employed by SAI or its contractor directly or indirectly through a subcontractor with or without the knowledge of the SAI to do any skilled, semiskilled or unskilled manual, supervisory, technical or clerical work for hire or reward, whether the terms of employment are expressed or implied but does not include any person :-

(a) Who is employed mainly in a managerial or administrative capacity : or

(b) Who, being employed in a supervisory capacity draws wages exceeding five hundred rupees per mensem or exercises either by the nature of the duties attached to the office or by reason of powers vested in him, functions mainly of managerial nature: or

(c) Who is an out worker, that is to say, person to whom any article or materials are given out by or on behalf of the principal employers to be made up cleaned, washed, altered, ornamental finished, repaired adopted or otherwise processed for sale for the purpose of the trade or business of the principal employers and the process is to be carried out either in the home of the out worker or in some other premises, not being premises under the control and management of the principal employer.

No person below the age of fourteen years shall be employed on the work. However, Adolescent Persons can be employed on non-hazardous works/process.

(ii) Fair Wages means wages whether for time or piece work fixed and notified under the provisions of the Minimum Wages Act from time to time.

(iii) Contractors shall include every person who undertakes to produce a given result other than a mere supply of goods or articles of manufacture through contract labour or who supplies contract labour for any work and includes a subcontractor.

(iv) Wages shall have the same meaning as defined in the Payment of Wages Act.

3. WORKING HOURS

(i) Normally working hours of an adult employee should not exceed 9 hours a day. The working day shall be so arranged that inclusive of interval for rest, if any, it shall not spread over more than 12 hours on any day.

(ii) When an adult worker is made to work for more than 9 hours on any day or for more

than 48 hours in any week, he shall be paid over time for the extra hours put in by him at double the ordinary rate of wages.

(iii) (a) Every worker shall be given a weekly holiday normally on a Sunday, in accordance with the provisions of the Minimum Wages (Central) Rules 1960 as amended from time to time irrespective of whether such worker is governed by the Minimum Wages Act or not.

(b) Where the minimum wages prescribed by the Government under the Minimum Wages Act are not inclusive of the wages for the weekly day of rest, the worker shall be entitled to rest day wages at the rate applicable to the next preceding day, provided he has worked under the same contractor for a continuous period of not less than 6 days.

(c) Where a contractor is permitted by the Engineer-in-Charge to allow a worker to work on a normal weekly holiday, he shall grant a substituted holiday to him for the whole day on one of the five days immediately before or after the normal weekly holiday and pay wages to such worker for the work performed on the normal weekly holiday at overtime rate.

4. DISPLAY OF NOTICE REGARDING WAGES ETC.

The contractor shall before he commences his work on contract, display and correctly maintain and continue to display and correctly maintain in a clear and legible condition in conspicuous places on the work, notices in English and in the local Indian languages spoken by the majority of the workers giving the minimum rates of wages fixed under Minimum Wages Act, the actual wages being paid, the hours of work for which such wage are earned, wages periods, dates of payments of wages and other relevant information as per Appendix 'III'.

5. PAYMENT OF WAGES

(i) The contractor shall fix wage periods in respect of which wages shall be payable.

(ii) No wage period shall exceed one month.

(iii) The wages of every person employed as contract labour in an establishment or by a contractor where less than one thousand such persons are employed shall be paid before the expiry of seventh day and in other cases before the expiry of tenth day after the last day of the wage period in respect of which the wages are payable.

(iv) Where the employment of any worker is terminated by or on behalf of the contractor the wages earned by him shall be paid before the expiry of the second working day from the date on which his employment is terminated.

(v) All payment of wages shall be made on a working day at the work premises and during the working time and on a date notified in advance and in case the work is completed before the expiry of the wage period, final payment shall be made within 48 hours of

the last working day.

(vi) Wages due to every worker shall be paid to him direct by contractor through Bank or ECS or online transfer to his bank account.

(vii) All wages shall be paid through Bank or ECS or online transfer.

(viii) Wages shall be paid without any deductions of any kind except those specified by the Central Government by general or special order in this behalf or permissible under the Payment of Wages Act 1956.

(ix) A notice showing the wages period and the place and time of disbursement of wages shall be displayed at the place of work and a copy sent by the contractor to the Engineer-in-Charge under acknowledgment.

(x) It shall be the duty of the contractor to ensure the disbursement of wages through bank account of labour.

(xi) The contractor shall obtain from the Junior Engineer or any other authorised representative of the Engineer- in-Charge as the case may be, a certificate under his signature at the end of the entries in the "Register of Wages" or the "Wage-cum-Muster Roll" as the case may be in the following form:-

(xii) "Certified that the amount shown in column No ..... has been paid to the workman
concerned through bank account of labour on ..... at……"

FINES AND DEDUCTIONS WHICH MAY BE MADE FROM WAGES

(i) The wages of a worker shall be paid to him without any deduction of any kind except the following:-

(a) Fines

(b) Deductions for absence from duty i.e. from the place or the places where by the terms of his employment he is required to work. The amount of deduction shall be in proportion to the period for which he was absent.

(c) Deduction for damage to or loss of goods expressly entrusted to the employed person for custody or for loss of money or any other deduction which he is required to account, where such damage or loss is directly attributable to his neglect or default.

(d) Deduction for recovery of advances or for adjustment of overpayment of wages, advances granted shall be entered in a register.

(e) Any other deduction which the Central Government may from time to time allow.

(ii) No fines should be imposed on any worker save in respect of such acts and omissions on his part as have been approved of by the Chief Labour Commissioner.

Note :- An approved list of Acts and Omissions for which fines can be imposed is enclosed at Appendix-X

(iii) No fine shall be imposed on a worker and no deduction for damage or loss shall be made from his wages until the worker has been given an opportunity of showing cause against such fines or deductions.

(iv) The total amount of fine which may be imposed in any one wage period on a worker shall not exceed an amount equal to three paise in a rupee of the total wages, payable to him in respect of that wage period.

(v) No fine imposed on any worker shall be recovered from him by instalment, or after the expiry of sixty days from the date on which it was imposed.

(vi) Every fine shall be deemed to have been imposed on the day of the act or omission in respect of which it was imposed.

LABOUR RECORDS

(i) The contractor shall maintain a Register of persons employed on work on contract in Form XIII of the CL (R&A) Central Rules 1971 (Appendix IV)

(ii) The contractor shall maintain a Muster Roll register in respect of all workmen employed by him on the work under Contract in Form XVI of the CL (R&A) Rules 1971 (Appendix V).

(iii) The contractor shall maintain a Wage Register in respect of all workmen employed by him on the work under contract in Form XVII of the CL (R&A) Rules 1971 (Appendix VI).

(iv) Register of accident - The contractor shall maintain a register of accidents in such form as may be convenient at the work place but the same shall include the following particulars:

(a) Full particulars of the labourers who met with accident.

(b) Rate of Wages.

(c) Sex

(d) Age

(e) Nature of accident and cause of accident.

(f) Time and date of accident.

(g) Date and time when admitted in Hospital,

(h) Date of discharge from the Hospital.

(i) Period of treatment and result of treatment.

(j) Percentage of loss of earning capacity and disability as assessed by Medical Officer.

(k) Claim required to be paid under Workmen's Compensation Act.

(l) Date of payment of compensation.

(m) Amount paid with details of the person to whom the same was paid.

(n) Authority by whom the compensation was assessed.

(o) Remarks

(i) The contractor shall maintain a Register of Fines in the Form XII of the CL (R&A) Rules 1971 (Appendix-XI)

(ii) The contractor shall display in a good condition and in a conspicuous place of work the approved list of acts and omissions for which fines can be imposed (Appendix-X)

(iii) The contractor shall maintain a Register of deductions for damage or loss in Form XX of the CL (R&A) Rules 1971 (Appendix-XII)

(iv) The contractor shall maintain a Register of Advances in Form XXIII of the CL (R&A) Rules 1971 (Appendix-XIII)

(v) The contractor shall maintain a Register of Overtime in Form XXIII of the CL (R&A) Rules 1971 (Appendix-XIV)

6. ATTENDANCE CARD-CUM-WAGE SLIP

(i) The contractor shall issue an Attendance card-cum-wage slip to each workman employed by him in the specimen form at (Appendix-VII)

(ii) The card shall be valid for each wage period.

(iii) The contractor shall mark the attendance of each workman on the card twice each day, once at the commencement of the day and again after the rest interval, before he actually starts work.

(iv) The card shall remain in possession of the worker during the wage period under reference.

(v) The contractor shall complete the wage slip portion on the reverse of the card at least a day prior to the disbursement of wages in respect of the wage period under reference.

(vi) The contractor shall obtain the signature or thumb impression of the worker on the wage slip at the time of disbursement of wages and retain the card with himself.

7. EMPLOYMENT CARD

The contractor shall issue an Employment Card in Form XIV of the CL (R&A) Central Rules 1971 to each worker within three days of the employment of the worker (Appendix-VIII).

8. SERVICE CERTIFICATE

On termination of employment for any reason whatsoever the contractor shall issue to the workman whose services have been terminated, a Service certificate in Form XV of the CL (R&A) Central Rules 1971 (Appendix-IX)

9. PRESERVATION OF LABOUR RECORDS

All records required to be maintained under Regulations Nos. 6 & 7 shall be preserved in original for a period of three years from the date of last entries made in them and shall be made available for inspection by the Engineer-in-Charge or Labour Officer or any other

officers authorised by the Ministry of Urban Development in this behalf.

10. POWER OF LABOUR OFFICER TO MAKE INVESTIGATIONS OR ENQUIRY

The Labour Officer or any person authorised by Central Government on their behalf shall have power to make enquires with a view to ascertaining and enforcing due and proper observance of Fair Wage Clauses and the Provisions of these Regulations. He shall investigate into any complaint regarding the default made by the contractor or subcontractor in regard to such provision.

11. REPORT OF LABOUR OFFICER

The Labour Officer or other persons authorised as aforesaid shall submit a report of result of his investigation or enquiry to the Executive Engineer concerned indicating the extent, if any, to which the default has been committed with a note that necessary deductions from the contractor's bill be made and the wages and other dues be paid to the labourers concerned. In case an appeal is made by the contractor under Clause 13 of these regulations, actual payment to labourers will be made by the Executive Engineer after the Superintending Engineer has given his decision on such appeal.

(i) The Executive Engineer shall arrange payments to the labour concerned within 45 days from the receipt of the report form the Labour Officer or the Superintending Engineer as the case may be.

12. APPEAL AGAINST THE DECISION OF LABOUR OFFICER

Any person aggrieved by the decision and recommendations of the Labour Officer or other person so authorised may appeal against such decision to the Superintending Engineer concerned within 30 days from the date of decision, forwarding simultaneously a copy of his appeal to the Executive Engineer concerned but subject to such appeal, the decision of the officer shall be final and binding upon the contractor.

13. PROHIBITION REGARDING REPRESENTATION THROUGH LAWYER

(i) A workman shall be entitled to be represented in any investigation or enquiry under these regulations by:-

  (a) An officer of a registered trade union of which he is a member.

  (b) An officer of a federation of trade unions to which the trade union referred to in clause (a) is affiliated.

  (c) Where the employer is not a member of any registered trade union, by an officer of a registered trade union, connected with the industry in which the worker is employed or by any other workman employed in the industry in which the worker is employed.

(ii) An employer shall be entitled to be represented in any investigation or enquiry under these regulations by :-

  (a) An officer of an association of employers of which he is a member.

(b) An officer of a federation of associations of employers to which association referred to in clause (a) is affiliated.

(c) Where the employers is not a member of any association of employers, by an officer of association of employer connected with the industry in which the employer is engaged or by any other employer, engaged in the industry in which the employer is engaged.

(iii) No party shall be entitled to be represented by a legal practitioner in any investigation or enquiry under these regulations.

14. INSPECTION OF BOOKS AND SLIPS

The contractor shall allow inspection of all the prescribed labour records to any of his workers or to his agent at a convenient time and place after due notice is received or to the Labour Officer or any other person, authorised by the Central Government on his behalf.

15. SUBMISSIONS OF RETURNS

The contractor shall submit periodical returns as may be specified from time to time.

16. AMENDMENTS

The Central Government may from time to time add to or amend the regulations and on any question as to the application/Interpretation or effect of those regulations the decision of the Superintending Engineer concerned shall be final.

Payment Milestones:-

Detailed EPC Milestones & Monthly Payment Schedule Multi-Purpose Sports Hall

Month	Milestone / Activity	Details (EPC Scope)	Payment (% of Contract Value)
0 – 1.5	Mobilization & GFC Drawings	Site mobilization, approvals, temporary facilities, barricading, topographical survey, soil investigation. Submission of preliminary GFC drawings, design & engineering plan, Submission of structural, architectural, and MEP drawings for client approval. Approval process with revisions.	10%
1.5-4	Foundation and Substructure Work	Pile work, PCC, RCC foundation, Plinth Completion	10%
3-8	Superstructure	All floor Casted up to roof, Stair and Cores complete	15%
4-8	Masonry and Plaster	Block work, Internal Plaster, Shaft enclosed	10%
8-11	MEP Rough-in (1st Fix)	Electrical HVAC, plumbing risers and service routing	10%
10-12	Façade and Waterproofing	DGU Windows, ACP, external paint, rooftop shield	10%
12-13	MEP Installation (2nd Fix)	Equipment positioning, fixtures, Fire system, pumps	10%

Month	Milestone / Activity	Details (EPC Scope)	Payment (% of Contract Value)
12-14	Interior Finishing	Flooring, Ceiling, Joinery Cabinet work, Lift Completion	10%
13-14	Testing and Commissioning	TAB, Fire approvals System integration and snag removal	5%
14-15	Substantial Completion and Handover	Documentation, as built, training and closeout	10%

Partial Stage Completion Billing

If a milestone is partially completed, billing will be calculated as:

Bill Amount = (Certified % completion of milestone) × (Milestone Value)

13. SPECIAL CONDITIONS OF ONTRACT (SCC)

GENERAL

The following special conditions shall be read in conjunction with General Conditions of Contract, if there are any provisions in these Special Conditions, which are at variance with the provisions of General Conditions of Contract, the provisions in these Special Conditions shall prevail.

(1) The work in general shall be carried out as per CPWD specification updated with correction slips issued up to last date of submission of tender.

(2) For items not covered under CPWD Specification, as above, the work shall be done as per latest relevant ISI /BIS Codes of practice.

1.0 INTRODUCTION

LOCATION/ APPROACH TO SITE

The proposed site is in NCoE, Guwahati Assam

2.0 LETTER OF UNDERTAKING

The tender shall be accompanied by Letter of Acceptance of tender conditions as per proforma given in this tender document.

3.0 Any tender not accompanied by Letter of Acceptance in accordance with aforesaid provision of Notice Inviting Tender and Instructions to Tenderer shall be rejected.

4.0 Once the Tenderer has given an unconditional acceptance to the tender conditions in its entirety, he is not permitted to put any remark(s)(except unconditional rebate on price ,if any) in/along with the tender.

5.0 SITE VISIT AND COLLECTING LOCAL INFORMATION

Before tendering, the tenderer is advised to visit the site, its surrounding, access and satisfy themselves about the local conditions such as approach roads to the site, availability of water & power supply, application of taxes, duties and levies as applicable, nature of ground, soil and sub-soil condition, underground water table level, accommodations they may require, river regime, river water levels, other details of river, streams & any other relevant information required by them to execute complete scope of work. The tenderer may obtain all necessary information as to risks, contingencies & other circumstances (insurgencies etc.) which may influence or affect their tender. Tenderer shall be deemed to have considered site conditions whether he has inspected it or not and to have satisfied himself in all respect before quoting his rates and no claim or extra charges whatsoever in this regard shall be entertained / payable by SAI at a later date.

6.0 GST & TURNOVER TAX ETC.

As per GCC conditions

7.0 TRANSFER OF BID DOCUMENTS

Transfer of bid documents purchased by one intending bidder to another is not permissible.

8.0 SAI reserves the right to award the work to a single party or to split the work amongst two or more parties as deemed necessary without assigning any reason whatsoever.

9.0 ESCALATION PAYMENT / PRICE VARIATION ADJUSTMENT

As per GCC.

10.0 The rates and prices to be tendered in the bill of quantities/ scope of work are for completed and finished items of works and complete in all respects. It will be deemed to include all constructional plant, labour, supervision, materials, transport, all temporary works, erection, maintenance, contractor's profit and establishment / overheads, together with preparation of designs drawings pertaining to casting yard (if required). Staging from work, stacking yard, etc., all general risk, taxes, GST, royalty, duties, cess, octroi and other levies, insurance liabilities and obligations set out or implied in the tender documents and contract.

11.0 The materials products used on the works shall be one of the approved makes/brands out of list of manufacturers / brands /makes given in the tender documents. The contractor shall submit samples /specimens out of approved makes of materials / products to the Engineer-In-Charge for prior approval. In exceptional circumstances Engineer-In-Charge may allow alternate equivalent makes / brands of products / materials at his sole discretion. The final choice of brand / make shall remain with the Engineer-In-Charge, whose decision in the matter shall be final and binding and nothing extra on this account shall be payable to the contractor.

Incase single brand / make are mentioned, other equivalent makes brands may be considered by the Engineer-In-Charge with prior approval. In case of variance in CPWD's specification from approved products makes specification, the specification of approved products make shall prevail for which nothing shall be paid extra to the contractor.

12.0 Within 10 (Ten) days of issuance of Letter of Intent, the Contractor shall submit a Time and Progress Chart (CPM/ PERT/ Quantified Bar Chart) along with monthly milestones and resources plan for man, material & machinery to achieve the milestones and get it approved by the Engineer-In-Charge. The chart shall be prepared in direct relation to the time stated in the contract documents for completion of item of the works. It shall indicate the forecast (milestones) of the dates of commencement and completion of various items, trades, sections of the work and may be amended as necessary by agreement between the Engineer-In-Charge and the Contractor within the limitations of time stipulated in the Contract documents, and further to ensure good progress during the execution of the work.

13.0 The contractor if required shall demolish old structures on the proposed site properly. The useful material shall be the property of the Owner/ SAI and these materials shall be stacked in workmanship like at the place specified by the Engineer-In- Charge.

14.0 The contractor shall provide safety equipment and gadgets to all their workers, supervisors and technical staff engaged in the execution of the work while working. The equipment and gadgets shall also be provided to SAI by the contractor at his own cost for use of SAI officials and /or workforce.

The cost of the above equipment /gadgets shall be included in the rates quoted by the contractor for the items & works as per Bill of Quantities and contractor shall not be entitled for any extra cost in this regard. The above norm is to be strictly complied with at site. In case the contractor is found to be deficient in providing safety equipment/ gadgets in opinion of Engineer-In-Charge, the Engineer-In-Charge at his option can

procure the same at the risk & cost of contractor and provide the same for the use at work site and shall make the recoveries from the bills of the contractor for the same. The decision of the Engineer-In-Charge shall be final and binding on contractor in this regard.

15.0 The tenderer shall quote his rates inclusive of all taxes, GST, turnover tax/ sales tax on works and Labour Cess payable to Central/ State Government along with other taxes, duties, levies etc. in conjunction with other terms and conditions.

16.0 If required, the contractor has to do site clearance, enabling work, barricading, shifting / realignment of existing utility services etc at his own cost and the contractor shall not be entitled for any extra payment whatsoever in this regard.

17.0 In case of any sort of anomalies and/or typing error in the nomenclature, rates & description etc. of the items indicated in the Price Bid / BOQ of scheduled items must be read as per respective schedule such as DSR-latest

18.0 The agency will start work after 10 days of receiving the Letter of Intent from SAI through email or post.

19.0 Contractor has to submit a Construction Programme within 10 days of issue of Letter of Intent. Contractor has to make provision for double shift, to complete the work in the stipulated time with lighting arrangement for night shift.

20.0 Unless otherwise provided in the schedule of quantity, rates tendered by the contractor shall be all inclusive and shall apply to all heights, lifts, leads, & depths of the building and nothing extra shall be paid to him on this account.

21.0 All drawings shall at all times be properly correlated before executing any work. However, in case of any discrepancy in the item given in the scope of work/ schedule of the quantities appended with the tender and architectural drawings relating to relevant item, the former shall prevail unless and otherwise given in writing by the Engineer-In-Charge.

22.0 The contractor shall be required to produce samples of all building materials and fittings sufficiently in advance to obtain approval of the Engineer-In-Charge.

23.0 The contractor shall comply with proper and legal orders and directions of the local or public authority or municipality and abide by their rules and regulations and pay all fees and charges which he may be liable.

24.0 The rate of all items in which use of cement is involved inclusive of all charges for curing.

25.0 MODE OF PAYMENT

As per GCC Clause, Monthly **on account** bills will be generated by the contractor. The payment will be made as per actual work done by the contractor(Based on Measurement book records and the recommendation of Engineer in charge). Final Bill will be generated after the completion of the work (To be certified by the Engineer in charge)

Payment Milestones:-

Detailed EPC Milestones & Monthly Payment Schedule

Month	Milestone / Activity	Details (EPC Scope)	Payment (% of Contract Value)
0 – 1.5	Mobilization & GFC Drawings	Site mobilization, approvals, temporary facilities, barricading, topographical survey, soil investigation. Submission of preliminary GFC drawings, design & engineering plan, Submission of structural, architectural, and MEP drawings for client approval. Approval process with revisions.	10%
1.5-4	Foundation and Substructure Work	Pile work, PCC, RCC foundation, Plinth Completion	10%
3-8	Superstructure	All floor Casted up to roof, Stair and Cores complete	15%
4-8	Masonry and Plaster	Block work, Internal Plaster, Shaft enclosed	10%
8-11	MEP Rough-in (1st Fix)	Electrical HVAC, plumbing risers and service routing	10%
10-12	Façade and Waterproofing	DGU Windows, ACP, external paint, rooftop shield	10%
12-13	MEP Installation (2nd Fix)	Equipment positioning, fixtures, Fire system, pumps	10%
12-14	Interior Finishing	Flooring, Ceiling, Joinery Cabinet work, Lift	10%

Month	Milestone / Activity	Details (EPC Scope)	Payment (% of Contract Value)
		Completion	
13-14	Testing and Commissioning	TAB, Fire approvals System integration and snag removal	5%
14-15	Substantial Completion and Handover	Documentation, as built, training and closeout	10%

Partial Stage Completion Billing

If a milestone is partially completed, billing will be calculated as:

Bill Amount = (Certified % completion of milestone) × (Milestone Value)

26.0 The rate quoted by the contractor shall be deemed to be inclusive of all taxes as per the laws applicable in the State/ Central Government

27.0 The contractor shall obtain all the statutory clearance / permission / licenses on behalf of SAI from different Government and civic bodies for implementation of the project.

28.0 The contractor shall submit to SAI monthly report indicating physical and financial progress by 5th of every month.

29.0 The contractor shall confirm that the activities proposed under the project shall conform to all Environmental Legislations, any judicial orders in force at the site of work including the Environment and Social Safeguard measures as per the NGRBA framework.

30.0 The contractor shall obtain the required statutory approval on behalf / in the name of SAI (if applicable).

31.0 It shall be responsibility of the contractor to submit the 3 sets of completion drawings, service drawings etc. to SAI after completion of work with the consultation of engaged architect by SAI.

32.0 The contractor shall be responsible for obtaining connections of water, sewerage and electricity from the concerned authority to ensure their proper commissioning so that no defects in operation of connections exist, by carrying out necessary tests etc. SAI will render requisite assistance in making application etc.for the purpose.

33.0 Operation and Maintenance (O&M) Manual shall be part of construction contracts and to be provided by the contractor wherever required

34.0 The contractor shall not be at liberty to release any news, information, advertisement and propaganda etc., regarding this AGREEMENT to the Press or any other broadcasting media, except with the prior written APPROVAL from SAI.

35.0 The contractor and their personnel shall not, either during the term or after expiration of the AGREEMENT, disclose any proprietary or confidential information relating to the network, AGREEMENT or Client's business or operations without the prior written consent of SAI.

36.0 The contractor shall provide all information, news and pre-post work photos/video to SAI.

37.0 During the performance of SERVICES hereunder, the contractor shall take out/carry/maintain insurance as "Builder All Risk Insurance".

38.0 **LIST OF APPROVED MAKES** The Contractor shall obtain prior approval from Engineer-In-Charge before placing order for any specific material or engaging any of specialized agencies. The contractor shall make a detail submittal with catalogues and highlighted proposed specifications as well as full details of the works executed by specialized agency as specified.

39.0 Wherever applicable the contractor may use approved makes of material/ items provided by CPWD/MoRTH/WA with prior approval from SAI/Engineer in Charges, provisions and guidelines issued thereof.

40.0 PAYMENT TERMS & STAGES OF PAYMENT As per GCC Clauses 44 Monthly on account bills will be generated by the contractor. The payment will be made as per actual work done by the contractor (Based on Measurement book records and the recommendation of Engineer in charge). Final Bill will be generated after the completion of the work (To be certified by the Engineer in charge)

PROFORMA OF SCHEDULES

SCHEDULE 'A'
Scope of work and specifications

EPC Scope of Work – High Performance Sports & Recovery Centre, Assam

Part A – Pre-Construction, Civil & Structural Works

1. Project Overview

The Integrated Facility center including Recovery Center, Conditioning, Biomechanics and Athlete Habitat complex for 150 Athlete and 30 Staff, Guwahati is a state-of-the-art, multi-storey institutional facility conceived as a holistic hub for elite athlete training, recovery, rehabilitation, and residential accommodation. The Centre is envisioned to serve as the flagship infrastructure for developing world-class sports talent by providing integrated physical conditioning, scientific performance analysis, medical recovery, and wellness support under one roof.

The complex comprises a G + 6 Reinforced Cement Concrete (RCC) framed structure, designed to meet the stringent requirements of both functional efficiency and structural resilience. The total built-up area of approximately 5,040 square meters is meticulously planned to accommodate 150 resident athletes and 30 professional support staff, including coaches, physiotherapists, trainers, and administrative personnel. The facility encompasses a comprehensive range of specialized zones such as the Strength & Conditioning Hall, Biomechanics and Performance Analysis Laboratories, Physiotherapy Suites, Hydrotherapy and

Cryotherapy Units, Sports Medicine and Recovery Clinics, Athlete Dormitories with En-suite Sanitary Facilities, Dining and Nutrition Block, Administrative and Coaching Offices, and Utility and Service Areas including mechanical, electrical, and plumbing services.
Each spatial component has been functionally segregated and vertically zoned to ensure optimal circulation, hygiene control, acoustic isolation, and environmental comfort. The design emphasizes accessibility, safety, and energy efficiency through barrier-free circulation, centralized HVAC and BMS integration, controlled lighting systems, and water-efficient plumbing solutions.
The project is envisioned as a long-life, low-maintenance infrastructure, targeting enhanced operational sustainability through durable material selection, thermal insulation, LED lighting and rainwater harvesting system.
All design, construction, materials, workmanship, and quality control processes shall strictly conform to the latest CPWD Specifications (Vol I & II), the National Building Code (NBC 2016), and relevant Indian Standards (IS codes) governing structural design, seismic safety, fire protection, and building services. The structure shall be engineered as an earthquake-resistant building (Seismic Zone V), ensuring compliance with IS 1893 (Part 1):2016 and IS 13920:2016 for ductile detailing, in addition to wind load design as per IS 875 (Part 3):2015.
This facility Centre, once completed, will stand as a benchmark for integrated sports infrastructure in India, offering a safe, scientifically designed, and athlete-centric environment to nurture excellence in competitive sports.2. Design Basis and Applicable Codes

- **Built-up Area**: 5040 sqm
- **Structure Type:** RCC Framed Structure: G + 6 Storey
- **Occupancy Load:** 150 Athletes + Staff
- **Seismic Zone:** Zone V (High Seismic Risk Area- Guwahati, Assam)
- **Basic Wind Speed:** 47 m/s (as per IS 875 Part 3)
- **Design Life:** 50 Years
- **Fire Resistance Rating:** 2 Hours (minimum for structural elements)
- **Exposure Condition:** Moderate to Severe (as per IS 456:2000 Durability Criteria)
- **Foundation System:** As per the Approved structure drawings (M30 Concrete)
- **Concrete Grades:** M30 for foundations; M35 for columns, beams & slabs
- **Reinforcement:** Fe 500 D TMT Bars (Conforming to IS)

The proposed Hostel cum High performance center, as per the attached Conceptual drawings), , to elevate the region's sports infrastructure and provide national standard training and competition facilities for athletes. The project supports Sports Authority of India's (SAI) mission to nurture local sporting talent and promote athletic excellence through advanced Infrastructure Development.

The Scope of work of project shall include, but not limited to the following works mentioned in each para of the **"SCOPE OF WORK"**, i.e. **NOC'S / Approvals from Local Bodies/ Authorities, Design & Drawings of** Project, Operation & maintenance Survey & Geotechnical Investigations, Important Points, Detailed Specifications of all the works; Tender Drawings, approved Architectural drawings, approved & vetted structural drawings, MEP & other Services Detail Drawings, list of Approved makes of works, General Technical Specifications of works, and other Terms & conditions mentioned in the tender document. The works / items / Specification /equipment though not specifically mentioned in tender document but needed to make the project complete in all respects and reliable for safe and smooth operation and guaranteed performance as per norms of buildings to make building functional, shall be considered while quoting the cost by the bidder.

Bidder shall also consider all scope of works given in this Section of Scope of work and the drawings attached with Tender while quoting the cost.

2.0 NOC'S / APPROVALS/ CLEARANCE FROM LOCAL BODIES/ AUTHORITIES

The Contractor shall mobilize adequate manpower, machinery, and all requisite resources to ensure timely completion of works within the stipulated contract period. Strict and unconditional compliance with the latest IS Codes, CPWD Specifications, NBC 2016, FIH standards (where applicable for sports flooring), and all other relevant Indian or international standards shall be mandatory, and no deviation from approved and vetted documentation will be permitted. Further, all necessary statutory approvals, NOCs, and clearances—including Forest NOC (if required), approval of the local Development Authority for architectural and structural plans, approval of the Ground Water Board (if required), clearance of height from the concerned authority, Fire NOC, Lift NOC, DG Sets, and proof-checking or vetting of structural drawings by a recognized independent or government authority—shall be the responsibility and within the scope of the Contractor. These approvals and vetted drawings, as stipulated by the concerned government departments, must be secured prior to commencement of work, during execution, and before handing over the project. Any modification or revision required in such statutory approvals, NOCs, clearances, or vetted structural drawings—whether prior to commencement, during execution, or after completion—shall also be the sole responsibility of the Contractor. Fees for obtaining these approvals and for third-party vetting of drawings shall be deposited directly by the Contractor to the concerned departments and reimbursed by the Client upon production of original receipts. No additional claims in this regard shall be entertained. Furthermore, in the case of tree cuttings and cleaning of the dense greenery/vegetation/hedges/ground covers etc., the Contractor shall bear the cost of compensatory plantation as approved by the Forest Department, ensuring full compliance with applicable environmental statutory requirements.

Also Additionally, if there is any archaeological site or monument structure in the vicinity of the project site, it shall be the responsibility of the Contractor to obtain the necessary approvals from the competent authority prior to commencement of work. Any fine, penalty, or charge imposed by the Archaeological Department or any other Government authority due to non-compliance shall be borne and paid solely by the Contractor.

3.0 TOPOGRAPHICAL SURVEY

If the Client/SAI possesses any detailed topographical survey data of the proposed project site or any adjacent site, the same may be shared with the Contractor in the available format(s) for reference purposes only. However, the Contractor/Bidder shall, at his own cost, undertake an independent topographical survey, if deemed necessary, to verify the data provided by SAI and to make an independent assessment of the site topography prior to quoting and commencement of works. No claims whatsoever by the Contractor on account of discrepancies, errors, or omissions in the survey data/levels provided by SAI shall be entertained.

In case no topographical survey data is available with the Client/SAI, the Contractor shall, at his own cost, conduct a detailed topographical survey of the entire project site through a licensed surveyor using modern surveying instruments. The survey shall cover existing ground levels, natural features, trees, utilities, permanent structures, adjoining roads, drains, and any other physical features within and around the site, as directed by the Engineer-in-Charge. The Contractor shall prepare and submit survey drawings, reports, and digital data in the prescribed formats for approval prior to

commencement of any construction activity.

4.0 GEOTECHNICAL INVESTIGATION

If the Client/SAI possesses any data related to the geotechnical/ soil i.e. Soil Bearing Capacity (SBC), etc. of the proposed project site or any adjacent site, the same may be shared with the Contractor in the available format(s) for reference purposes only. However, the Contractor/Bidder shall, at his own cost, undertake an independent geotechnical investigation, if deemed necessary, to verify the data provided by SAI and to make an independent assessment of the soil properties prior to quoting and commencement of works. No claims whatsoever by the Contractor on account of discrepancies, errors, or omissions in the data provided by SAI shall be entertained.

In case Client/SAI have no data related to the geotechnical investigation or soil properties, then the Contractor shall, at his own cost, carry out a detailed geotechnical investigation of the project site through a reputed and licensed geotechnical/soil testing agency approved by the Engineer-in-Charge. The investigation shall be conducted in accordance with relevant IS codes and best engineering practices, and shall include but not be limited to:

- Boreholes up to the required depth as per the soil/ as directed by the Engineer-in-Charge.
- Collection of disturbed and undisturbed soil samples.
- Laboratory testing for soil classification, index properties, shear strength parameters, consolidation, compaction, permeability, etc.
- Determination of safe bearing capacity, allowable settlement, "N" Values, and groundwater table levels.
- Recommendations on foundation system, depth, type of footing, and any necessary soil improvement measures.

The Contractor shall prepare and submit a comprehensive Geotechnical Investigation Report, including bore logs, test results, analysis, and recommendations in both hard copy and digital format, for review and approval prior to commencement of foundation and structural works. No claims by the Contractor on account of discrepancies in the soil exploration or geotechnical investigation report/data shall be entertained.

5.0 DESIGN AND DRAWINGS OF PROJECT

The conceptual Architectural drawings of the proposed Hostel cum high performance center, has been provided in the tender documents to define the detailed scope of work under the Engineering, Procurement & Construction (EPC) Mode. Under the EPC mode of contract, the Contractor shall be fully responsible for the **planning, design, engineering, procurement, and execution** of the works in accordance with the Employer's Requirements, Technical Specifications, and applicable codes/standards. The Contractor shall prepare and submit all necessary **designs, detailed drawings, working drawings, shop drawings, bar bending schedules, and as-built drawings** for review and approval by the Client/Engineer-in-Charge/Employer within the stipulated timelines.

The conceptual architectural drawings of the proposed Multipurpose Hall (approx. 60m x 40m x 12.5m), provided in the tender documents, are indicative and intended to define the broad scope of work. The Contractor shall prepare and submit all necessary designs, including conceptual drawings

for approval, detailed drawings, working drawings, shop drawings, bar bending schedules, Good for Construction (GFC) drawings of all the disciplines, and as-built drawings for review and approval by the Engineer-in-Charge/Client within the stipulated timelines.

All the design & drawings shall be prepared by qualified experienced and technical professionals using the latest design software/tools and shall conform to relevant IS codes, NBC, CPWD specifications, respective sports national and international federation's guidelines and other applicable statutory/regulatory requirements.

The Client (SAI) reserves full and unconditional rights to revise, modify, or replace any part of the conceptual or approved drawings at any stage of the project, based on site conditions, technical requirements, changes in applicable norms, or specific directions from relevant authorities or national/international sports federations. Such modifications shall not entitle the Contractor to claim any additional payment, as the contract is EPC Mode. Bidders are advised to factor this into their quoted rates.

The Contractor shall submit drawings for each stage of work, which shall be reviewed and approved by SAI/Engineer-in-charge prior to execution. However, the responsibility for the accuracy, completeness, structural integrity, and safety of the design shall solely rest with the Contractor, irrespective of SAI's approval.

Contractor's Liability for Design Errors
The Contractor shall be fully liable for any errors, omissions, deficiencies, or inaccuracies in the design, drawings, or specifications submitted. This includes but is not limited to:

- Structural failures or defects arising due to design flaws.
- Non-compliance with applicable codes, standards, or statutory requirements.
- Inadequate provisions for safety, durability, or functionality.
- Any delays, cost overruns, or rework resulting from design-related issues.

In the event of any such errors or failures, the Contractor shall, at their own cost and risk, rectify the defects, redesign the affected components, and carry out necessary remedial works without any additional financial claim/implication. The Contractor shall also be liable for any consequential damages or losses incurred by the Employer due to such design deficiencies.

The Employer reserves the right to recover such costs or impose penalties as deemed appropriate and may also invoke the Performance Security in case of serious lapses.
Contractor shall provide 3 sets of following Good for Construction (GFC) and shop drawings hard copies as well as soft copies, well in advance to SAI architect, as per the scope of work and compatible with proposed building

- Architecture Drawings (Including all Civil Works)
- Structural Drawing (vetted from IIT/NIT as per the approval of SAI)
- All Services Drawings (Mechanical, Electrical, Plumbing, Fie Fighting, etc.)
- Door & Windows, Openings, Structural Glazing, Curtain Wall, etc.
- CCTV system
- Strom Water & Rainwater Harvesting
- Public Adress System and Sound system.
- Electrical panel, Substation, DG, all Drawings related to electrical.

- Others required shop drawing

3. Pre-Construction and Post-Construction Anti-Termite Treatment (ATT)

The entire building footprint, including foundations, plinth areas, retaining walls, and adjacent soil zones, shall be comprehensively protected against subterranean termite infestation through a scientifically designed chemical soil treatment system. The treatment shall be executed strictly in accordance with the latest provisions of IS 6313 (Part II & III) by a licensed and specialized pest-control agency, duly approved by the Engineer-in-Charge prior to commencement. The complete operation shall be carried out under professional supervision, ensuring uniform distribution of chemicals and continuous protection of all structural and non-structural components in contact with the soil.

This treatment aims to create an impervious chemical barrier within the soil, effectively preventing termites from penetrating or breaching the structure through foundations, expansion joints, utility ducts, or service entry points. The chemical barrier shall extend both horizontally and vertically around and beneath all load-bearing elements, flooring, and plinth protection zones.

A comprehensive 10-year performance warranty shall be jointly furnished by the executing pest-control agency and the EPC Contractor, guaranteeing efficacy against termite infestation. The warranty period shall commence from the certified date of completion of the project and shall include annual inspection visits and free re-treatment in case of any observed termite re-infestation during the warranty period.

Approved Chemical Specification

Chemicals Permitted:

I. Chlorpyrifos 20% EC (Emulsifiable Concentrate) or
II. Imidacloprid 30.5% SC (Suspension Concentrate)
III. Dilution Concentration: 1.0% (v/v) for Chlorpyrifos and 0.05% (v/v) for Imidacloprid, prepared using clean potable water.

Application Rates:

IV. Horizontal surfaces (e.g., under floors, raft slabs, and PCC beds): 5 litres/m²
V. Vertical surfaces (e.g., trench sides, retaining walls, column peripheries): 7.5 liters/m²

All chemicals shall conform to the requirements of the Insecticides Act, 1968, and shall bear batch numbers, manufacturing details, and valid shelf-life certification. On-site dilution shall be verified by the Engineer-in-Charge through random sample tests.

A. **Pre-Construction Anti-Termite Treatment:** This shall be undertaken in a sequential, stage-wise manner prior to the placement of any PCC or backfill operations.

1. Foundation Trench Treatment:

Bottom and sides of all foundation trenches, pile caps, and retaining structures shall be treated with the approved emulsion at 5 L/m² on horizontal surfaces and 7.5 L/m² on vertical faces prior to laying the PCC bed.

2. Backfill Treatment:

After compaction of each 300 mm layer of backfill, chemical emulsion shall be applied uniformly using fan nozzles and pressure sprayers to ensure vertical barrier formation.

3. Plinth Area Treatment:

Prior to laying the floor PCC, the entire plinth area (including under columns, walls, and service ducts) shall receive chemical treatment at 5 L/m² coverage. Care shall be taken to maintain uninterrupted chemical continuity below the entire built-up footprint.

4. Service Entry Treatment:

Around all plumbing, electrical, and HVAC conduits passing through the floor or walls, chemical emulsion shall be applied around pipe peripheries to seal potential entry points for termites.

All treated areas shall be protected from rain, flooding, or disturbance for at least 24 hours after application to ensure complete absorption and bonding of the chemical layer.

B. Post-Construction Anti-Termite Treatment

The post-construction treatment shall be applied immediately after building completion or prior to flooring, to reinforce the termite barrier and protect against future ingress from adjoining soil areas.

1. Perimeter Trench Injection:

A continuous trench (minimum 150 mm wide × 300 mm deep) shall be excavated along the external perimeter of the building. The chemical emulsion shall be pressure-injected into the trench using a low-pressure (2 kg/cm²) pump through a hand lance to ensure uniform saturation.

2. Expansion Joint Injection:

For all expansion or construction joints, 12 mm Dia holes shall be drilled at 300 mm c/c intervals along the joint lines, and chemical emulsion injected using high-pressure nozzles until saturation.

3. Utility Penetration Injection:

All service ducts, conduits, and cable sleeves entering through walls, floors, or foundations shall be treated with chemical emulsion through drilled holes, followed by sealing with non-shrink grout.

4. Floor Junction Sealing:

The junctions between walls and floors, especially along the inside perimeter of toilets, kitchens, and wash areas, shall be injected with 1% emulsion at 5 L/m² coverage, followed by grout sealing.

All treatment operations shall be executed without damaging finished surfaces or service lines. Any structural element disturbed during treatment shall be restored to original condition by the contractor at no additional cost.

Documentation and Quality Control

- Chemical Mix Records: Each batch prepared shall be logged with date, time, chemical quantity, dilution ratio, and area treated.
- Application Records: Annotated site plans marking treated areas, depth, and volume used to be maintained.
- Inspection: Engineer-in-Charge shall witness and record every major stage of pre- and post-construction treatment.
- Warranty Certificate: Jointly issued by the pest-control agency and EPC Contractor, confirming 10-year protection with annual inspections.
- Performance Audits: Random third-party checks may be undertaken during DLP to ensure sustained effectiveness.

4. Civil and Structural Works

All works shall follow approved GFC drawings and codal provisions with RCC, formwork, reinforcement, masonry, and waterproofing complying with CPWD Vol I & II.

4.1 Concrete Mix Design and Production

All reinforced concrete works shall be executed using design mix concrete prepared in accordance with the provisions of IS 10262:2019 (Concrete Mix Proportioning) and IS 456:2000 (Plain and Reinforced

Concrete- Code of Practice). The concrete shall be produced through a fully automated batching and mixing plant having minimum accuracy of ±1% for cement and ±2% for aggregates and water, equipped with calibrated load cells and automated control panels for proportioning and recording of materials.

Concrete Grades and Application:

- **M30 –** For foundations, pile caps, grade beams, retaining walls, and basement raft slabs.
- **M35 –** For superstructure components including slabs, beams, and shear walls.
- **M35 (High Workability Mix)** – For columns, stair cores, and heavily reinforced sections requiring superior compaction and surface finish.

The concrete mix shall be designed to achieve the target mean strength = fck + 1.65 × standard deviation, using well-graded aggregates conforming to IS 383:2016, potable mixing water as per IS 456 (Annex A), and admixtures conforming to IS 9103:2019. The water–cement ratio shall not exceed 0.45 under any circumstances, and lower ratios shall be adopted wherever durability exposure conditions require it.

Batching and Mixing:

- Concrete shall be batched by weight (not volume) using a computerized batching plant located within 30 minutes haul distance from site.
- Each batch shall be properly logged with batch number, time of mixing, and slump measurement.
- Concrete shall be transported in transit mixers ensuring full agitation during transit and placement within 45 minutes of batching.
- Re-tempering of concrete by the addition of water at site is strictly prohibited.

Workability and Placement:

- The slump shall be maintained between 75 mm and 125 mm depending on member type and placement method.
- Compaction shall be achieved using 25 mm and 40 mm diameter high-frequency needle vibrators, ensuring uniform vibration without segregation or over-vibration.
- Formwork shall be pre-wetted and release agents applied uniformly to prevent surface staining.
- Pour sequences shall be planned to avoid cold joints; where unavoidable, joints shall be roughened and treated with bonding agents conforming to IS 2645 prior to resumption.

Curing and Strength Gain:

- Freshly placed concrete shall be protected from premature drying and maintained in a continuously moist condition for a minimum of 10 days (for OPC mixes) and 14 days (for PPC or high-strength mixes).
- Approved curing methods include water ponding, wet hessian wrapping, or membrane curing compound (IS 456, Clause 13.5).
- Curing shall commence immediately after surface hardening and continue uninterrupted for the required duration.

Quality Assurance and Testing:

- **Slump Tests:** To be conducted for every batch or at least one test per 25 m^3 of concrete.

- **Cube Samples**: A minimum of three 150 mm cubes shall be prepared for every 50 m^3 or part thereof, cured, and tested for compressive strength at 7 and 28 days in accordance with IS 516:1959.
- The average compressive strength of the sample shall not fall below the characteristic strength fck; individual results shall not be less than fck – 3 N/mm^2.
- Any failed cube shall trigger immediate investigation and potential core testing as per IS 456 (Clause 17.5).

Surface Finish and Protection:

- Exposed concrete surfaces shall exhibit uniform textures, free from honeycombing, voids, and laitance.
- Form-tie holes shall be filled with non-shrink grout (IS 15388).
- All RCC surfaces exposed to weather shall receive an anti-carbonation coating with minimum DFT of 150 µm.

Environmental and Safety Provisions:

- The concrete batching area shall be equipped with dust extraction systems and runoff control drains to prevent contamination.
- All concrete work shall be carried out under covered or shaded conditions during extreme temperatures (>40°C) or heavy rainfall.

4.2 Reinforcement

All reinforcement works shall be carried out using high-strength deformed bars of grade Fe 500D, conforming to the mechanical and chemical properties stipulated in IS 1786:2008 (with latest amendments). Only freshly rolled, corrosion-free, and test-certified steel from approved manufacturers shall be used. Rebars showing rust pitting, oil, paint, or mill scale shall be rejected immediately.

Material Specifications:

- **Type:** TMT (Thermo-Mechanically Treated) bars
- **Grade:** Fe 500D (ductile quality)
- **Standards**: IS 1786:2008 and IS 432 (Part II)
- **Yield Stress**: Minimum 500 N/mm^2
- **Ultimate Tensile Strength:** Minimum 565 N/mm^2
- **Elongation:** Minimum 16% for Fe 500D
- **Bend Test:** Shall not crack when bent through 180° over a mandrel of specified diameter per IS 1599

Coating and Protection:

Where reinforcement is likely to remain exposed for more than 15 days prior to concreting, it shall be coated with cement slurry or anti-corrosive epoxy primer to prevent scaling or rusting. For foundations, wet or saline zones, fusion-bonded epoxy-coated rebars or corrosion-resistant steel (CRS) shall be used as directed by the Engineer-in-Charge.

Bar Handling, Storage, and Identification

- Rebars shall be stacked by diameter and lot number on wooden sleepers, ensuring no direct contact with ground or moisture.

- Bar bundles shall carry identifiable tags showing supplier, diameter, heat number, batch number, and BIS certification mark.
- Cutting and bending shall be done using hydraulic or mechanical bending machines, ensuring precise angles and radii as per bar bending schedules (BBS). Manual hammering or heating for bending is strictly prohibited.

Fabrication and Placement

- Reinforcement shall be placed accurately in position as per the Good for Construction (GFC) drawings, ensuring correct spacing, cover, and alignment prior to concreting.
- Bars shall be tied at every alternate intersection with annealed binding wire (16 gauge) ensuring rigidity and maintaining design geometry during concrete placement.
- Laps, splices, and anchorage lengths shall be in accordance with IS 2502:1963 (Code of Practice for Bending and Fixing of Bars) and IS 456:2000 (Clause 26.2.5).
- Lap splices shall be staggered along alternate bars and located away from sections of maximum stress (preferably at mid-span for tension and near supports for compression).

Nominal Cover Reinforcement

Structural Element	Minimum Cover (MM)	Remarks
Slabs	25 MM	For Mild Exposure conditions
Beams	35 MM	For Normal Conditions
Columns	40 MM	For Moderate exposures
Footings	50 MM	For Severe exposure or Contact with Soil
Retaining Walls/Water Structures	50 MM	With Waterproofing additives

Note: Non-metallic PVC cover blocks of appropriate strength shall be used to maintain cover; brick or mortar blocks are strictly prohibited.

Lapping, Anchorage, and Couplers

Lap Lengths:

A. **Tension laps** = 50 × bar diameter (minimum)
B. **Compression laps** = 24 × bar diameter (minimum)

Anchorage Lengths:

C. **For straight bars in tension** = 47 × bar diameter
D. **For compression bars** = 32 × bar diameter

- In congested reinforcement zones or where lap length exceeds 1.2 m, mechanical couplers conforming to IS 16172:2014 shall be used with prior approval of the Engineer-in-Charge.
- All hooks and bends shall comply with IS 2502.

Inspection and Testing

- Each batch of reinforcement (up to 10 tons) shall be sampled and tested for tensile strength, yield stress, elongation, and bend/rebend performance as per IS 1786 and IS 1608.
- No steel shall be incorporated into the work without valid manufacturer's test certificates and approved third-party test reports.

- All testing shall be witnessed by the Engineer-in-Charge or the representative of SAI, and records maintained in the QA logbook.

4.3 Formwork

Modular steel or phenolic-coated plywood with release agents (IS 14687). Tolerances ±5 mm (slabs), ±10 mm (columns). Removal: slabs – 14 days, beams – 21 days, columns – 7 days.

QA/QC Frequency Table- Reinforcement Steel

Test	Standard	Frequency	Acceptance Criteria
Tensile Strength	IS 1786/IS 1608	1 per 10 tons	>=565 N/MM^2
Yield Strength	IS 1786	1 per 10 tons	>= 500 N/MM^2
Bend Test	IS 1599	1 per 10 tons	No Cracks at 180^0 Bend
Re-bend Test	IS 1786	1 per 25 tons	No visible fracture
Chemical Composition	IS 228/IS 1786	1 per Source/lot	C<=0.30%, S<=0.055%, P<= 0.055%

Execution and Safety

- Reinforcement works shall not commence without approved bar bending schedules (BBS).
- Site welding of rebars shall only be permitted for bars ≥ 20 mm in diameter and with the written approval of the Engineer-in-Charge. Welded joints shall comply with IS 9417:1989.
- Proper scaffolding and working platforms shall be provided during fixing and tying of high-level reinforcement to ensure worker safety.

4.4 Foundation System

The foundation system for the High Performance Sports and Recovery Centre, Assam, shall consist of bored cast-in-situ reinforced concrete piles supporting pile caps and grade beams, as per the approved structural design drawings and geotechnical investigation report. The system is designed to safely transfer structural loads to the underlying strata, ensuring adequate bearing capacity, settlement control, and lateral stability under both static and seismic loading conditions.

The design of foundations has been finalized considering:

- The moderate to dense sand strata encountered at depths of 13–18 m as per soil investigation.
- A safe net bearing pressure of 300 kN/m².
- A Seismic Zone V classification (as per IS 1893:2016), necessitating ductile detailing and lateral stability checks.
- Allowable total settlement ≤ 25 mm and differential settlement ≤ 10 mm.

Foundation Type and Capacity

- Type of Foundation: Bored cast-in-situ RCC friction-cum-end bearing piles.
- Pile Diameter: 600 mm (unless otherwise shown in design drawings).

- Pile Length: Average 15 m (may vary between 13–18 m depending on strata termination).
- Design Load Capacity: Not less than 750 kN (≈ 75 Tonnes) per pile under service load conditions.
- Factor of Safety: Minimum 2.5 against ultimate capacity.

Pile groups shall be arranged under pile caps to carry combined column loads, maintaining minimum clear spacing between piles = 3 × pile diameter (center to center). Edge piles shall be embedded to the same depth as internal piles to prevent differential settlement.

Materials

- Concrete: Design mix M35 grade, conforming to IS 456 and IS 10262. Minimum cement content = 400 kg/m³, maximum W/C ratio = 0.45.
- Reinforcement: Fe 500D steel (IS 1786), with spiral confinement reinforcement of 8 mm dia @ 150 mm c/c minimum.
- Casing Pipe: Mild steel casing conforming to IS 1161, minimum wall thickness 6 mm.
- Admixtures: Approved superplasticizers conforming to IS 9103 to achieve flowability without segregation.
- Bentonite Slurry: Used for stabilization of borehole walls during boring; specific gravity 1.05–1.10; viscosity 30–45 seconds (Marsh cone); sand content ≤ 6%.

Construction Methodology

1.Setting Out and Alignment:

Pile points shall be set out using total station and grid coordinates approved by the Engineer-in-Charge. Tolerance in pile location shall not exceed ±75 mm in plan and ±1° in verticality.

2.Boring Operation:

Boring shall be performed using rotary hydraulic rigs or tripod setups with controlled penetration rate. The borehole shall be stabilized with bentonite slurry continuously circulated during boring to prevent collapse. Borehole depth shall be verified by sounding and recorded on pile log sheets.

3. Cleaning of Borehole Bottom:

The base of the borehole shall be cleaned using a clean-out bucket to remove silt, debris, and loose material. Cleaning shall be verified by “measure of silt return test” before concreting.

4.Lowering of Reinforcement Cage:

Reinforcement cage shall be fabricated as per approved BBS using full-length bars (lap welded or mechanically coupled). The cage shall be lowered carefully to avoid deformation. Cover blocks (concrete or PVC) of appropriate thickness (minimum 75 mm) shall be securely tied at intervals not exceeding 1.5 m.

5. Concreting Operation:

Concrete shall be placed by tremie method (IS 2911 Part 1 Sec 2). Tremie pipe (minimum 200 mm dia) shall be kept continuously immersed 1.0–1.5 m below the concrete surface during pouring to prevent contamination.

- Slump: 150–200 mm
- Concrete temperature: ≤ 32°C
- Continuous pour without interruption until completion of pile.

6.Withdrawal of Casing:

Temporary casing, if used, shall be withdrawn gradually during concreting, maintaining sufficient concrete

head to prevent inflow of slurry or soil.

7.Pile Head Treatment:

After initial concrete set, the pile head shall be chipped up to the sound concrete level (typically 75 mm below cut-off level). Exposed reinforcement shall be cleaned before pile cap casting.

Testing and Quality Control

1.Pile Load Testing

- Initial Load Test: Minimum one pile for every 200 piles or part thereof, as per IS 2911 (Part 4), to confirm design assumptions.
- Routine Load Test: Conducted on 2% of total piles or at least one per building block, whichever is higher.
- Test Load: 2.5 × Working Load (i.e., 187.5 Tonnes for design load of 75 Tonnes).
- Acceptance Criteria: Total settlement ≤ 12 mm at working load and rebound ≥ 75%.

2.Pile Integrity Testing

- Sonic Integrity Test: Conducted on 100% of piles using cross-hole sonic logging (CSL) or low-strain integrity method as per IS 14893:2001.
- Any defective pile showing anomalies shall be verified by core testing and, if necessary, supplemented with replacement piles.

3.Verticality and Depth Checks

- Each pile shall be checked for depth (±150 mm tolerance) and vertical alignment using a plumb line or inclinometer.
- Deviation exceeding limits shall be recorded, and additional piles may be added as directed by the Engineer-in-Charge.

Pile Cap Construction

- Concrete: M35 grade with 20 mm aggregate, conforming to IS 456.
- Thickness: Minimum 1.5 times the pile diameter (i.e., 900 mm for 600 mm piles).
- Reinforcement: Top and bottom layers as per structural design, anchored into columns with sufficient development length.
- Shuttering and Compaction: Proper formwork alignment and vibratory compaction using 25 mm needle vibrators.
- Curing: Minimum 14 days continuous wet curing.

Quality Assurance and Record Keeping

- Pile Log Book: For each pile, maintain detailed records including date, pile number, diameter, length, strata description, concrete volume, reinforcement details, and test results.
- Cube Testing: One set of cubes for every 50 m^3 of concrete or part thereof.
- Site Supervision: All operations to be carried out under the supervision of a qualified geotechnical engineer.
- Third-Party Verification: Mandatory for all load and integrity tests; reports to be submitted prior to pile cap concreting.

4.5 Earthquake-Resistant Design (Zone V)

The High-Performance Sports and Recovery Centre, Assam, is situated in Seismic Zone V as classified under IS 1893 (Part 1):2016, which represents the highest category of seismic risk in India. Accordingly, the entire structural system, comprising foundations, superstructure, and non-structural components, shall be designed, detailed, and constructed to ensure adequate ductility, redundancy, and energy dissipation during major earthquake events without catastrophic collapse.

The structural system shall be designed as a Special Moment Resisting Frame (SMRF) with supplemental shear walls to provide stiffness and lateral stability, ensuring performance under both Operational (DBE) and Collapse Prevention (MCE) level earthquakes as defined in NBC.

Design Parameters & Seismic coefficients:

Parameter	Description	Design Value/Reference
Seismic Zone (Z)	Zone V (Very High Damage Risk)	Z=0.36
Importance Factor (I)	Institutional Building with high occupancy	I=1.5
Response Reduction Factor ®	SMRF (Ductile frame with shear walls)	R=5.0
Damping Ratio (£)	RCC Structure	5%
Soil Type	Type-II- Medium Soil (As per Geotechnical Report)	NA
Time Period (T)	Empirical Formula as per ID 1893 (T=0.09h/√d	o.55 s (for h= 21 m)

The design horizontal seismic coefficient (Ah) shall be computed as:

Ah = (Z/2)x(I/R)x (Sa/g)

where Sa/g represents the average response acceleration coefficient based on site spectral characteristics per IS 1893:2016, Clause 6.4.5.

Structural System and Lateral Load Resisting Elements

1.Primary Structural System:

- RCC Special Moment Resisting Frame (SMRF) with ductile detailing per IS 13920:2016.
- Shear walls provided within stair and lift cores to enhance lateral stiffness and control drift.

2.Shear Walls:

- RCC M35 grade, minimum wall thickness 200 mm, extending from foundation to roof.
- Minimum reinforcement:
- Vertical bars ≥ 0.25% of gross section area (Fe 500D)
- Horizontal bars ≥ 0.25% of gross section area (Fe 500D)
- Coupling beams designed for ductile behavior with diagonal reinforcement crossing at the midspan.

3.Beams and Columns:

- Minimum beam depth to span ratio = 1/12.
- Column aspect ratio (unsupported length to least lateral dimension) ≤ 12.
- Beam-column joints detailed for confinement per IS 13920, Clause 7.4.

4.Drift and Deflection Control:

- Inter-storey drift ≤ 0.004 × storey height (NBC 2016, Clause 6.4.2.2).
- Lateral deflection under service load ≤ h/500.

5.Seismic Joints:

- Expansion and separation joints provided at maximum 45 m center-to-center or as per building plan geometry to prevent pounding.
- Minimum joint gap = 25 mm per storey height difference or as determined by structural analysis.

Ductile Detailing Requirements (IS 13920:2016)

a) Beam Detailing:

- Minimum reinforcement ratio: 0.24% of gross cross-section area.
- Maximum longitudinal steel ratio: 2.5%.
- Anchorage length beyond column face: ≥ 12 × bar dia + depth of beam – cover.
- Shear reinforcement: 8 mm dia 2-legged stirrups @ 100 mm c/c near joints (for 2d length) and 150 mm c/c elsewhere.

b) Column Detailing:

- Minimum longitudinal reinforcement: 0.8% of gross section; maximum 6%.
- Confinement reinforcement:
- Hoop diameter ≥ 6 mm or ¼ of longitudinal bar diameter (whichever greater).
- Spacing of confining hoops:
- 100 mm c/c within joint and plastic hinge region.
- 150 mm c/c elsewhere.
- Lateral ties anchored with 135° hooks extending 10 bar diameters.

c) Shear Wall Detailing:

- Boundary elements provided at extreme edges wherever compressive stress > 0.2 fck.
- Lap splices of vertical reinforcement staggered, located away from high-stress regions, and confined with closed ties.
- Horizontal reinforcement continued around openings with diagonal bars at corners.

Non-Structural and Secondary Elements

- All masonry infills, parapets, façades, and suspended ceilings shall be positively anchored to structural members using stainless steel fasteners or mechanical anchors designed for 0.1 g acceleration.
- Heavy fixtures (HVAC units, electrical panels, water tanks) shall be provided with seismic restraints and flexible joints.
- Glazed façades and windows shall have clearances to accommodate lateral drift (minimum 25 mm).
- Partition walls shall include expansion gaps and compressible filler strips at beam/slab junctions.

Quality Assurance and Testing

Test/Verification	Standard/Reference	Frequency/Stage	Acceptance Criteria
Material testing (Cement, Steel, Aggregate)	IS 031/IS 1786/IS 383	Each Lot	As per code limits
Reinforcement Ductility	IS 13920/IS 1608	Each Batch	Elongation>=16%
Structural Drift Monitoring	IS 1893	During Analysis	<=0.0004x Storey Height
Rebar Anchor Check	IS 2502	During Fixing	Full Development Length
Shear Wall Continuity Check	IS 456/ IS 13920	Each Lift	No discontinuity in bars

Performance and Certification

- The structural design drawings shall bear the certification of a licensed structural engineer from IIT/NIT, confirming full compliance with IS 1893, IS 13920, and NBC 2016.
- The contractor shall obtain peer review and vetting of seismic design from an IIT/NIT-recognized structural consultant before commencement of RCC works.
- All reinforcement detailing and construction joints shall be inspected and approved by the Engineer-in-Charge prior to concreting.

4.6 Wind Load Design (47 m/s)

The High Performance Sports and Recovery Centre, Assam, shall be designed to resist wind actions corresponding to a basic wind speed (Vb) of 47 m/s, as specified in IS 875 (Part 3):2015 and the National Building Code of India (NBC 2016, Part 6, Section 1 – Structural Design).
All primary and secondary structural elements, including the roof system, façade panels, parapets, and service shafts, shall be designed for both positive and negative (suction) pressures resulting from wind effects, ensuring structural safety, serviceability, and occupant comfort under extreme conditions.

Design Parameters and wind Pressure calculation:

Parameter	Description	Adopted Value/Reference
Basic Wind Speed (V_b)	As per IS 875 (Part 3)- Wind Zone for Assam	47 M/s
Risk Coefficient (K_1)	For 50 years return period (Public Building)	1.0
Terrain Category	Category-II Open Terrain with well-scattered obstructions	0.05<=Z0<=0.3 m
Class of Structure	Class B-Medium sized building upto 50 m height	Applicable
Topography Factor(k_3)	Flat Terrain, slope<3 degrees	1.0
Height (h)	21 M (G+6 Structure)	-
Design Wind Speed (V_z)	V_b x K_1 x K_2 x K_3	= 47 x 1.03 x 1.0 x 1.0 = 48.4 m/s
Design Wind Pressure (p_e)	$P_e = 0.6 \times V_z^2$	1329 N/mm^2

Note: Terrain roughness and height factor (k_2 = 1.03) have been taken as per IS 875, Table 2, for 21 m height in Terrain Category II.

Design Considerations and Load Application

1. **Wind Directionality:**

The structure shall be analyzed for wind acting along both principal axes (X and Y) and at 45° to the principal direction, accounting for suction and internal pressures.

2. **Pressure Coefficients (Cp):**
    - Walls (windward face): +0.8
    - Walls (leeward face): -0.5
    - Side walls: -0.7
    - Flat roof (0° pitch): -0.9 (uplift)
    - Parapets and edge elements: -1.2
3. **Internal Pressure Coefficients (Cpi):**

Depending on building permeability: ±0.2 for limited openings.

4. **Design Wind Load on Element (F):**

$F = (Cp - Cpi) \times p_e \times A$
where A = effective area of member exposed to wind.

Structural Design Requirements

a) Roof System and Uplift Resistance

- The flat RCC roof and overlying waterproofing system shall be designed to resist uplift pressures up to 1.5 kN/m², accounting for suction effects.
- Roof trusses, steel canopies, or skylight structures (if provided) shall be designed with adequate hold-down anchors and tie bracing to resist both suction and lateral sway.
- Parapet walls shall be reinforced with concealed RCC upstand beams and continuous anchorage into the roof slab to prevent overturning.
- All waterproofing membranes and insulation boards shall be fully bonded or mechanically fastened to resist uplift.

b) Façade and Glazing Anchors

- All façade panels, louvers, and glazing units shall be designed for design pressure = 1,329 N/m² with an additional factor of safety of 1.5 against failure.
- Glass panels shall conform to IS 16231 (Part 3):2016 (Structural Use of Glass – Design Considerations).
- Aluminum or curtain-wall mullions shall be fixed to RCC or structural steel supports with stainless steel anchors and expansion fasteners (IS 1367).
- Glazing joints shall incorporate neoprene or silicone gaskets to accommodate deflections up to L/175 without fracture.

c) Braced Shafts and Lateral Stability

- All lift and staircase cores shall function as shear walls / braced shafts, designed for lateral stiffness and torsional resistance.
- Reinforcement detailing in these shafts shall include continuous vertical bars anchored into foundations and confinement reinforcement @ 100 mm c/c within the plastic hinge region.

- The overall structure shall satisfy inter-storey drift ≤ 0.004 × storey height, as per IS 1893:2016 and NBC 2016.

d) Secondary and Service Structures

- Overhead water tanks, AHU platforms, solar panels, and roof-mounted HVAC equipment shall be anchored using bolted steel frames designed for 1.5 × wind pressure.
- All ducts and service shafts exposed to wind shall have lateral bracing with deflection ≤ H/200.
- External signage, façade fins, and decorative panels shall be checked for vibration and flutter instability.

Design Verification and Testing

Test/Verification	Standard/Reference	Frequency	Acceptance Criteria
Structural Analysis for Wind Load	IS 875 (Part 3)	Each Design Stage	P_e = 1329 N/M^2
Glazing and Façade Pressure Test	ASTM E330/IS 16231	1 per system	Deflection <= L/175
Anchor Pull Out Test	IS 1367/IS 800	Each Batch	Load >= 2 x Design
Roof Uplift Verification	IS 456/NBC 2016	Each roof Zone	No detachment at 1.5 KN/m^2
Drift Control and Stability Check	IS 1893	Analysis Verification	<= 0.004 x Storey Height

Safety, Serviceability and Maintenance

- Wind-induced vibrations shall be checked to ensure peak acceleration ≤ 0.15 m/s² for occupant comfort.
- All external elements shall be designed for cyclic loading equivalent to 25 years of exposure.
- Routine inspection and tightening of façade anchors, parapet coping, and roof truss bolts shall be carried out at least once annually.
- Waterproofing systems shall include wind uplift resistance certification from the approved manufacturer.

4.7 Masonry and Plastering

This section covers the construction of all AAC block masonry (Autoclaved Aerated Concrete) for internal and external walls, as well as associated plastering and surface finishing works.
All masonry shall be executed true to line, plumb, and level as per the approved architectural and structural drawings, ensuring uniform bonding, thickness, and dimensional accuracy throughout.

4.7.1. Masonry Work

4.7.1.1 Materials

- Blocks: Autoclaved Aerated Concrete (AAC) blocks, factory manufactured under IS 2185 (Part 3):1984.
- Size: 600 mm × 200 mm × (230 mm / 115 mm) or as approved.

- Density: 550–650 kg/m³.
- Compressive Strength: ≥ 3.5 N/mm².
- Moisture Movement: ≤ 0.04%.
- Mortar: Cement mortar in the proportion 1:6 (1 part cement : 6 parts fine sand) for both external and internal blockwork.
- Cement shall conform to IS 269 (OPC 43 grade) or IS 1489 (PPC).
- Sand shall be clean, well-graded, conforming to IS 2116.
- Water for mixing and curing shall be potable and free from harmful salts.
- Admixtures (Optional):

Where approved, polymer-modified mortar additives or ready-mix block jointing adhesives may be used for thin-joint masonry construction (≤ 3 mm joints).

4.7.1.2 Masonry Construction

- Wall Thickness:
- External walls – 230 mm (two-block width).
- Internal partition walls – 115 mm.
- Shaft and duct walls – minimum 100 mm thick, reinforced with 8 mm dia bars @ 600 mm c/c both ways, anchored into RCC.
- Laying of Blocks:
- Blocks shall be laid with true faces, full bearing, and staggered joints (minimum 150 mm overlap).
- Vertical joints shall be filled fully with mortar to ensure continuity.
- Joints shall be 10–12 mm thick (for conventional mortar) or 3 mm (for thin joint adhesive).
- Walls shall be raised uniformly, not exceeding 1 m height in a single day to prevent settlement.
- All chases and conduits for electrical or plumbing lines shall be neatly cut using mechanical wall chasers and reinstated after embedding with polymer-modified mortar.
- Curing:
- Masonry shall be kept continuously moist for at least 7 days after laying.
- For thin joint masonry, curing compound as per manufacturer's specification shall be applied.
- Tolerances:
- Vertical alignment: ±5 mm over 3.0 m height.
- Horizontal alignment: ±3 mm in 3.0 m length.
- Surface flatness deviation: ≤ 3 mm over 2 m straight edge.

4.7.1.3 Reinforcement and Embedding

- Galvanized mild steel bed-joint reinforcement (50 mm × 1.6 mm) shall be embedded every fourth course or at 600 mm c/c in walls longer than 6 m.
- Stainless steel wall ties shall be provided at junctions of masonry with RCC columns and shear walls at 600 mm vertical and horizontal spacing.

- All door and window openings shall have RCC lintels of minimum 150 mm thickness, reinforced with 8 mm dia bars @ 100 mm c/c top and bottom.

4.7.2. Plastering Work

4.7.2.1 Scope

This includes internal and external plastering, finished smooth and true, ready for paint or other final finishes.

4.7.2.2 Materials

- Cement: OPC/PPC conforming to IS 1489.
- Sand: Fine, clean, river sand free from clay or organic matter (Zone II, IS 383).
- Waterproofing Additive: Integral waterproofing compound conforming to IS 2645.
- Water: Clean and potable as per IS 456.

4.7.2.3 Application

Internal Plaster:

- Thickness: 12 mm average.
- Composition: Cement mortar 1:4 (1 part cement : 4 parts fine sand).
- Surface Preparation: All joints and chases shall be raked to a depth of 10 mm; surface cleaned and dampened prior to plastering.
- Finish: Smooth trowelled finish, free from waviness, cracks, and discoloration.

External Plaster:

- Thickness: 18 mm average (two-coat system).
- Base Coat: 12 mm thick cement mortar 1:4 (with waterproofing compound @ 2% by weight of cement).
- Finish Coat: 6 mm thick cement mortar 1:4, finished with wooden float or sponge texture.
- Joints and Corners: Rounded to a 10 mm radius; grooves or bands as per architectural details.
- Curing: Minimum 14 days continuous moist curing after completion of plaster.

4.7.2.4. **Quality Control and Workmanship**

Parameter	Requirement	Tolerance/Standard
Mortar Proportion	1:6 (Blockwork), 1:4 (Plaster Work)	IS 2250
Plaster Evenness	+- 3 MM over 2 meters Straight Edge	CPWD Specs Clause 13
Bond Strength (Plaster Adhesion)	>=0.25 N/MM^2	IS 9103
Crack Width (Surface)	<= 0.5 MM	Visual
Waterproofing Performance	No dampness/efflorescence after 14 days test	IS 2645

Finishing and Protection

- All corners, edges, and reveals shall be formed with corner beads or aluminum angles to ensure straightness.

- Wall surfaces shall be protected from direct sun and wind during curing to avoid shrinkage cracks.
- External plastered surfaces shall be treated with a breathable primer prior to painting to prevent moisture entrapment.
- Masonry above damp-proof course (DPC) shall begin only after DPC curing for a minimum of 3 days.
- All scaffolding shall be independent (not through wall) to avoid mortar dropping and patch marks.

4.8 Waterproofing

This section specifies materials, workmanship, and testing procedures for the complete waterproofing system to be applied on roofs, terraces, toilets, balconies, sunken areas, planter boxes, and podium slabs. The system shall provide an impermeable, seamless, and root-resistant barrier ensuring protection against water ingress, seepage, and dampness during the design life of the building.
The waterproofing work shall be executed only through an approved specialized agency, under the supervision of the Engineer-in-Charge, with all works documented, tested, and guaranteed for 10 years against leakage and failure.
Materials

A. Primer:

- Bituminous primer conforming to IS 3384:1986, applied at a rate of 0.3–0.4 L/m².
- Shall provide full bonding between the concrete substrate and membrane layer.

2.Membrane System:

- Two-layer polymer-modified bituminous membrane system, each layer 3 mm thick (3 + 3 mm total).
- Reinforcement: 180–200 gsm non-woven polyester mat.
- Tensile strength ≥ 500 N/5 cm, elongation ≥ 40%, softening point ≥ 150°C (ASTM D5147).
- Upper layer shall be finished with mineral granules or aluminum laminate (as applicable to exposure conditions).

3.Protective Screed:

- 40 mm thick cement concrete screed (M20 grade), reinforced with 8 mm dia bars @ 150 mm c/c both ways (if specified).
- Slope: 1% minimum directed towards rainwater outlets.
- Admixtures: Integral waterproofing compound (IS 2645) added @ 2% by weight of cement.

4.Ancillary Materials:

- Fillet coves (50 mm radius) at all junctions using 1:2 cement mortar with waterproof additive.

- Butyl rubber sealing tapes and self-adhesive flashing membranes for detailing at pipe penetrations, parapets, and junctions.

B. Substrate Preparation

- The RCC slab surface shall be cured for 14 days, cleaned, and allowed to dry to a moisture content ≤ 5%.
- All laitance, oil, grease, or dust shall be removed by mechanical grinding or wire brushing.
- Cracks wider than 0.3 mm shall be chased and repaired with polymer-modified mortar.
- Sharp edges, protrusions, and honeycombs shall be rectified before application.
- A cement-sand fillet (50 mm radius) shall be provided along all vertical and horizontal junctions to prevent membrane tearing.

C. Application of Waterproofing System

Step 1 – Primer Coat

- Apply a uniform coat of bituminous primer by roller or spray on the prepared surface.
- Allow to dry for a minimum of 6–8 hours or until tack-free before laying the membrane.

Step 2 – Laying of First Membrane (3 mm)

- Roll out the membrane and align for full coverage.
- Heat-seal the underside using a butane gas torch ensuring full adhesion to the substrate.
- Overlap edges longitudinally by 100 mm and end laps by 150 mm, ensuring continuous fusion without voids.

Step 3 – Laying of Second Membrane (3 mm)

- The second layer shall be laid perpendicular to the first layer with staggered laps.
- Torch bonding shall ensure complete fusion between layers, forming a monolithic waterproofing sheet.
- Corners, upstands, and pipe junctions shall receive double reinforcement patches for mechanical strength.

Step 4 – Flashing and Termination

- Vertical terminations shall extend minimum 300 mm above finished floor level or as per design.
- Termination shall be sealed with aluminium termination bars and polyurethane sealant conforming to ASTM C920.
- Drain openings shall be dressed and sealed with conical inserts and additional patch membranes.

Step 5 – Protective Screed

- Over the finished membrane, a 40 mm thick M20 concrete screed shall be laid with a 1% slope towards rainwater drains.
- The screed shall be reinforced with 50 × 50 × 3 mm welded wire mesh or equivalent for crack control.

- Curing for 7 days minimum; no ponding or direct water curing on membrane interface is allowed — use damp hessian cloths.

4. Testing and Quality Assurance

4.1 Ponding / Flood Test

- After completion of membrane laying (before screed), the entire surface shall be subjected to a pond test for 72 hours by flooding the area with water to a minimum depth of 50 mm.
- No leakage, damp patches, or seepage shall be permissible on the underside or adjacent walls.
- The Engineer-in-Charge shall issue written clearance before subsequent layers are applied.

4.2 Adhesion and Thickness Verification

- Random core cut or pull-off tests shall confirm minimum adhesion ≥ 0.8 N/mm².
- Membrane thickness shall be measured using a calibrated micrometer; minimum total thickness = 6 mm (±0.2 mm).

4.3 Quality Control Table

Test/Parameter	Standard	Frequency	Acceptance Criteria
Primer Coverage	IS 3384	Each Area	0.3-0.4 L/M^2
Membrane Thickness	ASTM D5147	1 per 200 m^2	6 +- 0.2 MM
Adhesion Strength	ASTM D903	Random	>=0.8 N/MM^2
Pond Test	CPWD Spec/IS 3067	Each Terrace	No Leakage for 72 Hours @ 50 MM Depth
Slope Verification	Field Measurement	Each Zone	>=1% Slope

Warranty and Maintenance

- The entire waterproofing system shall carry a minimum 10-year warranty jointly issued by the approved waterproofing agency and the EPC Contractor, covering material failure, detachment, or leakage.
- Annual inspections shall be conducted by the agency during the warranty period, with immediate rectification of any defects observed.
- Maintenance manuals with photographic documentation of all joints, outlets, and membrane terminations shall be submitted as part of the handover dossier.

4.9 Structural Steel Works

This section covers the supply, fabrication, erection, welding, bolting, alignment, surface preparation, and painting of all structural steel works including trusses, roof girders, canopy frames, columns, purlins, catwalks, pipe supports, and miscellaneous steel components forming part of the High-Performance Sports and Recovery Centre.

All materials, workmanship, fabrication, and erection procedures shall strictly conform to the latest editions of relevant Indian Standards and the approved structural design drawings.

4.9.1. Materials

4.9.1.1 Structural Steel

- Type: Rolled steel sections, plates, and flats conforming to IS 2062:2011, Grade E250 (Quality B), with guaranteed minimum yield strength of 250 N/mm².
- **Chemical Composition:**
- Carbon ≤ 0.23%, Manganese ≤ 1.5%, Sulphur ≤ 0.045%, Phosphorus ≤ 0.045%.
- **Physical Properties:**
- Yield Stress (fy): 250 N/mm² (min)
- Ultimate Tensile Strength: 410 N/mm² (min)
- Elongation: ≥ 23% on $5.65\sqrt{A}$ gauge length.

Each lot shall be accompanied by the manufacturer's Mill Test Certificate (MTC) confirming compliance with IS 2062. No material shall be incorporated without Engineer-in-Charge approval.

4.9.1.2 Bolts, Nuts, and Washers

- High-strength friction grip bolts (HSFG) conforming to IS 3757:1985 and IS 6623:2004.
- Ordinary bolts and nuts: IS 1363 (Grade 8.8).
- Washers: IS 2016, hardened steel type.
- All fasteners shall be zinc-plated or hot-dip galvanized for corrosion protection.

4.9.1.3 Electrodes

- Type: Low-hydrogen coated electrodes conforming to AWS E7018 (IS 814:2004).
- Tensile Strength: ≥ 490 N/mm².
- Drying: Electrodes shall be baked at 350°C for 1 hour before use and stored in portable drying ovens at 120°C.

4.9.2. Fabrication and Workmanship

4.9.2.1 Cutting and Shaping

- Cutting of plates and sections shall be performed by CNC plasma or gas cutting to maintain dimensional accuracy.
- Manual flame cutting is permitted only for minor adjustments, subject to Engineer approval.
- All cut edges shall be ground smooth, free from burrs and notches.

4.9.2.2 Welding

- Welding shall conform to IS 816:1969, IS 822:1970, and IS 9595:1996 (for full-penetration and fillet welds).
- All welders shall be qualified as per IS 817:1966, and welding procedure qualification records (WPQR) shall be submitted for approval prior to production welding.
- Electrodes: E7018 low-hydrogen type; shall not be reused once moisture-exposed.
- Weld positions, preheat, inter pass temperature, and post-weld treatment shall be as per approved Welding Procedure Specification (WPS).

Typical Welding Requirements:

Item	Electrode Type	Min. Throat(MM)	Pre Heat Temperature (°C)	Post Weld Treatment
Fillet Welds	E7018	6	100	Cleaning

Butt Welds	E7018	As per Design	150	Grinding, NDT

4.9.2.3 Dimensional Tolerances

Fabricated members shall conform to IS 7215:1974 tolerances:

- Deviation in length: ±3 mm up to 5 m, ±5 mm beyond.
- Squareness deviation: ≤ 2 mm per 1 m.
- Twist: ≤ 1 mm per 1 m length.

4.9.2.4 Shop Assembly

- Trial assembly shall be conducted in the fabrication yard before dispatch.
- Match marking, alignment, and bolt-hole accuracy shall be verified prior to dismantling for transportation.
- All welds shall be visually examined and cleared by QA/QC prior to painting.

4.9.3. Erection and Field Welding

- All lifting and erection operations shall follow IS 7205:1974 (Safety Code for Erection of Structural Steel Work).
- Columns, trusses, and frames shall be plumbed and aligned using precision instruments (theodolite/laser).
- Field welds shall be performed using the same electrode type as in shop welding.
- Temporary support shall not be removed until full stability is achieved.
- Bolted joints shall be tightened using calibrated torque wrenches to 75–80% of bolt proof load.

4.9.4. Non-Destructive Testing (NDT)

All critical welds (butt and corner joints) shall be tested as per IS 822:1970 and IS 9595:1996 using the following methodology:

Type of Joint	NDT Method	Frequency	Acceptance Criteria
Full Penetration butt welds	Ultrasonic Testing (UT)	100%	IS 9595 Class I
Fillet Welds	Magnetic Particle Test (MPT)	10% Random	No Surface Cracks
Corner/Box Joints	Dye Penetrant Test (DPT)	100% Random	No Visible Flaws
Visual Inspection	IS 822	All Welds	Smooth Bead, Uniform Width

All testing shall be carried out by certified Level II NDT technicians, and records submitted for approval prior to erection clearance.

4.9.5. Surface Preparation and Painting

4.9.5.1 Surface Preparation

- All steel surfaces shall be abrasive blast cleaned to Sa 2.5 finish as per ISO 8501-1:2007 / IS 1477 (Part 1), achieving a near-white metal finish.
- Surface roughness: 40–70 microns (as per SSPC-SP10).
- Dust and residues shall be removed with compressed air prior to painting.

4.9.5.2 Coating System

1. Primer Coat:

- Zinc Chromate primer conforming to IS 104:1979, applied immediately after blasting at 30 µm DFT.

2. Finish Coats:

- Two coats of Polyurethane (PU) paint, each applied at 40 µm DFT, of approved shade and manufacturer.
- Total coating thickness: Minimum 110 µm DFT (30 + 2×40 µm).

3. Application:

- Sprayed using airless spray gun in dust-free, controlled conditions.
- Inter-coat interval: Minimum 8 hours, maximum 48 hours.
- Inspection:
- Dry film thickness checked using Elco meter gauge as per IS 14177:1994.
- Adhesion test ≥ 5 MPa as per ASTM D4541.

4.9.5.3 Touch-Up and Repairs

- Damaged coatings at site shall be cleaned, feathered, and spot-primed before applying two PU finish coats.
- No painting shall be done under relative humidity >85% or surface temperature within 3°C of dew point.

4.9.6. Quality Assurance and Testing

Test	Standard	Frequency	Acceptance Criteria
Steel Chemical & Tensile Test	IS 2062	1 per 40 tonnes	As per Grade E250B
Weld Visual/NDT Test	IS 822/IS 9595	As per plan	Class I
Paint DFT Measurement	IS 1477/ IS 14177	Each Batch	>=110µm Total
Adhesion Test	ASTM D4541	Random	>= 5 MPa
Torque Test (Bolts)	IS 3757	Each Joint	>=75% Proof Load

4.9.7. Documentation and Handover

The contractor shall submit the following prior to final acceptance:

- Material test certificates for steel and electrodes.
- Welding Procedure Specifications (WPS) and Welder Qualification Records (WQR).
- NDT and paint DFT reports.
- Final alignment and bolt torque inspection certificates.
- As-built drawings and maintenance manual.

4.10 QA/QC Testing Frequency

This section defines the minimum quality control testing frequency, standards, and acceptance criteria for all civil, structural, and waterproofing works to ensure consistent compliance with design intent, durability, and codal requirements.

All materials, workmanship, and testing procedures shall conform to the relevant Indian Standards, and no work shall proceed without prior material approval and successful quality verification by the Engineer-in-Charge or the designated Quality Control authority.

All tests shall be performed in a NABL-accredited laboratory or an on-site laboratory equipped with calibrated instruments, as per the QA plan approved before commencement of work. Plaster Thickness – 1/100 m² (CPWD Spec)

4.10.1 Concrete Works

Test Description	Standard	Minimum Frequency	Acceptance Criteria
Slump Test	IS 1199:1959	1 per batch or every 25 m^3	As per Approved Design Mix (+- 25 MM)
Compressive Strength (Cubes)	IS 516: 1959	3 Specimen per 50 M^3 of Concrete or Part thereof	>= fck (As per IS 456)
Cement Testing (Fineness, Consistency, Setting, Strength)	IS 4031 (Part 1-6)	1 test per 100 Bags or Change of Source	As per IS 269 / IS 1489
Aggregate Sieve Analysis (Grading, Flakiness, Elongation)	IS 2386 (Part 1): 1963	1 per 100 m^3 or Change of Source	Within Specified grading Zone
Water Cement Ratio Check	IS 456:2000	Each Batch	<=0.45 (As per Approved Mix)
Temperature of Concrete at Pouring	Field Record	Each Truck Load	<=32 °C

4.10.2 Reinforcement Steel

Test Description	Standard	Min. Frequency	Acceptance Criteria
Tensile Strength (Yield, UTS, Elongation)	IS 1786:2008	1 per 10 Tons	Fe 500 D- fy >= 400 N/mm^2, Elongation >=16%
Bend and Re bend Test	IS 1599/IS 1786	1 per 10 Tonnes	No Crack or Fracture on Bending
Chemical Composition (C,S,P)	IS 228/ IS 1786	1 per Supplier Source	As per IS 1786 Table 1
Welded Joint Tensile Test (If used)	IS 9417:1989	Each Welded Lot	>= Parent Metal Strength
Epoxy Coating Thickness	ASTM D7091	Random 10%	80-120 µm uniform coating

4.10.3 Aggregate and Sand

Test Description	Standard	Frequency	Acceptance Criteria
Sieve Analysis (Grading Zone)	IS 2386 (Part 1)	Each 100 M^3	Within prescribed zone
Deleterious Content (Silt, Clay, Organic)	IS 2386 (Part 2)	Each 100 M^3	Silt <=3%, Clay <= 1%
Water Absorption & Specific Gravity	IS 2386 (Part 3)	Each 200 M^3	Absorption <=2%
Impact and Crushing Value	IS 2386 (Part 4)	Each 400 M^3	Impact <= 30%, Crushing <= 30%

4.10.4 Water Quality

Test Description	Standard	Frequency	Acceptance Criteria
Chemical Analysis (pH, Chloride, Sulphate)	IS 456 Appendix A	Each Water Source and Quarterly thereafter	pH-6-8.5, Cl<= 500 mg/L, SO_4 – 400 MG/L
Visual Turbidity/ Color	Field	Daily	Clear, Odorless
Alkalinity & Hardness	IS 3025	Each Source	Within Potable Range

4.10.5 Foundation & Piling Work

Test Description	Standard	Frequency	Acceptance Criteria
Initial Load Test	IS 2911 (Part 4)	1 Test per 200 piles or part thereof	As per design load (2.5 x Working Load)
Routine Load Test	IS 2911 (Part 4)	2% of total piles	Settlement <= 12 mm at working load
Pile Integrity (Sonic/CSL)	IS 14893:2001	100% of Pile	No Major Defect/ Discontinuity
Verticality and Depth Check	Field	Each Pile	Deviation <= 1^0 and +-150 mm depth

4.10.6 Masonry, Plastering and Mortar

Test Description	Standard	Frequency	Acceptance Criteria
Mortar Consistency & Proportion Verification	IS 2250:1981	Each Batch	As per design (1:4 or 1:6)
Block Compressive Strength (AAC)	IS 2185 (Part 3)	1 per 10,000 units	>= 3.5 N/MM^2
Plaster Thickness and Evenness Check	CPWD Specs	Each Wall	12 mm internal, 18 mm external +-3 mm
Surface Cracks Inspection	Visual	Each Floor	None>0.5 mm width

4.10.7 Structural Steel works

Test Description	Standard	Frequency	Acceptance Criteria
Steel Tensile Strength	IS 1608/ IS 2062	1 per 40 Tons	Fy>= 250 N/MM^2
Weld NDT (UT, MPT, DPT)	IS 822/ IS 9595	As per weld class	No defects (Class I)
Bolt Torque Test	IS 3757	1 per joint	>= 75% of proof load
Paint DFT Measurement	Is 1477 / IS 14177	Each Coat	110µM total minimum

4.10.8 Waterproofing & Finishes

Test Description	Standard	Frequency	Acceptance Criteria
Pond Test (Flood test)	IS 3067/ CPWD Specs	Each Terrace/ Wet Area	72 Hours, no leakage @ 50 mm water depth
Adhesion Test (Pull-off)	ASTM D903	1 per 200 MM^2	>=0.8 N/MM^2
Thickness Verification (Membrane)	ASTM D5147	Each Lot	>= 6 MM Total
Slope Measurement (Drainage Test)	Field	Each Zone	>=1% Slope

Documentation and QA/QC Recordkeeping

- All test results shall be compiled into a Material Testing Register, signed by the QA/QC Engineer and verified by the Engineer-in-Charge.
- Non-Conformance Reports (NCRs) shall be issued immediately for failed tests, with corrective actions recorded and retesting conducted.
- Third-party testing shall be carried out for concrete strength, reinforcement, and waterproofing performance at least once per major stage.
- QA/QC reports shall be submitted weekly summarizing test frequencies, results, and compliance status.

4.11 Quality Assurance & Inspection Methodology

This section defines the systematic quality assurance (QA) and quality control (QC) framework to be implemented throughout construction for material verification, workmanship supervision, inspection checkpoints, testing, and documentation.

The QA/QC procedures aim to ensure that all works meet the specified standards of performance, durability, and safety, and that records are traceable, verifiable, and approved by the Engineer-in-Charge prior to proceeding to the next stage of work.

1. Material Verification and Traceability

A. Material Test Certificates (MTCs):

- Every batch of cement, steel, aggregates, bitumen, waterproofing membrane, or other materials shall be accompanied by manufacturer's MTCs indicating batch number, date of manufacture, and test values as per relevant IS codes.
- The QA/QC Engineer shall cross-verify MTC results with independent site test results before material acceptance.
- Materials without valid MTCs or failing quality tests shall be quarantined and rejected.

B. Material Checks at Site:

- Visual inspection for cracks, moisture, damage, or contamination before acceptance.
- Random sampling for physical and chemical tests per QA plan.
- Identification tags or barcodes shall be maintained for traceability from supplier to work location.

C. Storage and Handling:

- Separate storage areas for cement, steel, aggregates, and waterproofing materials with protective covering and FIFO (First-In, First-Out) usage system.
- Reinforcement steel shall be stacked above ground level on wooden sleepers and protected from corrosion.

2. Equipment Calibration and Batching Controls

- All batching, weighing, and measuring equipment shall be calibrated weekly using certified standard weights and gauges.
- Calibration certificates shall be maintained in the site QA/QC file and renewed after every major breakdown or relocation of equipment.
- Concrete produced through batching plants shall be recorded in Daily Production Sheets with batch number, design mix ID, date, and operator signature.
- Random weighment checks shall be done once per shift to ensure ±1% accuracy for cement and ±2% for aggregates and water.

3. Concrete Quality and Acceptance Criteria

- Cube Testing: Three cubes per 50 m^3 of concrete or each batch shall be cast and cured per IS 516.
- Acceptance Criterion:
- The average strength of cube samples shall be ≥ 1.1 × fck.
- No individual cube shall show strength less than fck – 3 N/mm^2.

- Failed Cubes: In case of failure, immediate investigation including core testing (IS 456, Clause 17.5) shall be initiated and rectification measures approved by the Engineer-in-Charge prior to continuation.
- Cube registers shall record batch number, location, mix ID, date, and 7/28-day results.

4. Reinforcement Quality Checks

Before concreting, QA/QC inspection shall verify:

- Bar diameters, grade (Fe 500D), and heat numbers against MTCs.
- Bar spacing, lapping, and anchorage lengths per IS 2502 and approved drawings.
- Bar cleanliness and rust removal (no loose rust or scale).
- Reinforcement cover blocks (PVC or non-corrosive concrete) ensuring required cover:
- Slabs – 25 mm
- Beams – 35 mm
- Columns – 40 mm
- Footings – 50 mm
- Cover and spacing to be recorded on Reinforcement Inspection Checklists, signed by the Engineer-in-Charge prior to pour clearance.

5. Inspection Hold Points

The following hold points shall be strictly observed and no work shall proceed beyond each stage without written clearance from the Engineer-in-Charge or designated QA/QC authority:

Stage	Hold Points Description	Inspection Authority
HP-1	Before Concreting (Formwork, Reinforcement, embedded items)	Engineer-in-Charge
HP-2	Before formwork Removal (Min. Curing period met, Cube Test>= 75% fck)	QA/QC Engineer
HP-3	Before waterproofing application (Surface Preparation, Slope Verification)	Engineer-in-charge
HP-4	Before Backfilling (Compaction Test results and DPC Completion verified)	QA/QC Engineer
HP-5	Before Structural Steel Painting (Sa 2.5 finish & DFT Primer verified)	QA/QC Engineer

Each hold point inspection shall be documented using an Inspection Request (IR) form, referencing drawings, checklists, and test results.

6. Quality Documentation and Reporting

1. Daily QA/QC Logs:

- Shall record materials received, concrete pouring details, weather conditions, and inspection remarks.
- Maintained and signed daily by the QA/QC Engineer and Engineer-in-Charge.

2. Cube Register:

- Separate register maintained for all cube tests, referencing pour number, location, and mix ID.
- Signed by site engineer and laboratory in-charge, reviewed by the Engineer-in-Charge weekly.

3. Third-Party Testing:

- One independent set of cubes per floor shall be tested by an NABL-accredited laboratory.
- All waterproofing membranes, sealants, and coatings shall undergo third-party material verification and adhesion testing prior to acceptance.
- Reports shall be submitted within 72 hours of testing and filed in the QA/QC dossier.

1. Non-Conformance Reports (NCRs):

- NCRs shall be issued immediately upon detection of material failure, construction deviation, or test non-compliance.
- Root cause analysis and corrective action plan to be submitted within 24 hours.
- Closure of NCRs must occur within 48 hours post-rectification with supporting photographic and test evidence.

7. QA/QC File Structure and Handover Documentation

At project completion, the EPC Contractor shall submit a comprehensive QA/QC dossier containing:

1. Material Approval Sheets and MTCs.
2. Calibration Certificates (batching, weighing, testing machines).
3. Concrete Cube Registers and Mix Design Reports.
4. Reinforcement Inspection Checklists and Cover Verification Sheets.
5. Waterproofing Test Reports and Pond Test Records.
6. Third-Party Testing Reports and NCR Logs.
7. As-built QA Summary with Statistical Compliance Chart (per IS 4905).

All QA/QC documentation shall be digitally archived and one hard copy handed over to the Engineer-in-Charge at final acceptance.

Part B – Architectural and Room-Wise Detailing:

This section outlines the detailed architectural and room-wise scope of work for the High-Performance Sports and Recovery Centre. The architectural and interior finishes are designed to achieve an international standard aesthetic while ensuring durability, functionality, and comfort suitable for elite athletes and staff. The specifications are intended to meet the standards of CPWD and NBC codes, with all materials selected from the latest CPWD make list or as approved by the Engineer-in-Charge.

1.1 Flooring Works (Detailed Specification)

All flooring works shall be executed with utmost precision to achieve a seamless, durable, hygienic, and aesthetically superior finish consistent with the high-performance and functional requirements of the facility.

Each flooring system shall be designed for slip resistance, ease of maintenance, and longevity, appropriate to the intended use of the area.

1.1.1 General Requirements

Surface Preparation:

- The sub-base shall be compacted to 95% Modified Proctor Density.
- A cement mortar screed layer (1:4) shall be laid over the compacted base with proper surface levelling and slope (1% in wet areas).
- Surface irregularities shall not exceed ±3 mm over 2 m straight edge.
- All screeds shall be cured for a minimum of 7 days before the application of any finish layer.
- For areas with epoxy or PVC/rubber finishes, a primer coat compatible with the final finish shall be applied to ensure adhesion.

Expansion and Movement Joints:

- Floor finishes shall incorporate expansion joints at all structural joints and at maximum 4.5 m intervals, sealed with polyurethane sealant (ASTM C920).
- Perimeter joints at walls, columns, and fixed equipment shall be filled with flexible sealant or cove skirting.

Quality Tolerances:

- Level tolerance: ±3 mm over 3 m straight edge.
- Skirting straightness deviation: ≤ 2 mm in 1.5 m length.
- Joints uniformity: ≤ 1 mm variation across adjoining tiles or panels.

Testing and Inspection:

- All flooring surfaces shall be tested for adhesion strength (≥ 1 N/mm²), flatness, and joint alignment prior to handover.
- Final finishes shall be visually inspected for shade uniformity, alignment, joint width, and surface finish.

1.1.2 Flooring Systems by Area

A. Public and Circulation Areas

- Material: Polished vitrified tiles, 600 × 600 mm, 12 mm thick, conforming to IS 15622 (Group B Ia).
- Substrate: Cement mortar screed (1:6) over RCC slab.
- Adhesive: Polymer-modified tile adhesive (IS 15477) of approved make, applied at 3–5 mm bed thickness using notched trowel.
- Jointing: 3 mm joints grouted with epoxy grout (IS 13888) to resist staining and moisture.
- Finish: Mirror-polished, stain-resistant, and scratch-resistant surface, minimum surface hardness ≥ 5 on Mohs scale.
- Accessories: Stainless steel edge trims at expansion joints and terminations.

B. Recovery Centre and Hydrotherapy Zones

- Material: Seamless epoxy resin-based anti-skid flooring, total thickness ≥ 3 mm.
- System: Three-coat application (epoxy primer, self-level epoxy base coat, and polyurethane topcoat).
- Preparation: Concrete substrate mechanically ground to remove laitance and cleaned with vacuum.

- Coving: 100 mm high integral cove skirting, radiused at wall junctions for hygiene and easy maintenance.
- Slip Resistance: R11 classification per DIN 51130.
- Curing: Minimum 72 hours before use; avoid moisture exposure during curing.
- Tests: Adhesion ≥ 1.5 N/mm² (ASTM D4541); Surface evenness ≤ 2 mm over 3 m straight edge.

C. Conditioning Zone and Gym Areas

- Material: Rubberized sports flooring tiles, 20 mm thick, interlocking type, conforming to EN 14877.
- Sub-base: Levelled and sealed concrete screed, moisture-free prior to installation.
- Performance Characteristics:
- Shock absorption ≥ 25%.
- Slip resistance coefficient ≥ 0.6.
- Impact noise reduction ≥ 18 dB.
- Tensile strength ≥ 1.2 MPa.
- Installation: Using manufacturer's approved adhesive; edges cut with precision tools to avoid gaps.
- Maintenance: Surface to be vacuum cleaned and dry-mopped; no wax coatings allowed.

D. Dormitories and Living Areas

- Material: Laminated wooden flooring, 8 mm thick, abrasion resistance class AC4 or higher as per EN 13329.
- Underlayment: 2 mm thick moisture-resistant EVA foam layer to absorb minor substrate irregularities.
- Installation: Floating type interlocking system with expansion gap (8–10 mm) at all perimeters.
- Edge Treatment: Wooden or aluminum skirting, color-matched to flooring.
- Fire Rating: Class Cfl-s1 (EN 13501-1).
- Maintenance: Damp mopping only; excessive water not permitted.

E. Toilets, Wet Areas and Change Rooms

- Material: Anti-skid ceramic tiles, 300 × 300 mm, 8–10 mm thick, IS 15622 (Group B IIa).
- Sub-base: Waterproofing layer below screed; slope minimum 1:100 towards floor drain.
- Adhesive: Polymer-modified tile adhesive, applied at 5 mm thickness.
- Jointing: 3 mm joints filled with epoxy grout, chemical and stain resistant.
- Wall Skirting: Tile dado up to 2.1 m height, neatly aligned and flush with floor finish.
- Testing: Check for slope uniformity using 2 m straight edge; water stagnation not permitted.

F. Staircases and Landing Areas

- **Material:** Polished granite treads and risers, 20 mm thick, hardness ≥ 6 on Mohs scale.
- **Finish:** Non-slip flame-finish or machine-polished surface depending on area.

- **Nosing:** Stainless steel anti-skid nosing strip (25 mm width) fixed with countersunk screws and epoxy sealant.
- **Joints:** ≤ 2 mm wide, filled with coloured epoxy.
- **Edge Protection:** Bull-nose finish at tread edges; continuous alignment across flights.

1.1.3 Testing, QA/QC and Acceptance

Parameter	Standard	Frequency	Acceptance Criteria
Flatness (2 m Straight edge)	IS 2571	Each 50 M^2	<= 3 mm deviation
Adhesion Strength (Tile/Epoxy)	ASTM C1583	1 per area	>= 1 N/MM^2
Slip Resistance (Wet)	DIN 51130	1 per type	R10 Min
Tile alignment & Joint uniformity	Visual	Each Area	+- 1 MM
Slope Verification (Wet Area)	Field Check	Each Area	>=1% of Drain
Shade Finish Uniformity	Visual	Each room	Consistent Tone
Waterproofing Underlayment Test	IS 3067	Each floor	72 Hours Ponding Test- No Leakage

All QA/QC inspections shall be recorded in Flooring Inspection Checklists and signed by the Engineer-in-Charge before acceptance. Any hollow-sounding tiles or delamination's shall be replaced at the contractor's cost.

1.2 Wall Finishes (Detailed Specification)

General Scope

This section covers the surface preparation, plastering, painting, tiling, waterproofing, and decorative cladding finishes for both internal and external walls. All finishes shall be applied only on fully cured, dry, and defect-free surfaces, ensuring uniform colour, texture, and adhesion.

All works shall comply with the latest CPWD Specifications, IS 2395 (Parts 1 & 2), and manufacturer's application guidelines.

1.2.1 Internal Wall Finishes

A. Surface Preparation

- Surfaces shall be cleaned, free from dust, oil, efflorescence, and loose particles.
- All cracks exceeding 0.5 mm shall be cut in 'V' shape and filled with polymer-modified crack filler.
- Internal plaster (12 mm CM 1:4) shall be cured for at least 14 days and dried for minimum 7 days before any paint or putty application.
- Surface shall be sanded smooth with 120-grade emery prior to primer application.

B. Painting System – Standard Internal Areas

- Primer: One coat of acrylic cement primer conforming to IS 109.
- Putty: Two coats of white cement-based putty (IS 15477) to achieve an even, smooth surface (minimum 1.5 mm total thickness).
- Paint: Two coats of high-quality plastic emulsion paint (washable type, low-VOC formulation), applied by roller or spray in approved shade and sheen level.
- Dry Film Thickness (DFT): Minimum 80 µm overall.

- Finish: Uniform matt or soft sheen; no patchiness, brush marks, or roller overlap allowed.

C. Special Area Finishes – Hydrotherapy, Physiotherapy, and High-Humidity Zones

- Waterproofing Base Layer: One coat of polyurethane or acrylic-based liquid-applied waterproof membrane (minimum 1.0 mm DFT), applied over plaster before tile fixing.
- Wall Finish: Non-absorbent ceramic or vitrified tiles up to ceiling height, fixed with polymer-modified adhesive and epoxy grout (IS 15477 / IS 13888).
- Performance:
- Water absorption ≤ 0.5%.
- Chemical resistance: Resistant to chlorine and cleaning agents.
- Adhesion strength ≥ 1 N/mm² (pull-off test).
- Corners and Junctions: Rounded with 50 mm cove for hygiene and easy maintenance.

D. Specialized Finishes – Office, Lounge, and Treatment Rooms

- Texture Finish / Wallpaper / Acoustic Paneling:
- Texture coatings: Acrylic-based, trowel-applied, light sand or orange peel texture.
- Wallpaper: Non-woven vinyl-backed type, washable, fire retardant (Class B-s2, d0).
- Acoustic panels: Fabric-faced or perforated gypsum, NRC ≥ 0.70.
- All finish materials shall be selected based on design intent and approved mock-ups.

1.2.2 External Wall Finishes

A. Polymer-Modified Plaster (Base Coat)

- External walls shall receive 18 mm thick two-coat polymer-modified cement plaster (base coat 12 mm CM 1:4 + finish coat 6 mm CM 1:3 with waterproofing additive conforming to IS 2645).
- Surface shall be cured for 14 days minimum, and moisture content shall not exceed 12% prior to coating application.

B. Weatherproof Acrylic Paint System

- Primer: One coat of exterior acrylic primer (IS 5411 Part 1), applied at 0.25 L/m².
- Top Coats: Two coats of 100% acrylic weatherproof emulsion paint, UV resistant, dirt and fungus resistant, conforming to IS 5411 (Part 2).
- Dry Film Thickness: Minimum 120 µm total for system.
- Colour: As approved by the Architect, ensuring uniformity across façade panels.
- Performance:
- Water permeability ≤ 0.1 ml/cm² (DIN 1048).
- UV stability: No chalking for 5 years.
- Adhesion: ≥ 1.0 N/mm².
- Curing Interval: Minimum 6 hours between coats at 25°C.

C. Textured Coating (Selective Facades)

- Material: Acrylic resin-based ready-mix textured coating (grainy/sand finish), applied in two layers with final sealing coat.
- Thickness: 1.5–2.0 mm overall.
- Surface Preparation: Primer coat followed by base coat for adhesion.
- Finish: Uniform granular texture; mock-up to be approved prior to execution.

D. Stone Cladding (Architectural Accent Areas)

- Material: Natural granite/sandstone/slate (20 mm thick), machine-cut, pre-sealed with silane-based sealer.

- **Fixing System:**
- Dry cladding method: Stainless steel anchor system (Grade 304/316), tested for wind suction and seismic movement.
- Joint Width: 6 mm filled with UV-resistant silicone sealant.
- Ventilated Cavity: Minimum 25 mm behind stone for drainage and thermal expansion.
- **Tests:**
- Pull-out test for anchors ≥ 3 kN.
- Stone flexural strength ≥ 5 N/mm².
- No efflorescence or seepage after 72-hour water spray test.

1.2.3 QA/QC and Acceptance Criteria

Parameter	Standard/Test	Frequency	Acceptance Criteria
Paint DFT Measurement	IS 1477/ IS 5411	1 per 200 M^2	>= 80 µm internal,>= 120 µm external
Shade and Gloss Uniformity	Visual	Each Wall	No Visible Variation
Tile Adhesion test	ASTM C1583	1 Per Area	>=1 N/MM^2
Water Permeability (External Coating)	DIN 1048	1 per Facade	<=0.1ml/CM^2
Stone Cladding Anchor Pull-out	ASTM C1513	1 Per Façade	>= 3 KN
Paint Washability	IS 15489	Random	No Flaking after 100 Cycles
Crack Width Check	IS 2395	Each Wall	<=0.5 MM

All QA/QC inspections shall be recorded in Wall Finish Checklists and approved by the Engineer-in-Charge before the next stage of work proceeds.

1.3 Ceiling Finishes:

This section covers the design, materials, fabrication, and installation of all ceiling systems, including false ceilings, acoustic ceilings, moisture-resistant panels, and exposed service ceilings.

The ceiling systems are intended to:

- Conceal mechanical, electrical, plumbing, and fire-fighting (MEP) services.
- Provide acoustic comfort, aesthetic appeal, and easy access for maintenance.
- Ensure compliance with fire safety, hygiene, and environmental performance requirements.

All materials and installation shall conform to CPWD Specifications (Vol. II, 2020), IS 2095 (Part 1 & 3) for gypsum board, IS 8225 for acoustic panels, IS 277 for GI framework, and NBC 2016 – Part 4 (Fire & Life Safety).

1.3.1 General Requirements

1. Coordination with Services:

- False ceiling layouts shall be coordinated with MEP service drawings to accommodate lighting, sprinklers, diffusers, smoke detectors, and access panels.
- Ceiling height variations and bulkheads shall be finalized based on HVAC and electrical routing prior to execution.

2. Structural Supports:

- All suspension systems shall be supported from the main RCC structure using GI adjustable hangers and cleats anchored with expansion fasteners (Hilti/Fischer or equivalent).
- Suspension shall not rely on MEP conduits, ducts, or secondary framing.
- Maximum hanger spacing: 1,200 mm c/c; perimeter channels fixed at 450 mm c/c.

3. Tolerances and Flatness:

- Deviation in ceiling plane: ≤ 3 mm in 2 m straight edge.
- Level difference between adjacent panels: ≤ 1 mm.

4. Fire Safety & Accessibility:

- Ceiling systems in corridors and common areas shall be Class 1 flame spread (ASTM E84).
- Access panels (minimum 600×600 mm) shall be provided above MEP junction boxes, valves, and dampers.

1.3.2 Area-wise Ceiling Systems

A. Common Areas and Offices

- Type: Gypsum board false ceiling with jointless smooth finish.
- Material:
- 12.5 mm thick tapered edge gypsum board conforming to IS 2095 (Part 1), fixed on GI framework made from corrosion-protected sections (IS 277 zinc coating ≥ 120 g/m²).
- Primary channels (38 × 12 mm) @ 1200 mm c/c, secondary channels @ 450 mm c/c, suspended with 4 mm GI rods and adjustable hangers.
- Jointing: Joints reinforced with paper tape and finished with 3 layers of proprietary jointing compound, sanded smooth.
- Finish: One coat primer, two coats putty, and two coats of acrylic emulsion paint (sheen/matt finish).
- Fire Rating: 1-hour fire resistance per BS 476 Part 4.
- Integration: Recessed LED downlights and linear lights mounted flush with ceiling plane.

B. Recovery and Conditioning Zones

- Type: Acoustic modular ceiling tiles (600 × 600 mm) for sound absorption and maintenance accessibility.

- Material: Mineral fibre tiles conforming to ASTM C423 and IS 8225, with Noise Reduction Coefficient (NRC) ≥ 0.70.
- Framework: Lay-in exposed GI T-grid system (24 mm wide), powder-coated white, suspended from ceiling with adjustable hangers 1200 mm c/c.
- Tile Thickness: Minimum 16 mm, square edge, humidity resistance ≥ 90% RH.
- Installation: Clip-in system with anti-lift features for stability against wind pressure and vibrations.
- Acoustic Performance:
- NRC ≥ 0.70
- Sound Attenuation (CAC) ≥ 35 dB
- Finish: Fine-textured white surface, washable and stain-resistant.

C. Wet Areas and Toilets

- Type: Moisture-resistant ceiling tiles for humid conditions.
- Material: PVC-laminated gypsum tiles, 595 × 595 × 8 mm thick, backed with 12.5 mm moisture-resistant gypsum board (IS 2095 Part 3).
- Framework: GI T-grid system galvanized and powder-coated for corrosion protection.
- Fixing: Tiles laid over GI frame, easily removable for service access.
- Resistance Properties:
- Humidity resistance: 100% RH.
- Fungal growth: Nil (ASTM D3273).
- Washable PVC laminate with sealed edges to prevent moisture ingress.
- Lighting: Recessed moisture-proof LED panels (IP65 rated).

D. Service Corridors and Utility Zones

- Type: Exposed painted ceiling.
- Treatment: Concrete soffits and exposed services (ducts, conduits, pipes, and cable trays) to be cleaned, wire-brushed, and painted with fire-rated intumescent coating providing minimum 2-hour fire resistance per ASTM E119.
- Finish: Matt acrylic paint (off-white) over primer coat for a clean industrial appearance.
- Labeling: Service identification bands (colour-coded) applied as per IS 2379 for easy maintenance.

1.3.3 Lighting and Integration Requirements

- **Recessed LED Downlights:**
- Luminaires shall be high-efficiency LED type (≥110 lm/W) with glare control optics.
- Cutouts and mounting rings shall be pre-marked and coordinated with ceiling grid layout.
- **Linear / Cove Lighting:**
- Integrated aluminum profile channels with concealed LED strips, 3000–4000K color temperature.
- Dimmable drivers and diffusers for uniform illumination.
- **Suspended Fixtures:**

- Where specified, suspended linear luminaires shall be hung independently from ceiling frameworks using separate anchors.
- **Maintenance:**
- All lighting systems shall remain accessible without disturbing ceiling finishes.

Parameter	Standard/Test	Frequency	Acceptance Criteria
Ceiling Levelness	Field Check (2 m Straight edge)	Each Area	<=3 MM Deviation
Framework plumb & Spacing	IS 2095 / IS 277	Each 10 m^2	As per manufacturer layout
NRC Value (Acoustic Tile)	ASTM C423	1 Per Area	>=0.70
Humidity Resistance (PVC Tiles)	ASTM D3273	Random	No Fungal Growth
Paint DFT	IS 1477	Random	>= 80µm
Fire Resistance (Gypsum Ceiling)	BS 476 Part 4	One Type Test	>= 60 Minutes
Light Integration Inspection	Field	Each Ceiling Area	Flush alignment & No Sagging

All QA/QC checklists, level readings, and alignment verifications shall be jointly signed by the QA/QC Engineer and Engineer-in-Charge before area handover.

1.4 Joinery Works – Doors and Windows (Detailed Specification)

This section includes the design, fabrication, supply, and installation of all door and window systems, comprising main entrance assemblies, internal and toilet doors, UPVC and aluminum windows, associated frames, glazing, and hardware fittings.

All joinery works shall be executed strictly as per approved architectural shop drawings, ensuring dimensional accuracy, functional performance, aesthetic alignment, and long-term durability. All products shall conform to relevant Indian Standards and CPWD approved makes.

1.4.1 General Requirements

1. Fabrication Standards:

- Joinery items shall be factory-fabricated to ensure precision in joints, edge-banding, and finish.
- Site modifications shall be minimized; wherever required, cutting edges shall be sealed with appropriate edge protectors.
- Tolerances:
- Frame alignment: ±1.5 mm
- Door shutter clearance: 3 mm at sides, 6 mm at bottom (max)
- Plumb and level deviation: ≤ 2 mm/m

2. Installation:

- All frames shall be installed plumb and true, anchored to masonry or RCC using stainless steel fasteners (minimum 3 per side jamb).
- Door shutters shall swing freely without binding or rattling.
- Protective coverings shall be retained till final handover to avoid damage.

3. Hardware and Ironmongery:

- All hinges, handles, stoppers, locks, closers, bolts, and fasteners shall be stainless steel Grade 304 conforming to IS 1341 and IS 3564.
- Locks and access systems shall be compatible with electronic access control as per security requirements.
- All hardware items shall be from the latest CPWD approved make list or equivalent approved by the Engineer-in-Charge.

1.4.2 Door Systems

A. Main Entrance Doors

- **Type:** Automatic sliding glass door with motion sensor and access control integration.
- **Glass:** 12 mm thick toughened safety glass, conforming to IS 2553 (Part 1).
- Lamination: Inner surface laminated with 1.52 mm PVB safety film for shatter resistance.
- **Operation:**
- Motorized system with infrared motion sensors (range ≥ 4 m).
- Integrated electromagnetic lock compatible with building access system.
- Fail-safe manual opening in case of power failure.
- **Frame:** Aluminium track and side profiles in powder-coated aluminium (minimum 60 µm coating thickness), color as per architectural selection.
- **Performance:**
- **Opening speed:** 0.5–0.7 m/s
- **Sound attenuation:** ≥ 30 dB
- **Life cycle:** ≥ 1 million operations
- **Accessories**: Safety beam sensors, top-mounted operator cover, emergency breakout function.

B. Internal Doors

- Type: Solid core flush door shutters, veneer or laminate finish.
- Door Shutter:
- 45 mm thick, solid particleboard or high-density core with hardwood stiles and rails, conforming to IS 2202 (Part 1).
- Face veneer of 0.6 mm natural veneer or 1.0 mm laminate finish (Matt / Gloss as approved).
- Edges sealed with PU coating.
- **Frame:**
- Seasoned hardwood (teak or steam beech) conforming to IS 4020, moisture content ≤ 12%.
- Alternatively, powder-coated aluminum frames for corridors or high-traffic areas.
- **Finish:** Two coats of polyurethane (PU) or melamine polish over sealer, or factory-pressed laminate.
- **Hardware:**
- SS ball-bearing hinges (3 nos.), lever handle set, magnetic latch, and door stopper.
- Hydraulic door closer (IS 3564) for main internal corridors.

- **Performance:**
- **Sound insulation (optional):** Up to Rw 32 dB for select office doors using acoustic seals.
- **Fire resistance (optional):** Up to 30 minutes with fire-rated core where specified.

C. Toilet Doors

- **Type:** Moisture-resistant, PVC-coated flush doors for wet areas.
- **Shutter:**
- 30–35 mm thick, PVC-faced on both sides with MS or hardwood internal frame.
- **Core:** Solid PVC foam or blockboard with waterproof adhesive.
- **Finish:** Factory-laminated PVC film, heat-sealed at edges, washable and stain-resistant.
- **Frame:**
- Powder-coated aluminum (minimum 1.6 mm thick), mitred joints, and concealed screw fixing.
- **Colour:** Satin silver or as per interior scheme.
- **Hardware:** SS hinges, privacy latch, indicator bolt, and rubber door buffer.
- **Performance:**
- **Water absorption:** Nil (IS 4020).
- **Dimensional stability:** No warping up to 90% RH.

1.4.3 Window Systems

A. UPVC Windows (Performance Type)

- **Profile:** Multi-chambered UPVC frame (minimum wall thickness 2.5 mm), fusion-welded joints, steel-reinforced sections conforming to EN 12608:2016.
- **Glazing**: Double-Glazed Unit (DGU) with 5 mm + 12 mm air gap + 5 mm float glass (IS 16231).
- **Performance:**
- **Thermal transmittance (U-value):** ≤ 2.8 W/m²K
- **Sound reduction index (Rw):** ≥ 35 dB
- **Air infiltration:** ≤ 1.0 m³/h·m² @ 100 Pa
- **Water tightness:** Class 7A (EN 12208)
- **Wind load resistance**: Class C3 (IS 875 Part 3, 47 m/s)
- **Hardware:** SS friction hinges, multipoint locking system, and EPDM weather seals.
- **Accessories:**
- Integrated motorized roller blinds with remote operation.
- Mosquito mesh shutter (SS 304 fine mesh, sliding/removable type).
- **Finish:** White or woodgrain textured finish (as approved).
- **Drainage:** Pressure equalization chamber and concealed drainage system to prevent water ingress.

1.4.4 Hardware, Fittings and Accessories

- **Hinges:** SS 304 ball-bearing hinges (IS 1341) – minimum 100×30×2.5 mm.
- **Handles:** SS lever handles, satin finish, with escutcheon plates.
- **Locks:** Mortise type, 5-lever or euro cylinder (IS 204).

- **Door Closers:** Hydraulic type (IS 3564), closing speed adjustable.
- **Stoppers and Holders:** Magnetic type, floor- or wall-mounted.
- **Threshold Seals:** EPDM or neoprene drop seals for acoustic and dust protection.
- **Hardware Finish:** Brushed stainless steel (Grade 304) or satin anodized aluminum.

1.4.5 QA/QC and Testing Requirements

Test/Parameter	Standard	Frequency	Acceptance Criteria
Door Impact & Edge Strength	IS 4020	Each Type	No Cracking or delamination
Water Resistance (Toilet Doors)	IS 4020 / IS 4911	1 Per Batch	No Swelling, Delamination
Glass Impact Test	IS 2553/EN 12600	Each Glass Type	Safety Glass – No Sharp Fragments
DGU Leakage	EN 1026/ IS 16231	1 Per Batch	<= 1.0 m^3/h-m^2 @ 100 Pa
Acoustic Test (Windows)	ISO 140-3	1 Type Test	Rw = 35 dB
Door Frame Alignment	Field Check	Each Installation	<=2 mm/m Deviation
Hardware Operation	Manual	Each Door/Window	Smooth & Silent Operation
Finish and Coating Thickness	ASTM D7091	Random	>=60 µm for powder coating

All test certificates (MTCs), inspection reports, and installation checklists shall be compiled and signed by the Engineer-in-Charge and QA/QC Engineer before handover.

1.5 Glazing and Façade Systems (Detailed Specification)

This section covers the design, fabrication, supply, and installation of all façade elements, including curtain walls, double-glazed units (DGUs), structural glazing, aluminum framing systems, ACP cladding, and sealant joints.

The complete façade system shall be engineered to provide:

- Optimum thermal insulation (U-value ≤ 2.8 W/m²·K)
- Superior acoustic performance (Rw ≥ 35 dB)
- Weather-tightness, water and air infiltration resistance
- Aesthetically aligned profiles, consistent jointing, and durability suitable for high-humidity climatic conditions in Assam

All façade elements shall be designed for the design wind speed of 47 m/s, per IS 875 (Part 3):2015, and seismic performance per IS 1893 (Part 1):2016 (Zone V).

1.5.1 System Description

A. Structural Glazing System

- Type: Semi-unitized / structural silicone-bonded glazing system with concealed frame.
- Framing Material:
- Aluminum alloy conforming to IS 733 (extruded) and IS 1285 (wrought products).
- Minimum wall thickness of aluminum sections: 2.5 mm for mullions, 3.0 mm for transoms in high-wind zones.
- Surface finish: Polyester powder coating of minimum 60 µm DFT (AA 603-1), colour as per architectural design.
- Glass Specification:

- Double-Glazed Unit (DGU): 6 mm + 12 mm air gap + 6 mm toughened glass.
- Outer pane: Low-E coated (soft coat, emissivity ≤ 0.04).
- Spacer: Aluminum spacer with desiccant fill and dual-seal system (primary PIB, secondary structural silicone).
- Gas fill: Air / Argon (optional, for improved insulation).
- Sealant: Structural silicone sealant conforming to ASTM C1184, minimum tensile strength 0.8 MPa.
- Backing Rod and Weather Seal: Closed-cell polyethylene rod and neutral-cure silicone sealant conforming to ASTM C920.
- Support System:
- Glazing panels mechanically supported on four edges with dead load transferred through setting blocks (neoprene).
- Joints designed for ±15 mm movement.
- Drainage and weep holes provided at mullion-transom junctions.

B. Double-Glazed Windows / Panels

- Type: Openable and fixed DGU panels integrated within the curtain wall system.
- Glass Make-Up: 6 mm outer clear toughened + 12 mm air gap + 6 mm inner clear toughened glass.
- Thermal Performance:
- U-value ≤ 2.8 W/m²·K
- Solar Heat Gain Coefficient (SHGC) ≤ 0.40
- Visible Light Transmission (VLT): 45–55%
- Acoustic Performance: Rw ≥ 35 dB per ISO 140-3.
- Edge Protection: DGU edges sealed with double-seal PIB + silicone.
- Testing: Each DGU batch shall be tested for dew point (≤ -40°C) and desiccant efficacy per EN 1279-6.

C. ACP Cladding System

- **Panel Thickness:** 4 mm ± 0.2 mm.
- **Composition:** 0.5 mm aluminium skin + 3 mm LDPE / FR core + 0.5 mm aluminium skin.
- **Coating:** PVDF (Polyvinylidene Fluoride) finish, minimum 25 µm DFT, conforming to AAMA 2605; exterior grade, UV and chemical resistant.
- **Core Material:** Fire-retardant (FR) mineral-filled core with Class B-s1, d0 fire rating (EN 13501-1).
- **Substructure:**
- **Aluminium framework** 50×25×2.5 mm or equivalent.
- **Brackets and cleats**: Stainless steel Grade 304 / 316.
- **Fixing:**
- Panels riveted with stainless steel fasteners and concealed screws.
- Joints: 12–15 mm wide, sealed with closed-cell backer rod and weather silicone sealant.
- Drainage: Horizontal joints designed as open-drain channels to avoid water accumulation.

- Tolerances:
- Panel alignment: ±2 mm across 3 m length.
- Joint width variation: ±1 mm.

1.5.2 Performance Requirements

Parameter	Standard	Test/Method	Min. Requirement
Wind Load Resistance	IS 875 (Part 3)	ASTM E330	No Permanent deformation or failure at 1.5 x design load.
Air Filtration	ASTM E283	@ 300 Pa	<=1.5 m^3/h-m^2
Water Penetration Resistance	ASTM E 331	@ 300 Pa	No Leakage
Structural Silicon Adhesion	ASTM C 1135	Each Batch	>=0.8 MPa
Glazing Deflection (Panel)	ASTM E 1300	-	<=L/175 or 25 MM (Whichever is less)
Thermal Transmittance (U-Value)	ISO 10292	-	<=2.8 W/M^2-k
Acoustic Attenuation (Rw)	ISO 140-3	-	>= 35 dB
Impact resistance	EN 12600	-	Class 1 (B)1 or better
Fire Performance (ACP Core)	EN 13501-1		Class-B-s1,d0

All system performance tests (mock-up or type tests) shall be conducted by NABL or third-party accredited laboratories prior to full-scale implementation.

1.5.3 Fabrication and Installation

1. Fabrication:

- Carried out in a controlled environment using CNC cutting and routing machines to ensure precise joint alignment and dimensional accuracy.
- Profiles pretreated by chromate or powder-coating process to ensure corrosion resistance.

2. Erection and Tolerances:

- Mullions and transoms aligned to ±2 mm deviation.
- Glazing installed with approved sealants and weather gaskets to prevent thermal bridging.
- Verticality deviation ≤ 1.5 mm/m height, horizontal alignment ≤ 2 mm over 3 m.

3. Thermal and Moisture Control:

- Vapor barriers installed where required to prevent condensation.
- All interfaces between glass and ACP panels shall be properly sealed using dual weatherproofing layers.

4. **Maintenance Provisions:**

- Provision for façade cleaning system anchors and safety hooks integrated at terrace level.
- All façade elements accessible for maintenance via removable panels or access hatches.

1.5.4 QA/QC and Inspection

Inspection Items	Test/Standard	Frequency	Acceptance Criteria
Aluminium Profile Alloy & thickness	IS 733 / IS 1285	Each Batch	As per Design >= 2.5 MM
Glass Thickness Verification	IS 14900	Each Delivery	+-0.2 MM
DGU Seal Integrity (Dew Point)	EN 1279-6	Per 500 M^2	<=-40 ^0C
Structure Silicon Adhesion	ASTM C 1135	Each Lot	=0.8 MPa
Coating Thickness (Powder/PVDF)	ASTM D7091	Random	>= 60 µm (Powder)/25 µm (PVDF)
Water Leakage Test (Site)	ASTM E1105	1 Per Façade	No Visible Leakage
Visual Alignment & Joint Uniformity	Field	100%	Deviation <= +- 2 MM

All test results, inspection reports, and as-built records shall be reviewed and approved by the Engineer-in-Charge prior to acceptance.

2. ROOM-WISE FINISHING AND INTERIOR SPECIFICATIONS

2.1 Recovery Centre (Detailed Specification)

The Recovery Centre shall serve as a high-performance rehabilitation and wellness hub consisting of hydrotherapy, cryotherapy, massage, and relaxation suites designed to restore athlete performance, muscle recovery, and physiological well-being.

This area shall maintain strict hygiene, controlled temperature and humidity, and waterproof durability, ensuring seamless coordination between architectural, MEP, and automation systems.

2.1.1 General Design Intent

The Recovery Centre shall be designed as a low-maintenance, sterile, and moisture-controlled zone, compliant with NBC 2016 (Part 8 – Building Services) and ASHRAE indoor air quality standards.

All finishes shall be smooth, non-porous, anti-fungal, and resistant to moisture, cleaning agents, and disinfectants.

Interior design shall emphasize calming tones, indirect lighting, and acoustic comfort, promoting mental and physical relaxation.

2.1.2 Architectural Finishes

A. Wall Finishes

- Type: Washable and water-resistant PU-coated finish in general areas; full-height ceramic or vitrified wall tiling in wet zones.
- Material:
- 1.5 mm thick PU high-gloss coating over cement plaster base (IS 2395).
- Tile finish: 600×300 mm vitrified wall tiles with R10 slip rating up to 2.4 m height.
- Base Preparation: Polymer-modified plaster with waterproof admixture (IS 2645).
- Performance:
- Surface finish: Smooth, scrub-resistant (≥ 1000 scrub cycles, ASTM D2486).
- Water absorption: <0.1%.
- Anti-fungal, anti-bacterial coating certification as per ASTM G21.
- Corners & Junctions: 50 mm radius coving at wall–floor junctions to avoid dirt accumulation.

B. Floor Finishes

- Type: Seamless, anti-skid epoxy resin flooring suitable for wet and dry therapy rooms.
- System: 3-layer epoxy application, primer, self-leveling base (2 mm), and topcoat (1 mm) with non-slip aggregate finish.
- Thickness: Minimum 3 mm overall.
- Performance:
- Slip resistance: R11 (DIN 51130).
- Chemical resistance: Resistant to chlorine, saline, and cleaning solutions.
- Impact resistance: ≥ 4 Nm (ASTM D2794).
- Slope: Minimum 1:100 towards linear floor drains.
- Testing: Pull-off adhesion ≥ 1.5 N/mm² (ASTM D4541).

C. Ceiling Finishes

- Type: Acoustic moisture-resistant gypsum ceiling with integrated lighting and service access panels.
- Material:
- 12.5 mm perforated gypsum board with Noise Reduction Coefficient (NRC) ≥ 0.65.
- Framework: Galvanized GI sections (IS 277, zinc 120 g/m²).
- Finish: PU-coated surface for anti-fungal protection.
- Lighting: Cove and recessed LED luminaires (IP44), providing uniform illumination of 300–500 lux.
- Access Panels: 600×600 mm removable type for MEP maintenance.

2.1.3 Fixtures & Equipment:

Fixture	Specification	Material/Standard
Hydrotherapy Tubs	Temprature-Controlled Stainless Steel tubs with digital control panels: overflow and suction balancing systems integrated with plantroom supply.	SS 304/316, IPX7 rated controls.
Crypto Therapy Chamber	Single-body unit with external compressor system, temperature range -110 ^{0}C to -140 ^{0}C, Humidity <10%	CE Certified/ EN 60204
Shower Cubicles	Fully Enclosed, frameless toughened glass enclosure with thermostatic mixers and overhead rain showers.	10 mm glass (IS 2553), SS 304 fixtures
Towel Warmers and Steam Units	Electric Towel rails and modular steam units integrated with HVAC exhaust system.	IPX4 rated equipment.
Mirrors and Accessories	Fog-Free LED Mirrors, SS Shelves and Dispensers.	IP 44 electric safety rating.

All fixtures shall be installed as per manufacturer's instructions and coordinated with plumbing, electric and HVAC system.

2.1.4 Environmental and MEP Controls

A. HVAC and Humidity Control

- **Temperature Range:** 22°C ± 1°C.
- **Relative Humidity:** 55–60% RH maintained via dehumidifier units.
- **Air Changes:** Minimum 10 ACH (Air Changes per Hour).
- **Filtration:** MERV 10 filters for return air ducts.
- **Diffusers:** Linear slot diffusers integrated in ceiling grid for even air distribution.
- **Exhaust:** Negative pressure maintained in wet areas with exhaust capacity ≥ 10 ACPH.
- **Condensate Drain:** Double-trap system with insulated drain lines.

B. Plumbing and Drainage

- Water Supply: CPVC concealed piping with thermal insulation.
- Drainage: SS floor gullies with anti-odour traps; 100 mm Dia PVC soil/waste lines.
- Hot Water System: Centralized solar-assisted heat pump system delivering 45–55°C.

C. Electrical and Lighting

- **Lighting:**
- **Ambient illumination:** 300–500 lux.
- **Colour Temperature:** 4000K neutral white.
- **IP-rated luminaires:** Minimum IP44 in damp zones, IP65 near wet areas.
- **Switchgear:** Modular, corrosion-resistant faceplates, concealed conduits.
- **Sockets:** 230 V, 13A, shuttered type with RCD protection.

2.1.5 Building Automation and Controls (BMS Integration)

- **Lighting Automation:**
- Motion sensors and dimmable lighting zones controlled via BMS interface.
- Adjustable brightness and scene settings for therapy modes (Relax, Active, Hydro).
- **Temperature and Humidity:**
- Digital thermostats with humidity sensors interfaced to central BMS.
- Scheduled HVAC operation based on occupancy.
- Odor and Air Quality Control:
- CO_2 sensors for ventilation modulation.
- Ozone or UV-C based odor treatment units in exhaust ducts.
- **Safety Integration:**
- Emergency stop for all hydrotherapy equipment.
- Panic buttons and audiovisual alarms linked to control room.

Parameter	Test/Standard	Frequency	Acceptance Criteria
Surface Flatness	IS 2571	Each Room	<= 3 MM in 2 M
Epoxy Adhesion Strength	ASTM D 4541	1 per room	>=1.5 N/MM^2
PU Coating Scrub Test	ASTM D2486	1 per Batch	>= 1000 Cycles
Tile Water absorption	IS 15622	1 Per 500 M^2	<=0.5 %
Acoustic Performance (Ceiling)	ASTM C 423	1 Per Type	NRC>=0.65
Lighting Lux Level	IS 3646	Each Room	300-500 lux

Humidity Calibration	Field Check	Each Room	55-60% RH Maintained
BMS Interface Testing	Commissioning	All Rooms	All sensor Functional

All tests and inspections shall be documented in the Room Completion Dossier, signed by the QA/QC Engineer and the Engineer-in-Charge before occupancy.

2.2 Conditioning Zone (Detailed Specification)

The Conditioning Zone is designed as the core strength and fitness area of the High Performance Centre. It shall accommodate free weights, resistance training equipment, cardio machines, and functional training modules.

The finishes, layout, and environmental systems shall prioritize durability, shock absorption, acoustic comfort, safety, and energy efficiency, supporting continuous use by elite athletes.

2.2.1 General Design Intent

The Conditioning Zone shall combine industrial grade finishes with athlete comfort, ensuring long life under heavy usage.

All materials shall be impact-resistant, vibration-dampening, and acoustically controlled to minimize structure-borne and airborne noise transmission.

Environmental design shall ensure uniform lighting, balanced air conditioning, and smart control integration for operational efficiency.

2.2.2 Architectural Finishes

A. Flooring

- **Type:** High-impact, non-slip rubberized interlocking flooring designed for gym and weight-lifting applications.
- **Material:** Recycled vulcanized rubber tiles, 20 mm thick, density ≥ 950 kg/m³, conforming to EN 14904 and ASTM F2772 standards.
- Installation:
- **Sub-base:** Smooth cement screed (IS 2571) with polyurethane primer coat.
- Tiles laid in interlocking pattern; joints sealed with flexible PU adhesive.
- Performance:
- **Shock absorption**: ≥ 25%.
- **Impact noise reduction**: ≥ 18 dB (ISO 10140).
- **Slip resistance:** ≥ 0.6 coefficient (ASTM D2047).
- **Tensile strength:** ≥ 1.2 MPa.
- **Abrasion loss:** ≤ 0.3 g (DIN 53516).
- **Drainage:** Minor floor slopes (1:200) maintained towards perimeter for ease of cleaning.
- **Maintenance:** Dry-mop daily; wet-clean using neutral pH cleaners only.

B. Wall Finishes

- **Type:** Combination of impact-resistant wall panels, acoustic absorbers, and mirror sections to aid athlete monitoring and training.
- **Material & Finish:**
- Lower wall (up to 1.2 m): Rubberized or high-density polyethylene (HDPE) impact panels, 10–12 mm thick, fixed on aluminium framing with concealed fasteners.
- Mid-to-upper section: Laminated MDF acoustic panels (NRC ≥ 0.65) alternating with 6 mm toughened glass mirrors (IS 2553).

- Paint finish (above 2.4 m): Acrylic emulsion in satin sheen, washable, and stain resistant.
- **Joints:** Expansion joints sealed with polyurethane mastic sealant.
- **Corner Protection**: SS corner guards (Grade 304) in high-traffic areas.
- **Performance:**
- **Impact resistance:** No visible denting under 20 J impact.
- **Acoustic absorption:** NRC ≥ 0.65 for panelled areas.

C. Ceiling Finishes

- **Type:** Open industrial ceiling with suspended acoustic panels and integrated linear LED lighting.
- **Material:**
- Exposed RCC slab finished with anti-dust epoxy paint.
- Suspended baffle-type acoustic panels, 50 mm thick, glass-fibre core with fabric wrapping.
- **Panel arrangement:** Linear layout at 600 mm spacing.
- NRC: ≥ 0.70 (ASTM C423).
- Lighting Integration: Linear continuous LED luminaires recessed between acoustic panels; service conduits concealed within cable trays above panel plane.
- **Suspension:** GI wire hangers anchored into ceiling slab with expansion fasteners.
- **Fire Performance:** Class A per ASTM E84 (flame spread index ≤ 25).

2.2.3 Lighting and Electrical Works

A. Lighting Design

- **Illuminance Level:** Minimum 500 lux uniform across the floor, with glare index ≤ 19 (CIBSE LG4).
- **Fixtures:**
- Linear suspended LED lights (CRI ≥ 85, CCT 4000K neutral white).
- Recessed downlights at entry zones and pathways.
- Emergency lighting at 10% intensity during power failure (IS 3646).
- Control:
- Occupancy sensors for automatic switching and dimming.
- Daylight sensors for energy optimization.
- **Mounting Height:** Fixtures suspended at 3.2–3.5 m above finished floor level.
- **Wiring:** FRLS copper cables in GI conduits, properly earthed and concealed within ceiling systems.

B. Power and Data Systems

- **Dedicated Circuits:**
- Power sockets (16A) for cardio and weight machines on separate RCD-protected circuits.
- Equipment load circuits to have isolated grounding to avoid electromagnetic interference (EMI).
- **Data Connectivity:**
- RJ45 outlets (Cat 6A) for machine monitoring, audio systems, and BMS connectivity.

- Cable management via recessed floor boxes and under-tile ducting.
- Emergency Power: Connected to UPS-backed circuits for essential lighting and control.

2.2.4 Environmental and Acoustic Control

A. HVAC System

- Temperature Range: 22–24°C.
- Air Changes: 8–10 per hour.
- Supply Air Diffusers: Linear slot diffusers positioned along equipment zones to avoid direct drafts.
- Return Air Grilles: Wall-mounted acoustic type with filter access.
- Noise Level: ≤ 45 dB(A) at 1.5 m height.
- Vibration Isolation:
- Rubber anti-vibration mounts for AHU supports.
- Acoustic flexible connectors for ducts.

B. Acoustics and Noise Control

- Reverberation Time (RT60): ≤ 1.0 seconds (ISO 3382).
- Sound Isolation:
- Wall STC ≥ 50 (for adjoining rooms).
- Floor impact insulation: IIC ≥ 60.
- Noise Barriers: Gym partitions insulated with 50 mm glass wool (48 kg/m³).

2.2.5 Automation and Smart Controls (BMS Integration)

- **Lighting Control:** Occupancy and daylight-linked automatic dimming through BMS interface.
- **Power Management:** Load monitoring for gym equipment with auto shut-off on idle condition (>15 min inactivity).
- **Environmental Monitoring:**
- Sensors for temperature, humidity, and CO_2 levels (maintained <800 ppm).
- Integration with central dashboard for live tracking of zone performance.
- **Audio-Visual Control:**
- Wall-mounted AV control touch panel for music and announcements.
- Network-linked speakers integrated within acoustic panels.
- Energy Monitoring: Smart energy meters for real-time consumption analysis.

2.2.6 QA/QC and Acceptance Criteria

Parameter	Standard/Test	Frequency	Acceptance Criteria
Floor Flatness	IS 2571	Each 50 M^2	<= 3 MM Deviation over 2 Meter
Rubber Flooring Tensile Strength	ASTM D412	1 Per Batch	>=1.2 MPa
Acoustic Panel NRC	ASTM C 423	1 Per Zone	>=0.70
Illumination uniformity	IS 3646	Each Zone	500+- 10% Lux

Electrical Circuit Insulation	IS 732	Each Circuit	>=1 MΩ
EMI Grounding Verification	IEEE 142	Random	Ground Resistance <= 2 Ω
HVAC Noise Level	ISO 3744	Each Room	<= 45 dB(A)
BMS Functionality Test	Commissioning	All Sensor	Fully Operational

All test records, calibration reports, and system commissioning certificates shall be submitted as part of the Conditioning Zone QA/QC Dossier and approved by the Engineer-in-Charge before handover.

2.3 Biomechanics Laboratory (Detailed Specification)

The Biomechanics Laboratory is a high-precision motion capture and performance analytics environment, designed to support gait analysis, kinetics and kinematics testing, sensor-based motion tracking, and athlete movement evaluation.

The internal environment shall ensure controlled acoustics, lighting, mechanical stability, and seamless technology integration, free from vibration interference or electromagnetic noise.

2.3.1 Functional Design Intent

- Highly stabilized interior to ensure accuracy of motion analysis equipment.
- Surfaces designed for smooth movement, safety, and hygiene.
- Fully integrated data backbone and coordination with AV equipment, motion capture cameras, and digital analytics workstations.

The area shall comply with NBC 2016, ASHRAE guidelines, and internal vibration criteria VC-A (or better).

2.3.2 Architectural Finishes

A. Flooring

- Type: Anti-static, anti-slip conductive vinyl flooring.
- Thickness: 2.0 mm.
- Installation:
- Laid over a self-levelling cementitious base (flatness ≤ 3 mm over 2 m).
- Copper grounding strip grid 600 mm c/c bonded to earthing system.
- Performance Requirements:
- Surface resistivity: $10^6 – 10^9$ Ω (IEC 61340).
- Shock Absorption: ≥ 10%.
- Seam welding: Hot welding with colour-matched rods to ensure hygiene.
- Vibration Isolation:
- Floor resilient pads for perimeter equipment zones.
- Structural slab design to limit vibration velocity ≤ 200 µm/s.

B. Wall Finishes

- Smooth polyurethane (PU) coated surface with a minimum 200 µm coating thickness.
- Antimicrobial, stain-resistant, and washable (ASTM G21).
- Concealed data/PVC trunking recessed in walls:
- Minimum 2 CAT 6A LAN + 2 Power + 2 HDMI/Data points every 3 m.
- Light-reflective neutral shades to aid camera-based tracking.

C. Ceiling

- Acoustic gypsum ceiling, NRC ≥ 0.65, with full-service accessibility.
- Light reflectance value (LRV) ≥ 75% for camera calibration.

2.3.3 Lighting & AV Integration

Lighting

- Flicker-free LED panels with continuously diffused light, flicker index ≤ 0.05 (for motion capture accuracy).
- Illuminance: 600 lux uniformly distributed.
- Colour Temperature: 4000K ± 250.
- Colour Rendering Index (CRI): ≥ 90 to improve video analysis quality.
- Glare Index (UGR): ≤ 19.

AV & Motion Capture Compatibility

- Ceiling-mounted motion capture camera brackets integrated with concealed wiring.
- Laser alignment markers for spatial accuracy.
- Provisions for 100% blackout mode for infrared/marker-based optical tracking.

2.3.4 HVAC & Environmental Controls

- Temperature control: 22°C ± 1°C.
- Relative Humidity: 50–55% RH.
- Air Changes: Minimum 6–8 ACH.
- Noise Criterion: ≤ NC-35 (ISO 3382).
- High-efficiency filters (MERV-13) to ensure dust-free recording conditions.
- No airflow directly from diffusers toward analysis field to prevent marker movement.

2.3.5 ICT, Power & Data Integration

Requirement	Specification
Structure Cabling	CAT 6A, Shielded, ANSI/TIA 568-C Compiant
LAN Speed	>=10 GBPS Backbone
Server Connectivity	Fiber Ready patch Panels
Power system	Isolated ground, RCD protected circuits
Audio System	Wall mounted speakers with AV control interface
Data outlets	Every workstation + equipment positions

- All equipment grounding resistance ≤ 2 Ω.
- Surge suppression devices installed for all sensitive instruments.

2.3.6 Fire & Life Safety

- Addressable smoke detection system with early warning, conforming to IS 2189.
- Portable clean agent fire extinguishers (FK-5-1-12 type) compliant with IS 15683.
- Fire-resistant data cables (FRLS) routed away from power lines.

2.3.7 QA/ QC & Acceptance Criteria

Parameter	Standard/Test	Criteria
Floor Resistivity	IEC 61340	$10^6 – 10^9$ Ω

Lightning Flicker	IEEE 1789	Flicker Index <= 0.05
Acoustic and Noise Level	ISO 3382	C<=35
Vibration Control	VC-A Performance	Velocity <=200 µm/s
LAN Performance	TIA 568	Certified >=10 GBPS
Temperature/Humidity Stability	Monitoring	22 ^{0}C +- 1^{0}C & 50-55 % RH

All system calibration documentation and commissioning reports must be submitted prior to handover.

2.4 Athlete Dormitories (Detailed Specification)

The Athlete Dormitories will serve as primary residential areas for elite sportspersons.

Design considerations shall prioritize comfort, privacy, acoustics, ergonomics, and durability, ensuring a restful environment that supports athlete recovery and mental well-being.

All works shall adhere to NBC 2016, CPWD Specifications (Vol. II, 2020), and IS standards for building safety, indoor environment, and accessibility.

2.4.1 Architectural Finishes

A. Flooring

- Material: Laminated wooden flooring, 8 mm thick, abrasion class AC4 or better (EN 13329).
- Underlayment: 2 mm acoustic foam underlay for impact sound isolation (IIC ≥ 55).
- Properties:
- Moisture-resistant core (≤ 8% moisture content).
- Anti-termite treated with manufacturer certification.
- Slip resistance: R9 minimum.
- Installation: Floating interlocking planks with 8–10 mm perimeter expansion gap concealed by skirting.

B. Wall Finishes

- Base: 12 mm plaster + 2 coats of white cement putty.
- Paint System:
- 1 coat acrylic primer + 2 coats high-washable interior emulsion.
- Accent Walls: One feature wall per dormitory/Sharing Rooms (texture paint / wallpaper).
- Performance Requirements:
- Dry film thickness: ≥ 80 µm.
- Scrub resistance: ≥ 1000 cycles (ASTM D2486).
- Acoustic isolation: STC ≥ 50 for walls adjoining corridors.

C. Ceiling System

- 12.5 mm gypsum false ceiling with perimeter channels (IS 2095).
- Integrated cove lighting for glare-free illumination.
- Access panels provided for MEP maintenance without damage.

2.4.2 Windows & Natural Light

UPVC Double-Glazed Windows

- Sections: Multi-chambered UPVC profiles, wall thickness ≥ 2.5 mm (EN 12608).
- Glazing: DGU – 5 mm + 12 mm air gap + 5 mm toughened glass.
- Performance:
- Acoustic insulation: Rw ≥ 35 dB.

- U-value ≤ 2.8 W/m²K.
- Air leakage ≤ 1.0 m³/h·m² @100 Pa.
- Blackout Blinds: Motorized roller blinds interfaced with room controls.
- **Material:** BWR plywood (IS 303) with 1 mm laminate finish.
- **Hardware:** SS Grade 304 hinges, telescopic channels, soft close accessories.

2.4.4 Ensuite Toilet Specification

Component	Specification
Flooring	Anti-skid vitrified tile, R11 slip rating
Wall tile dado	Full Height (Up to ceiling), 600x300 mm tiles
WC	Wall mounted, soft-close seat, dual flush concealed cistern
Shower partition	10 mm clear toughened glss
Basin	Countertop basin with mixer tap
Ventilation	200 mm exhaust fan, automatic via light switch
Drainage	Linear drain with anti-odour trap

- **Waterproofing:** Liquid membrane + flood test 82 hours (IS 3067).
- **Fixtures:** Chromium-plated brass fitting; CPWD approved makes.

2.4.5 HVAC & Indoor environment:

Parameter	Requirement
Cooling	VRV/VRF DX system with concealed indoor units
Control	Individual digital thermostat in each room
Temperature	22-24 ^{0}C adjustable by occupants
Filtration	MERV 8 filters for healthy indoor air
Noise	<= 35dB (A) at 1.5 m height

All condensate pipelines insulated to prevent sweating and stained finishes.

2.4.6 Lighting & Electrical Systems

- Lighting Levels: 200–300 lux (IS 3646).
- Fixture Type: Warm white LED (3000–3500K), power factor >0.9.
- Lighting Controls: Dual bedside switches + night mode.
- Sockets:
- 2× 16A + USB charging at bedside
- 2× 6A at study table
- Emergency Lighting: Corridor integration for safety.
- Wiring: FRLS cables per IS 694, concealed conduits.

2.4.7 Safety & Comfort Systems

- Fire detection & alarm per IS 2189 (smoke detectors with sounders).
- CCTV monitoring in corridors only (not inside rooms).
- Access via RFID smart card or mobile app integration.
- Door viewer + safety latch on room entry.

2.4.8 QA/QC & Acceptance Criteria

Parameter	Standard/Test	Requirement
Floor Evenness	IS 2571	<= 3 mm over 2 meter
Acoustic Privacy	ISO 16283	STC >= 50

Paint finish	Visual + DFT	No Patchiness, DFT >= 80 μm
VRV Unit Noise	ISO 3744	<= 35 dB (A)
Tile Bond/ Leak Test	IS 3067	72 Hour no Seepage
DGU Pressure & Seal Test	EN 1279-6	Pass
Furniture fixing Stability	Field	No Sway, level checked

All inspections to be logged on a room completion checklist signed by Engineer in Charge prior to handover.

2.5 Dining and Common Areas (Detailed Specification)

The Dining Hall and Common Interaction Areas shall be planned as hygienic, comfortable, and socially interactive spaces that support daily athlete nutrition and relaxation.

Interiors shall be easy to maintain, vandal-resistant, and compliant with food safety hygiene norms and NBC 2016 – Part 8 requirements.

2.5.1 Architectural Finishes

A. Flooring

- Material: Polished granite tiles, 20 mm thick with machine-polished finish.
- Skirting: 100 mm high granite skirting flush-finished with wall plaster.
- Properties:
- Water absorption ≤ 0.5%
- Mohs hardness ≥ 6
- Slip resistance ≥ 0.6 (wet)
- Installation:
- Neat cement slurry bedding over level screed
- Joint width ≤ 2 mm, epoxy-grouted for stain resistance
- Maintenance: Daily wet mopping with neutral cleaner.

B. Wall Finishes

- Base: Smooth plaster + 2-coat putty
- Paint System:
- 1 coat acrylic primer + 2 coats semi-gloss emulsion (washable grade)
- Anti-stain band:
- 1.2 m high polyurethane scrub-resistant coat along serving counters
- Finish Properties:
- Dry film thickness ≥ 80 µm
- Scrub resistance ≥ 1200 cycles (ASTM D2486)

C. Ceiling System

- Type: High-tensile stretch ceiling (PVC fabric or polyester), translucent type
- Lighting Integration:
- Backlit diffused LED panels providing even glow across the ceiling
- Dimmable and glare-free illumination
- Service Coordination: Access panels provided discreetly for MEP maintenance
- Fire Behaviour: Class B-s2, d0 (EN 13501-1)

2.5.3 Environmental Controls

A. HVAC

- **Cooling System:** VRV/VRF or centralized AHU system
- **Temperature:** Maintained at 23°C ± 1°C
- **Air Quality:**
- Minimum 10 ACH + CO_2 sensor-based ventilation
- Fresh air as per ASHRAE 62.1
- **Odor Control:**
- Dedicated exhaust in food service and dish-wash zones
- Grease filters as required for pantry exhaust

B. Acoustics

- Noise level ≤ 45 dB(A)
- Optional acoustic wall panels in common lounge zone: NRC ≥ 0.65

2.5.4 Lighting & Power Systems

- Ambient Lighting: 300–350 lux uniform illumination
- Task Lighting: 500 lux near serving counters and study lounge pockets
- Fixture Types:
- LED backlit panels (≤ 7 W/m² energy power density)
- Recessed downlights and cove lights for accenting
- Controls:
- Occupancy sensors with auto-dimming
- Daylight integration near windows
- Electrical Safety:
- All sockets with RCD protection for food equipment
- FRLS cabling (IS 694), concealed in conduits

2.5.5 Hygiene & Safety Standards

- All surfaces shall be food-handling safe → no fungal growth, peeling, or toxic emission
- Fire detection via addressable smoke detectors (IS 2189)
- Slip-resistant mats provided near wash zones
- Emergency lighting and exit signage per NBC 2016

2.5.6. QA/QC & Acceptance Criteria

Parameter	Standard/Test	Requirement
Granite Hardness	Mohs Scale	>= 6
Floor Evenness	IS 2571	<= 3 MM
Paint Scrub resistance	ASTM D2486	>=1200 Cycles
Stretch Ceiling Fire Rating	EN 130501 -1	Class B-s2,d0
Lighting level	IS 3646	300-350 lux ambient
VRV/VFX Noise	ISO 3744	<= 45dB (A)
Fresh Air Rate	ASHRAE 62.1	Compliant
Furniture Stability	Field Test	No Rocking/Movement

All checks documented in Dining area completion checklist and signed by Engineer in Charge before handover.

2.6 Medical and Physiotherapy Zone (Detailed Specification)

The Medical and Physiotherapy Zone shall serve as the primary treatment and functional rehabilitation

area for athletes.
It must ensure infection control, ease of sanitation, and clinical-grade safety, while remaining comfortable and acoustically stable to support therapy and medical consultations.
Design shall comply with NBC 2016, MOHFW healthcare guidelines, and CPWD Specifications (Vol. II, 2020).

2.6.1 Architectural Finishes

A. Flooring

- Type: Anti-bacterial, anti-static vinyl flooring, 2.0 mm thick, EN 649 compliant.
- Performance Properties:
- Bacterial resistance: ISO 846 – No Microbial Growth
- Slip resistance: R10 minimum
- Seamless welding with heat-welded joints
- Installation:
- Screed surface made level (deviation ≤ 3 mm per 2 m)
- Coved skirting 100 mm height with radiused junction (≥ 50 mm radius)

B. Walls

- Type: Smooth PU-coated washable finish over cement plaster.
- Coating Thickness: ≥ 200 µm DFT.
- Chemical resistance: Compliant with ISO 2812-1 (common disinfectants safe)
- Hygiene Design:
- Internal corners rounded
- No exposed ledges or dust-accumulating joints

C. Ceiling

- System: Moisture-resistant gypsum false ceiling with service access panels.
- Finish: Acrylic emulsion or PU coat with anti-fungal properties.
- Acoustic Rating: NRC ≥ 0.60
- Lighting Integration: Recessed flicker-free IP44 LED panels, uniform illumination.

2.6.3 Lighting System

- Illuminance: 500 lux general task lighting (IS 3646)
- CRI: ≥ 90 for accurate skin and injury assessment
- Colour Temperature: 4000–5000K neutral white
- Controls:
- Wall-mounted dimmers
- Occupancy sensing for non-treatment times

Emergency lighting integrated via UPS-backed circuits.

2.6.4 HVAC and Air Quality

- Temperature: 22–24°C
- Relative Humidity: 50–55%
- Ventilation: Minimum 8–10 ACH with fresh air supply per ASHRAE 62.1
- Filtration: Minimum MERV-13 filters for supply air

- Exhaust: Negative pressure in treatment area to prevent odor accumulation
- Noise Level: ≤ 45 dB(A)

All ducting to include anti-microbial internal coating.

2.6.5 Automation and Monitoring (BMS Integration)

- Monitoring and control for:
- Temperature & Humidity
- CO_2 sensors for ventilation demand control
- Fan speed modulation based on occupancy levels
- Real-time trending of environmental conditions
- Alarm notifications to FM team for deviations from setpoints

2.6.6 Accessibility & Patient Care

- Minimum 900 mm corridor width and barrier-free access
- Anti-slip strips and handrails in vulnerable areas
- Panic button at couch side linked to security/admin control room

2.6.7 QA/QC and Acceptance Criteria

Parameter	Standard/Test	Requirement
Vinyl Flooring Bond & Flatness	IS 2571/pill-off	<=3 MM deviation, >= 1 N/mm^2 adhesion
Hygiene Coating Durability	ASTM D2486	>=1000 Scrub cycles
Lighting Levels	IS 3646	500 lux maintained
HVAC Performance	Field Test	22-24 ^{0}C, 50-55% RH
Air Filtration	ASHRAE 52.2	MERV-13 Compliant
Sensor Functionality	Commissioning Test	All BMS interface active
Surface Infection Resistance	ISO 846	No microbial growth

Inspection results will be part of the Medical Zone Handover Dossier, approved by the Engineer-in-Charge.

2.7 Administration and Office Areas (Detailed Specification)

The Administration and Office Areas shall serve as the primary functional hub for management staff, coaches, and support personnel.

Design focus shall be on professional aesthetics, ergonomic workspaces, acoustic comfort, efficient workflow, and seamless integration of ICT (Information & Communication Technology).

All finishes must ensure durability and easy maintenance, meeting NBC 2016, CPWD Specifications, and workspace ergonomic standards (ISO 9241).

2.7.1 Architectural Finishes

A. Flooring

- **Material:** 600×600 mm vitrified tiles, 10–12 mm thick, conforming to IS 15622 (Group B I-a).
- **Installation:**
- Polymer-modified tile adhesive, 3–4 mm bed thickness.
- Joint width ≤ 2 mm, epoxy grouted.
- **Performance Requirements:**
- Water absorption ≤ 0.5%.
- Surface hardness ≥ 5 Mohs.
- Flatness tolerance ≤ 3 mm over 2 m.

B. Wall Finishes

- 12 mm plaster with putty + acrylic emulsion paint (washable, low-VOC).
- Colour scheme: Calming tones to support work efficiency.
- Dado protection panels near high-traffic zones as required.

C. Ceiling System

- Type: Modular false ceiling (600×600 mm) using mineral fibre tiles.
- Grid System: GI frame, corrosion resistant, with service access.
- Acoustic Performance: NRC ≥ 0.70.
- Lighting Integration: Recessed LED panels and linear task lighting.

2.7.3 Lighting System

- Illuminance: 400 lux, glare index ≤ 19 (compliant with IS 3646 / CIBSE Office Standards).
- Fixture Types:
- Recessed LED panels (CRI ≥ 80, PF ≥ 0.95).
- Task lights at workstations if required.
- Controls:
- Zone-based switching & occupancy sensors.
- UPS-supported emergency lighting.

2.7.4 ICT, Power & Data Systems

- Cabling: CAT 6A structured cabling with patch panels; ANSI/TIA-568 compliant.
- Data & Telephony Ports:
- Min. 2 data + 2 power outlets per workstation, concealed in raceways.
- Wi-Fi Coverage: Ceiling-mounted AP provisions with POE cabling.
- Electrical Circuits:
- RCD-protected workstations.
- FRLS cables throughout (IS 694).

2.7.5 HVAC & Environmental Controls

- Cooling: VRV/VRF / AHU system depending on zone layout.
- Temperature: 24°C ± 1°C.
- Fresh Air: As per ASHRAE 62.1 (office standard).
- Noise Level: ≤ 45 dB(A).

2.7.6 Safety, Security & Access Control

- RFID-based entry system connected to Building Management System (BMS).
- Fire detection via addressable smoke detectors (IS 2189).
- Emergency exit signage and lighting as per NBC.

2.7.7 QA/QC & Performance Criteria

Parameter	Standard	Acceptance Criteria

Tile Flatness	IS 2571	<= 3 MM over 2 Meter
Wall Paint DFT	Coating Gauge	>=80 µm
Acoustic Ceiling NRC	ASTM C423	>=0.70
Lighting Level	IS 3646	400 +-10% lux
Data Performance	Certification Test	10 GBPS Compliant
VRV Noise	ISO 3744	<=45 dB(A)
RFID Functioning	Commissioning Test	Verified

All testing and inspection reports shall be compiled into the Office Space Inspection Dossier and approved before operational handover.

2.8 Lobby, Reception & Circulation Areas (Detailed Specification)

The Lobby, Reception, and Circulation Areas act as the public face of the High Performance Sports & Recovery Centre.

These spaces shall be visually prominent, durable under high foot traffic, and designed for intuitive wayfinding, setting the tone of a world-class athletic facility.

Design must comply with:

- NBC 2016 – Accessibility (barrier-free design)
- ISO 21702 – Antimicrobial surface finishes (where applicable)
- CPWD Specifications (Vol II, 2020)

2.8.1 Architectural Finishes

A. Flooring

- **Material:** Premium vitrified tiles or granite (600×600 mm / 800×800 mm), 12–20 mm thick.
- **Properties**:
- Water absorption ≤ 0.1%
- Mohs hardness ≥ 6
- **Slip resistance:** R10 minimum for corridor safety
- **Installation:**
- Tile adhesive with epoxy grout for stain resistance
- Expansion joints every 4.5 m with PU sealing

B. Wall Finishes

- Base: 12 mm plaster + 2-coat putty
- Finish:
- Semi-gloss acrylic emulsion paint for ease of cleaning
- Feature cladding (granite/wood veneer/ACP/texture paint) behind reception desk
- Stainless steel corner guards at high-impact zones

C. Ceiling System

- Stretch ceiling or combination gypsum + linear lighting baffles
- Service accessibility ensured through concealed hatches
- Acoustic rating: NRC ≥ 0.65 in reception area to control reverberation

2.8.2 Reception Desk & FF&E

Element	Specification

Reception Counter	Solid Surface top (Corian or equivalent), LED backlit Fascia
Visitor Seating	Upholstered modular Sofas, ergonomic and stain resistant
Information Signage	Backlit directory board with braille for inclusivity
Queue Management	Stainless Steel barriers & Digital token display if required
Security Desk	Integrated access control & Surveillance monitoring.

- Cable trays and conduits concealed under flooring for clean aesthetics

2.8.3 Circulation & Wayfinding

- Corridor width: Min. 1.8 m as per NBC for two-way traffic
- Handrails along long corridors for safety
- Floor-embedded tactile guidance paths for barrier-free circulation
- Directional signages with high contrast visibility standards

2.8.4 Lighting & Electrical Systems

- **Lighting Levels:**
- **Reception:** 350–400 lux
- **Corridors:** 200–250 lux
- **Fixture Types:**
- Linear LED luminaires, recessed panels, cove accent lighting
- Spotlights over graphics/wall branding zones
- **Controls:**
- Motion sensors in low-traffic corridors
- Dimmable lighting in lobby for ambience
- Emergency lighting along exit routes per NBC Part 4

2.8.5 HVAC & Ventilation

- Temperature: 23–25°C
- Fresh Air: ≥ 10 L/s/person (ASHRAE 62.1)
- Noise Level: ≤ 45 dB(A)
- Air curtains at main entry to prevent conditioned air loss

2.8.6 Safety, Security & Monitoring

- Fire Detection: Smoke detector spacing per IS 2189
- CCTV Surveillance: Pan-tilt-zoom (PTZ) cameras + corridor coverage
- Access Control: RFID turnstiles or glass swing gate barriers for restricted areas
- Anti-skid nosing at stairs and ramps

2.8.7 Automation (BMS Integration)

- Lighting scenes for Day / Evening / Reception Event mode
- People-counting sensors for occupancy-based HVAC optimization
- Touch-screen visitor management kiosk option

2.8.8 QA/QC & Acceptance Criteria

Parameter	Standard/Test	Requirement
Slip Resistance	DIN 51130	R10 or higher
DFT- Wall Coating	Coating Gauge	>= 80 µm
Flatness- flooring	IS 2571	<=3 MM deviation per 2 Meter
Acoustic NRC	ASTM C423	>=0.65 (Reception)
Lighting Level	IS 3646	350-400 lux lobby
CCTV/Access Control	Commissioning	100% Operational Acceptance

All inspections logged in the Reception & Circulation Handover Checklist signed by Engineer-in-Charge.

Part C – MEP, Automation & External Development

SECTION 1 — HT INCOMING POWER SYSTEM & TRANSFORMER INSTALLATION

(Electrical Works – Detailed EPC Specification)

1.1 Scope

This section includes complete works related to 11 kV incoming power, HT switchgear, earthing & safety systems, and 630 kVA dry-type transformer installation, testing, and commissioning.

The Contractor shall provide all labor, equipment, materials, tools, and accessories required to deliver a fully functional and certified electrical power supply system.

All work shall comply with:

- CEA (Measures relating to Safety and Electric Supply) Regulations
- IS 3078, IS 3427 — HT Switchgear
- IS 1180 (Part 1) — Distribution Transformers
- NBC 2016 – Part 8, Section 2
- IEC 62271 & IEEE Standards where applicable

1.2 Power Supply Arrangements

Parameter	Requirement
Voltage Grade	**11 KV +-10%, 50 Hz**
Source	**Assam Power Distribution Utility (APDCL)**
Max Connected Load	**450 KW**
Max Demand Expected	**390 KVA**
Diversity Factor	**0.75**
Power Factor Targate	**>= 0.98 with APFC**

A ground-mounted dedicated substation shall be constructed as per utility and fire safety norms.

1.3 11 kV Ring Main Unit (RMU) & HT Protection

Equipment Requirements

- 3+1 Way SF6 insulated RMU, compact & extensible
- Internal arc protection: 20 kA for 1 sec
- Degree of Protection: IP 54 (outdoor)
- Mechanical & key interlocking interlocked for:
- Breaker “ON” prevents rear door opening
- Earthing switch operation only when breaker is OFF

Protection Relays

- Numeric Protection Relay with:
- Overcurrent (50/51)
- Earth Fault (50N/51N)
- Under/Over-voltage alarms

- SCADA/BMS connectivity through MODBUS

HT Cabling

- 11 kV, 3C × 185 sqmm XLPE armoured
- Conforming to IS 7098 (Part 2)
- Termination using heat-shrink kits

1.4 630 kVA Dry-Type Transformer (11 kV/415 V)

Feature	Requirement
Type	Dry-Type (Cast Resin), ONAN Colling
Standard	IS 1180 (Part 1)
Rating	630 KVA
Primary Voltage	11 kV
Secondary Voltage	433 V
Vector Group	Dyn 11
Temperature Class	F (155 ^{0}C)
Noise Level	<=65 dB at 1 m
Impedance	5.5-6.5%
Efficiency	Star-1 lossess complaince

Construction Requirements

- Copper windings, class H insulation
- HV/LV bushings with cable boxes
- Load break switch on HV side
- Fitted with:
- WTI & OTI Indicators
- Surge arrestors
- Fire detection temperature alarm to BMS

Installation Location & Safety

- Transformer positioned in separate fire-rated room
- Minimum clearances:
- 1.2 m front
- 0.75 m sides
- Fresh air louvers + exhaust fan (heat dissipation)
- Fire suppression: Clean agent / ABC extinguishers

1.5 HT/LT Substation Civil & Auxiliary Works

- Flooring: 100 mm thick PCC + Anti-static epoxy coating
- Cable Entry: Sealed gland plates; fire-stopping compound rated 120 min
- Illumination: 200 lux, industrial LED battens
- Ventilation: 6–10 air changes per hour
- Signage: Danger boards, rubber mats, SLD display
- Ladder/Handrail: GI fixed ladder for maintenance access

1.6 Metering & Monitoring

- Tri-vector meters (Class 0.5S) at:

- Utility metering point
- Transformer secondary incomer
- Monitoring Parameters:
- V, A, PF, kW, kVA, kVAR, THD
- Meters integrated with BMS (MODBUS RTU/TCP)

1.7 Protection Coordination

A graded protection scheme shall ensure:

- Fault clearance at nearest upstream breaker
- No nuisance tripping of main supply
- Relay settings shall follow:
- Short time delay
- Instantaneous trip
- Earth fault sensitivity as per calculations

Contractor shall submit Protection Coordination Curve for Engineer approval.

1.8 Testing & Commissioning Requirements

Test	Standard	Acceptance Criteria
HT Cable IR Test	IS 732	>= 500 MΩ @ 5 KV
Transformer Turns Ratio	IS 2026	Deviation <=1%
Winding Resistance	IS 1180	Balanced within Tolerance
Vector Group test	IS 1180	Dyn11 Confirmed
Primary Injection Test	IEC 62271	Relay Function Verified
CT/PT Polarity	IS 16227	Correct Polarity
Breaker Timing Test	IEC 62271-100	Within Design Limits
HV Pressure Test	Dielectric withstand	Pass

All Test shall be witnessed by the Engineer in Charge.

1.9 SINGLE LINE DIAGRAM (SLD) — NARRATIVE & DIAGRAM BLOCK

1.9.1 SLD Narrative

The electrical power supply shall be distributed as follows:

1. 11 kV Incoming Feed

→ Termination at SF6 Ring Main Unit (RMU)

→ Outgoing breaker to Dry-Type Transformer

2. 630 kVA, 11 kV/415 V Transformer

→ LV output feeds Main LT Panel (MLTP) through Fire Rated XLPE Cable

3. Main LT Panel

→ Segregation into Essential and Non-Essential load feeders

→ Busbars sized for 50 kA / 1 sec fault withstand

4. DG Power Source (Standby)

→ 2 × 400 kVA DG via AMF / ATS Panel

→ Feeds only Essential Loads

→ Auto-start within 10 seconds of mains failure

5. Essential Loads Distribution

→ Essential DBs: Fire pumps, FA/PA, server room, life safety, critical HVAC

→ Dual-supply arrangement (Mains + DG)

7. Final Circuits

→ Lighting, power sockets, HVAC equipment, MEP systems

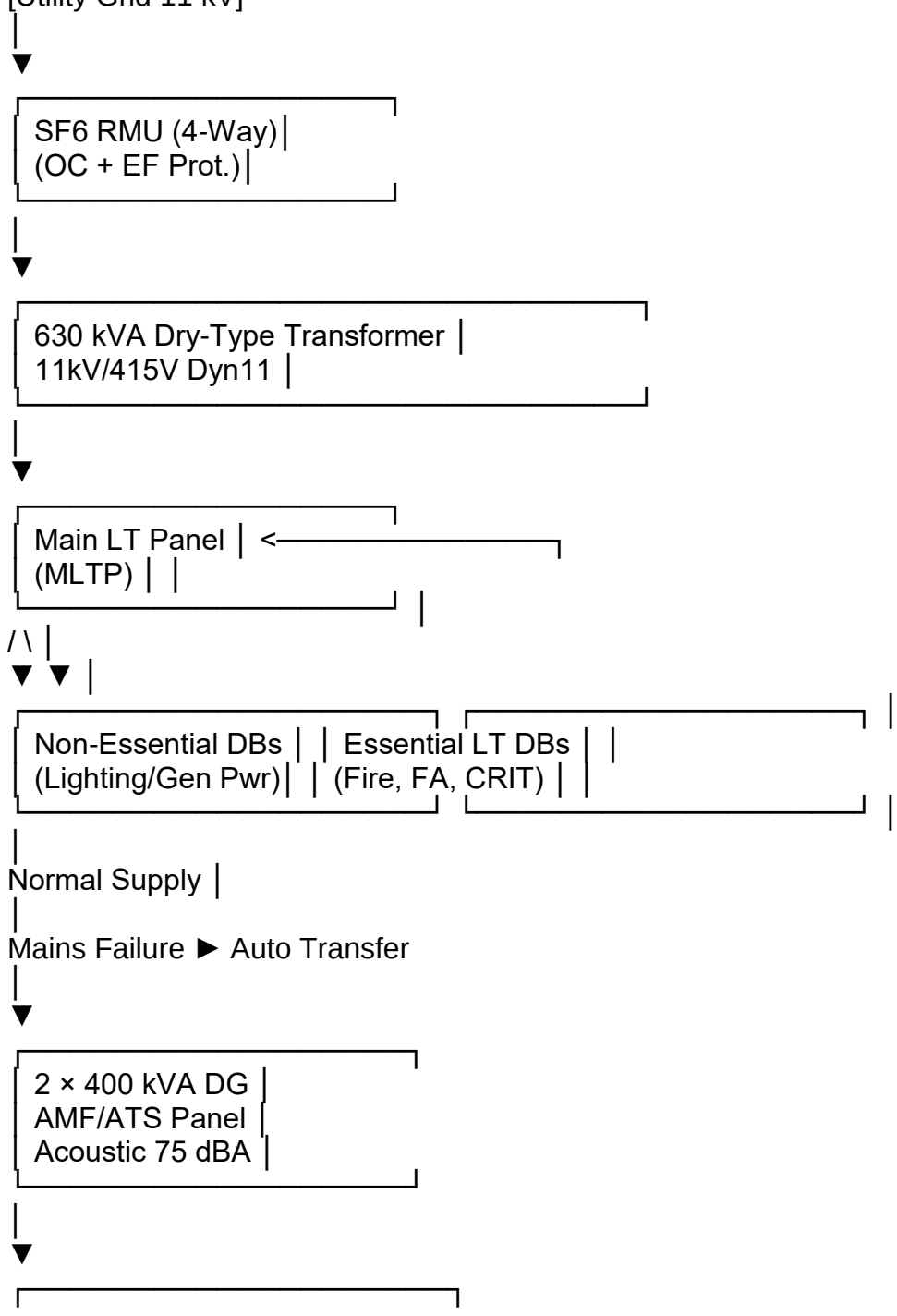
→ Routed in EMT/PVC conduits & cable trays

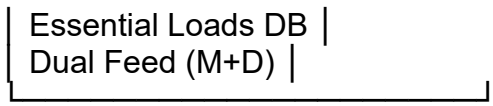
8. Metering & Energy Monitoring

→ Digital multifunction meters at all major incomers

→ Integrated with BMS via Modbus TCP/IP

1.9.2 Single Line Diagram – Representational Block Diagram





[Earthing & ESE Lightning Protection]
▼
Facility Earthing Grid
(≤1Ω Equipment Grounding)

1.9.3 Compliance & Review

- Detailed Auto-Transfer Sequence PDF to be submitted by the contractor
- Protection coordination/relay settings to be issued before energization
- Final approved SLD shall be laminated & installed in:
- Substation Room
- Fire Command Centre / Security Room

SECTION 2 — LT PANELS, POWER DISTRIBUTION & PROTECTION SYSTEM (Part C – MEP, Automation & External Development)

2.1 Scope

This section includes the design, supply, fabrication, installation, testing & commissioning of:

- Main LT Panel (MLTP)
- Essential LT Panel (ELTP)
- Sub-Distribution Boards (SDBs)
- Final Distribution Boards (FDBs)
- Automatic Transfer Switch (ATS) / AMF Panel
- Power Factor Control (APFC Panel)
- Feeder Protection & Coordination
- Cable termination & labeling
- Control wiring and instrumentation

All system components shall ensure continuity of power, short-circuit withstand integrity, selective coordination, and human safety in accordance with:

- IS 8623 / IEC 61439 (Panel Assemblies)
- IS 1255 (Cable Laying)
- IS 732 (Electrical Installations)
- NBC 2016 – Part 8
- CEA Safety Regulations

2.2 LT Panel Architecture & Rating

Parameter	Requirement
Form of Construction	Form IV (Fully Compartmentalized)
Busbar Rating	1600 A TPN (MLTP)
Busbar Material	Tinned aluminium/Copper (As approved)

Short Circuit Withstand	50 kA for 1 Sec
Protection Degree	IP 54 (Indoor Panels)
Steel Enclosure	CRCA Sheet, 14/16 gauge
Paint & Finish	Epoxy Powder, 60-80 µm DFT
Busbar Temperature Rise	<= 70^0 C Over ambient

Busbars shall be supported by DMC/SMC insulated supports.

2.3 Feeder Hierarchy & Power Distribution Logic

Main LT Panel (MLTP 1600A)

```
│
├── Non-essential Load SDBs (Lighting & Power)
│     ├── Admin Loads
│     ├── Dining Loads
│     └──── Dormitory/Sharing Rooms General Loads
│
└──── Essential LT Panel (ELTP 800A)
    │
    ├── Fire Fighting DB
    ├── Fire Alarm System Power
    ├── Emergency Lighting DBs
    ├── Server/IT Room DB
    ├── Biomechanics Lab (critical sockets)
    ├── Recovery & Medical (critical circuits)
    ├── Water Supply & Sewage Pumps
    └──── Elevators DB
```

DG backup supplies only ELTP feeders via ATS/AMF panel with automatic changeover.

2.4 Protection Coordination & Breaker Selection

Type	Standard	Rating Guidance
Incomer	MCCB/ACB	1600A/50 kA
Outgoing (Major)	MCCB	250-630 A
Lighting/Power	MCB (C-Curve)	6-32 A
Motor Feeders	MPCB + Contactors	D-Curve
Transformer Protection	OCR + EF Relay	Numeric

Protection priorities:

- Discrimination between DB → feeder → final circuit
- Earth leakage protection @ all final circuits (≤ 30 mA for wet areas)

2.5 Surge & Transient Protection

Mandatory SPDs (Surge Protection Devices):

Location	SPD Type	Standard
MLTP	Class B+C	IEC 61643-11
Critical DBs	Class C	SPD Coordination ensured
Sensitive Equipment	Class D	Server, AV, Biomech instruments

2.6 Power Factor Correction (APFC Panel)

- PF to be maintained ≥ 0.98 lag
- Auto-stepped capacitor bank with detuned reactors
- Harmonic control as per IEEE 519
- Digital kVAr controller & alarms

2.7 Cabling & Wiring — Design Philosophy

Cable Sizing Parameters:

- Max. Voltage Drop:
- Lighting: ≤ 3%
- Power: ≤ 5%
- Conductor Temp.:
- 70°C for PVC
- 90°C for XLPE
- Cable Routing:
- Trays in shafts & corridors
- Concealed conduits inside rooms
- Fire Stopping at penetrations.

Cable Type	Specification
LT Power	XLPE/FRAH armoured (IS 7098 Part 1)
Lightning & Sockets	Cu FRLS (IS 694)
Earthing	GI/Cu Strip with green insulation marking.

2.8 Cable Identification System

Each cable must have:

- Ferrule numbering
- Source–destination labeling
- DB tagging
- Phase marking: R-Y-B colour coded

Cable schedules to be approved before procurement.

2.9 Metering & Instrumentation

Energy meters:

- Direct connected

or

- CT-operated as per feeder load

Parameters: V, A, PF, Hz, kW, kVA, kVAR, kWh

Accuracy: Class 0.5S

Meter reading to be integrated into BMS for:

- Load profiling
- Energy consumption analytics

2.10 Safety Requirements

Compliance with IEC 60364:

- Arc flash risk mitigation
- 2× earth pits per panel
- Rubber mats, insulated tools
- Lock-Out/Tag-Out (LOTO)
- Panel doors interlocked with breaker OFF

SECTION 3 — LIGHTING SYSTEM & EMERGENCY POWER DISTRIBUTION
(Part C – MEP, Automation & External Development)
3.1 Scope
This section covers:

- Indoor and outdoor lighting systems
- Emergency power & DG-backed lighting circuits
- Lighting controls (manual, occupancy, daylight)
- Wiring, luminaires, accessories
- Lux level compliance, testing & commissioning

All lighting design shall comply with:

- IS 3646 — Interior illumination
- NBC 2016 – Part 8
- ECBC 2017 — Energy-efficient lighting norms
- ASHRAE IES Standards (where applicable)

Contractor shall ensure uniform illumination, balanced glare control, and integration with interiors/architectural elements.

3.2 Room-wise Lighting Illumination Requirements

Area	Min Lux	Notes
Main Lobby/Reception	350-400 Lux	Ambience + Signage lighting
Corridors/Staircases	200-250 Lux	Motion Sensor
Recovery & Hydro Zones	300-350 Lux	IP 65 Fittings near wet Zones
Conditioning Zone	500-600 Lux	High CRI>=85
Biomechanics Lab	600 Lux	Flicker Index <= 0.05
Physiotherapy Rooms	500 Lux	Neutral White, Glare free
Dormitory/Sharing rooms	200-300 Lux	Scene Control bedside
Toilets/Washrooms	200 Lux	IP65 luminaires
Dining/Common Lounge	300-350 Lux	Warm Ambience
Administrative Areas	400 Lux	Task Lighting at workstations
External Pathways	20-30 Lux	Bollards, energy timers
Parking/Driveway	30-50 Lux	Pole-mounted LEDs

Lighting uniformity ratio: ≤ 0.6
Colour temperature:

- 4000K Neutral White (majority)
- 3000K Warm White (residential/dining)
- CRI ≥ 80 everywhere; ≥ 90 in analysis zones

3.3 Lighting Fixtures & Specifications

Indoor Areas

- LED ONLY — No fluorescent allowed
- Minimum efficacy: ≥ 110 lm/W
- Power Factor: ≥ 0.95
- THD: ≤ 10%
- Warranty: 5 years minimum
- Mounting coordinated with ceilings:
- Recessed for gypsum & modular ceilings
- Surface for utility rooms
- Suspended linear in gym/admin corridors

Outdoor Areas

- IK08 impact rating
- IP66 weatherproof
- Surge Protection — 10 kV min
- Automatic ON/OFF via timer + photocell

3.4 Emergency Lighting System

Circuits & DG Backup Loads

Emergency-fed from ELTP via DG & ATS panel

- Escape routes & staircases
- Fire Command Centre
- Fire Pump Room
- Recovery & Medical critical rooms
- Biomechanics operational load
- Server/Network room
- Entry/Exit Signage Lighting
- Lift car lighting

Autonomy: 90 minutes minimum

Backup via DG + Battery packs where location critical.

Signage

- LED exit signages at all exits & refuge points
- EN 1838 compliance — 1 lux minimum on path3.5 Lighting Control & Automation
- All controls integrated into BMS where applicable.

Area	Control Method
Corridor/Stairs	Occupancy Sensor
Office/Admin	Manual + Day light dimming
Gym	Scene Control + Manual Dimming
Lobby	Dimmable Scenes (Day/Evening/event)
Toilets	Motion Sensors + Timer delay
Outdoor	Photocell + Scheduler

Manual overrides installed at security/BMS.

3.6 Wiring & Installation Requirements

Parameter	Specification
Wiring Type	Copper FRLS (IS 694)
Conduits	FRLS, Concealed in finished areas
Junction Boxes	Metal Boxes with proper earth
Earth Continuity	Green Insulated conductor mandatory
Phase identification	R-Y-B for 3 Phase; Red for lighting
Insulation Resistance	>= 1 MΩ for initial circuits

All above-ceiling wiring must run on cable trays, not laid loose.

3.7 Glare, Flicker & Visual Safety Standards

- UGR ≤ 19 for office & lab spaces
- Flicker:
- ≤ 1% in Biomechanics Lab
- ≤ 10% elsewhere
- Avoid direct glare into athlete sightlines in gym/training halls
- No strobe-like effects near rotating or motion analysis equipment

3.8 Testing & Commissioning

Test	Standard	Requirement
Lux Level Test	IS 3646	+-10% of design
IR Test	IS 732	>=1 MΩ
Earth Continuity	IS 3043	All Metal Parts Bonded
Emergency Power Test	Field	Auto Transfer<= 10 Sec
Sensor Testing	Functional Check	100% Coverage
Flicker Test	IEEE 1789	Within allowed range

Lightning Zoning shall be verified against architectural plans.

SECTION 4 — EMERGENCY POWER SYSTEM & DG BACKUP LOGIC
(Part C – MEP, Automation & External Development)

4.1 Objective

Provide uninterrupted power to life-safety systems and priority operational areas during grid failure.
The emergency power system shall ensure safe evacuation, continuous critical medical operations, and security system uptime.

Backup sources:

- 2 × 400 kVA DG Sets
- Automatic Mains Failure (AMF) + Auto Transfer Switch (ATS)
- Local battery packs for critical signages & exit lighting (minimum 90 min)

4.2 DG Backup Coverage

DG power shall be provided only to Essential Loads as finalized.
Essential Loads List (DG-Fed):

- Fire Fighting Pump Room
- Fire Alarm System / PA System
- Emergency & Exit Lighting
- Elevators (Two Lift Minimum)

- Server & Networking Room
- CCTV, Access Control, Security equipment
- Recovery & Physiotherapy critical loads
- Biomechanics Lab critical sockets
- Water Supply Pump & Sewage Pump
- Monitoring & Control Rooms
- Medical equipment outlets in Recovery Zone

Non-essential areas will not receive DG power

4.3 DG Set Specifications

Feature	Requirement
Quantity	2 Sets
Rating	2X 400 KVA (N+1 Standby)
Fuel System	8-Hrs autonomy @ 75% load
Regulation	Voltage +-1.5%, Frequency 50 Hz +-0.5
Governor	Electronic, droop characteristics
Emission	CPCB-II Compliant
Noise level	<= 75dBA @1 M
Cooling	Radiator-cooled, top-mounted exhaust.

Acoustic Enclosure:

- Fire retardant insulation
- Air intake & discharge louvers
- Exhaust flue taken above roof level
- Vibration isolation pads mandatory

4.4 ATS/AMF Panel Features

Function	Description
Automatic Transfer	Within 10 Sec of grid failure
Auto DG Crank	3 Attempts, 10 Sec interval
Auto Return to Mains	Only After stable grid for 180 Seconds
Safety	Electrical and Mechanical interlocking
Remote Monitoring	Status & Metering to BMS

Load Shedding:

- Stage-2 shedding on DG overcurrent (non-critical circuits drop first)

4.5 Distribution Logic & Selectivity

- Dual-feed incomers at Essential LT Panel (ELTP)
- DG source connected through interlocked breakers
- Final circuits properly segregated into:
- Emergency Circuits (DG+Battery)
- Critical Circuits (DG only)
- Normal Circuits (Grid only)

Protection:

- MCCBs with short-time and instantaneous settings

- no nuisance trips on DG transient loads

4.6 Control, Alarms & Protections

Monitoring through:

- DG status (RUN/STOP)
- Voltage, Frequency, load %
- Battery health
- Lube oil pressure
- Overheat & fire alarm
- Under/ Over-voltage
- Overcurrent shutdown

Alarm communication to:

- Central BMS
- Maintenance supervisor mobile app (optional)

4.7 Installation Requirements

- Dedicated DG Room with:
- Fire rating: 2-hours enclosure
- Fuel storage as per Oil & Gas Safety standards
- Adequate ventilation & air changes
- Floor with acid-resistant paint and drainage sump
- Spill containment pans beneath DG

4.8 Testing, Commissioning & Acceptance

Test	Standard	Requirement
Load Test	IS 10000	1105 Load for 1 Hour
Fuel Consumption Test	OEM Procedure	Within CatLog Tolerance
Auto-Transfer Test	Functional	Restore DG<=10 Seconds
Phase Rotation Check	Field	Correct Rotation
Insulation Test	IS 732	>=1 MΩ
Noise Test	CPCB Norms	<= 74dBA 1 M
Shutdown logic Test	Fault Simulation	Successful Trip
AMF/ATS Operation	Sequence Verification	√

All Testing witnessed by Engineer in Charge + Report Submission.

SECTION 5 — EARTHING & LIGHTNING PROTECTION SYSTEM

(Part C – MEP, Automation & External Development)

5.1 Scope

This section covers the design, supply, installation, testing, and commissioning of:

- Building Earthing Grid
- Equipment protective earthing
- Dedicated clean earth for sensitive electronics
- Lightning Protection System: Early Streamer Emission (ESE)
- Surge Protection Devices (SPD)

The system shall provide:

- Personnel safety
- Equipment safety
- Transient voltage protection
- Controlled dissipation of lightning surges

All works to comply with:

- IS 3043:2018
- IS 2309:1989
- IEC 62305 (Lightning Protection)
- NBC 2016 (Part 8)
- IEEE 80 (Earthing Grid Design Guidelines)

5.2 Earthing Network Design

5.2.1 Earth Electrode System

- 40 mm Dia × 3 m long GI pipe electrodes (hot dip galvanized)
- Electrode pit backfilled with charcoal & salt mix OR Earth Enhancing Compound (EEC)
- Earth chambers: heavy-duty RCC chamber with cast iron cover

Minimum Acceptable Earth Resistance Limits

Type of Earth	Resistance Limit
Electrical Equipment Earth	<= 1 Ω
Lightning Down Conductor Earth	<= 5 Ω
Clean Earth for IT/BMS	<= 0.5 Ω

Earth pits shall be interconnected forming a ring earth system – redundancy ensured.

5.2.2 Earthing Conductors

Application	Material	Size
Main Earth Grid	GI Strip	50X6 MM
Equipment Bonding	GI Strip	25X3 MM
UPS/Server (If applicable)	Copper	25X3 MM
Panel Earthing	GI/Cu Strip	50X6 MM
Lightning Down Conductor	GI Strip	26X6 MM

Joints must be welded, not bolted.

All strip connections must be:

- rust-proof
- bitumen-coated if exposed to soil

5.3 Lightning Protection System (ESE Type)

5.3.1 Air Terminal

- ESE Air Terminal installed at the highest point of building
- Coverage radius based on Rolling Sphere Method:
- Level II protection
- Stainless Steel mast w/ tested triggering distance

5.3.2 Down Conductors

- Minimum 2 down conductors on opposite sides
- Material: GI Strip 25×6 mm
- Route via shortest direct path to earth grid

5.3.3 Equipotential Bonding

Every metallic element must be bonded:

- Cable trays
- Ducting metal casings
- Handrails & façade metal members
- Roof plantroom metal supports

Ensures no difference in potential during strike.

5.3.4 Surge Protection Devices

Installed in cascade arrangement:

Location	SPD Class	Standard	Protection Level
MLTP Incomer	Class B (Type-1)	IEC 61643	25 kA
Major DBs	Class C (Type-2)	IEC 61643	15 kA
Sensitive Circuits (IT/AV)	Class D (Type 3)	IEC 61643	5 kA

5.4 Earthing of Key Assets

Responsible bonding for:

- Transformer body + neutral
- DG alternator frame
- HT RMU body
- LT Panels
- All MEP motors & HVAC units
- Light poles & outdoor metal elements
- Aquatic equipment in recovery spaces
- Fire pumps & control panels

5.5 Soil Resistivity Testing & Maintenance

- Soil resistivity tested using Wenner 4-point method
- Earth resistance to be measured:
- → At commissioning
- → Every 6 months for first year
- → Yearly thereafter

Earth chamber must include:

- Identification tag
- Test link strip for easy measurement

5.6 QA/QC & Testing Requirements

Test	Standard	Frequency	Acceptance
Earth Resistance	IS 3043	Every Earth Pit	<=1 Ω

Continuity Test	IS 732	100% Circuits	All Metallic parts bonded
SPD Verification	IEC 61643	Per Device	Surge capability Confirmed
Lightning Path Verification	Field	Once	Shortest routing ensured

All Documentation submitted in "Earthing & Lightning Protection Test Dossier".

SECTION 6 — QA/QC, FAT, SAT & COMMISSIONING PROTOCOLS

(Electrical Works – Part C: MEP, Automation & External Development)

6.1 Objective

To ensure all electrical equipment and installations:

- Fully comply with technical specifications & applicable IS/IEC standards
- Are tested for safe operation, protection & performance reliability
- Can be formally certified for energization and handover

The Contractor shall prepare and maintain a Project Quality Plan (PQP) including:

- Approved Shop Drawings
- Test Procedures
- QAP & ITP (Inspection & Test Plans)
- Checklists & Field Verification Records
- Material Test Certificates (MTCs)
- Calibration Certificates

6.2 Factory Acceptance Tests (FAT)

Before dispatch from OEM facility, mandatory for:

Equipment	Test Required	Standard
HT RMU	Dielectric, Contact Resistance, Mechanical Operations	IS 3427/IEC 62271
Transformer	Routine & Type Test	IS 1180/ IS 2026
LT Panels	High Voltage Test, IP Rating, Functional Verification	IEC 61439
DG Set	Load Test at Different Loads	IS 100000
SPD and Relays	Functional & Surge Capabilities	IEC 61643/ IEC 60255

FAT reports must be reviewed & approved prior to shipment.

6.3 Site Acceptance Tests (SAT)

Performed after installation & commissioning:

Test	Standard	Acceptance Criteria
Insulation Resistance (IR)	IS 732	>= 1 MΩ Final Circuits; >= 500 MΩ HT
Earth Resistance	IS 3043	<= 1 Ω equipment earth
Polarity Test	IS 732	Correct Connections
Loop Impedance	IEC 60364	Compliance for fault protection
Phase sequence	Field	Correct throughout
Protection Relay Test	IEC 60255	Setting as approved
Breaker Trip Tests	IEC 62271-100	Verified Timing
DG Auto Transfer Test	Functional	<= 10 S Transfer
Lux Level Test	IS 3646	+-10% of design target
Functional Tests	-	All Load Operational

Metering Calibration	NABL traceable	Accuracy Class Compliance

All results must be compiled in a SAT Completion Document.

6.4 Periodic Inspections

- Monthly inspection of DG sets & AMF sequence
- Quarterly earth resistance check (first year)
- Annual IR and functional test for lighting & DBs
- Lightning protection inspection pre–monsoon
- Maintenance logs retained for minimum 5 years.

6.5 Documentation & Handover

The following documents and deliverables are mandatory prior to completion certificate:

- As-Built Drawings (AutoCAD + PDF)
- Approved SLD & Panel GA Drawings
- Material Approvals & OEM Certificates
- FAT & SAT reports
- Panel Wiring Diagrams
- Test Reports & Checklists
- Fire Safety Approval Certificates
- BMS Integration Protocols
- O&M Manuals with Preventive Maintenance Plan
- Spares List & Warranty Certificates

No energization allowed until approvals & handover documents are accepted by Engineer-in-Charge.

6.6 Safety Requirements

- Lock-Out/Tag-Out (LOTO) enforced during all works
- Live panel access only by certified technician
- PPE compliance: arc flash protection for panel works
- First-aid & electrical rescue arrangements on-site

Incident-free installation required for handover.

HVAC SYSTEM

(Part C: MEP, Automation & External Development)

Part A — Design Basis + System Architecture + Cooling Load Summary

2.1 Design Basis & Performance Standards

2.1.1 Applicable Codes & Standards

All design, supply & installation shall fully comply with:

Standard	Description
ASHRAE 90.1	Energy Efficiency Minimum Requirements
ASHRAE 62.1	Ventilation & IAQ
NBC 2016 Part 8, Section 3	HVAC Service Requirements
IS 655	Metallic Air Duct Construction
IS 1239/ IS 3589	Steel Pipe Specifications
ISO 3744	Noise Measurement
CPWD General Specifications (HVAC)	Materials and Workmanship

Green Building provisions followed whatever possible.

Parameter	Design Value
Indoor DBT	22-24 ^{0C}
Relative Humidity	50-55 % RH Critical Zones
Outdoor Design Temprature (Guwahati, Assam)	38-40 ^{0}C DBT
Indoor Acoustic Level	<=55 dBA
Pressurization	Positive in Critical zones.

2.1.3 IAQ Requirements

- CO_2 threshold: ≤ 1000 ppm
- Filtration efficiency: MERV-13 or higher (ASHRAE 52.2)
- High-humidity areas equipped with dedicated exhaust + Odor control

2.2 System Architecture

VRV/VRF HVAC System

- Total installed capacity: ≈ 180 TR
- Inverter-controlled scroll compressors
- Refrigerant: R-410A (Zero ODP)
- Diversity factor: 1.2

Fresh Air AHU System

- Outdoor air pre-cooled before mixing with return air
- HRV (Heat Recovery Ventilation) usage based on area efficiency

Distribution Logic

Outdoor Units (Rooftop/Shaft)
  │— Refrigerant Pipes
  ▼
REF-NET Joints (Branch Splitters)
  │— Supply/Return air ducts
  ▼
Indoor Units (Zonal Type)
  │— Thermostat / Smart Control
  ▼
CO_2 & Humidity Modulated Fresh Air Supply

- Centralized control for common areas
- Local Control for rooms and Training spaces.
- Fire alarm shutdown interlocks included

2.3 Zone-wise HVAC Strategy

Zone	System Type	Filteration	Ventilation	Notes
Conditioning Zone	Ducted VRF	MERV 13	Fresh air AHU + CO_2 Control	Highest Heat Generation from workout
Biomechanics lab	Cassette	MERV 13	8 ACH	Flicker Free, >= 600 Lux requirement
Recovery + Hydro	Ducted	MERV 13	10 ACH	Odor Control+ humidity management
Physiotherapy	Ducted	MERV 13	8 ACH	Low Noise Demand <= 45 dbA
Dormitories	Wall/Ducted	Basic + BMS Override	6 ACH	Individual Thermostats
Dining/Common	Ducted	MERV 10-13	10 L/s/person	Odor Control near pantry
Administrative Areas	Slim Ducted	MERV 10-13	Standard Office Ventilation	Low Acoustic Level
Lobby/Corridors	Ducted	MERV 10	Fresh Air top-up only	Lower cooling priority

- **Positive pressure in medical & biomechanics rooms**
- **Negative pressure in toilet/wet areas**

2.4 HVAC Load & Equipment Capacity Summary

Zone	Area (m^2)	People	Load/Person(W)	Total TR	Indoor Unit Type
Conditioning Zone	400	30	500	60 TR	Ducted
Biomechanics Lab	120	10	550	20 TR	Cassette
Recovery/Hydro Zone	250	20	450	25 TR	Ducted
Physiotherapy/Medical	200	10	450	22 TR	Ducted
Dormitories/Sharing Rooms (150 Athlete + Staff rooms)	480	180	300	30 TR	Wall/Ducted
Dining/Common	300	60	350	15 TR	Ducted
Administration	250	25	350	10 TR	Slim Duct
Lobby/Circulation	300	-	-	10 TR	Ducted
Total Installed	-	-	-	192 TR	-

Final Installed capacity rounded to 195 TR due to diversity and load shedding allocation.

2.5 Air Distribution Strategy

Item	Requirement
Diffusers	Linear Slot/ square diffuser as per space
Grilles	Return air egg-crate type
Static Pressure	Balanced for uniform flow
Velocity limits	<= 2.5 m/sec at diffuser level

Air Balance	Differential pressurization as per zone.

Part B — Ducting Network + Refrigerant Pipework + Condensate Drainage + Ventilation + Acoustic Design

2.6 Ducting Network — Design & Construction Requirements

2.6.1 Duct Material & Standards

- Galvanized Iron sheet – Z275 g/m² zinc coating
- Construction as per IS 655
- Fabrication tolerance ±3 mm per meter length
- Ductwork classification:
- Supply ducts: Medium pressure up to 1000 Pa
- Return/Exhaust ducts: Low pressure up to 500 Pa

2.6.2 Duct Thickness Standards (as per width)

Duct Dimension (MM)	GI Sheet Thickness
Up to 750 MM	24 G (0.63 mm)
751-1500 MM	22 G (0.80 mm)
1501-2250 MM	20 G (1.00 MM)
Above 2250	18 G (1.25 MM)

Flanges: 40×40×5 mm angle iron
Hangers: GI threaded rod 10/12 mm with vibration isolators

2.6.3 Duct Leakage Class

Leakage testing required:

- ≤ 2% leakage at 500 Pa
- (Test as per SMACNA / IS 655)

2.6.4 Acoustic Treatment

- Internal 25 mm glass wool (48 kg/m³) liner in:
- Conditioning Zone gym ducts
- Dining, Lobby zones
- NRC ≥ 0.85 for noise absorption
- Duct silencers used at AHU discharge & gym spaces if required

2.6.5 Fire Safety & Smoke Control

- Duct fire-rated sealing at walls & slab penetrations
- Fire Dampers with 72°C fusible links for shafts
- Duct-mounted smoke detectors → Shutdown via Fire Alarm System
- **Fire alarm interlock included**

2.7 Refrigerant Piping System

2.7.1 Material

- Hard drawn copper, degreased & nitrogen charged
- IS 10773 compliant

2.7.2 Max Piping Lengths

- VRV main pipe: 100 m max
- Vertical separation: ≤ 50 m

2.7.3 Jointing Requirements

- Brazing under Nitrogen purge only
- No compression joints inside walls/ceilings

2.7.4 Piping Support Spacing

Pipe OD	Max Support Spacing
<= 25 MM	1.2 M
26-50 MM	1.5 M
>50 MM	1.8 M

Supports with EPDM cushioning to prevent vibration transfer.

2.7.5 Thermal Insulation

- Nitrile Rubber — Class O (fire resistant, closed-cell)
- 25 mm for liquid line / supply
- 19 mm for gas return line
- All outdoor insulation with UV-protected cladding

Zero condensation guarantee inside ceilings

2.8 Condensate Drainage System

Parameter	Requirement
Pipe Type	CPVC/PVC Min. 32 MM Dia
Slope	1:100 Minimum
Traps	P-Trap every unit
Insulation	Required in Concealed Paths
Discharge	Proper connection to nearest drain point

Anti-microbial treatment recommended for hydrotherapy zone drains.

2.9 Ventilation & IAQ Strategy

2.9.1 Fresh Air AHU

- Pre-conditioned supply → reduces VRV load
- Filtration: MERV-13
- 8–10 ACH in high occupancy areas

- 2.9.2 CO_2-Based Control

For:

- **Conditioning Zone**
- **Dining**
- **Meeting Rooms**

Control logic:

- Maintain CO_2 < 1000 ppm

- Increase ventilation automatically during peak loads

2.9.3 Exhaust Systems

- Toilets: 10–12 ACH
- Hydrotherapy: Negative pressure & odor management
- Kitchen/Pantry: Grease filters with roof exhaust

2.10 Vibration & Acoustic Control Measures

Element	Control Measure
Outdoor Units	Vibration isolators, anti-vibration pads
Indoor Units	Rubber mounts under AHU blowers
Ducts	Acoustic lining + Flexible connectors
Structural transmission	No rigid metal to structure contact

Noise Criteria achieved:

- ≤ 55 dBA in occupied zones
- ≤ 45 dBA in treatment & admin spaces

2.11 Fire & Safety Integration

- AHU shutdown on smoke alarm trigger
- Fire damper drop signal through FACP
- Outdoor units emergency stop in Fire Command Room
- Self-closing fire-rated access panels

Compliance: NBC Part 4 (Fire & Life Safety)

Part C — Controls, Installation Standards, Pressurization & Safety

2.12 Control System & BMS Integration

All VRV/VRF controls shall be integrated with Building Management System (BMS) through BACnet/MODBUS gateway.

2.12.1 Zoning Control

Zone	Temperature Control	Monitoring
Conditioning Zone	Central + Local overrides	BMS
Recovery/Physiotherapy	Local Control	BMS
Biomechanics lab	Local Control	BMS
Dormitories	Individual Thermostat	Central Monitoring
Admin Area	Zone Thermostat	BMS
Dining/Common Area	Programmed Schedule	BMS

Setpoint locking at 22–24°C to prevent misuse by athletes.

2.12.2 Thermostats & Sensors

- Digital wall-mounted thermostats (wired preferred)
- Functions:
- Temperature sensing
- Fan speed control
- Timer scheduling

- Error alarm reporting to BMS

Sensors integrated:

- Supply air temp
- Return air temp
- Humidity (Hydro/Physio zones)
- CO_2 (Gym & Dining areas)

2.12.3 BMS Optimization

Control Logic:

- Occupancy-based control
- Night setback mode (dormitories)
- Load-shedding mode during DG operation
- Fault monitoring and alarm reporting

2.13 Equipment Installation Requirements

2.13.1 Outdoor Unit Placement

- Located on terrace and/or dedicated shaft
- Mounted on MS stands with rubber vibration pads
- Minimum clearance:
- 600 mm rear, 900 mm front for servicing
- Sunshade / canopy if directly exposed to rain
- Accessible walkway for maintenance

2.13.2 Indoor Units

- Ceiling-mounted cassette / ducted type concealed
- Allow 450 mm access for servicing coils & filters
- Flexible duct connectors for vibration isolation

2.13.3 Piping & Duct Routing

- Avoid routing above electrical panels or fire pumps
- Fire-rated sealing at all openings
- Dedicated Riser Shafts for piping

2.13.4 Filter Maintenance

- Filter status feedback to BMS
- Filter cleaning at:
- 1–3 months for normal zones
- Monthly for Hydro zones

2.14 Building Pressurization & Smoke Safety

Area	Requirement
Escape Staircase	Pressurization >= 50 Pa
Recovery and Medical	Slight Positive Pressure

Toilets & Wet areas	Negative Pressure

Pressurization logic triggered by:

- Fire Alarm activation
- Manual override in Fire Command Centre

2.15 Material & Workmanship Standards

Component	Specification
GI Ducts	Fabricated as per IS 655
Copper Tubes	IS 10773, nitrogen-charged
Fasteners	SS 304 for concealed areas
Coating	Anti-corrosion primer for MS supports
Insulation	Class 'O' Nitrile Rubber, flame spread <=25

Quality certification required:

- ASTM E84 – Fire rating compliance
- ISO 846 – Anti-microbial surface performance

2.16 Electrical & Fire Safety Integration

- MCCB fused connection for each HVAC panel
- Smoke detector → AHU shutdown sequence
- Dedicated ELCB for outdoor units
- Earthing & bonding to main grid

2.17 Accessibility & Maintenance

- Equipment locations to ensure:
- Safe working clearances
- Ladder access to suspended units
- Drain pans accessible for cleaning
- As-built routing drawings mandatory

Part D — Testing & Balancing, QA/QC, Documentation & Schematics

2.18 Testing, Adjusting & Balancing (TAB)

TAB work shall be carried out by certified HVAC specialists after full installation, power-up & sensor

calibration.

2.18.1 Testing Requirements

Test	Standard	Requirement
Air Flow Rate	IS 11329	+-10% of Design CFM
Static Pressure	Field Measurement	Within Design Tolerance
Refrigerant Pressure	OEM	No Leakage/Stable Pressure
Temperature Differential	ASHRAE 55	10-12 ^{0} C across coil
IAQ Performance	ASHRAE 62.1	CO_2 <= 1000 ppm
Noise Test	ISO 3744	<= 55 dBA
Vibration	Field	No Structure-borne vibration

Test Locations:

- All diffusers
- All indoor units
- All fresh air intake points
- All critical treatment zones

All TAB results must be recorded in the format included in the HVAC TAB Handover Dossier.

2.19 Performance Guarantee & Acceptance Criteria

Parameter	Acceptance Criteria
Indoor Temperature	22-24 ^{0} C
Relative Humidity	50-55% in Critical Zones
IAQ Fresh Air	As per Occupancy load
Filtration	MERV-13 Compliance
Condensation	No Sweating at Insulation
Pressure Zones	Achieved as per design
Energy efficiency	Meets AHRAE 90.1 baseline

Failure to meet above → rectification at contractor cost.

2.20 Inspection & Quality Assurance Plan

2.20.1 Mandatory Inspection Hold Points

Stage	Hold Points	Acceptance
Material Delivery	Duct Sheets, Pipes, insulation	Specification Compliance Check
Duct Fabrication	Sample Duct inspection	Leakage Test
Refrigerant Piping	Pressure Test witnessed	>= 24 Hrs stability
AHU & Indoor Units	Function Test	Fan & Coil performance
Control Integration	BMS link testing	All setpoints working
TAB	Completion Report	Approved Values

Any deviation → NCR to be issued within 24 hrs.

2.21 Documentation & Handover Requirements

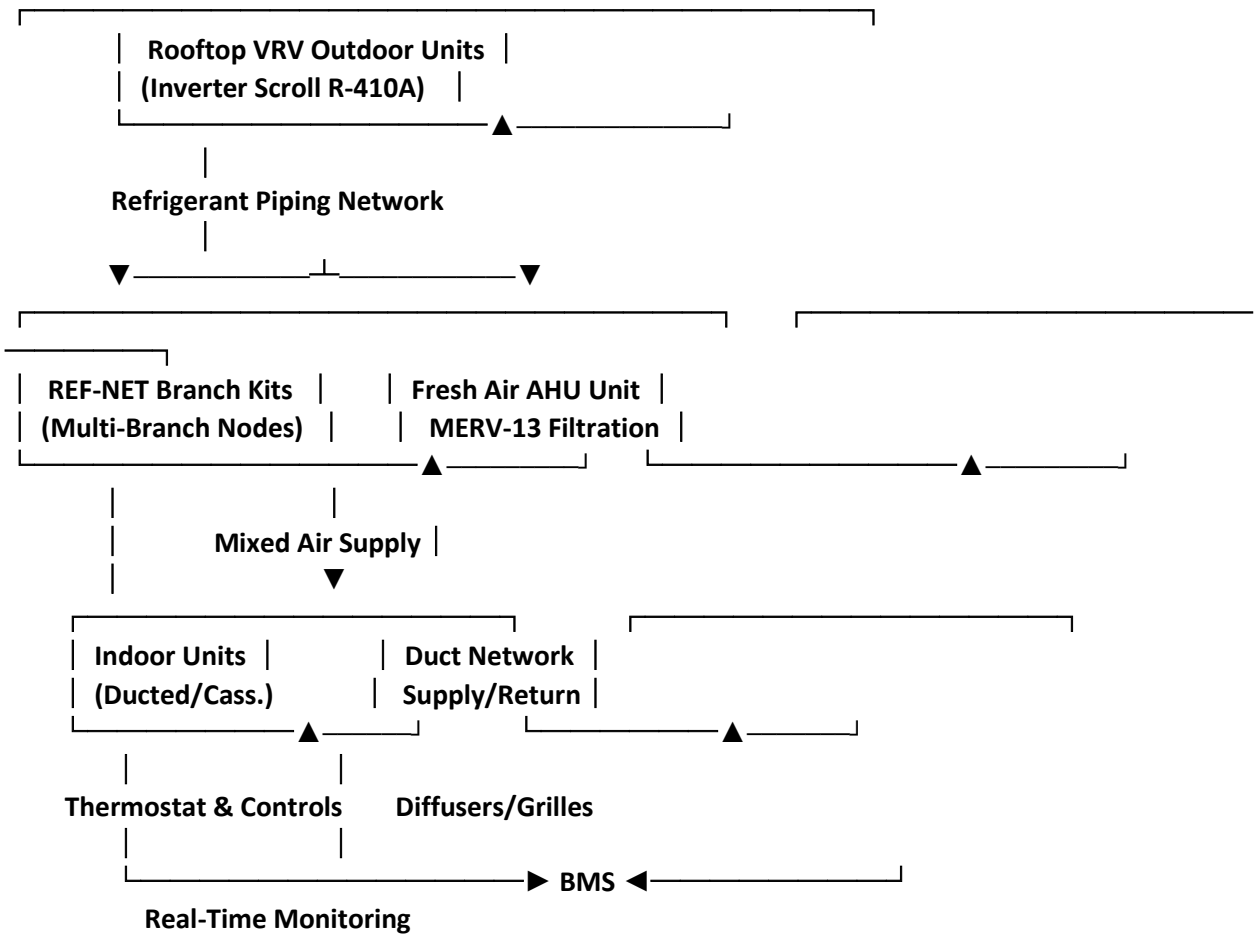
Contractor must provide:

- Approved Shop Drawings (all revisions)
- As-built Drawings (Ducting, Piping & Controls routing)
- OEM warranties (min. 5 years on compressors)
- Electrical Load Data for HVAC Panels
- Fire alarm interlock certifications
- Test certificates & calibration reports

- Maintenance & Cleaning Schedule
- Spare Filter & Control sets
- Training for facility staff (minimum 2 sessions)

Completion certificate only issued after all documentation received & validated.

2.22 HVAC System Architecture Diagram (Schematic)



Plumbing & Drainage System

Part A — Design Basis, Water Storage System & Cold/Hot Water Distribution

3.1 Scope

This section covers the design, supply, installation, testing, and commissioning of:

- Cold & Hot Water Distribution System

- Sanitary Waste, Soil, & Vent Piping
- Internal & External Drainage System
- Rainwater Conveyance & Harvesting
- Water Storage (UGT + OHT)
- Valves, Fixtures & Accessories
- Insulation, supports & access panels

Executed as per:

- IS 2065 – Water supply design
- IS 1172 – Plumbing for buildings
- IS 5329 – Testing for sewer lines
- IS 4985 / IS 15778 / IS 13592
- NBC 2016 Part 9 (Plumbing Services)
- CPWD General Specifications

3.2 Design Basis

Parameter	Value
Per-Capita Water Demand (Athlete Residential)	135-150 LPCD
Physiotherapy/Hydrotherapy	Additional 100 L/Athlete
Office/Admin	45-50 LPCD
Peak Factor	2.5 X Average Flow
Storage Autonomy	3 Days Minimum

Backflow prevention required at all incoming connections.

3.3 Water Storage & Pumping System

3.3.1 Water Storage Capacities

Tank Type	Capacity	Location	Construction
UGT	80 KL	Below Ground	RCC- IS 3370
OHT	60 KL	Terrace	RCC – IS 3370

Zones served via pressurized distribution system.

3.3.2 Pump Room

- Duty + Standby pumps for 100% redundancy
- VFD (Variable Frequency Drive) to avoid water hammering
- Cavitation-free suction design

Pump Type	Application	Flow	Head
Transfer Pumps	UGT to OHT	30 M^3/Hr	35 M
Hydrotherapy Service Pumps	Recovery Zone	As per equipment	OEM Specs

Panels: MCC + ATS + Auto-stop float switches.

3.4 Cold Water Distribution

Component	Specification
Pipe Material	CPVC- IS 15778
Pressure Rating	SDR 11 PN 20
Jointing	Solvent weld (manufacturer certified)
Insulation	Nitrile rubber 13-19 mm in non-conditional areas

Routing:

- Overhead distribution with down-take pipes
- GI clamps with anti-vibration rubber lining
- Access panels at concealed valves

Flow noise: ≤ 30 dB in Dormitories

3.5 Hot Water Distribution

Serving:

- Bathrooms in dormitories/Sharing rooms
- Medical/Physio rooms
- Hydrotherapy pools/showers

Feature	Requirement
Source	Electric Heat Pump/Solar Supported
Recirculation	Provided to avoid water stagnation
Temp Control	Thermostatic mixing valves (45^0C- 55^0C)
Insulation	Nitrile Rubber 19-25 mm

Backflow prevention using NRVs to avoid contamination.

3.6 Plumbing Fixtures & Fittings

All fixtures must be:

- Single-lever mixers (CPWD approved)
- Water-saving aerators (≤ 6 L/min taps)
- Wall-hung WCs with concealed cisterns
- Sensor taps in medical & public wash areas

Flush volumes:

- Dual flush: 3 / 6 L

SS 304 grab bars where accessibility required.

3.7 Valves & Controls

- Butterfly valves for isolation (pump room)
- Ball valves for floor distribution
- Gate valves for main supply / risers
- Pressure reducing valves (PRV) for lower floors
- Strainers before pumps & equipment

All valves tagged & numbered as per schematic.

Part B — Sanitary Drainage, Soil & Waste System, Rainwater System & Ventilation

3.8 Sanitary Drainage System (Soil & Waste/Stack System)

3.8.1 Pipe Materials & Standards

System	Pipe Material	Standard	Jointing Type
Soil & Waste (SW)	uPVC SWR	IS 13592:1992	Rubber Ring Fitting
Vent Line	uPVC	Is 4985	Solvent Weld
Floor Trap & WC Connector	PP/UPVC	IS 14735	Mechanical Clamp

All pipes:

- Shall be UV stabilized
- Tested for impact strength & leak resistance

3.8.2 Pipeline Routing & Installation

- Separate stacks for soil & waste up to last manhole
- Single stack system in dormitories with anti-siphon traps
- No concealed joints inside structural elements
- Horizontal run slope:
- 1:40 for ≤ 100 mm pipes
- 1:60 for ≥ 150 mm pipes

Pipe supports:

- Spacing 1.2 m
- Anti-vibration lining for acoustic control

3.8.3 Traps & Cleanouts

Location	Type	Standard
All Floor Drains	Deep Seal trap (>= 75 mm seal depth)	IS 3114
WC Outlets	P/S Trap integrated	IS 5329
Change of Direction	Cleanouts	Every 6 m and Junction point

Rodent proof SS mesh screens for outlet openings

3.9 Ventilation System (Anti-Vacuum Protection)

Purpose:

- Air pressure balance
- No foul smell backflow
- No trap seal breaking

Main Vent	Diameter	Termination Height
Main Vent	Same as Soil Pipe	1 m above roof
Branch Vent	50-75 mm Dia	Joins Mains Vent

Vent outlets:

- Kept 6 m away from fresh air intake
- Cowl protection with bird screen

3.10 Inspection Chambers & Manholes

Location	Type	Size	Standard
International Shaft base	Inspection Chamber	600x600 mm	RCC M 20
Yard Areas	Manholes	Depth-Specific	IS 4111
Final Discharge	Gully Trap + Manhole	-	CPWD Specs

Covers:

- Ductile iron (HD) with non-slip pattern

3.11 External Sewer Network

- Slope: 1:100 minimum for 150–200 mm lines
- All sewer lines with bedding & encasement where required
- Effluent connected to:
- Municipal sewer OR
- On-site STP (if included in project)

Minimum cover: 750 mm outdoor buried lines

3.12 Rainwater Management & Harvesting

3.12.1 Roof Drainage

- Concealed downpipes — uPVC / HDPE
- Slope towards drop outlets with SS gratings
- Overflow scuppers for redundancy

3.12.2 Ground Drainage

- Rainwater Filter Pit
- Recharge Shaft with perforated walls
- Overland Flow to natural drainage as per site conditions

Filtration:

- Coarse sand + charcoal + pebble layer
- Silt traps at entry points

3.13 Acoustic Standards

Target noise levels:

Location	Max Sound Level
Dormitories	35 dBA
Treatment rooms	40 dBA
Toilets	<= 45 dBA

Noise mitigation:

- Rubber-lined pipe supports
- Wrap insulation for vertical shafts
- Acoustic sealant for duct penetrations
- No pipe-to-structure contact allowed

To maintain acoustic comfort in wellness, medical, and residential zones of the High Performance Centre, all plumbing installations shall be designed and installed to eliminate structure-borne noise, resonance, and airborne transmission.

The Contractor shall ensure the following measures:

3.13.1 Pipe Support & Isolation

- All water supply, waste, and rainwater pipes shall be installed using:
- Rubber-lined clamps
- EPDM/Vibration isolation inserts
- Pipe hangers shall include anti-resonance pads to prevent impact noise transmission.

- Support spacing must strictly comply with manufacturer standards to avoid sagging and vibration.

3.13.2 Vibration Decoupling & No Pipe-to-Structure Contact

- Pipes shall not be in direct contact with:
- RCC slabs
- Beams
- Walls
- Masonry surfaces
- All penetrations through walls, floors, and shafts shall:
- Use flexible elastomeric sleeves
- Be sealed with acoustic fire-rated sealant
- Rigid anchoring directly to structure is not permitted to avoid:
- Drumming sound
- Vibrational noise transfer

This is mandatory for dormitories, biomechanics, and physiotherapy areas.

3.13.3 Acoustic Insulation Wrap

- Soil and waste stacks within shafts shall be wrapped with:
- Acoustic mineral wool 50 mm thick (Density 48–64 kg/m^3)
- Covered with fire-safe aluminum foil jacket
- Noise rating target:
- Residential rooms & healthcare spaces: ≤ 35 dBA
- Toilets & service areas: ≤ 45 dBA

3.13.4 Silent Plumbing Components

Where commercially available and approved by the Engineer:

- Use silent SWR pipes (triple-layer or sound-attenuating grade)
- Install silent floor traps to reduce flushing noise
- WC cisterns to be concealed with padding behind finished wall

3.13.5 Drainage Flow Noise Control

- Maintain correct gradient (1:40 / 1:60) to avoid turbulence noise
- Provide long radius junctions instead of short bends
- Install air admittance valves or vent stacks to avoid gurgling due to vacuum

3.13.6 Shaft Airtightness & Access

- All vertical shafts shall be:
- Fully enclosed and acoustically sealed
- Provided with gasketed access doors for maintenance
- No direct opening of shafts into dormitories/Sharing rooms or treatment rooms

3.13.7 Compliance Criteria

- Field testing shall verify compliance with:
- ISO 16032 — Building services acoustics

- NBC Part 8 — Acoustics in Buildings

Any non-compliance → Contractor must execute corrective measures at no extra cost.

Fire Fighting System

Part A — System Architecture, Network Layout & Design Criteria

4.1 Scope

This section includes the design, supply, installation, testing & commissioning of:

- Fire Hydrant System
- Fire Sprinkler System
- Fire Hose Reel System
- Fire Water Storage & Pumping System
- Fire Brigade Inlet System
- Portable Fire Extinguishers
- Signage & Safety Accessories
- Integration with Fire Alarm System

All work shall comply with:

- NBC 2016 – Part 4 (Fire & Life Safety)
- IS 13039 (Fire Safety of buildings)
- IS 3844 (Hydrant Systems)
- IS 15105 (Sprinkler Systems)
- IS 15301 (Fire Pumps)
- IS 5290 (Landing Valves)
- CPWD Fire Protection Specifications

4.2 Design Criteria

Parameter	Value
Fire Risk Category	Group A (Assembly + Residential + Institutional)
Fire Water Storage Tank	100 KL dedicated RCC Tank
Fire Water Autonomy	1 Hour Full discharge
Sprinkler Design	Ordinary Hazard Group 1
Hydrant Pressure	>= 5 Bar at landing Valve
Sprinkler Pressure	>= 2.5 Bar at farthest point
Pump auto Starting	Via pressure drop detection

4.3 Fire Water Storage & Pump Room

Equipment	Capacity	Standard
Fire Water Tank	100 KL UGT	IS 3370 (Leak-proof tested)
Over Head Fire water Tank	10000 Litre or as per relevant guidelines	
Main electric pump	2280 LPM @ 7 bar	IS 15301
Standby Diesel Pump	2280 LPM @ 7 Bar	IS 15301
Jockey Pump	180 LPM @ 8 bar	IS 9079
Fuel Tank	8 Hours pump runtime	-

Auto-control Sequence:

- Jockey pumps address minor drops

- Main pump ≥ 1 kg/cm² drop
- Diesel pump on main pump failure
- Auto-stop disabled for both main & diesel pumps

(Manual stop only — NBC compliance)

Fire pump room must have:

- 2 hr fire-rated enclosure
- Ventilation + positive drainage
- Fire extinguishers
- Vibration isolation mounts
- Control panel with annunciator alarms

4.4 Hydrant System (Wet Riser)

4.4.1 Riser & Piping

Item	Specification
Riser Pipe	MS 'C' Class, IS 1239
External Hydrants	CI pillar hydrants w/SS caps
Landing Valves	IS 5290 Standard
Fire Hose Reels	30 M long, IS 884
Breeching inlet	4-way, IS 904

Risers installed in fire-rated shafts up to terrace level.

Performance:

- Minimum 5 bar pressure at topmost landing valve
- Each landing valve with:
- Hose box
- 15 m canvas hose
- 10 mm SS branch pipe nozzle

4.5 Automatic Sprinkler System

Parameter	Specification
Sprinkler Type	Upright/Pendant (Area-dependant(
Response	QR (Quick Response)
Temperature Rating	68 ^{0}C
Spacing	3.0 m X 3.0 m max
Design Density	5-7.5 L/Min/m^2

Hydraulic calculation shall ensure:

- Farthest sprinkler operates at required pressure
- Zoning with valve supervision switches

4.6 Fire Brigade Integration

- Fire brigade inlet connection at ground access
- Dedicated access signage
- Bypass valves to support system pressurization from pumper truck

4.7 Portable Fire Extinguishers

Installed as per IS 15683:

Location	Type	Size
Electrical Rooms	CO_2 Type	4.5 Kgs
Pantry/Dining	Foam/ABC	6 Kgs
Fuel/DG Area	D-Class	As per Risk
General Areas	ABC multipurpose	6 Kgs

Extinguishers must have:

- QR code tagging
- Monthly inspection log on bracket

Part B — Fire Detection & Alarm, Cause & Effect, QA/QC & Commissioning

4.8 Fire Detection & Alarm System (FDAS)

System Type:

- Addressable fire alarm system
- Redundant loop with isolators every 20 devices

Standards:

- IS 2189:2019 – Fire Detection & Alarm Systems
- NFPA 72 (referenced for cause-effect best practices)

Components:

Device	Standard	Location	Performance
Smoke Detectors	IS 2175	Dormitories, Admin, Corridors	Photoelectric Type
Heat Detectors	IS 2175	Pantry, Electrical Rooms	Fixed 57^0 C or ROR
Manual Call Points	IS 2189	Exit, Lobbies	<= 30 M travel Distance
Fire Sounder/Beacon	IS 2189	All Occupied Zones	>= 90 dB(A)
Gas Leak Detector	-	DG Room	Shutdown Relay
Beam Detector	-	Double Height atriums (If any)	Smoke Coverage enhancement

All detectors shall have:

- Addressable electronic IDs
- Alarm verification to prevent nuisance

Communication: Shielded twisted pair cable FRLSH

4.9 Fire Pump Room Control Panel

Integrated annunciation for:

- Pump running status
- Fail to start
- Phase failure
- Low fuel alarm (Diesel pump)
- Manual override
- Hydrant system pressure monitoring

4.10 Firefighter Telephone System

- Fireman handsets at critical points

- Connected to Fire Command Centre (FCC)

4.11 Cause & Effect Matrix (C&E)

- Ensures immediate automatic responses
- Mandatory by NBC 2016

Event Detection	System Response Action
Smoke/Heat detector activated	Alarm ON, FACP logs exact location
MCP Operated	Immediate alarm, sounder + beacon
Smoke in AHU return ducts	AHU shutdown, Fire Damper closes
Fire Pump discharge pressure drop	Jockey to Main to Diesel to pump auto-start
Sprinkler flow switch	Alarm + Pump Start Confirmation
Corridor alarm	Selected doors auto-release
Fire at DG Room	DG shutdown + Fuel solenoid cut-off
Alarm at any zone	Fire brigade notified + alarm at FCC

All alarms visible on Graphical Floor Interface at FCC.

4.12 Emergency Communication System

- PA system (Voice Evacuation) integrated with FDAS
- Pre-recorded multilingual instructions
- Manual override microphone at Fire Command Centre

Sound pressure: 85 dB(A) minimum in all occupied spaces

4.13 Signage, Egress & Fire Doors

- Photoluminescent Exit Signage with arrows → continuous escape direction
- Door closers + Electromagnetic locks with fail-safe release
- Staircase enclosures: 2 hr fire rated doors

4.14 System Labelling & Identification

- All hydrants, valves, sprinkler zones, and FACP loops numbered and tagged
- O&M documents must include device addressing sheet

4.15 QA/QC & Testing Requirements

Testing & Acceptance Table

Test	Standard	Frequency	Acceptance Criteria
Hydrostatic Test (Fire Mains)	IS 1239	Each Section	14 bar @ 2 hr
Sprinkler Functional Test	IS 15105	10% Sample	Activation <= 68^0C
Hydrant flow test	IS 3844	Each Hydrant	Pressure>= 5 bar
Diesel Pump Trial	IS 15301	Each Pump	Auto Start <= 15 Sec
Alarm System Functional	NFPA 72	Each device	Response <= 10 Sec
FDAS Loop	Field	Cable cut simulation	Loop survivability
Drainage & Refill	CPWD	Entire System	100% Leak Free
Detector Sensitivity	UL/NABL	Calibration plot	Within Tolerance

All tests must be documented, certified & signed by the Engineer-in-Charge.

4.16 Documentation & Handover

Contractor must provide:

- Approved shop drawings
- Hydraulic calculations
- Loop addressing charts
- Device certificates & calibration
- Fire Drill & Staff Training Completion Records
- AMC plan for minimum 2 years

SECTION 5 — LIFT / VERTICAL TRANSPORTATION SYSTEM (2 Nos of Lift)

5.1 Scope

This specification covers the design, engineering, supply, installation, testing & commissioning of:

- One Lift serving Ground + 6 Floors (G+6)
- Capacity: 16 Persons (≈ 1088 kg)
- Speed: 1.5 m/s
- Machine Room Less (MRL) Electric Traction Lift
- Variable Voltage Variable Frequency (VVVF) Drive
- Automatic Centre Opening Power-Operated Doors

System complies with:

- IS 14665 – Safety rules for lifts
- NBC 2016 – Part 8 Section 5
- BIS Lift Installation Guidelines
- CPWD Electrical Specifications
- IGV (Inclusive Accessibility Standards)

5.2 Technical Specifications

Parameter	Requirement
Lift Type	Passenger Lift
Capacity	16 Person/1088 Kgs
Speed	1.5 M/Sec
Floor Served	G+6 (7 Stops)
Drive	VVF AC Gearless
Control System	Microprocessor with AI door learning
Rated Power Supply	415V, 3-phase, 50 Hz
Travel Height	21-25 Mtr Height
Duty Cycle	Heavy Duty, High Traffic (Sports Facility)

Suitable for athlete movement rush & equipment transfer.

5.3 Car & Machine Features

Car Dimensions

- Internal Car: ~1600 mm (W) × 2100 mm (D) × 2300 mm (H)
- Clear Door Opening: 1100 mm

Wheelchair stretcher-friendly size

Cabin Finish

- Stainless Steel hairline finish
- Anti-slip flooring (granite/Vinyl commercial grade)

- Ventilation fan + LED lighting
- Handrails: SS 304 on 2 sides
- False ceiling with spotlight aesthetics

5.4 Doors

- Centre opening / Automatic Power-operated
- Fire-rated as per NBC for lift lobby
- Door width: 1100 mm
- Infrared full door screen curtain
- Smooth open/close (VVVF controlled)

5.5 Control & Safety Systems

Control Panel

- Microprocessor-based group controller
- Auto-rescue device (ARD)
- → Car returns to nearest floor during power failure
- Full Duplex communication with security room

Safety Features (Mandatory)

- Emergency Alarm
- Two-way intercom: Car ↔ Lift machine room
- Emergency light during power failure
- Overload detector with audio-visual alarm
- Safety gear + Buffer system
- Seismic switch (earthquake protection)
- Fireman's switch (Fire Lift Mode)

In case of Fire Alarm:

- ✓ Lift returns to designated safe floor
- ✓ Doors remain open for evacuation

5.6 Navigation & Accessibility Features

- Braille push button panels
- Floor announcement (voice)
- Digital car & landing indicators
- Hall lantern with direction arrows
- Low-height COP + handrail for wheelchair users
- Compliant with Accessibility Standards for Sports Infrastructure

5.7 Energy Efficiency

- Regenerative drive to return unused power to grid
- LED lighting with auto-off
- Standby sleep mode for electronics

5.8 Civil Interface Requirements

- Lift Pit waterproofing + sump pump
- Pit depth: ~1500 mm
- Clear headroom: ~4500 mm (MRL machine space within shaft)

All shaft dimensions shall be coordinated by architectural drawings.

5.9 Testing & Commissioning Requirements

Test	Standard	Acceptance
Speed and Levelling	IS 14665	<=10 mm accuracy
Load Test	125% rated load	Smooth operation
Door Closing Force	ISO 4190	<=150 N
Safety Gear & Buffer	Full function	Zero failure
Overload function	Functional	Alarm + non-movement
Emergency rescue operation	Field Test	Car moves to nearest floor
Ride Quality	Vibration<=15 mg	Comfort Comliance

Statutory certification from Electrical Inspector required before operation.

5.10 Documentation & Handover

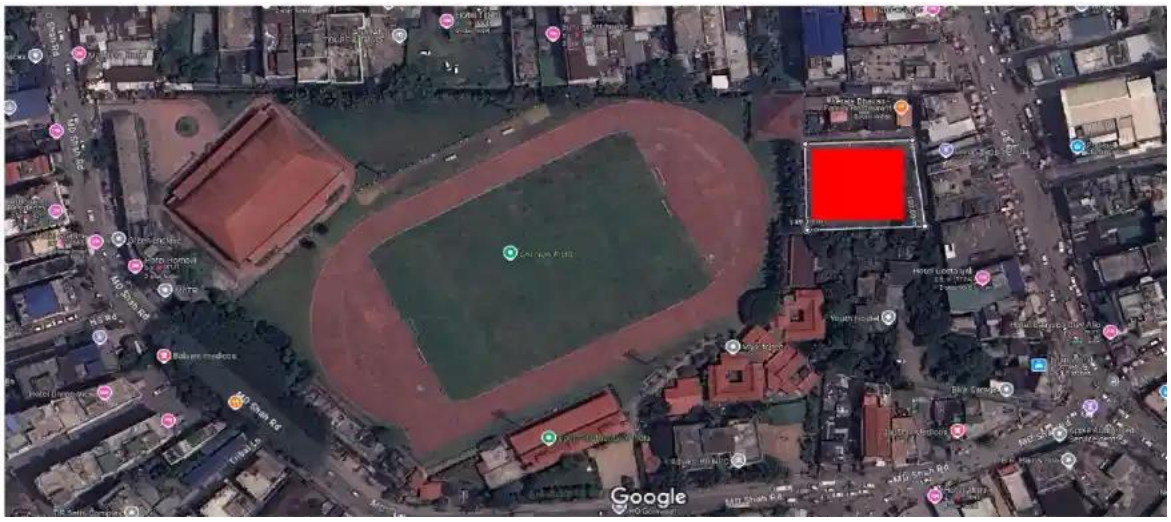
Contractor must provide:

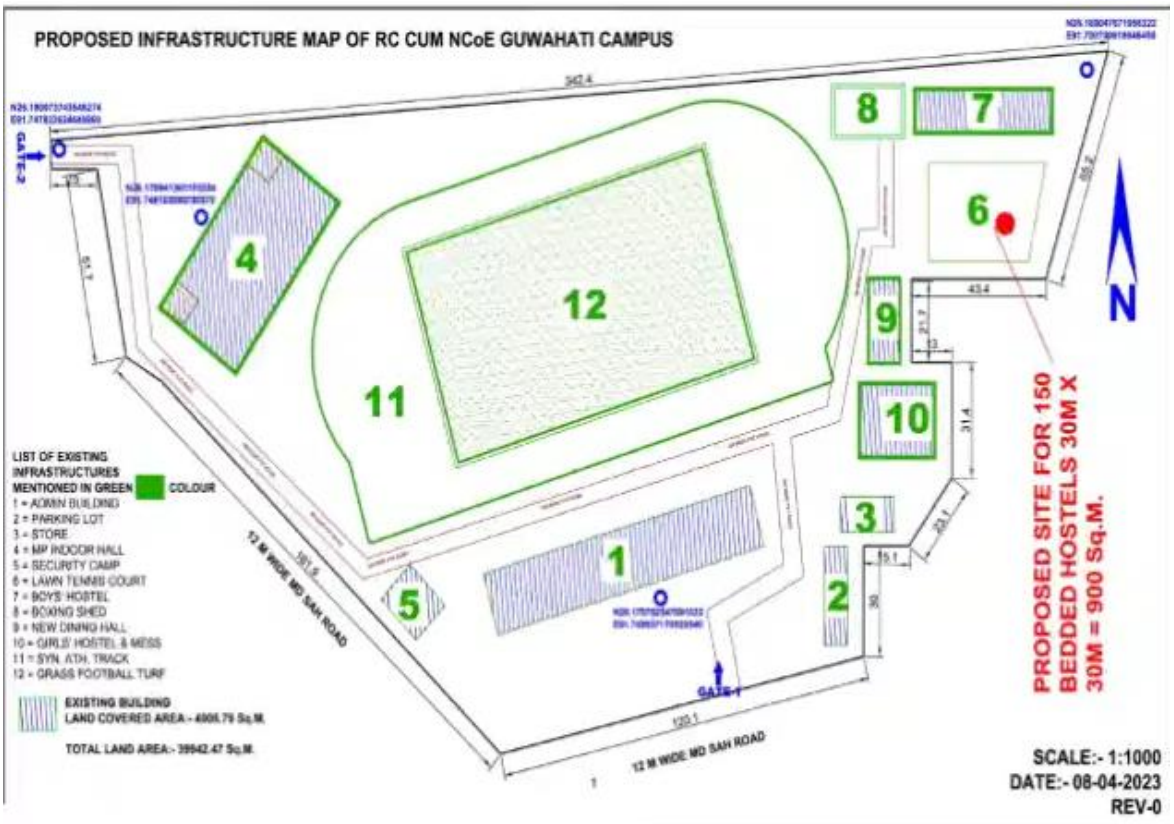
- Operation & Maintenance Manuals
- Lift Shaft As-Built Drawings
- AMC Contract for 2 years
- Mandatory training for facility operators
- Monthly maintenance schedule displayed in Lift room

ACCEPTABLE MAKES OF MATERIALS

- The acceptable makes of materials to be used as per la test approved make list as per CPWD. In case any of the specified makes are not available in the market, the Contractor shall obtain prior approval from SAI before proposing alternative makes. Only BIS-marked materials shall be permitted as alternatives. Use of non-BIS marked materials may be considered by SAI only in exceptional cases, and solely where BIS-marked materials are not manufactured, subject to submission of supporting evidence and obtaining written approval.
- **Note:** The above scope/details of work are only for indicative purpose and may vary as per the requirements of Sports Authority of India (SAI) any Time.
- The bidder/contractor shall inform the Owner/SAI/Engineer-in-Charge and obtain prior written approval for the selected brand/make from the approved list of materials. In case the brand/company name of a specific item is not mentioned in the list of acceptable makes, the contractor shall obtain prior approval for the proposed alternate brand/make from the Owner/SAI/Engineer-in-Charge before procurement or installation.

Site Location





Address: Regional Centre Guwahati, New Field Sports Complex, Paltan bazar, Guwahati 781008, Assam

G. DEFECT LIABILITY PERIOD (DLP)

The Defect Liability of all the works carried out by the contractor, shall be taken by the contractor during 03 year of defect- liability period as per the standard norms of DLP. The contractor will deploy sufficient manpower (supervisor, mason, carpenter, electrician, plumber, sweeper, gardener etc. materials, accessories tools and plants required for the maintenance of the building, horticulture /

landscaping works, external development works, and other works carried out by the contractor during execution of project. No extra charge for this DLP shall be paid to the contractor. Therefore, the contractor is advised to quote the cost accordingly.

8.0 ACCEPTABLE MAKES OF MATERIALS

The acceptable makes of materials to be used as per la test approved make list as per CPWD. In case any of the specified makes are not available in the market, the Contractor shall obtain prior approval from SAI before proposing alternative makes. Only BIS-marked materials shall be permitted as alternatives. Use of non-BIS marked materials may be considered by SAI only in exceptional cases, and solely where BIS-marked materials are not manufactured, subject to submission of supporting evidence and obtaining written approval.

Note: The above scope/details of work are only for indicative purpose and may vary as per the requirements of Sports Authority of India (SAI) any Time.

The bidder/contractor shall inform the Owner/SAI/Engineer-in-Charge and obtain prior written approval for the selected brand/make from the approved list of materials. In case the brand/company name of a specific item is not mentioned in the list of acceptable makes, the contractor shall obtain prior approval for the proposed alternate brand/make from the Owner/SAI/Engineer-in-Charge before procurement or installation.

SCHEDULE 'D'

As applicable above

SCHEDULE 'E'

Reference to General Conditions of contract: EPC contract Mode 1

Name of work: Construction of Integrated facility, including Recovery Center, Conditioning, Bio-Mechanics and Athlete Habitat Complex (For 150 Athlete) in Guwahati, Assam.

Estimated cost of work: Rs. 20,43,54,290.00

(i)	Earnest money:	Rs. 61,30,629.00 (to be returned after receiving performance guarantee)
(ii)	Performance Guarantee	5 % of tendered value.
(iii)	Security Deposit	5 % of tendered value.

SCHEDULE 'F'

GENERAL RULES : Officer inviting tender Deputy Director (Engineering Division)

& DIRECTIONS

Applicable Mode of EPC Contract	Mode-I
Type of Building	Permanent
List of approved construction technologies.	As per Table 1A and 1 B of CPWD OM No. 17/SE(TAS)/BMTPC/2022/105-H dated 24.03.2022 amended from time to time.

Definitions:

2(vi)	Engineer-in-Charge	
2(viii) (Engineering Division)	Accepting Authority	Deputy Director
2(x)	Percentage on cost of materials and labour to cover all overheads and profits	15%
2(x)(b)	Standard Schedule of Rates	Delhi Schedule of Rates 2023
2(xi)	Owner	Sports Authority of India

Clause 1

(i)	Time allowed for submission of Performance Guarantee, program chart (Time and progress) and applicable labor licenses, registration with EPFO, ESIC and BOCW welfare board or proof of applying thereof from the date of issue of letter of Intent	15 days
(ii)	Maximum allowable extension with late fee @ 0.1% per day of Performance Guarantee	

amount beyond the period provided in
(i) Above 7 days

Clause 2

Authority for fixing compensation under clause 2.	Director (Engg)

Clause 5

(i)	Authority to convey the decision of shifting of milestone and extension of time.	Engineering in Charge
(ii)	Authority to decide rescheduling of milestone and extension of time.	Director (Engg)
(iii)	Shifting of date of start in case of delay in handing over of site.	Director (Engg)

Time allowed for execution of work. .....

Number of days from the date of issue of letter of intent for reckoning date of start
10 days

Milestone(s) as per table given below:

SI. No.	Description of Milestone (Physical/ Financial)	Time allowed (from stipulated date of start)	Amount to be with-held in case of non-achievement of milestone
1.	Mobilization, Performance BG, Site setup completed	Up to Day 30	0.25%
2.	Completion of Detailed Engineering, GFC approval	Up to Day 45	0.25%
3.	Foundation works up to Plinth Level completed	Up to Day 120	0.50%
4.	RCC superstructure up to Terrace level Completed	Up to Day 240	1.00%
5.	**Masonry & Internal Plastering complete**	Up to Day 300	0.50%
6.	**MEP Rough-in Works Completed**	**Up to Day 330**	0.50%
7.	**External Façade, Waterproofing Completed**	**Up to Day 360**	0.50%
8.	**MEP 2nd Fix, Major equipment Installed**	**Up to Day 390**	0.25%
9.	**Internal Finishing Works Completed**	**Up to Day 420**	0.25%
10.	**Testing, Commissioning, Fire NOC submitted**	**UP to Day 440**	0.25%

11.	Substantial Completion & Handover of Facility	Up to Day 450	0.75%

Schedule of issue of Designs Not Applicable

Clause 7

Gross work to be done together with net payment /adjustment of advances for material collected, if any, since the last such payment for being eligible to interim payment Rs. .....

Clause 7A

Whether clause 7A shall be applicable Yes

Clause 8 (Not Applicable)

Detail of building/infrastructure project to be completed early for use :

Sl. No.	Name of building/infrastructure project to be completed	Remarks
1.		
2.		

Clause 8A

Authority to decide compensation on account if contractor . fails to submit completion plans. Director (Engg)

Clause 10B(ii)

Whether Clause 10 B (ii) shall be applicable No

Clause 10B(iii)

Whether Clause 10 B (iii) shall be applicable No

Clause 10 CC – Applicable

A. For construction period

S. No.	Relevant component of Material /Labour for price escalation	Percentage of total value of work
1.	Component of Cement.	25%
2.	Component of Labour	25%
3.	Civil Component of other Construction Materials	25%
4.	Electrical and Mechanical (E&M) Component of Construction Materials	
5.	Component of POL (Diesel)	NIL
6.	Reinforcement steel bars/TMT bars/structural steels (including strands and cables).	25%
7.	Component of Bitumen	NIL
	Total	100%

B. For maintenance period (Not Applicable)

S. No.	Relevant component of Material /Labour for price escalation	Percentage of total value of work
1.	Component of Labour	
2.	Civil Components of other Construction Materials	
3.	Electrical and Mechanical (E&M) Components of Construction Materials	
4.	Component of Bitumen (For Road work component)	
	Total	100%

Clause 11

(i)Specifications to be followed for execution of work - CPWD Specifications 2019 (With latest Amendment)

(ii) Building information model (BIM) is applicable- Yes

Clause 12 Deviation Limit beyond which clauses 12.2 & 12.3 shall apply for all types of works 30% for superstructure and 100% for foundation work

Clause 16 Competent Authority for deciding reduced rates Director (Engg)

Clause 19C Penalty for each default Rs. 50000

Clause 19D Penalty for each default Rs. 50000

Clause 19G Penalty for each default Rs. 50000

Enhanced penalty per day for continuous default Rs. .10 0000

Clause 19K Penalty for each default Rs. 50000

Clause 25

(i) Conciliator: ……

(ii) Arbitrator Appointing Authority: ……

(iii) Place of Arbitration: ……

Clause 32

(i) Requirement of Technical Representative(s) and recovery Rate

Sl No.	Minimum Qualification of Technical Representative	Discipline	Designation (Principal Technicall representative)	Experience Minimum	Number	Rate at which, recovery shall be made from the contractor in the event of not fulfilling provision of clause 32 (i)	
						Figures	Words
1.	Graduate	Civil	Project Manager	10 years	1	Rs. 75000	Rupees Seventy Five Thousand only
2.	Graduate	Civil	Assistant Project Manager	5 years	1	Rs. 60000	Rupees Sixty Thousand only
3.	Graduate	Civil	Quantity Survey engineer	5 years	1	Rs. 50000	Rupees Fifty Thousand
4	Graduate	Civil	Quality Assurance	5 years	1	Rs. 50000	Rupees Fifty Thousand
5	Graduate	Electrical	Electrical Engineer (MEP)	5 years	1	Rs. 50000	Rupees Fifty Thousand

Note : Assistant Engineers retired from Government services that are holding Diploma will be treated at par with Graduate Engineers.

Diploma holders with minimum 10 years relevant experience with a reputed construction company can be treated at par with Graduate Engineers for the purpose of such deployment subject to the condition that such diploma holders should not exceed 50% of requirement of degree engineers.

(iv) Minimum recovery for not deploying Building Information Model (BIM) professional shall be **(Rs. Three lac per month)**

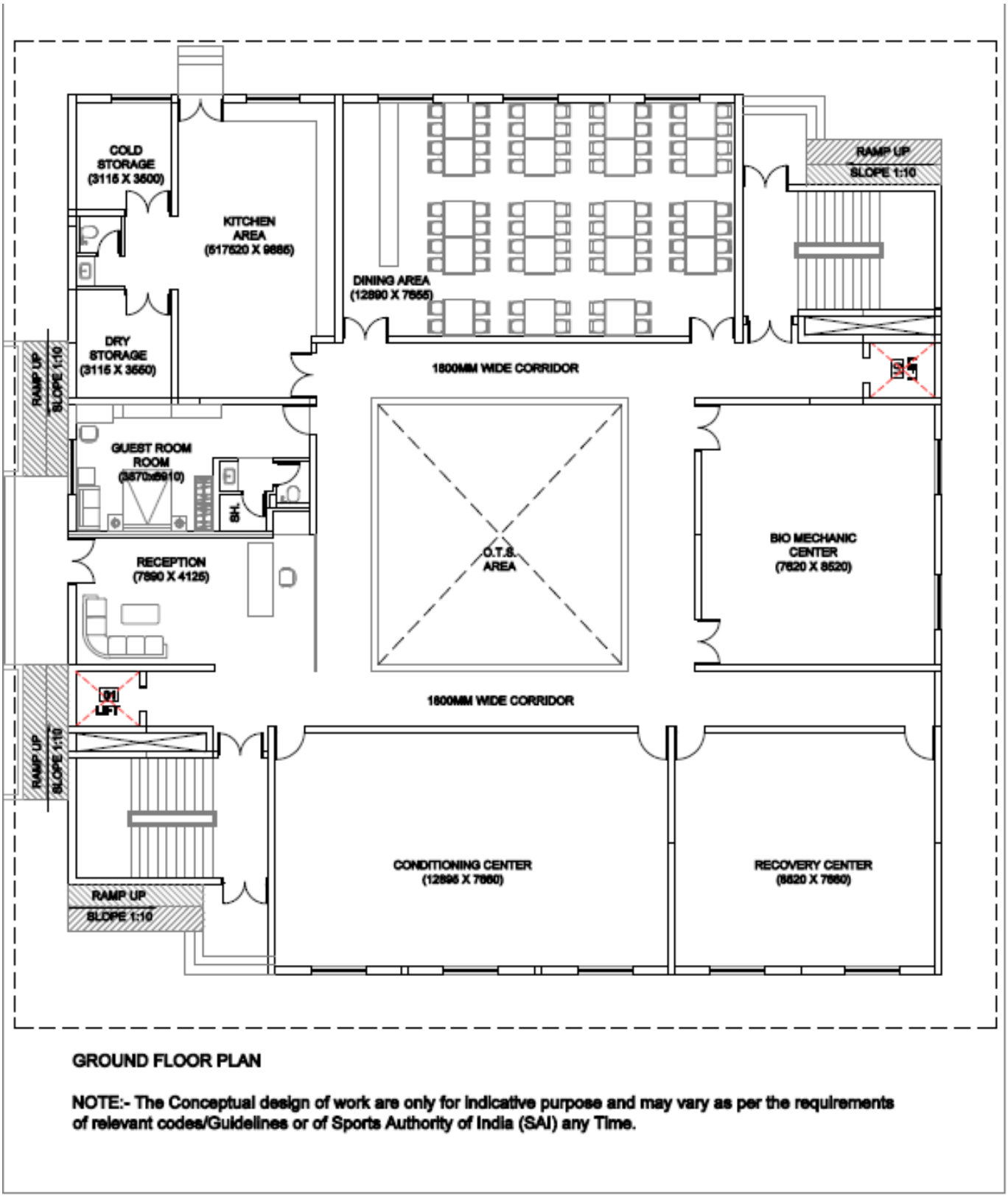
Clause 38

(i) (a) Schedule/statement for determining theoretical quantity of cement & bitumen on the basis of Delhi Schedule of Rates 2023 printed by CPWD

(ii) Variations permissible on theoretical quantities:

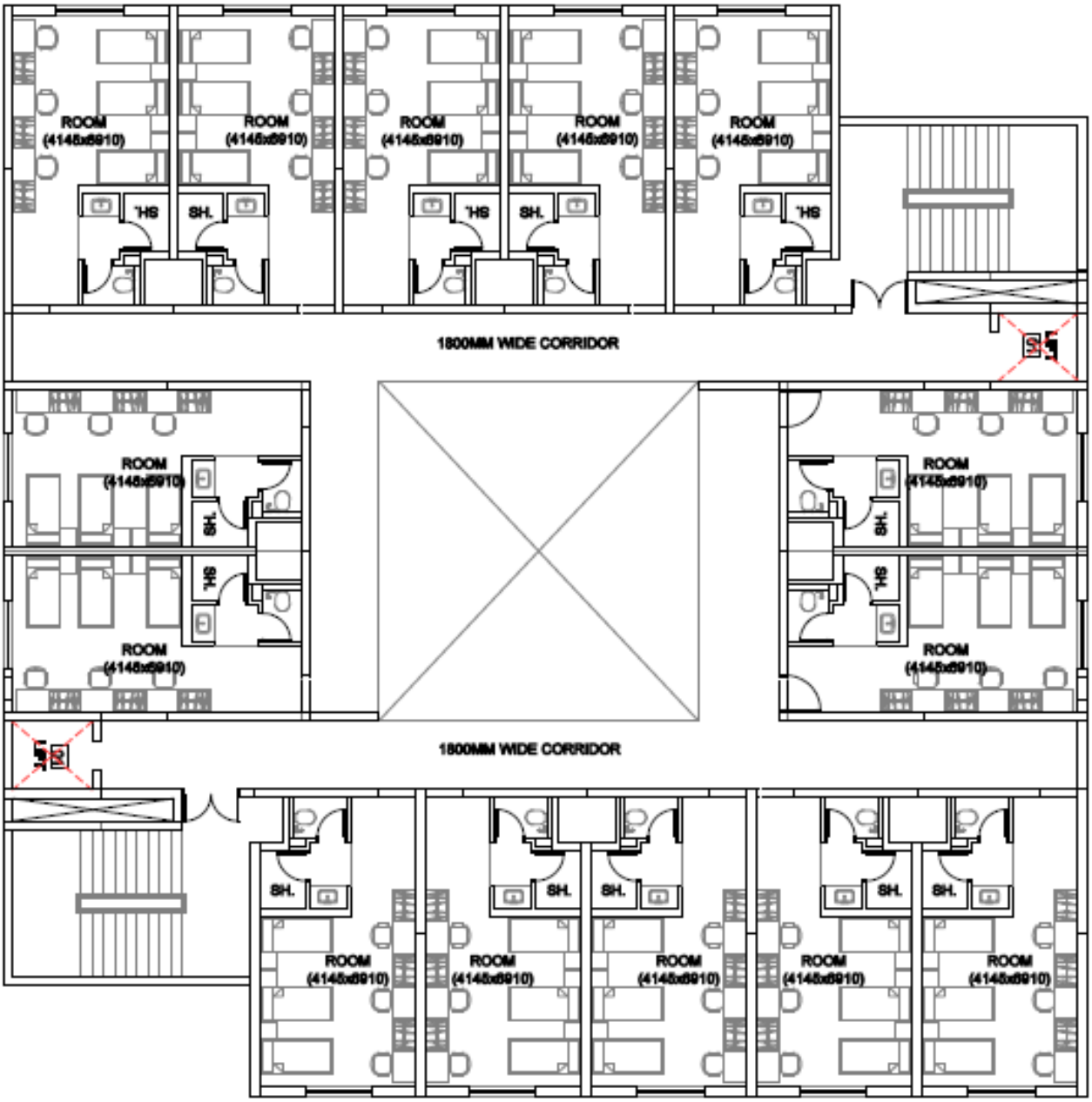
(a)	Cement	3% plus/minus.
(b)	Bitumen All Works (Not Applicable)	2.5% plus only & nil on minus side.
(c)	Steel Reinforcement and structural steel sections for each diameter, section and category	2% plus/minus
(d)	All other materials.	Nil

Tender Drawings/Concept Drawings



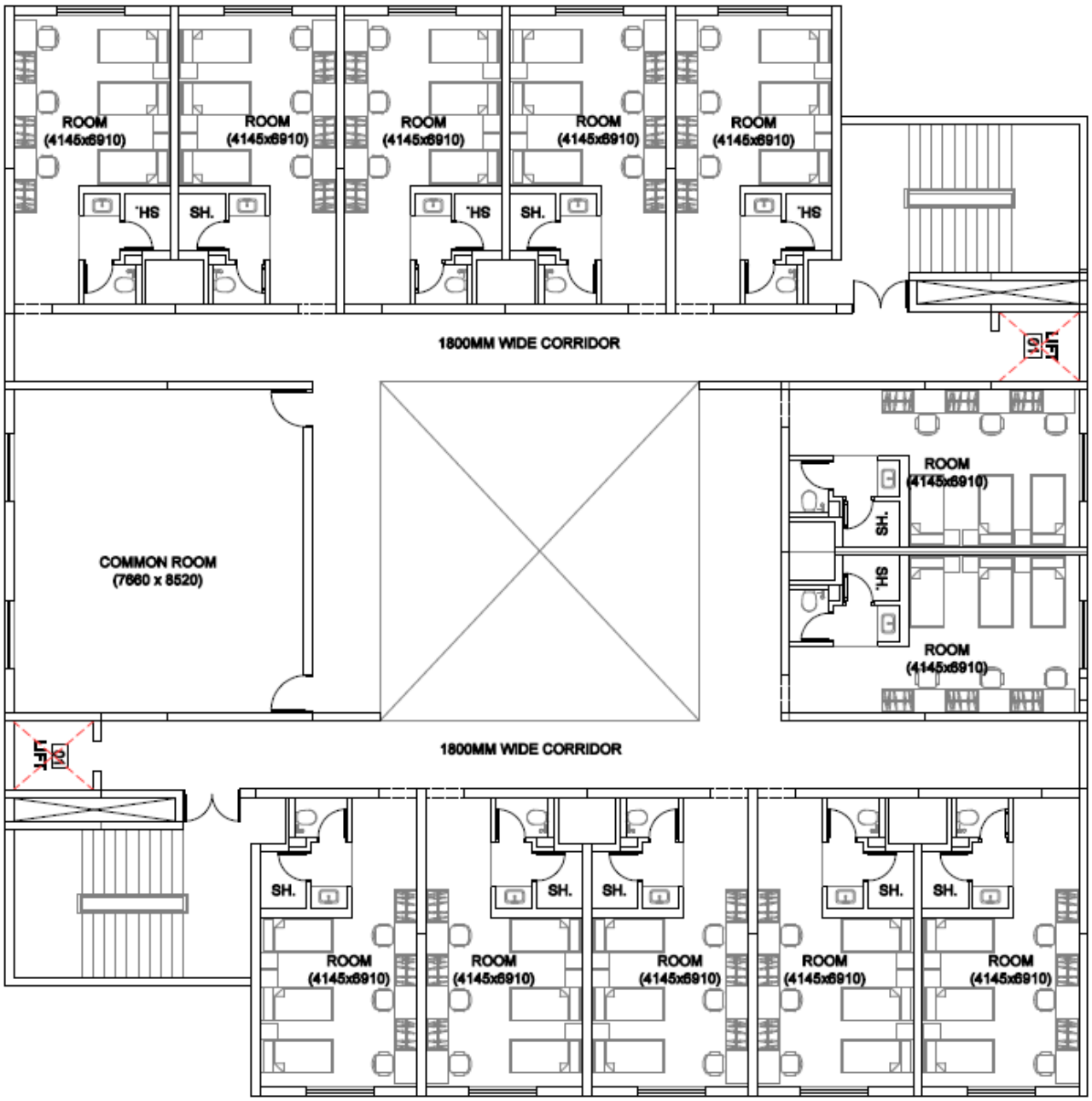
GROUND FLOOR PLAN

NOTE:- The Conceptual design of work are only for indicative purpose and may vary as per the requirements of relevant codes/Guidelines or of Sports Authority of India (SAI) any Time.



TYPICAL1ST, 2ND, 5TH & 6TH FLOOR PLAN

NOTE:- The Conceptual design of work are only for indicative purpose and may vary as per the requirements of relevant codes/Guidelines or of Sports Authority of India (SAI) any Time.



TYPICAL 3RD FLOOR PLAN

NOTE:- The Conceptual design of work are only for indicative purpose and may vary as per the requirements of relevant codes/Guidelines or of Sports Authority of India (SAI) any Time.

TYPICAL 4TH FLOOR PLAN

NOTE:- The Conceptual design of work are only for indicative purpose and may vary as per the requirements of relevant codes/Guidelines or of Sports Authority of India (SAI) any Time.