Bihar Cricket Association

EPC Contract

Redevelopment of Moin-Ul-Haq Cricket Stadium at Patna, Bihar and their maintenance during Defect Liability Period on Engineering, Procurement and Construction (EPC) basis

Volume-3
SPECIFIC CONDITIONS OF CONTRACT
(July, 2025)

Bihar Cricket Association

(Affiliated to The Board of Control for Cricket in India)

45-C, Near Sahyog Hospital, Patliputra Colony, Patna-800013

Email: bca@biharcricketassociation.com

Tender No. BCA/STADIUM/01/2025

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Specific Conditions of Contract

Specific Conditions of Contract-Scope of Work

The following Specific Conditions of Contract shall be read in conjunction with General Conditions of Contract. If there are any provisions in these Specific Conditions of Contract which are at variance with the provisions in the abovementioned documents, the provisions in these Specific Conditions of Contract shall take precedence.

1. Scope of Work:

1.1. General:

The scope of work relates to **"Redevelopment of Moin-Ul-Haq Cricket Stadium at Patna, Bihar and their maintenance during Defect Liability Period on Engineering, Procurement and Construction (EPC) basis"** on EPC Basis. The work is to be executed on Design, Engineering, Procurement & Construction (EPC) basis including Defect Liability Period of three years after completion and handing over in phases and up to the expiry of the defect liability period. Following major buildings/ blocks are to be constructed with associated infrastructure along with other services utilities required for smooth functioning of the project taking into consideration all statutory regulations:

Construction and functioning of Building/ Components of Works to be completed along with all associated E&M, services & Utilities	Completion Period from Date of Start
1)Stadium stand: -a) East Stand: b) West Stand: c) North Pavilion: d)South Pavilion: **2) Field Of Play** a) Main Ground- 9 playing pitches b) Practice Pitches: 18 nos. Practice pitches c) Main Stadium Sports Lighting: 6 nos. high mast **3) Gate & security Room-** 4 Types total 7 No 4) Hotel(G+4) with Swimming pool at terrace 5) Boys & Girls Hostel. 6) Multi Level Car parking 7) North & South Pavilion 8) Pitches & MOAT 9) Dinning Hall 10) Service Buildings **11) Site Development & Utility Works** **a)** Underground Water Tank b) Sewage Treatment Plant c) Boundary Wall, Roads, Car Parking, Pathways, Storm Water Drains Driveways, SIGHT SCREEN d) Hardscapes, Landscape & Horticulture 12) Transformer & Bus Duct , E& M work including Media Façade, High mast Light, CCTV , broadcasting Services etc. 13.Turnstile System Work 14. Stadium Main Digital Clock Work 15.HSD Tank Work 16. CCTV System, ELV Works, EV Charging System, IBMS System Work 17.Furniture	24 Months

The main approach road is connected to NH-30 Kankarbagh Bypass Road. Total Land area allotted for the project is approx. 29.11 acre and Built up Area is approx. 60335.5 Sqm

3.2 The Bidders shall be provided with a Master Plan of the complex, Concept Plans of the proposed buildings in the complex, Technical specifications and other details forming the part

of Bid documents. Based on these drawings and documents, the Bidders shall prepare their detailed designs and in conformity with the local Bye- laws. Any modification in the master plan and concept plan, required to meet the conformance to the local bye laws, shall be done with the approval of the Client Department. The designing and construction of Entrance Gates as per Master Plan are in scope of work of contractor. Facades of the buildings need be developed as per approved views and no additional cost shall be paid for façade elements like boxing, porches, arches etc.

3.3 In the Master Plan, there is provision for overall development of the land. However, present scope of work involves **Redevelopment of Moin-Ul-Haq Cricket Stadium at Patna, Bihar and their maintenance during Defect Liability Period on Engineering, Procurement and Construction (EPC) basis** as per Master Plan and concept designs with a total tentative Builtup area of **60335.27 sqm**. Besides these, all required MEP and other services, utilities, horticulture, landscaping, roads and pavements, parking, pathways, sports facilities compound walls, watchman cabins, all gates (internal & external), external development, drainages, signage etc. and all related utilities and as mentioned in the Design Basis Report and otherwise taking into consideration w.r.t all statutory regulations as required for development and functioning of campus are also included in the scope of work.
The tentative area details of the buildings/ blocks are as given below:

Sr. No.	Building Name	Floor Height	Built-up Area in Sq. M
A1	**East Stand:**		
a	GROUND FLOOR LVL-1	6.60M	1804.59
b	FIRST FLOOR LVL-2	3.90M	1685.28
c	SEATING AREA LVL-3	3.90M	585.70
d	Seating Area LVL-4	3.90M	585.70
		Total	**4661.27**
A2	**West Stand**		
a	GROUND FLOOR LVL-1	6.60M	2541.89
b	FIRST FLOOR LVL-2	3.90M	1912.70
c	SEATING AREA LVL-3	3.90M	628.34
d	Seating Area LVL-4	3.90M	628.34
		Total	**5711.27**
A3	**North Pavilion**		
a	GROUND FLOOR	5.05M	2111.82
b	FIRST FLOOR	3.90M	1810.18
c	SECOND FLOOR	3.90M	2094.54
d	THIRD FLOOR	3.90M	2086.58
e	FOURTH FLOOR	3.90M	2086.58
		Total	**10189.70**
A4	**South Pavilion:**		
a	GROUND FLOOR	5.05M	2090.26
b	FIRST FLOOR	3.90M	1936.92
c	SECOND FLOOR	3.90M	2066.12
d	THIRD FLOOR	3.90M	2156.28
e	FOURTH FLOOR	3.90M	2156.28
		Total	**10405.85**
A5	**DINING BLOCK**		
a	GROUND FLOOR	4.00	556.64
		Total	**556.64**

A6	**MLCP BUILDING**		
a	GROUND FLOOR	3.50 M	1933.39
b	FIRST FLOOR	3.50 M	1933.39
c	SECOND FLOOR	3.50 M	1933.39
d	THIRD FLOOR	3.50 M	1933.39
e	FOURTH FLOOR	3.50 M	1933.39
f	FIFTH FLOOR	3.50 M	1933.39
g	SIXTH FLOOR	3.50 M	1933.39
h	SEVENTH FLOOR	3.50 M	1933.39
i	EIGHT FLOOR	3.50 M	1933.39
		Total	**17400.48**
A7	**BOYS HOSTEL**		
a	GROUND FLOOR	3.50 M	519.19
b	FIRST FLOOR	3.50 M	555.88
c	SECOND FLOOR	3.50 M	555.88
d	THIRD FLOOR	3.50 M	555.88
e	FOURTH FLOOR	3.50 M	555.88
		Total	**2742.71**
A8	**GIRLS HOSTEL**		
a	GROUND FLOOR	3.50 M	519.19
b	FIRST FLOOR	3.50 M	555.88
c	SECOND FLOOR	3.50 M	555.88
d	THIRD FLOOR	3.50 M	555.88
e	FOURTH FLOOR	3.50 M	555.88
		Total	**2742.71**
A9	**HOTEL**		
a	GROUND FLOOR	3.50 M	1456.15
b	FIRST FLOOR	3.50 M	1037.25
c	SECOND FLOOR	3.50 M	960.50
d	THIRD FLOOR	3.50 M	876.80
e	FOURTH FLOOR	3.50 M	796.97
F	SWIMMING POOL TERRACE		796.97
		Total	**5924.39**
	TOTAL STADIUM BUILT UP AREA		**60335.27**

B. Field of Play		
a	**Main Ground**- 9 playing pitches as per ICC requirements.	
b	**Practice Pitches:** 9 nos. Practice pitches in 2 Sets	

c	**Main Stadium Sports Lighting:** 6 nos. high mast with suitable foundation, electrical panels, cables, optical fibres etc. as required, and lux level required as per ICC Standards for HDTV Broadcasting.	High mast details: Stadium high mast lighting shall be designed to ensure uniform illumination across the entire cricket field, with no shadows cast within the boundary line, taking into account the maximum projected extent of the roof structure Driver: The driver must have control interface compatible with DMX-RDM protocol and shall have suitable RJ45 ports in electrical compartment of the driver box for integration with Dynamic Lighting Control Systems and 3rd Party A-V Systems.

C. Gate & security Room		
a	Gate Type-1: 2 Nos.	167.32
b	Gate Type-2: 2 Nos.	147.43
c	Gate Type-3: 1 Nos.	81.53
d	Gate Type-4: 1 Nos.	104.65
E	Gate Type-5: 1 Nos.	104.65
F	Gate Type-6: 1 Nos.	104.65
g	Gate Type-7 : 1 Nos.	104.65
	Total	**814.93**

D. Site Development & Utility Works		
a	Underground Water Tank	2,00,000 Litre
b	Sewage Treatment Plant	875 KLD
C	Roads	1742 metre Main Internal roads
D	Driveways	12 M , 9 M Internal driveways in parking areas
E	Car Parking	1500nos. parking bays in open and some in stilt areas of East & West stand.
F	Storm Water Drains	Drain width :-450, 600 & 900 mm
g	Hardscapes	
	(i) Roads & Driveways (Tremix)	20349.00 Sqm
	(ii) Pathways(pavers)	2803 Rmt

2. Silent Features of the Built Structures

A. Main Stadium Structure			
Sr. No.	**Building Name**	**Facilities**	**Remarks**
A1	**East Stand:**		
a	GROUND FLOOR	Parking & Services	
b	FIRST FLOOR	Spectator Concourse, Spectator Toilets & Drinking water facility, DA Toilets, Services rooms, First aid rooms, Merchandise stores,	Toilets as per National Building Code 2016
c	SEATING BOWL	Spectator Seating + DA seating + Video Board	18158 nos. seats
A2	**West Stand:**		
a	GROUND FLOOR	Parking & Services	

b	FIRST FLOOR	Spectator Concourse, Spectator Toilets & Drinking water facility, DA Toilets, Services rooms, First aid rooms, Merchandise stores,	Toilets as per National Building Code 2016
c	SEATING BOWL	Spectator Seating + DA seating + Video Board + Mid-wicket Camera Platform	14490 nos. seats
A3	**North Pavilion**		
a	GROUND FLOOR	Media Entrance Lobby, Broadcasting Control Room, Equipment Store Room, Kitchen & Stores, Services & Utility area	
b	FIRST FLOOR	Stadium Security Offices including Police & VOC, Broadcasting Sponsor Rooms, Media Lounge & facilities, Services & Utility area	
c	SECOND FLOOR	Written Press tribune, TV & Radio Commentator boxes, Media Dining area, Services & Utility area	
e	TERRACE	Main Camera Platform + Terrace + Mumty + Services	
4	**South Pavilion:**		
a	GROUND FLOOR	Players' Lounge, Press Conference Room, Player Changing Rooms, Match officials Changing Rooms, First-Aid room, Doping Control room, VVIP entrance Lobby, Main Stadium Kitchen, Services & utility rooms.	
b	FIRST FLOOR	Match Officials lounge & Umpire/referee boxes, Anti- corruption box, Scorer box. VIP Corporate boxes 5 nos., VIP seating bowl, VIP lounge & Dining area.	VIP Corporate boxes 5 nos. with 8 person seating in each box, VIP seating bowl 920 seats
c	SECOND FLOOR	Presidential Suite with separate entry exit lobby, Corporate box type- A (12 nos.) , Corporate Box Type-B (5 nos.), VIP lounge, Services & Utility rooms	Corporate box type-A with 12 seats each, Corporate box type-B with 30 seats each
e	TERRACE	Main Camera Platform + Terrace + Mumty + Services	
5	**HOTEL (G+4)**		
A	GROUND FLOOR & first Floor	8 ROOMS WITH Toilet and 2 no's Restaurant , Kitchen , Lift , Staircase etc	
B	Second Floor	8 Rooms with Toilets , 1 nos Gymnasium , 1 nos recreational room , kitchen , Lift , Staircase	
C	Third & Fourth Floor	12 Rooms with toilets	
D	terrace	Swimming Pool with Change Rooms	
6	**Boys & Girls Hostel (G+4)**		
A	GROUND FLOOR	Dining Area , Visitors Room , Entrance lobby , kitchen , Pantry , Dry Store , Wet Store , Warden's Room , Store Keeper , Handicap room , Lift Staircase, Toilets	

B	First floor	12 Nos bed rooms , 1 nos Common Room , Common Toilet , Lift , Staircase
C	Second Floor	14 Nos Bed rooms , 1 nos Common Room , Common Toilet , Lift , Staircase
D	Third floor	14 Nos Bed rooms , 1 nos Common Room , Common Toilet , Lift , Staircase
E	Fourth Floor	14 Nos Bed rooms , 1 nos Common Room , Common Toilet , Lift , Staircase
7	**Multilevel car Parking**	
i	Ground to Eight Floor	Car parkings
8	**Dining Floor Plan**	
	Ground Floor Plan	

B. Gate & security Room

a	Gate Type-1	Vehicular & pedestrian Entry/Exit Gate with security Room & Ticket counter	2 Nos.
b	Gate Type-2	Gate with security Room- for Vehicular Entry/Exit of Players & Media	2 Nos.
c	Gate Type-3	Gate with security Room-Spectator Pedestrian Entry/Exit	1 Nos.
d	Gate Type-4	Gate with security Room-Spectator Vehicular Entry/Exit	4 Nos.

3. Circulation area of Stadium

Total built-up area of the Stadium building is 42810.71Sq.mt. and the circulation area is 14646.72 Sq.Mt. This is 34.21% of the total built-up area

Sr. No.	Building Name	Floor Height	Built-up Area in Sq. M	Circulation Area In Sq.M	Circulation Area %
A1	**East Stand:**				
a	GROUND FLOOR LVL-1	6.60M	1804.59	541.377	30%
b	FIRST FLOOR LVL-2	3.90M	1685.28	589.84	35%
c	SEATING AREA LVL-3	3.90M	585.70	234.28	40%
d	Seating Area LVL-4	3.90M	585.70	234.28	40%
		Total	**4661.27**	**1599.875**	
A2	**West Stand:**				
a	GROUND FLOOR LVL-1	6.60M	2541.89	762.567	30%
b	FIRST FLOOR LVL-2	3.90M	1912.70	669.445	35%
c	SEATING AREA LVL-3	3.90M	628.34	251.336	40%
d	Seating Area LVL-4	3.90M	628.34	251.336	40%
		Total	**5711.27**		**1934.68**
A3	**North Pavilion:**				
a	GROUND FLOOR	5.05M	2111.82	633.546	30%
b	FIRST FLOOR	3.90M	1810.18	633.563	35%
c	SECOND FLOOR	3.90M	2094.54	837.816	40%
d	THIRD FLOOR	3.90M	2086.58	834.632	40%
e	FOURTH FLOOR	3.90M	2086.58	625.974	30%

		Total	**10189.70**		633.546
A4	**South Pavilion:**				
a	GROUND FLOOR	5.05M	2090.26	627.078	30%
b	FIRST FLOOR	3.90M	1936.92	677.922	35%
c	SECOND FLOOR	3.90M	2066.12	826.448	40%
d	THIRD FLOOR	3.90M	2156.28	862.512	40%
e	FOURTH FLOOR	3.90M	2156.28	646.884	30%
		Total	**10405.85**	**3640.844**	
A5	**DINING BLOCK**				
a	GROUND FLOOR	4.00	556.64	166.992	30%
		Total	**556.64**		
A6	**MLCP BUILDING**				
a	GROUND FLOOR	3.50 M	1933.39	580.017	30%
b	FIRST FLOOR	3.50 M	1933.39	580.017	30%
c	SECOND FLOOR	3.50 M	1933.39	580.017	30%
d	THIRD FLOOR	3.50 M	1933.39	580.017	30%
e	FOURTH FLOOR	3.50 M	1933.39	580.017	30%
f	FIFTH FLOOR	3.50 M	1933.39	580.017	30%
g	SIXTH FLOOR	3.50 M	1933.39	580.017	30%
h	SEVENTH FLOOR	3.50 M	1933.39	580.017	30%
i	EIGHT FLOOR	3.50 M	1933.39	580.017	30%
		Total	**17400.48**		
A7	**BOYS HOSTEL**				
a	GROUND FLOOR	3.50 M	519.19	155.757	30%
b	FIRST FLOOR	3.50 M	555.88	166.764	30%
c	SECOND FLOOR	3.50 M	555.88	166.764	30%
d	THIRD FLOOR	3.50 M	555.88	166.764	30%
e	FOURTH FLOOR	3.50 M	555.88	166.764	30%
		Total	**2742.71**		
A8	**GIRLS HOSTEL**				
a	GROUND FLOOR	3.50 M	519.19	155.757	30%
b	FIRST FLOOR	3.50 M	555.88	166.764	30%
c	SECOND FLOOR	3.50 M	555.88	166.764	30%
d	THIRD FLOOR	3.50 M	555.88	166.764	30%
e	FOURTH FLOOR	3.50 M	555.88	166.764	30%
		Total	**2742.71**		
A9	**HOTEL**				
a	GROUND FLOOR	3.50 M	1456.15	436.845	30%
b	FIRST FLOOR	3.50 M	1037.25	311.175	30%
c	SECOND FLOOR	3.50 M	960.50	288.15	30%
d	THIRD FLOOR	3.50 M	876.80	263.04	30%
e	FOURTH FLOOR	3.50 M	796.97	239.091	30%
F	SWIMMING POOL TERRACE		796.97	239.091	30%
		Total	**5924.39**		
	TOTAL STADIUM BUILT UP AREA		**60335.27**		**32%**

SNO	COMPONENT	LEVEL	AMENITIES	NO OF SEATS
1	NORTH PAVILION	LEVEL-1	PLAYERS CONFERENCE/ BRIEFING ROOM	
			LOUNGE-1	
			LOUNGE-2	132
			TV PRODUCTION ROOM + FOOD COURT	
			BANQUET HALL	125
			KITCHEN WITH STORE	
			MALE TOILET	
			FEMALE TOILET	
			HANDICAPPED TOILET	
			GALLERY	145
		LEVEL-2	LOUNGE	125
			AUDIO VISUAL ROOM	38
			ACADEMIC LIBRARY	18
			CONFERENCE	53
			VENUE CONTROL ROOM	18
			ROOM	
			MALE TOILET	
			FEMALE TOILET	
			HANDICAPPED TOILET	
		LEVEL-3	MEDIA BOX	105
			RADIO COMMENTARY BOX	4
			HINDI COMMENTARY BOX	4
			ENGLISH COMMENTARY BOX	4
			STUDIO	105
			ROOM	
			ROOM WITH LIVING & DINING	
			MALE TOILET	
			FEMALE TOILET	
			HANDICAPPED TOILET	
		LEVEL-4	CORPORATE BOX	58
			ROOM	
			ROOM WITH LIVING & DINING	
			MALE TOILET	
			FEMALE TOILET	
			HANDICAPPED TOILET	
		LEVEL-5	SEATS	3450
				3653
2	SOUTH PAVILION	LEVEL-1	LOUNGE	
			PHYSIOTHERAPY	

			ROOM	
			DIRECTOR'S ROOM	
			ANTE ROOM	
			PANTRY	
			CONFERENCE	
			WAITING AREA	
			ROOM	
			I.C.U PHARMACY	
			KITCHEN	
			FIRST-AID/ DOPE TEST ROOM	
			ACSU	
			FIELD UMPIRE ROOM	
			ROOM	
			MALE TOILET	
			FEMALE TOILET	
			HANDICAPPED TOILET	
			V.I.P. TOILET	
			GALLERY	145
		LEVEL-2	HOME TEAM PLAYERS DRESSING	
			HOME TEAM PLAYERS DINING WITH PANTRY	
			HOME TEAM PLAYERS TOILET	
			GYM	
			ICE BATH	
			SAUNA	
			STEAM	
			JACUZZI	
			MASSAGE	
			GYMNASIUM AREA	
			THIRD UMPIRE ROOM	
			LOCKER ROOM	
			TOILET	
			AWAY TEAM PLAYERS DRESSING	
			AWAY TEAM PLAYERS DINING WITH PANTRY	
			AWAY TEAM PLAYERS TOILET	
			GYM	
			ICE BATH	
			SAUNA	
			STEAM	
			JACUZZI	
			MASSAGE	
		LEVEL-3	LOUNGE	84

			PLATINUM LOUNGE	188
			THIRD UMPIRE ROOM	15
			BCCI LOUNGE	93
			ROOM	
			ROOM WITH LIVING & DINING	
			KITCHEN	
			HANDICAPPED TOILET	
			TOILET	
			HOUSEKEEPING ROOM	
		LEVEL-4	CORPORATE BOX	64
			ROOM	
			ROOM WITH LIVING & DINING	
		LEVEL-5	SEATS	3450
				4024
3	**HOTEL**	GROUND FLOOR	BANQUET	16 ROOMS
			RESTAURANT	
			KITCHEN	
			STORE	
			HOUSE KEEPING	
			MALE TOILET	
			FEMALE TOILET	
			ROOMS	
		FIRST FLOOR		8 ROOMS
			PANTRY	
			STORE	
			HOUSE KEEPING	
			MALE TOILET	
			FEMALE TOILET	
			ROOMS	
		SECOND FLOOR	GYMNASIUM	16 ROOMS
			RECREATIONAL ROOM	
			PANTRY	
			STORE	
			HOUSE KEEPING	
			MALE TOILET	
			FEMALE TOILET	
			ROOMS	
		THIRD FLOOR	PANTRY	12 ROOMS
			HOUSE KEEPING	
			ROOMS	
		FOURTH FLOOR	PANTRY	12 ROOMS

			HOUSE KEEPING	
			ROOMS	
4	STANDS	LVL 1	SEATING	7950
		LVL 2	SEATING	4694
		LVL 3	SEATING	15922
		LVL 4	SEATING	7750
			TOTAL NO OF SEATS	**36316**
5	BOYS HOSTEL	GROUND FLOOR	DINING HALL	**1 SEATER**
			LOUNGE	
			SICK ROOM	
			HANDICAP ROOM	
			WARDEN ROOM	
			COMMON TOILETS	
		FIRST FLOOR	LOUNGE	**36 SEATER**
			12 ROOMS TRIPLE SEATER	
			COMMON TOILET	
		SECOND FLOOR	LOUNGE	**30 SEATER**
			10 ROOMS TRIPLE SEATER	
			COMMON TOILET	
		THIRD FLOOR	LOUNGE	**36 SEATER**
			12 ROOMS TRIPLE SEATER	
			COMMON TOILET	
			TOTAL SEATER	**103 SEATER**
6	GIRLS HOSTEL	GROUND FLOOR	DINING HALL	**1 SEATER**
			LOUNGE	
			SICK ROOM	
			HANDICAP ROOM	
			WARDEN ROOM	
			COMMON TOILETS	
		FIRST FLOOR	LOUNGE	**36 SEATER**
			12 ROOMS TRIPLE SEATER	
			COMMON TOILET	
		SECOND FLOOR	LOUNGE	**30 SEATER**
			10 ROOMS TRIPLE SEATER	
			COMMON TOILET	
		THIRD FLOOR	LOUNGE	**36 SEATER**
			12 ROOMS TRIPLE SEATER	
			COMMON TOILET	
			TOTAL SEATER	**103 SEATER**

4. Silent Features of the Design

- Spectator-Centric Design: Ensures easy navigation and accessibility for Spectators and Players.
- Zoning: Separate zones for different Users (e.g Players, Media, Support staff, VIPs & VVIPs and General Spectators) to streamline Circulation & Maintain Privacy.
- Fire Safety: Includes fire alarms, sprinklers, and clear evacuation routes.
- Seismic Safety: Designed to withstand earthquakes, especially in seismic zones.
- Energy Efficiency: Use of LED lighting, energy-efficient HVAC systems, and solar panels.
- Buildings have been planned with Eco-Friendly Environment to provide maximum green space, lawns, trees and shrubs.
- Optimum Utilization of FAR and height as per Building Bye-Laws.
- Provision of maximum light and ventilation to all spaces.
- Provision of facilities for disabled persons.
- Adequate holding areas have been provided for general Spectators as well as for other users.
- All efforts shall be taken to make the building in accordance with the green building concept by using various techniques.
- Provision of Horticulture work as par site Requirement.

5. Energy Efficiency Feature for Green Building

- AAC Block shall be used.
- LGSF Partition work shall be used.
- Use of ready-mix concrete
- Use of ready-mix Gypsum plaster
- Use of LED fittings.
- Use of adequate window areas for getting natural light and ventilation.
- Use of energy efficient electrical fitting, fans, Air-conditioning units, pumps and plants to save electricity.
- Provision of sewage treatment plant and re-use of waste water for flushing, horticulture and Flushing purpose.
- Provision of low flow plumbing fixture.

6. Landscape

- Designing a landscape concept that incorporates a peripheral zone, parking zone, drop-off zone, and arrival zone can create a harmonious and functional space.
- Ensure smooth transitions between zones, using paths, plantings, or materials to guide movement from one area to another. The landscape should feel cohesive, not fragmented.
- Focus on sustainability by using native plants, water-efficient systems, and eco- friendly materials.
- Ensure all zones are accessible to people with disabilities by incorporating smooth paths, ramps, and benches at appropriate heights.

7. Civil Specifications of the Buildings

S.No.	Particulars	Brief Details of provisions
	Cricket Stadium: -	
1.	Pile Foundation	450 mm Pile Dia. With 20m Depth below NGL having load carrying capacity of 74.00 T in Compression has been considered in design.
2.	Additional provision in foundation	Pile & Pile cap will be executed after completion of soil filling; hence Pile will be designed for 20m Depth below NGL level.
3.	East & West Block	Hardner finish has been considered in the floor at Plinth Level.
4.	North & South Block	Structural Slab has been Considered at Plinth Level.
5.	Structural System	RCC Framed structure with special moment resisting ductile frame

6.	Expansion joint	200 mm gap
7.	Durability Consideration	2 Hrs. Fire Rating & Moderate environmental exposure Condition for all RCC work is considered.
8	Material Properties	For Sub Structure – M30 For Super Structure – M30/M35 Reinforcement Grade – Fe500D
9.	Building Plinth Height	Plinth is Considered 450mm above from FGL, Approx. 1.7m Difference is considered between NGL & FGL
10.	Internal Partition	The partition wall in between columns shall be AAC block work.
11.	Dead Load	Self-weight, Floor Finish, Sunk Load, False Ceiling Load, Service Load has been considered.
12.	Live Load	Live load shall be as per IS-875 (Part-2):1987
13.	Seismic Consideration	Earthquake **Zone-IV** with importance factor of **1.5** & Response Reduction Factor 5 has been Considered. Since the building is in Zone –IV, **Vertical Earthquake** shall also be considered in the design.
14	Wind Parameters	Wind Speed **47m/s** with **100-year** design life having open terrain (Category 1) has been Considered.
15	Temperature Load	Overall stadium structure is separated with expansion joints. Pour strips shall be provided to control the effects of shrinkage. However as per recommendation of Cl. 27.2. of IS 456:2000, when the dimension exceeds ~45 m thermal effects shall be generally accounted for in the analysis.
16	Additional Consideration in Design	Provision is made for additional loading of roof is considered in design.
17	Load Combination	Standard load combination as per IS-456:2000, IS- 1893 (Part-I):2016 & IS-875 (Part-V):1987 shall be considered in structural analysis & design.

7.1 Architectural Finishes

S.No.	Particulars	Brief Details of provisions

B. Schedule of Finish:-			
S.No.	**Particulars**	**Brief Details of provisions**	
A	**PAVILIONS**		
(i)	Foundation Type	800 mm DEPTH Raft Foundation	
(ii)	Basement	N.A	
(iii)	Anti termite Treatment	Inside and all Around The building	
(iv)	Sand Filling	Under Floors 150mm thickness	
(v)	Structure	RCC Framed earthquake resistant structure	
(vi)	Substructure Brickwork	Common Burnt Clay Bricks	
(Vii)	Superstructure Brickwork	Common Burnt Clay Bricks	
(viii)	Reinforcement Grade	FE 550 OR ABOVE	
(ix)	Building Plinth Height	900 mm	
B.	**Door and Windows**		
(i)	Frame of Doors	Second class teak wood	
(ii)	Shutter	40mm thick Flush door finished with **4 mm teak Veneered** both side	

		complete
(iii)	MEDIA, LOUNGES, CORPORATE BOX, COMMENTRY BOX ETC	12mm thick frameless toughened glass door shutter
(iv)	Windows & Ventilators	Three Track UPVC Window
(v)	Fittings	Brass & Stainless Steel fittings (Grade 304)
(vi)	Fire Check Doors	Two hour fire rated metal and Glazed door with Fire rated accessories.
vii)	Sound Reducing door	Rooms & Conference
C.	**Flooring**	
(i)	C.C flooring	Below Wooden Flooring
(ii)	Kota stone	Services room, Kitchen , AHU & Stores, Machine Room
(iii)	Vitrified Floor tiles	Rooms & Pantry
(iv)	Vitrified wall tiles	Toilet up to ceiling height dado, Pantry & Kitchen 2100 mm High.
(v)	Granite Flooring	All Common areas (stair case, entrance lobby, Lift lobby, corridor, etc.)
(vi)	Granite Cladding	Lift Facia upto False ceiling Height.
vii)	Wooden Flooring	CORPORATE BOX, VIP LOUNGES & COMMENTRY BOX
(viii)	Acoustical Optra Wall Paneling	In Conference Hall
(ix)	Chequered tile	Ramp area .
D.	**Railing**	SS Railing (Grade 304) In staircases and Courtyard
E.	**Water proofing**	waterproofing treatment all toilets.
F.	**False Ceiling**	.
(i)	Calcium Silicate ceiling	All Toilets.
(ii)	Aluminum Metal Ceiling	ALL ROOMS and Common areas.
G.	**Finishing/ Painting**	
(i)	Texture Paint	External walls
(ii)	GRC JALI	External façade
(iii)	Structural Glazing	External façade
(iv)	Cement plaster 15 mm rough surface and 12 mm smooth surface.	External wall and Internal walls
(v)	all painting with premium acrylic emulsion paint of interior grade,	Internal areas
(vi)	French spirit polishing	Wooden Frames
(vii)	Wall Paper	ALL LOUNGES, CORPORATE BOX, MEDIA LOUNGE AND OTHER VIP AREA
A.	**HOTEL**	
(i)	Foundation Type	800 mm DEPTH Raft Foundation
(ii)	Basement	N.A
(iii)	Anti termite Treatment	Inside and all Around The building
(iv)	Sand Filling	Under Floors 150mm thickness
(v)	Structure	RCC Framed earthquake resistant

		structure
(vi)	Substructure Brickwork	Common Burnt Clay Bricks
(Vii)	Superstructure Brickwork	Common Burnt Clay Bricks
(viii)	Reinforcement Grade	FE 550 OR ABOVE
(ix)	Building Plinth Height	900 mm
B.	**Door and Windows**	
(i)	Frame of Doors	Second class teak wood
(ii)	Shutter	40mm thick Flush door finished with **4 mm teak Veneered** both side complete
(iii)	Balcony Door	12mm thick frameless toughened glass door shutter
(iv)	Windows & Ventilators	Three Track UPVC Window
(v)	Fittings	Brass & Stainless-Steel fittings (Grade 304)
(vi)	Fire Check Doors	Two hour fire rated metal and Glazed door with Fire rated accessories.
C.	**Flooring**	
(i)	C.C flooring	Below Wooden Flooring
(ii)	Kota stone	Services room, Kitchen, AHU & Stores, Machine Room
(iii)	Vitrified Floor tiles	Rooms & Pantry
(iv)	Vitrified wall tiles	Toilet up to ceiling height dado, Pantry & Kitchen 2100 mm High.
(v)	Granite Flooring	STAIR, TOILET AND STEPS
(vi)	Italion Marble	LOBBY, CORRIDOR & ENT. LOBBY
vii)	Granite Cladding	Lift Facia upto False ceiling Height.
(viii)	Wooden Flooring	ROOMS, GYM, BANQUET HALL & MULTI CUISINE RESTURANT
(ix)	Chequered tile	Ramp area .
D.	**Railing**	SS Railing (Grade 304) In staircases and SS Railing (Grade 304 with Glass In Balcony & Atrium
E.	**Water proofing**	waterproofing treatment all toiletS, Balcony & swimming pool
F.	**False Ceiling**	.
(i)	Calcium Silicate ceiling	All Toilets.
(ii)	Aluminum Metal Ceiling	ALL Common areas.
(iii)	POP Ceiling	ALL ROOMS

G.	**Finishing/ Painting**	
(i)	Texture Paint	External walls
(ii)	GRC JALI	External façade
(iii)	Structural Glazing	External façade
(iv)	Cement plaster 15 mm rough surface and 12 mm smooth surface.	External wall and Internal walls
(v)	all painting with premium acrylic emulsion paint of interior grade,	Internal areas
(vi)	French spirit polishing	Wooden Frames
3. HOSTELS		
C.	**HOSTELS**	
(i)	Foundation Type	700 mm DEPTH RAFT Foundation
(ii)	Anti termite Treatment	Inside and all Around The building
(iii)	Sand Filling	Under Floors 150mm thickness
(iv)	Structure	RCC Framed earthquake resistant structure
(v)	Reinforcement Grade	FE 550 OR ABOVE
(vi)	Building Plinth Height	BOTH HOSTEL – 600 MM
(vii)	Substructure Brickwork	Common Burnt Clay Bricks
(Viii)	Superstructure and Internal Partition walls	Common Burnt Clay Bricks
B.	**Door and Windows**	
(i)	Frame of Doors	Saal wood Frame .
(ii)	Shutter	35 mm thick flush door shutters with Non decorative.
(iii)	Windows & Ventilators	UPVC Window.
(iv)	Frame & Shutter in toilets	FRP Frame - & FRP 30mm thick. Shutter.
(v)	Fittings	Stainless Steel fittings (Grade 304) and Aluminium fittings.
(vi)	Fire Check Doors	Two hour fire rated metal and Glazed door with Fire rated accessories.
C.	**Flooring**	
(i)	C.C flooring	
(ii)	Kota stone	Services room.
(iii)	Vitrified Floor tiles	All rooms
(iv)	Vitrified wall tiles	All toilets area 2400 mm High.
(v)	Ceramic glazed floor and wall tiles	Toilets all Buildings
(vi)	Granite	All Common areas (stair case, entrance lobby, Lift lobby, corridor, etc.)
(vii)	Chequered tile	Ramp area
D.	**Railing**	SS Railing (Grade 304) In staircases.
E.	**Water proofing**	Terrace:- Brick bat coba Sunken portion - integral cement based IV-course waterproofing treatment all toilets.
F.	**False Ceiling**	

(i)	Calcium Silicate tile & Boards false ceiling	IN TOILETS
G.	**Finishing/ Painting**	
(i)	Texture Painting	External walls
(ii)	Cement plaster 15 mm rough surface and 12 mm smooth surface.	External wall and Internal walls
(iii)	all painting with premium acrylic emulsion paint of interior grade,	Internal areas
(iv)	French spirit polishing	Wooden Frames
4	**DINING BLOCK**	
(i)	Foundation Type	Isolated Footings 400 mm Depth
(iii)	Sand Filling	Under Floors 150mm thickness
(iv)	Structure	RCC Framed earthquake resistant structure
(v)	Reinforcement Grade	FE 550 OR ABOVE
(vi)	Building Plinth Height	600MM
(vii)	Substructure Brickwork	Common Burnt Clay Bricks
(Viii)	Superstructure and Internal Partition walls	Common Burnt Clay Bricks
B.	**Door and Windows**	
(i)	Frame of Doors	Saal wood Frame .
(ii)	Shutter	35 mm thick flush door shutters with decorative.
(iii)	Windows & Ventilators	UPVC
(iv)	Frame & Shutter in toilets	FRP Frame - & FRP 30mm thick. Shutter.
(v)	Fittings	Stainless Steel fittings (Grade 304) and Brass fittings.
C.	**Flooring**	
(i)	C.C flooring	
(ii)	Kota stone	Services room.
(iii)	Vitrified Floor tiles	All rooms
(iv)	Vitrified wall tiles	All toilets area 2400 mm High. Kitchen 1500 mm High.
(v)	Ceramic glazed floor and wall tiles	Toilets
(vi)	Granite	All Common areas (stair case, entrance lobby, corridor, etc.)
(vii)	Chequered tile	Ramp area
D.	**Railing**	SS Railing (Grade 304) In staircases.
E.	**Water proofing**	Terrace:- Brick bat coba Sunken portion - integral cement based IV-course waterproofing treatment all toilets.
F.	**False Ceiling**	
(i)	Calcium Silicate tile & Boards false ceiling	IN TOILETS
G.	**Finishing/ Painting**	
(i)	Texture Painting	External walls
(ii)	Cement plaster 15 mm rough surface and 12 mm smooth surface.	External wall and Internal walls

(iii)	all painting with premium acrylic emulsion paint of interior grade,	Internal areas
(iv)	French spirit polishing	Wooden Frames

B.	**Door and Windows**	
(i)	Frame of Doors	Powder coated Aluminium Section/ Teak wood
(ii)	Shutter	35 mm thick flush door shutters with decorative Laminated on both side.
(iii)	Windows & Ventilators	UPVC
(iv)	Frame & Shutter in toilets	WPC Frame -50X100m & WPC 30mm thick. shutter.
(v)	Fittings	Stainless Steel fittings (Grade 304) and Aluminium fittings.
(vi)	Fire Check Doors	Two-hour fire rated metal and Glazed door with Fire rated accessories.
C.	**Flooring**	
(i)	Stamp Concrete flooring	Podium, Concourse areas + Ramps
(ii)	Kota stone	a) Services room, AHU & Stores.
(iii)	Vitrified tiles	All rooms expect service room.
(iv)	Ceramic glazed floor and wall tiles	Toilets & Kitchen
(v)	Granite	For decorative purpose in Common areas (staircase, entrance lobby, Lift lobby, corridor, etc.)
(vi)	IPS	Storage & Services areas
(vii)	**Railing**	SS Railing (Grade 304) In staircases + MS railing with Epoxy paint for all other areas
D.	**Water proofing**	a. Terrace: - Brickbat Koba Treatment in All Buildings b. Sunken portion - integral cement based IV-course waterproofing treatment all Toilets & Kitchen. c. Seating Bleachers: Integral Crystalline waterproofing d. STP & UGT - Integral Crystalline waterproofing
E.	**False Ceiling**	
(i)	Calcium Silicate tile & Boards false ceiling	All Wet areas such as Toilets, Pantry & Kitchen
(ii)	Mineral Fiber grid false ceiling	All rooms in South & North Pavilion except Store rooms
(iii)	Aluminum False ceiling	Labs, Corridor etc.
(iv)	Metal baffle Ceiling	Entrance lobby , reception area & Lounges
G.	**Finishing/ Painting**	
(i)	Premium acrylic smooth exterior paint	External walls
	Natural Stone Texture Painting	External walls in line with facade
(ii)	Aluminium fins 84R	External façade
(iii)	Structural Glazing	External façade
(iv)	Gypsum Plaster	Internal walls-in Premium areas
(v)	Cement plaster	External & Internal wall and Internal ceiling

(vi)	Distempering with 1st quality acrylic distemper, and Wall painting with acrylic emulsion paint, having VOC (Volatile Organic Compound)	Internal in All Buildings
(vii)	Distempering with oil bound washable distemper	All ceiling area.
(Viii)	Plastic Emulsion paint	Internal wall
H.	**Site Development**	
(i)	Earth Work	Site requires earth filling of approx. 1036 Cu.M to brought from outside
(ii)	Proposed cross section for internal roads	As per IRC: SP: 62-2014 Guidelines for design and construction of cement concrete pavements for low volume roads. Traffic up to 50 CVPD CBR- 5% M-30 Grade CC = 200 mm WMM = 75 mm GSB = 100 mm (Approach roads to site are not considered part of this DPR)

8. Plumbing Provisions

8.1 Internal Plumbing Provisions

A	**Internal Plumbing Provisions**	
i.	Sanitary ware	White Vitreous China Orissa pattern W.C. pan with integral ype foot rests in Toilets White vitreous China extended wall mounting water closet in Toilets White vitreous China battery based infrared sensor operated urinal in Toilets White Vitreous China Flat back wash basin in Toilets. white vitreous China laboratory sink provided in Lab.
ii	CP Fittings	a) CP Brass Single lever telephonic wall mixer , C.P. brass long /short body bib cock , C.P. brass angle valve, CP Brass 32mm size Bottle Trap, CP Brass toilet paper holder , C.P. brass shower rose etc. have been provided .
iii	Sink	Stainless Steel A ISI 304 (18/8) kitchen sink provided in kitchen
iv	Mirror	Beveled edge mirror of superior glass above wash basin.
v	Kitchen	Beveled edge mirror of superior glass above wash basin, towel ring, and liquid soap container provided.
vi	waste water & Sewerage pipe	soil, waste and vent pipes
vii	Water supply pipe	Chlorinated Polyvinyl Chloride (CPVC) pipes.
viii	STP	Sewage Treatment Plant for 300 KLD STP (Johkasou type)
ix	Ultra Filtration System	As per Detailed design
x	Water Treatment Plant (WTP)	Variable Speed Hydro Pneumatics System for Domestic Water Supply Distribution.
xi	Water Transfer Pump System (FOR WTP)	Filter feed Pump (2 working + 1 standby) Flow Rate: 10 cum/hr Head = 25m Location : Plumbing Plant Room

8.2 External Plumbing Provisions

S.No.	DESCRIPTION	UNIT	QTY.
B.	**PLUMBING PUMPS**		
i	Submersible Pump For Pump Room Drain Pump Room Drainage Pump (1.5 x 1.5 x 1.5 Liq depth) Solid handling capacity 12 mm (Non Cutter Type) Capacity of each - 200 lpm (Each) Discharge Head - 15 m 1 Set (2 Nos Pumps. 1 Warking + 1 Standby)	SET	8
ii	Water Transfer Pump Capacity of each - 350 lpm (Each) Discharge Head - 100 m 1 Set (2 Nos Pumps. 1 Warking + 1 Standby)	SET	3
ii	Water Transfer Pump For FOP Irrigation Capacity of each - 350 lpm (Each) Discharge Head - 80 m 1 Set (2 Nos Pumps. 1 Warking + 1 Standby)	SET	3
Iv	Domestic water supply pump (HYPN System) Total system flow: 1080 LPM Each main pump flow capacity: 360 LPM Total Head: 70 mtr Total no of pump: 4 (3 W+ 1 S) No of working pumps: 3 Nos No of stand by pumps: 1 No	SET	2
V	Domestic water supply pump (HYPN System) Total system flow: 480 LPM Each main pump flow capacity: 240 LPM Total Head: 70 mtr Total no of pump: 3 (2 W+ 1 S) No of working pumps: 2 Nos No of stand by pumps: 1 No	SET	1
vi	Flushing water supply pump (HYPN System)	SET	1
	Total system flow: 1080 LPM Each main pump flow capacity: 420 LPM Total Head: 65 mtr Total no of pump: 4 (3 W+ 1 S) No of working pumps: 3 Nos No of stand by pumps: 1 No		
vii	WATER TREATMENT EQUIPMENTS: - MULTI GRADE PRESSURE SAND FILTER (MGF): FRP Multi Grade Pressure Sand Filter: (Filteration Velocity 10000 lts / hr / sq.m) Capacity/Flow rate : 8.0 M3/hr Operating pressure : 3.5 kg/Sq.cm Test pressure : 5.5 kg/Sq.cm Dia : 1050 x 1800 - FRP Capacity/Flow rate : 8.0 M3/hr	SET	1
viii	Duty Parameter of Activated Carbon Filter: (Filteration Velocity12000 lts / hrs / sq.m) Capacity/Flow rate : 8.0 M3/hr Operating pressure : 3.5 kg/Sq.cm Test pressure : 5.5 kg/Sq.cm Dia : 900 x 1800 - FRP Capacity/Flow rate : 8.0 M3/hr	SET	1
x	SOFTENER WITH BRINE TANK FOR DOMESTIC WATER SUPPLY SYSTEM : Hardness 200 Mg/L Regeneration Period 8 Hrs. Qty. of soft water : 65000 Itrs. between two generators (OBR) 65000 Itrs. Operating Pressure 3 Kg. Per sq.cm Test Pressure 4.5 Kg. Sq.cm. Dia : 600 x 1800 - FRP Capacity: 2.22 Lts/Sec Hardness 200 Mg/L	SET	1
x	Heater – 25 Ltr type	SET	100
xi	Submersible Sewage Transfer Pumps (1W+1S) Flow Rate (each) = 28.50 m3 / hr Head = 10-15 Mtr	SET	2

xii	Submersible Sewage Transfer Pumps for ETP (1W+1S) Flow Rate (each) = 2.0 m3 / hr Head = 10-15 Mtr	SET	2
xiii	Plant room sump pump (1W+1S) and basement sump pump Flow rate = 6.0 m3/hr Head = 12-15 Mts	SET	6
xiv	EXTERNAL WATER SUPPLY PIPE	G.I. "B class" pipes	
xv	IRRIGTION WATER SUPPLY	Chlorinated Polyvinyl Chloride (CPVC) pipes	
xvi	STORM WATER DRAINAGE SYSTEM	non-pressure NP2 class (light duty) R.C.C. pipes	
xvii	Water Treatment Plant with three stage filter – 10 CMH	Set	3

9. FIRE FIGHTING SYSTEMS

1. Provision for Control panels, FBC, Pipe and valves, Hose cabinets, yard hydrants etc.
2. Provision for pendent and side wall sprinkler and fire extinguisher etc.

(A)	FIRE FIGHTING PUMPS		
i	Main Fire Pump in Pump Room 2280 LPM at 85 M Head (Hydrant & Sprinkler Pump)	SET	2
ii	Diesel Pump in Pump Room 2280 LPM @ 85 M HEAD	SET	2
iii	Jockey Pump in Pump Room 180 LPM at 85 M Head (Hydrant & Sprinkler Pump)	SET	2
iv	Booster Pump in Pump Room 450 LPM @ 35 M HEAD	SET	4
v	Single headed internal hydrant valve with instantaneous Gunmetal/Stainless Steel coupling of 63 mm dia with cast iron wheel ISI marked conforming to IS 5290.	No.	75
vi	Butterfly valve of PN 1.6 rating with bronze/gunmetal seat duly ISI marked complete with nuts, bolts, washers, gaskets conforming to IS 13095. Size 80 mm dia, 150 mm dia Orifice plate made out of 6 mm thick stainless steel (Grade 304)	No.	125
vii	63 mm dia, 15 m long RRL hose pipe with 63 mm dia male and female couplings duly bound with GI wire, rivets etc. conforming to IS 636 (type-A).	No.	75
viii	Control Panels Electrical control panel for Pumps of cubical construction, floor mounted type, fabricated out of 2mm thick CRCA sheet WITH sufficient rating of incomer, outgoing and accessories for panel	Set	1
ix	Diesel Engine Control Control for diesel engine comprising - Automatic/Manual selctor switch & 3 attempts starting device, timers and relays as required, push buttons, start/stop in manual mode Indicating lamp for high/ Low Lub. Oil pressure, High Water Temp and Engine on indication Battery charger suitbale for 12V/24 V DC with boost and trickle selector switch, 0-30 V DC volt meter, and 0-20 A DC Ammeter With complete necessary item,	Set	1

x	Butterfly valve of PN 1.6 rating with bronze/gunmetal seat- 80 mm dia 150 mm dia 100 mm dia 200 mm dia	No No. No No	100. 80 80 30
xi	Orifice plate made out of 6 mm thick stainless steel (Grade 304)	Each	10
xii	Non-return valve of following sizes confirming to IS: 5312. 80 mm dia 100 mm dia 150 mm dia	No. No No.	24 24 24
xii	Stainless steel Y-strainer fabricated out of 1.6 mm thick- 100mm dia 150 mm dia	 No. No.	 25 25
xiv	63 mm dia, 15 m long RRL hose pipe with 63 mm dia male and female couplings duly bound with GI wire, rivets etc. conforming to IS 636 (type-A)- Stainless Steel (Grade 304)	Each	30
xv	20 mm nominal internal dia water hose thermoplastic (Textile reinforced) type -2 as per IS: 12585 20 mm nominal internal dia gun metal globe valve & nozzle. Drum and brackets for fixing the equipmets on wall.	Set	75
xvi	Connections from riser with 25 mm dia stop gun metal valve & M.S. Pipe and socket. 63 mm dia gun metal short branch pipe with 20 mm nominal internal diameter size nozzle conforming to IS903- Stainless Steel (Grade 304)	Each	75
xvii	Fire brigade connection of cast iron body with gun metal male instantaneous inlet couplings complete in all respect. 4 way-150 mm dia M.S. Pipe-	Each	4

10. ELECTRICALS WORK PROVISION

10.1 HT Equipment's (BMS Compatible)

Design, Supply, Installation, Testing & Commissioning of High Side Equipment's like Supply Company Metering cubical, Client HT Panel, 2 Nos. 1250 kVA 11kV/415 V, On Load Tap Changer, Oil Cooled Transformers with required HT cabling / Control cabling, Cable trays, Cable Terminations, Earthing System, Lightning/Surge Protection, Hume Pipes, HT Yard, safety Equipment's and all other required accessories as per applicable standards and local norms. This work shall include all required civil work.

10.2 Diesel Generator Set (BMS Compatible)

Design, Supply, Installation, Testing & Commissioning of Acoustic Type, Radiator Cooled Diesel generator set with Fuel Day oil tanks, Exhaust Piping, Fuel Piping, Cabling, Termination, Cable Trays, Earthing System, Lighting/Surge Protection, Hume pipes and all other required accessories as per applicable standards and local norms. This work shall include all required civil work.

DG Sets: -

- 2 x 750 kVA.
- 2 x 625 kVA.
- 1 x 250 kVA.

10.3 LT Panels & Distribution Boards (BMS Compatible)

Design, Supply, Installation, Testing & Commissioning of Main LT Panels, DG Synchronization Panels, APFC Panels, sub panels & Distribution Boards as per the selected High side equipment, Bock wise/Floor wise/services wise equipment Loads. LT Panels shall be with 14 swg CRCA sheet, with all required metering, protections, indication lamps and as per applicable standards and local norms. Main LT Panel, DG Synch Panel shall be type tested. Distribution boards shall be with suitable earth leakage protection This work shall include all required civil

work.

10.4 Earthing System

Design, Supply, Installation, Testing & commissioning of Earthing System, including Earth Pits, Earthing Strips, Hume Pipes as per the system requirement and applicable standards and local norms. This work shall include all required civil work.

10.5 Lightning protection

Design, Supply, Installation, Testing & commissioning of Lighting Protection System as per Risk Analysis Calculation, including Earth Pits, Earthing Strips, Hume Pipes, down conductors, Air Terminal as per the system requirement and applicable standards and local norms. This work shall include all required civil work.

10.6 Cable and Cable Trays

Sizing, Supply, Installation, Testing & Commissioning of FRLS, XLPE Power cables, Control Cables, Double compression cable glands/terminations, Hot Dipped Galvanized Cable Trays, Data Cables, Floor Raceways, Trunking with required Junction boxes 2.0/1.6 mm thick with supports, and all other required accessories as per system requirement, applicable standards and local norms. This work shall include all required civil work.

10.7 External Lighting Work

Design, Supply, installation, Testing & commissioning of External Lighting system with all required cabling, Terminations, Junction boxes, DBs with timers and all other required accessories as per system requirement, applicable standards and local norms. This work shall include all required civil work.

10.8 Point wiring & switch sockets

Supply, installation, testing commissioning of point wiring system with FRLS wires and FRLS Heavy duty conduits, Metal conduits, power sockets, lighting switches including face plates, back boxes and all other required accessories. This shall include civil work required for point wiring work.
Lighting point wiring - 2.5 sq. mm and 1.5 sq. mm FRLS wires. Sockets Point wiring – 4.0 sq. mm and 2.5 sq. mm FRLS wires.

10.9 Light Fixtures & Fans

Design, Supply, Installation, Testing & Commissioning of Lighting System and Fans with all required accessories. This work shall include all required civil work and Lighting calculations on software like Dialux.

10.10 UPS (BMS Compatible)

Design, Supply, Installation, Testing & Commissioning of UPS with IGBT Technology, batteries, battery racks, isolators, Power cabling, cable tray and all other required accessories as per system requirement, applicable standards and local norms. UPS shall be with parallel communication port, RS232, USB, EPO and SNMP interface, BMS interface. This work shall include all required civil work.
UPS 1 – 4 x 10 kVA UPS with 15 minutes back up.
UPS 2 – 4 x 20 kVA UPS with 30 minutes back up.

10.11 LAN Networking

Design, Supply, installation, laying of LAN networking as per the system requirement including all equipment including racks, Jack Panels, fiber cables, conduiting, raceways, trunking, junction boxes with all other required accessories as per system requirement, applicable standards and local norms. This work shall include all required civil work.

10.12 Elevator System (BMS Compatible)

Design, Supply, Installation, Testing, commissioning of Elevator system as per the system requirement, applicable standards and local norms.

PASSENGER ELEVATORS	Sets	8
Capacity (kgs): 1088 Kgs		
Passanger: 13 Pax		

Contract Speed (m/s): 1.0		
Stops: 4 Front		
Lift Well Size (W × D) mm: 2600 (W) x 1900 (D)		
Entrance Size(mm): 900 (W)		

Emergency Landings: Ground floor		
Openings:3 Front - CentreOpening		
Floors Served: Ground to Terrace Machine room Level		
Travel height: 25 Mtrs. (approx.)		

10.13 Solar System (BMS Compatible)

Design, Supply, Installation, Testing & Commissioning of 75 kWP solar system with cabling, cable trays, earthing and all required accessories as per system requirement, applicable standards and local norms. This work shall include all required civil work.

10.14 CCTV System

Design, Supply, Installation, Testing & Commissioning of internal & External CCTV system with all cabling, conduiting, cable trays, trunking, NVR, Patch Panels, Racks, software, hardware and all other required accessories as per applicable standards and local norms. This work shall include all required civil work.

10.15 Fire Alarm, Public Address, Very Early smoke detection System (BMS Compatible)

Design, Supply, Installation Testing Commissioning of Fire Alarm, Very Early Smoke Detection & Public Address System with all required accessories as per applicable standards and local norms. This work shall include all required civil work.

10.16 Access Control System (BMS Compatible)

Design, Supply, Installation Testing Commissioning of Access Control System with electromagnetic door holder, card readers, boom barriers, push buttons, Emergency push buttons, cabling, conduiting, softwares and hardwares with all required accessories as per applicable standards and local norms. This work shall include all required civil work.

10.17 Water Leak Detection system (BMS Compatible)

Design, Supply, Installation Testing Commissioning of Water Leak Detection System with all required accessories as per applicable standards and local norms. This work shall include all required civil work.

10.18 Rodent repellent system

Design, Supply, Installation Testing Commissioning of microprocessor based Rodent Repellent System with all required accessories as per applicable standards and local norms. This work shall include all required civil work.

11. MECHANICAL SERVICES

Sr. No.	Description /Name	Unit	Quantity
(A)	HVAC (Scope of Air conditioning for Complete North & South stand Block)		
1	Provision of Energy Efficient Variable Refrigerant Flow System / Variable Refrigerant system (Heating + Cooling type) with copper piping , Cable tray , Communication cabling work , etc.	HP	906
2	Indoor Units of different types - HI wall , Ductable (hi/mid/low Static), Cassette & compact cassette , TFA , etc.	Nos.	155
3	CRC with all Features , Metering , Scheduling , BMS Integration	Set	2
4	TF-Air Handling units ranging from 1000 CFM to 5600 CFM with VFD (Danfoss FC102 or Yaskawa HV600 Series), Plug Fan, Mixing Box, UVGI Lamp , IP 55 BMS compatible starter panel , EXP Kit , Cabling work , etc. , complete as required.	Nos.	10
5	Kitchen Ecology units with UL762 Listed Mixed Flow Fan , SS Spiked Ionizer Scrubber	Set	3
6	Kitchen MS Ducting as per NFPA 96 , Air conditioning GI with thermal & acoustic Insulation & PIR ducting	Lot	1

7	Sensors & Instrumentation , Air Quality monitoring , etc. for Green Building requirement	Lot	1
8	Air distribution products	Lot	1
9	Acoustically insulated Inline Fans	Set	27
10	Double skin Cabinet Fans	Set	36
11	Mixed Flow Inline Fan UL762 Certified	Set	1
12	Propeller Fan	Set	12
13	Axial Fans (Fire Rated & Non Fire Rated)	Set	16
14	DX Split Unit with allied works & sequential controller	Nos.	16
15	Lift well , Staircase Pressurization as per Local Authority Requirements	Lot	1

12. Specifications

1. The Work in general shall be executed as per BCA & CPWD specification with up to date correction slip.
2. National Building code 2016, ECBC 2017, Relevant BIS standards as modified up to date. (Note: The specification mentioned in relevant code or CPWD specification or NBC 2016 or ECBC 2017 whichever is more stringent will be followed).
3. Energy Efficiency Feature for Green Building shall be followed.

Note: Provision for stronger foundation and structure design has to be taken in account for as stated in the area statement for future expansion of the proposed project.

The Bidders are required to quote on the basis of aforesaid areas for each Building of the Project and in case of any variation; no extra payment shall be payable up to 2% variation, in the areas due to any reason afterwards. However, for a variation beyond 2% in the built up area, the Bidders shall be paid on pro-rata basis, on the written orders by the Engineer-in-Charge after seeking written approval from the Employer.

1.2. Tender Drawings:

The Bidder/contractor shall prepare their designs & drawings based on the drawings and Design Basis Report provided in the tender document. The master plan shall not be varied without approval of the Engineer-In-Charge & the Client Department. However the alteration in mast plan, if required as per the requirement of the client department shall be done and considered within the scope of work of EPC agency. The drawings of the respective buildings/ blocks, as provided in the tender documents, shall also be followed unless there is a requirement for their modification/correction as per requirement of the statutory bye laws, and, changes, if any required, due to structural designs consideration shall also be incorporated with the approval of the Engineer-In-Charge and its subordinate AE/PMC. This shall also hold good in respect of drawings/ SLD/ schematic/ P&I diagrams/ drawings for Services Components. All relevant modifications/revisions as required are to be done by the contractor at his own cost and any claim raised by the contractor in this regard shall not be valid in this contract and shall not be accepted by the BCA.

1.3. Design

The Design Basis Report and Drawings provided to the Bidders are to ensure a clear understanding of the building design standards and other associated parameters that the BCA wishes to achieve for different components of the project. Whilst the BCA is keen to see innovation, but the minimum required standards of design must be achieved. Contractors shall outline the means by which they will ensure design quality and the design objectives, which have influenced their scheme. This shall include details of how the BCA's objectives are to be achieved.

1.3.1. General Standards:

The facilities shall be completed to high standards of construction and specification as per good engineering practices.

The facilities shall be technically sound and functionally suitable in line with the provisions given in the DBR and to meet the BCA's objectives:

i. The Architectural finishes shall be of such quality that will ensure better hygienic conditions, provide clean room environment in the modernized facilities as well as the new facilities.

ii. The architectural design should take in to account the required Green Building and Acoustic Parameters, in line with latest GRIHA rating.

iii. The architectural design should take in to account the requirements of physically challenged persons, in line with the "Harmonized Guidelines & Standards for Universal Accessibility in India 2021"

iv. All the material procured or to be used should be to the satisfaction of the Engineer in charge before being used for the works intended to.

v. All materials including fittings and fixtures shall be of approved make. For other materials, the same shall be as per approval of Engineer In charge.

vi. The design should provide for bore wells, underground and overhead water tanks with necessary pumping arrangement for both portable and firefighting requirements.

vii. The design should incorporate firefighting system with hydrants, fire extinguishers, electrical and fire alarm system in accordance with the rules and regulations of the local fire authority, NBC 2016, NFPA, Relevant IS codes,(the Tariff Advisory Committee (TAC) of the Insurance Association of India- for guidance only), as amended up to date.

viii. Planning and design should also incorporate the requirements with respect to the recreational & sports facilities in the project as per requirement.

ix. Lighting should conform to relevant IS Code of practice for Lighting. All electrical system, fixtures, fittings etcetera should confirm to CPWD specifications, as well BCA specification latest IS code, NBC etcetera

x. The planning should include landscaping and horticulture as per requirements. The contractor shall create parking, approach roads and other requirements for the building.

xi. Provision should be made for internal and external signage's, display boards, public address system in the required area.

xii. Furnishings in the room should be complete in all respects including, communication networking for Data, telephone connection, power points etcetera. It should also include the provisions of raceways to be laid in floors as per requirements.

xiii. Mechanical services shall be designed and installed with provisions to contain noise and the transmission of vibration generated by moving plant and equipment schedules to achieve acceptable noise and vibration with respect to human beings specified by ISO standards.

xiv. All moving plant, machinery and apparatus shall be statically and dynamically balanced at manufacturers workplace and certificate issued.

xv. BIM shall be used by the Contractor in the building projects on EPC mode costing more than Rs 150.00 crore. No Separate payment shall be made for this BIM services.

1.3.2. Statutory, Industry and Local Standards:

The following standards shall apply unless otherwise stated:

- Standards set out in National Building Code of India2016
- Relevant Development Control Rules/Planning Act/Development Act/ Municipal Act/ any other applicable statutes and local bye-laws
- National Electrical Code,1985
- Indian Electricity Act2003
- Requirements of the local Water Supply Company, Electricity Supply Company/Department
- Requirements of the Pollution Control Board, Fire Department, Aviation authorities

and other statutory authorities, as applicable

- Requirements of any other standards and bye laws as applicable.

1.3.3. Preliminary & Detailed Design:

Based on the details provided, as mentioned above, the Contractor shall prepare preliminary & detailed design of all the building & services including external development and these shall be in conformity with the Tender drawings, Technical Specifications, Design Basis Report and other standards set forth in the contract document subject to applicable statutory bye-laws/ regulations as listed below:

a. Topographic Site Survey and Sub-Soil Investigation & submission of Site Survey Report & Sub-Soil Investigation Reports to Engineer-In- Charge.

b. Preparation & submission of Preliminary & Detailed Architectural design/drawings of various buildings & blocks including preparation of Site Plan, Structural designs & drawings with complete services etcetera in conformance with Master Plan & other Tender drawings, Design Basis Report & General specifications for the work provided in the Tender Document with complete foundations and sub-structure / structure with all furnishings and interiors including acoustics treatment. The Contractor shall ensure that the drawings shall meet the requirements of the local bye-laws/ statutory bodies' etc. etc.

c. The contractor shall prepare complete structural design drawings for foundations, superstructure, services, and for other structures to be provided/constructed, as per the provision contained in relevant IS Codes/NBC 2016 including any amendment issued, taking into consideration the protection against seismic forces required for earthquake resistance structures. The shear walls, due to structural requirement shall be provided, as required.

d. The structural drawings shall be got approved by Engineer-in-Charge on recommendations by PMC/Authority Engineer. The contractor shall ensure proof checking of structural designs and drawings from IIT Delhi, IIT Kanpur, IIT Roorkee, IIT BHU or NIT Allahabad (Prayagraj). After approval of the structural drawings by Engineer-in-Charge, if any modification in design/drawing is needed, as per site conditions, the Contractor shall do/re- do without any extra cost. This shall, however, not absolve the contractor from providing safe and sound structure for the functional requirements.

e. Scope of work shall include scheme finalization based on DBR, tender drawings, concept designs, master plan etcetera detailed electrical load sheets, Equipment sizing, SLDs/Schematic for all MEP services, Technical Submittals & GA Drawings of all MEP Equipment, Lighting/Energy Simulation Reports for MEP Services, Detailed Water Requirement Sheet & Tank /Pump Sizing etcetera

f. Preparation & submission of Preliminary & Detailed Design & drawings of all internal and external services viz. Electricals including Provision of PA System under Fire detection, Fire Alarm & firefighting, STP & Water Treatment Plant, etcetera & all other system as mentioned in DBR & elsewhere in this Tender.

g. Planning and designing of all external services like water supply, system for recycling of waste water, installation of bore wells, sewerage, drainage system, parking lots, internal campus roads, pathways, and all connected sub-structures and superstructures within the premises, as per bye-laws and norms of the local bodies including making connections with the peripheral services after getting the services design approved from the local bodies/statutory bodies. Employer's/Administrative department role shall be limited only to sign the application / drawings / documents for submission to the local bodies in the capacity of the owner for approval. In case of water supply, sewerage and drainage, the cost of getting the scheme approved from service provider is included in the scope of work/bid. The cost of connection of water supply lines/sewer lines from peripheral connection point/outfall sewer shall also be borne by the Contractor apart from internal and external water supply/sewerage lines to be laid to make the system of water supply and sewerage functional/complete. However, statutory charges, if levied by the service provider towards cost of laying of their peripheral services shall only be reimbursed by Employer's/Administrative department on production of relevant

documents by the Contractor to the satisfaction of Engineer-in-charge.

h. The necessary arrangements are to be provided for supply of water through dual pipe system i.e.recycled water duly treated pumped through underground tanks to overhead tanks and piped to flushing in each location/utility as directed by the Engineer-in-charge.

i. Planning and designing of bore wells, underground tanks, pump houses for water supply, for firefighting tank including installing of pumps, standby pumps as per approved drawings/ specifications or as directed by Engineer-in-charge on recommendation of PMC/Authority Engineer.

j. Planning and designing of all electrical and mechanical services including related external services for works such as HT/LT Electrical works, firefighting works, Internal electrification, LV works, STP/WTP etcetera, as per bye-laws and norms of the statutory and local bodies including making connections with the peripheral services after getting the services design approved from the local bodies/statutory bodies. Employer's role shall be limited only to sign the application / drawings/ documents for submission to the local bodies in the capacity of the owner for approval. However, statutory charges, if levied by the service provider towards cost of providing services shall only be reimbursed by Employer on production of relevant documents by the Contractor to the satisfaction of Engineer-in-charge.

k. Planning & designing of waste water recycle system, rain water drainage system including laying of pipe lines and construction of related structures.

l. Preparation & submission of Preliminary & Detailed design & drawings for Landscaping & Horticulture work, Main Entrance Gates, development plans showing Internal Roads, Pathways, Parking lots, Paved areas, Court Yards Landscaping, Drains, Culverts, Compound walls, External lighting arrangements, Under Ground Tanks, Internal & external Signage's, etcetera complete.

m. Preparation of landscaping plan including planters and other details etcetera for the horticulture works and execution of same including providing unfiltered/recycled water supply lines, construction of pump houses and installation of pumps therein etcetera complete will be responsibility of Contractor. Development of parks, if required, construction of its boundary wall, providing MS railings (including painting), wicket gates, water hydrants, the grassing, creepers and planting trees & relocation of existing trees within campus etcetera shall be completed as per the specification and drawing approved by the Engineer-in-charge.

n. Planning of designing of, MS gates, Wicket gates, Security Cabins, dustbins, sign boards, guide maps, location boards, direction boards, etcetera all complete as per the drawing approved and direction of Engineer-in-charge.

o. Setting up a Testing Laboratory at site equipped with the necessary apparatus needed for day-to-day testing of construction materials during construction period as directed by the Engineer-in-charge.

p. Obtaining approval of Engineer-in-charge for all the Detailed/Preliminary Architectural, Structural & Services drawings &designs.

q. Prepare and submit three-dimensional model(s) of 12′ x 15′ scale as and when required by the Engineer-in-charge at no extra cost.

r. Scale

s. All drawings shall be prepared to the scale as required for proper explanation and shall indicate the size and location of all equipment's and accessories therein. The Contractor shall follow all dimensions of approved architectural drawings for the work or part concerned and check proposed drawings for any interference with the building structure or other equipment or services.

1.4. Statutory Approvals:

The Contractor shall obtain all required statutory approvals except the Prefire NOC, Local Body

NOC & EIA clearance. The Contractor shall obtain other pre-construction & post-construction clearances as required from , Water supply agencies concerned, Electric Supply and Inspectorate Agencies concerned, Police and Security Agencies, Chief Controller of Explosives, Civil Aviation Department, etc in accordance to prevailing rules, Building Bye-Laws, tree re-plantation etcetera, as the case may be related to/ required for Construction/ Completion. The Post Construction approvals shall include: -

i. Obtaining approval of all the competent authorities and other statutory bodies like Ministry of Environment and forests, State Pollution Control Board, Air Force, civil aviation, railways and local development bodies etcetera as applicable necessary according to the local Acts, Laws, Regulations, etcetera and make any changes desired by such authorities at no extra cost.

ii. Obtaining NOCs (No Objection Certificates) from Fire Department, Lift Inspector, Storm water drainage & sewerage department, Municipal Corporation / Local Bodies, Civil Aviation, Railways, EIA on completion and / or occupancy certificates etcetera

iii. Obtaining approval of electrical drawings from Central/State Electrical Inspectorate, as applicable.

iv. Any other approval required from the appropriate Statutory Authorities/Local Bodies.

v. Compliance as per latest GRIHA norms and obtaining approval and certification for Green Building Rating for the building from GRIHA Council etcetera

vi. The original documents of approval/certificates etcetera shall be submitted to the BCA.

1.5. Shop drawings/ Design

The Contractor shall furnish for approval of the Engineer-in-charge requisite sets of detailed Shop drawings as stipulated/requirements of the contract and specially for Façade work, Aluminum works, Door/Windows, Structural Glazing Work, Sanitary, Plumbing, Firefighting (external & internal), Pump room, Electrical works, LV works, STP/WTP and all other works within scope of this contract.

All other services, equipment and materials required to complete the work as per specifications well in advance. These drawings/documents shall contain details of construction, size, arrangement, operating clearances, performance characteristics, and capacity of all items of equipment, as also the details of all related items of work of other trades. The work will be executed by the contractor based on the approved shop drawings from the Engineer-in-charge on recommendation by PMC/Authority Engineer and accordingly contractor will be responsible for obtaining all required final NOC / clearance from concerned authorities. All shop drawings are to be made in accordance with latest fire safety norms and building codes.

a. All drawings necessary for assembly, erection, maintenance, repair and operation of the equipment shall be furnished and different parts shall be suitably numbered for identification and ordering of spare parts.

b. For any amendments proposed by Engineer-in-charge/ concerned authority in the above drawings, the Contractor shall supply fresh sets of drawings with the amendments duly incorporated, along with the drawings on which corrections were indicated.

c. No material or equipment may be brought at Site until the Contractor has the approved Shop drawings for that particular material or equipment.

d. After approval of the drawings by the Engineer-in-charge on recommendation by PMC/Authority Engineer, the Contractor shall further furnish six sets of Shop drawings for the exclusive use of and retention by the Engineer-in-charge.

e. Approval of drawings by the Engineer-in-charge shall not relieve the Contractor of any obligation to meet all the requirements of the Contract or of the correctness of his drawings. The Engineer-in-charge's approval of specific item shall not mean the approval of the assembly of which it is a component. The Contractor shall be responsible for and is to bear the cost for all alternations of the works due to discrepancies or omission in the drawings or other particulars supplied by him, whether such drawings have been approved by the Engineer- in-charge or not.

f. Where the work of the Contractor has to be installed in close proximity to, or will interfere with

the work of other trades, the Contractor shall assist in working out the space conditions to make a satisfactory adjustment. If so directed by the Engineer-in-charge, the Contractor shall prepare composite working drawings and sections to a suitable scale not less than 1:50, clearly showing how his work is to be installed in relation to the work of other trades. If the Contractor installs his work before coordinating with other trades, and it is cause for any interference with the work of other trades, he shall make all the necessary changes without extra cost.

g. All shop drawings and detail drawings will be made as per requirements of local authorities and tender drawings incorporating all latest regulations and requirements. No separate drawings will be, issued for making shop drawings.

h. Unless otherwise prescribed, the contractor shall submit two sets of shop drawings/technical submittals/data sheets/any other details required for approval of the Engineer-In-Charge. The contractor, after incorporating modifications / deletions/observations/ amendments suggested by the Engineer-In-Charge, shall submit six corrected sets of such documents for final approval and issuance.

i. In case of delay of the project for reasons attributable to the contractor if decided by the Employer, the compensation to the consultant shall be adjusted from the payment due to the contractor.

1.6. Approved Makes:

a. Specification/equipment to be used or supplied as per the scope of work are listed separately. For all other materials /equipment the same shall conform to the relevant Indian Standards or in their absence conform to any International Standards and as approved by the Engineer-in-Charge.

b. All material and equipment shall conform to the relevant Indian Standards/ IEC codes and bear IS marking where ever applicable. Where interfacing is involved, such equipment's shall be mutually compatible in all respects.

c. Where an item of equipment, other than as specified or detailed on the drawings, is approved by Engineer-in-charge, requires any re-design of the structure, partitions, foundation, piping, etcetera or any other part of the mechanical, electrical or architectural layout, all such re-design, and all new drawings and detailing required therefore, shall be prepared by the Contractor at his own expense and approval obtained from the Engineer-in-charge.

d. All similar equipment, materials, removable parts of similar equipment etcetera shall be inter-changeable with one another.

e. The contractor shall submit to the Engineer-in-charge for approval details of all proposed materials, equipment, accessories, equipment characteristics and capacity details of all equipment, accessories and devices etcetera as per the specifications and obtain approval of the Committee.

1.7. Project/ Work Execution/Construction:

1.7.1. Handing Over and Clearing of Site:

a. The site of work is available. However, in case of any underground services, part of foundations of such structures are encountered during excavation or otherwise during the execution of the project, the contractor shall clear the same and maintain the operational services, without any extra cost.

b. The contractor should note that there may be some existing structures and/or operational building in the campus. The contractor shall ensure that the services and approach to these buildings is not hampered, without any extra cost. The work shall be carried out in such a way that the traffic, people movement, if any, is kept operative and nothing extra shall be payable to the contractor due to restrictive working. Dedicated access corridors and roadways have been planned for allowing movement of the inhabitants to enter and exit the buildings. The contractor is required to arrange the resources to complete the entire project within the total stipulated

time. Traffic diversion, if required, is to be done and maintained as per requirement of the traffic police and / or as per specifications, by the contractor at his own cost and the contractor shall not be entitled for any extra payment, whatsoever, in this regard.

c. There may be some services crossing the construction area of the proposed new block. The scope of work includes dismantling of services falling in the construction area and supporting/shifting & making functional existing services/sewerage and water supply lines etcetera. The contractor shall properly take care & safeguard all the existing services in the area affected by the construction of the complex.

d. Necessary arrangement including its maintenance is to be made by the contractor for temporary diversion of flow of existing services, drain(s) and road(s) etcetera, as the case may be. The existing services drain(s) and road(s) etc. would be demolished, wherever required with the progress of work under the scope of proposed project. The existing services drain(s) and road(s) etcetera, which are not in the alignment of the said project but are affected and/or need to demolished during execution for smooth progress of the project, shall be rehabilitated to its original status and condition (including black topping) by the contractor at his own cost. The cost to be incurred by contractor in this regards shall be deemed to be included in the quoted rates and contractor shall not be entitled for any extra payment whatsoever in this regard.

e. The information about the public utilities (whether over ground or underground) like electrical/telephone/water supply/sewerage lines, OFC Cables, open drain etcetera is the responsibility of contractor to ascertain the utilities that are to be affected by the works through the site investigation.

f. The contractor shall be responsible to obtain necessary approval from the respective authorities for shifting/re-alignment of existing public utilities. Engineer-in-charge/BCA shall only assist the contractor for liaising in obtaining the approval from the concerned authorities. The cost of shifting of utilities i.e. electrical, Telephone line, water supply & sewer if any, the same shall be reimbursed against the work done duly certified by the line department and as per estimate raised by concerned line department except the cost of supervision charges. The supervision charges shall be paid to the line department against the quality supervision. But no time extension shall be allowed on non-shifting of the utilities.

g. Any services affected by the works must be temporarily supported by the contractor who must also take all measures reasonably required by the various bodies to protect their service and property during the progress of works. It shall be deemed to be the part of the contract and no extra payment shall be made to the contractor for the same.

h. If the work is carried out in more than one shift or during night, no claim on this account shall be entertained. The Contractor must take permission from the different statutory/ Govt. authorities' etcetera if required for work during night hours. No claim / hindrance on this account shall be considered if work is not allowed during night time.

i. The Contractor shall be responsible for the watch and ward / guard of the buildings safety, fittings and fixtures provided by him against pilferage and breakage during the period of installations and thereafter till the building is physically handed over to the department. No extra payment shall be made on this account.

j. Any utility covered under the sanctioned cost of the project shall be taken care by the Client Department / Employer. The above-mentioned clause (a) to (i) mentioned are over & above to the sanctioned cost of utility shifting. In case of any unforeseen circumstances if the contractor claims regarding above, it shall be considered & finalized by the employer with due diligence.

1.7.2. Construction of Building & Infrastructure:

Based on the Master Plan, Concept Designs, Design Basis Report and other drawings, Technical Specifications and other documents given in the tender, approved Good for Construction Drawings/Shop Drawings, Finishing/Flooring Schedule, approved makes of materials/equipment, Schedule of Doors/Windows fittings & fixtures, Schedule of Plumbing/Sanitary Fittings/Fixtures, Scale of amenities, the Construction of all buildings/ blocks, associated infrastructure & external development work & services shall be carried out and completed by the Contractor in a phased schedule as specified in the tender document. Scope of the Construction work shall also include but not limited to the following:

1. EPC contract shall include Detailed Engineering and Architectural designing, Soil investigation

and Survey, Site Clearance, Design of Structure and MEP services including allied works, Vetting of structural design from IIT Delhi, IIT Kanpur, IIT Roorkee, IIT BHU or NIT Allahabad (Prayagraj), obtaining all statutory approvals from Local Authorities/Body including services, preparing submission and execution drawing, Construction and Commissioning of the project. The architectural drawings shall be vetted by the architect wing of BCA.

2. The contractor's quoted rates are deemed to include everything from the award of work up to & including handing over of completed project, defect liability period. The EPC Contractor is required to connect all the external services like Water Supply, Sewerage, Drainage etcetera to the main lines of the authorities/services providers which shall be integral part of his scope of work and deemed to be included in his quoted price. All municipal & mandatory approvals required for occupation and completion of the project shall be obtained by the Contractor.

3. Buildings as below having tentative total built-up area of around 42810.71 sqm with all interior works with fittings and fixtures, MEP equipment fittings and fixtures, as per DBR, Scope of work, approved architectural drawings, good for construction drawings & shop drawings complete in all respects as per EIC instructions.

4. Design, Supply and or Construction, Testing, Commissioning and Handing over of Under Ground Tank for Domestic and Firewater including underground pump room (1675 KLD) for storage and distribution of both Fire Water and Domestic Water including all equipment's, fittings and fixtures, water proofing treatment, food grade epoxy lining for domestic water storage tanks complete in all respects, as per Design Architect/EIC instructions.

5. External Site Development- Broad activities under External Site Development includes Levelling, Internal Roads & Path Ways, Sewer Network, Filtered Water Supply Network, All services distribution lines of 100 mm dia or any size approved by EIC, All peripheral grid services distribution lines of 300 mm dia or any size approved by EIC, Unfiltered water supply distribution lines, Storm Water Drains, Street Lighting (Electric and or solar powered, as approved by EIC), Comprehensive Campus Signage including electric signage, designing street feature, furniture etcetera as per Design Architect/EIC instructions.

6. Design, Supply and or Construction, Testing, Commissioning and Handing over of occupancy sensors for Areas as per DBR & shop drawings complete in all respects as per EIC instructions.

7. Design, Supply and or Construction, Testing, Commissioning and Handing over of distribution cables from Substation to each Block as complete as per DBR & shop drawings complete in all respects as per EIC instructions.

8. Design, Supply and or Construction, Testing, Commissioning and Handing over of Ventilation, Smoke Extraction & Smoke Management System as per DBR & shop drawings complete in all respects as per EIC instructions.

9. Design, supply and or Construction, Testing, Commissioning and Handing over of Sewerage Treatment Plant with requisite civil structures and pump room/work having minimum capacity of 300 KLD or the capacity approved by EIC as per DBR & & shop drawings complete in all respects as per EIC instruction.

10. Design, Supply and or Construction, Testing, Commissioning and Handing over of Water Treatment Plant (8 cum/hr) with requisite civil structures / work having minimum capacity approved by EIC as per DBR & shop drawings complete in all respects as per EIC instructions.

11. Demolition work as per actual requirement at site, if required.

12. All Structural Works – As per Structural DBR.

13. Architectural & Civil Works & Civil Finishing Works etcetera,

14. Plumbing Works & Sanitary (Internal & External)

15. Electrical Works (Internal & External)

16. Earthing and Lightening Conductor

17. Fire Alarm System
18. Intelligent addressable emergency Lighting and Exit System
19. Public Address System
20. Data Networking & Telephone (Conduiting & Wiring)
21. CCTV Surveillance System Conduiting & Wiring
22. Fire Fighting and Suppression System Works.
23. UPS system (4x10 kVa With 15min backup & 4x 20 kVa With 20min backup)
24. Mechanical Ventilation
25. Fire Protection Gas for Substation/LT Panel/UPS room
26. Sub Station (2x1250 KVA, 11kVa/415V Electrical Substation
27. Main LT Panel and Sub Distribution Panel
28. Bulk Electrical Services
29. Electric Fire Monitoring and Emergency Lighting System.
30. Designing Street, Outdoor& Landscape Lighting.
31. Aviation Light and Lightning Protection system.
32. Gas Suppression system for Panels as per NBC-2016.
33. Storm Water Drain (RCC)
34. O.H.T(as per requirements)
35. External Sewerage System
36. Solar PV System (75 kWP)
37. Customized G.I. Cable Tray.
38. Designing of Signage Systems for Building, Roads etcetera,
39. DG Sets (2x750KVA +2x625 KVA + 1x250 kVA)
40. CC Road & CC Interlock paver parking roads
41. Electric Substation Building
42. Passenger lifts (as above)
43. Transplantation of trees as per actual requirement of site, if required.
44. Horticulture & Landscaping
45. RWH (Rainwater Harvesting).
46. The project is to be built fully compliant to latest GRIHA rating or equivalent green building rating system (Indian Green Building Council) norms for the entire scope in this contract& contractor shall obtain certification to this extent.
47. All signages will be LED lighted/Retro-reflective as per concept drawings / as per direction of Engineer-In-Charge.
48. All external electrical LED light as per DBR and drawings will be powered.
49. Field of play construction as per ICC international standards & rules with 7 playing pitches as per ICC requirement and 4 no practice pitches approved by EIC as per DBR & shop drawings

complete in all respects as per EIC instructions.

50. Design, Supply and or Construction, Testing, Commissioning and Handing over of Sports lighting with requisite civil structures / work having minimum capacity approved by EIC as per DBR & shop drawings complete in all respects as per EIC instructions

51. All statutory / municipal approvals including EIA and Consent to Establish/ Operate before /during / post construction stages are to be obtained by the Bidder. The statutory fee for such clearances shall be reimbursed by the BCA/Employer.

52. The details mentioned in DBR and technical specification / conceptual drawings are indicative in nature. The Bidder will ensure to complete the work and make functional as per NBC 2016 and including any amendments if any, statutory requirements, BCA/Client requirements and good engineering practices etcetera

53. The area statement given is indicative in nature. The works is to be completed as per concept design, Client requirements, drawings, scope of work, finishing schedule and prevalent codes, NBC 2016, statutory requirement guidelines etcetera

54. Soil report enclosed is indicative. Bidder/Contractor is advised to do their own survey/exploration; nothing extra will be paid on deviation of soil report.

55. All drawings/ specifications / makes / shop drawings and construction methodology etcetera are to be got approved from Engineer-in-Charge or on his behalf by PMC/Authority Engineer as required prior to execution / procurement. However, it does not imply that Bidder absolves themselves from code provisions/statutory requirements.

56. All Formwork for all RCC works should be of laminated ply finish/Standard shuttering.

57. Prevention/safety of Existing Structure during entire construction period.

58. All columns/wall corners in the parking area should have approved rubber/PVC corner protection.

59. All Entry point/exit point should have boom barriers with provision and design of RFID facility as required.

60. Parking shall be provided as per NBC 2016 or prevalent statutory requirements.

61. The facility at each floor as shown may interchange/may add/may delete within building envelope as conceptualized. The internal partition and allied services may also change as per functional need and requirement of the client/ BCA etcetera Nothing extra shall be payable on this account to contractor.

62. All specifications are to be followed as given in technical specifications, however, at any location if any information/specification is of specific make it has to be treated as or equivalent.

63. Preparation of Detail design and drawings based on DBR.

64. Preparation of Shop drawings and as built drawings and its approval from BCA & Proof checking Consultant Agency.

65. The E.P.C. contractor shall bear the complete responsibility and cost for the surveys; investigation studies; design development of the employers design/ performance criteria up to detail design level, Engineering (including all specialized engineering requirements mentioned in the contract or needed for the successful completion and handover of the project); Manufacture, Delivery, Construction, Erection and Installation, Testing, Commissioning, Handing Over and provision of required warranties of the entire facility to the satisfaction of EIC.

66. The E.P.C. contractor is expected to discharge his responsibility in conformity with the contract as per the tender documents and those documents specified therein to constitute the contract document and in conformity with all laws, regulations, acts, statutes, bye-laws, applicable to all aspects of the investigation, design, engineering, construction, manufacture, delivery and shall

indemnify the owner against any claims or damages, fines, suits, legal or administrative actions/ strictures penalties, etcetera resulting from the neglect or inability or avoidance of the above said laws, regulations, statutes, etcetera

67. It is re-emphasized that the employer expects the EPC Contractor to comply with all municipal regulations, environmental regulations, health and safety regulations and comply with all the requirements spelled out in this regard in the contract. Where there is a difference between the employer's requirements and regulatory requirements the more stringent provision shall prevail. It is assumed the EPC Contractor has completed his due diligence on this prior to filling the tender and no change in cost shall be considered for this.

68. The EPC Contractor shall follow all best practices, codes, standards and adhere to specifications and shall meet or exceed performance requests as spelled out in this contract.

69. The EPC Contractor shall engage reputed Architect, Interior Designer, Experienced Interior Works Executing Agency etcetera, or any such specialized agency / agency as instructed by EIC for proper works execution, complete in all respects as per EIC's instructions. **The EPC contractor shall submit the Professional Liability Insurance of structural Design valid for 10 years period of time.**

70. The EPC Contractor shall carry out the procurement of all the materials, equipment, Installations, accessories as may require for completion and Installation & Commissioning of work for the project.

71. The EPC contractor shall ensure that:

- A detailed BIM Execution Plan (BEP), clearly establishing the methodology to implement BIM in the Project Design and Monitoring, should be submitted after award of contract.
- The BEP should also include BIM software platform, hardware, proposed BIM process design, proposed resource plan and anticipated timelines for BIM deliverables.
- The BEP should list the agreed targets for the timely delivery, exchange, reuse and final handover to clients.
- All consultants of all streams viz Architecture, Structure, MEPF, Landscape etc appointed for the Project by EPC shall have BIM design capability for Designing exclusively on BIM.
- In absence of BIM capability, the consultant shall have the option to appoint or form a JV with a BIM consultant.
- A Nodal BIM Agency / Consultant / BIM Team is either appointed or established by EPC contractor with the sole purpose of:
    - Establishing and Co coordinating the entire BIM Delivery Process, starting from initial design, to construction, monitoring and closure for the project.
    - Establish the System for working on BIM by individual consultants, Sharing/Distribution of BIM data, Storage of BIM data either in as secured LAN environment or on Cloud.
    - Create Templates and standards for BIM Delivery process to ensure uniformity across all streams viz Architecture, Structure, Services, Landscape etc
    - To create checklists for all streams so as to standardize information provided in BIM models, Documents derived from BIM models and in

the process of creating BIM data.

- Ensuring Implementation of BIM in Design Process, Construction Documentation, Planning and monitoring, 4D/ 5D simulation.
- BIM Collaboration to create a clash Free unified BIM model for Construction Documentation
- To Take inputs from all Consultants and update the unified BIM model on regular basis.
- Issue coordinated GFC drawings and subsequent revisions.
- Prepare and submit As Built BIM model after including parameters for Facility Management
- The EPC contractor shall create a BIM Team as noted here under, having BIM capabilities as elaborated therein. (The Contractor may appoint a 3rd party BIM outsourcing partner/BIM consultant to perform all BIM scope/portion of BIM scope at their discretion. Employer's approval is mandatory before appointing any 3rd party BIM consultant/work share partner.) EPC agency can either have an in-House team or appoint an external BIM consultant to create Clash Free model for Construction documentation.

BIM planning and Monitoring Team:

- Should have a Basic Level of BIM knowledge but High capability on Project Management Software and shall produce 4D and 5D simulations if part of the contract.

ROLES AND RESPONSIBILITIES OF BIM TEAM:

The team of Consultants and Engineers which shall be appointed by the EPC contractor to deliver the project on BIM technology shall have the following broad roles and responsibilities:

❖ **CONSULTANTS**

- Role:
  - The consultant shall design the project from Concept to Detail Design Stage.
  - The Consultant shall be the specialist of his stream viz Architecture, Structure design, MEPF Services design, Landscape, Interior etc
  - The Architect shall incorporate space planning for Services as per need of Services Consultant
- Responsibilities:
  - The consultant of specific streams shall Design only on BIM technology and follow the approved versions on software only
  - Shall adhere to deliverables required of them
  - Should respect and adhere to delivery schedules
  - Should use and work only within the project parameters established for consultants in form of templates, standards etc.

❖ **NODAL AGENCY**:

- Role:

- To review the Contract and set Agenda for BIM related Deliveries by identifying the deliverables which require BIM technology.
- To be the nodal agency for co-ordinating BIM related project activity for all stages of the project
- To Set Project standards and Templates
- To oversee creation and delivery of all project documentation for all stages of projects i.e. Design, Construction and closure stage

o Responsibilities

- To create Templates for each stream and release it to consultants of different streams for all stages of Project
- To develop and provide standard data storage and dispensing method
- To obtain BIM models to **LOD (Level of Development) 350*.**
- To review BIM models received from individual consultants for correctness of information and develop a Clash Free BIM model by collaborating with all consultants of the projects
- To create/ revise GFC for each stream and issue as needed.
- To prepare as built model and release it to the Client on completion.
- To support Planning team for generation in 4D and 5D simulations
- Provide a project-specific BIM Execution Plan
- Provide BIM Data Structure and BIM information workflow.
- Provide a central communication link between various disciplines, design teams and construction teams utilizing the BIM methodology and its tools.
- Apply quality control procedures to the created BIM models and BIM data.
- Ensure BIM systems are used in a proper manner, providing tools and processes for delivering structured, coordinated and precise information about the project.
- Ensure that design related BIM data is consistent and accurate, and the BIM processes.
- Resolve conflicts in design though model referencing and a collaborative work environment, utilizing conflict analysis within the integrated, composite BIM model
- Improve project quality through better communication between different design teams and disciplines utilizing a collaborative BIM work environment.
- Provide As-Built data in a structured BIM format, consistent with the Construction Operations Building Information Exchange (COBiE) format. Collect, manage & distribute all relevant construction documentation.

❖ **PLANNING & MONITORING TEAM:**

o Role:

- To be responsible for timely Execution, Monitoring and Delivery of Project
- To update and present periodic Progress Report to client
- To organize meetings etc to review the project
- To obtain data from site and update on project management software

o Responsibilities:

- To generate Baseline schedules, Procurement Schedules, Review Reports
- To Track Daily Progress and update it on Project management software
- To prepare 4D simulation and generate reports

- To prepare 5D simulation and generate cost reports
- To generate alerts and raise flags if project deviates from planned schedule

❖ **Integrated Open BIM Workflow** to be adopted.

1. Contractor shall provide minimum 06 number of interface or as desired by Employer/ Engineer-in charge to monitor physical/ financial progress and necessary communication/approval at its own cost. Contractor has to maintain availability of BIM for entire period of contract. No extra payment will be made for this service in case of delay in project.
2. In order to ensure smooth and effective operations, contractor shall engage following BIM personnel for the project:

S.No	Description	Number of Staff
1.	BIM Modular	04
2.	BIM Coordinator	02
3.	BIM Manager	01
4.	Architect	01

Note: Job Responsibility of Architect engaged by contractor is to coordinate all Architectural, Structural and Building Services(Electrical, Plumbing, HVAC etc). Drawing for development of BIM model & integrate all received data from different stake holder and identify the clash detection time to time and inform to Employer/Engineer in Charge and take comments/Approvals.

3. After completion of project, contractor shall submit the complete BIM model related data of the project in 02 sets of Pen drive.
4. Contractor has to setup three work stations , one for architecture department, one for structure department and one at administrative/site office for BIM working.
5. Effective use of BIM during construction period is mandatory, failing to which, will attract penalty of @0.1% per month of contract value.

*** LOD 350 - CONSTRUCTION DOCUMENTATION**: *This level includes finishing details, equipment descriptions for services and the model achieves a level from which information for construction documentation like GFC drawings, Quantities both RCC and finishing, Energy Analysis, Scheduling for planning and executions can be derived.LOD 350 includes more detail and elements that represent how building elements interface with various building systems. It also provides clear graphics and written definitions.Detailed 3D models with specific materials and products / Generate construction documents (specifications and drawings) / Coordinate multiple disciplines/Comprehensive cost estimation and quantity take-off /Accurate fabrication and assembly / Complete construction sequencing and accurate scheduling.*

1.8. The scope of work is only indicative and not exhaustive. In additions to the above the Contractor shall be responsible for executing all the works/items required for completing all the building and other services in all respect to make the premises in UP habitable and ready for occupation as per direction of Engineer-in-charge.

1.9. Approval of Engineer-in-Charge on recommendation by PMC/Authority Engineer at any stage of planning, design and construction of the project will not absolve the ingrained responsibility of the Contractor to execute the construction flawless and at par excellence and, if any aspect contrary to this owning up of responsibility is glaring, the Contractor will be held liable for such gross deviation.

1.10. The work shall be executed in accordance with the drawings/design approved by Engineer-in-Charge (on recommendation by PMC/Authority Engineer) which are prepared by the Contractor in conformity with the scope of the project & specifications, standards and statutory requirements. The Contractor shall carry out and complete the said work in every respect in accordance with this Contract and with the directions of and to the satisfaction of the Engineer-in-charge.

1.11. The Engineer-in-charge may in his absolute discretion and from time to time review the drawings/ designs & approve drawings/designs and/or written instructions, details, directions and explanations, in regard to:

a. The variation or modification of the drawings, design, quality or requirement of works or the addition or omissions or substitution of any item.

b. Any discrepancy in the drawings or between the requirement of work sand /or drawings and/or specifications.

c. The removal from the site of any material brought thereon by the contractor and the substitution of any other material thereof.

d. The removal and/or re-execution of any works executed by the contractor.

e. The removal of any persons employed by the contractor on the site after obtaining approval from Engineer-in-Charge.

f. The opening up for inspection of any work covered up.

g. The amending and making good of any defects noticed during or after execution of the work.

1.12. The contractor shall be solely responsible for the means, methods, techniques sequence and procedure of construction. The Contractor shall be responsible to see the completed work complies accurately with the Contract requirements. The Contractor shall provide all necessary superintendence during the execution of the Works as per contractual provisions.

a. The Contractor shall be responsible for the correct positioning of all parts of the Works, and shall rectify any error in the positions, levels, dimensions or alignment of the Works. Contractor agrees and undertakes that the construction shall be completed within the Project Completion Schedule and any extension of time granted according to the provisions of this Agreement.

b. The Contractor shall, subject to the provisions of the Contract, and with due care and diligence, execute and complete the Works & remedy any defects therein in accordance with the Contract. The Contractor shall provide all labour, including the supervision thereof, materials, Constructional Plant and Machineries and all other things, whether of a temporary or permanent nature, required in and for such execution, completion, maintenance and remedying of any defects, so far as the necessity for providing the same is specified in or is reasonably to be inferred from the Contract.

c. The Contractor must bear in mind that all the work shall be carried out strictly in accordance with the specifications as given in these documents and also in compliance of the requirements of the local public authorities and to the requirements/ satisfaction/ direction of the Engineer-in-charge and no deviation of any account will be permitted.

d. The Contractor shall have to use materials adhering to the standards as mentioned in the DBR/good industry practise contained in the contract documents and as approved by the Engineer - in- Charge. The contractor shall prepare a model room at site displaying the items to be used on the project adhering to the norms/specification as mentioned in the DBR & specification of the bid document. Wherever different pattern/ Design/ Quality of materials with same specification/ make as specified in the contract, is available in the market, Engineer-in-Charge with the help of representative of the Client Department will

approve the pattern/ Design/ Quality of the material/ item which shall be final and binding on the contractor. The contractor shall supply samples of all the materials / fittings / fixtures proposed to be used in the work and obtain approval of the Engineer - in- Charge. These samples shall be retained at site till completion of the work. If subsequently it is found that approved material upon testing does not meet the requirement as specified in the contract the contractor shall get approval of alternate material.

e. The work shall be carried out in conformity with the relevant drawings and the requirement of architectural, electrical, structural, and other specialized service drawings approved by PMC/Authority Engineer.

f. The Contractor shall make provision of hangers, sleeves, structural openings and other requirements during construction to avoid holding up progress of the construction schedule. The Contractor should ensure that the structure is designed for additional loads or cut outs. Subsequent Cutting of holes in the RCC structural members /slab shall not be allowed.

g. The contract items comprise of furnishing of all materials, equipment, labour& transportation etcetera necessary to render the installation / item fully operational as per the intent of specifications and drawings, including any necessary adjustment or corrections. Further the installation / item shall be in conformity with local laws and manufacturer's instructions applicable.

1.13. Operation &Maintenance:

Upon completion of supply, installation, testing & commissioning of all works, the Contractor shall furnish the necessary skilled/unskilled/semi-skilled personnel for operating the entire installations for a period of ninety (90) working days i.e. till the handing over after issuance of completion.

1.14. Training & orientation of BCA's Personnel

The contractor shall provide necessary training and orientation to the technical personnel deployed by Employer. The contractor shall arrange visits of the technical personnel / technicians of respective OEM /vendors involved in installation of various electrical and mechanical works under this contract. The duration of training period shall be 15 days or as directed by Employer's representative/Engineer-in-Charge with respect to various installed system like HVAC, STP, WTP, LV Works, Audio Video & Stage Lighting System, Pumping system and any other system installed under this contract.

SPECIFIC CONDITIONS OF CONTRACT-GENERAL

1. General:

1.1. **Force Majeure**:

Any failure or delay in the performance by either party hereto of its obligations under his Contract shall not constitute a breach thereof or give rise to any claims for damages if, and to the extent that it is caused by occurrences beyond the control of the party affected, namely, acts of God, floods, explosions, wars, riots, storms, earthquakes, insurrection, epidemic or other natural disasters. The party so affected shall continue to take all actions reasonably within its power to comply as far as possible with its obligations under this Contract. The affected party shall promptly notify the other party after the occurrence of the relevant event and shall use every reasonable effort to minimize the effects of such event and act in all good faith with due care and diligence.

1.2. Compliance with Statutes, Regulations, etc

The contractor shall conform to the provisions of all statutes, ordinance, laws, acts of the legislature relating to the works, and to the regulations and by-laws of any local or other duly constituted authority and of any water, electric supply and other companies and/or authorities with whose systems the structure is proposed to be connected. The Contractor shall keep the Employer indemnified against all fines or penalties or liability of every kind for breach of any such statutory ordinance, law act of the legislation, regulations, and byelaws as aforesaid.

The contractor shall before make any variations from the drawings or specifications that may be necessitated by such regulations, give to the Engineer- in-charge written notice, specifying the variation proposed to be made and the reasons for making it and apply for instructions thereon. The contractor will not execute any work without written permission from the Engineer-in- charge

The contractor shall bring to the attention of the Engineer-in-charge any specific requirement of the local authorities or any notice required for execution by virtue of such acts, regulations or bye-laws of such authority, or public office. All fees that may be chargeable in respect of these works shall be reimbursed by the Employer on production of authorized receipts.

1.3. Boreholes & Exploratory Excavation

If, at any time during the execution of the Works, the Engineer-in-charge shall require the Contractor to make boreholes or to carry out exploratory excavation, such requirement shall be ordered in writing and shall be deemed to be an additional ordered under the provisions unless a provisional sum in respect of such anticipated work shall have been included in the schedule of items.

1.4. Fossils, Etcetera

All fossils, coins, articles of value or antiquity and structures and other remains or things of geological or archaeological interest discovered on the site of the works shall be the property of the Employer.

1.5. Absence of Specifications

If the user requirements, specifications etcetera, do not contain particulars of materials and works which are necessary for its proper execution, all such materials shall be supplied and item shall be executed by the Contractor without extra charge and if the Contractor requires any information, he shall request in writing well in advance to commencement of the particular work to the Engineer-in-charge who will clarify the issue within a reasonable time.

1.6. Works by Other Agencies

The Engineer-in-charge reserves the right to use premises and any portion of the site

for the execution of any work not included in this contract which it may desire to have carried out by other persons simultaneously, and the contractor shall allow the reasonable facilities for the execution of such work, but shall not be required to provide any plant or material for the execution of such work except by special arrangement with the other agency. Such work shall be carried out in a manner so as not to impede the progress of the works included in the contract, the contractor shall not be responsible for any damage or delay which may happen to or occasioned by such work.

The contractor shall co-operate with other agencies working in the same project, and coordinate his plans and time schedules so that there will be no interference. The Contractor shall forward to the Engineer-in-charge all correspondences and drawings exchanged. Failure to check plans for conditions will render the Contractor responsible for bearing the cost of any subsequent changes found necessary or damages done.

The Engineer-in-charge shall not entertain any claim on account of the Contractor affording necessary facilities to execute the work simultaneously with other agencies executing the works for the same project.

1.7. Quality Assurance

1.7.1. Quality Assurance Programme

The Contractor shall ensure that the Construction, Plants, Goods & Materials and workmanship are in accordance with the requirements specified in this Agreement, Specifications and Standards and Good Industry Practice.

Sources of Materials being supplied shall be intimated to the Engineer and are subject to his approval. Materials that are not specified in the Contract document shall conform to the relevant Indian Standards or in their absence conform to any International Standard approved by the Engineer.

To ensure that the equipment and services under the scope of this Contract whether manufactured or performed within the Contractor's works or at his sub-contractor's premises or at the site or at any other place of work are in accordance with the specifications, the Contractor shall adopt suitable quality assurance programme to control such activities at all points necessary. Such programme shall be outlined by the Contractor and shall be finally accepted by the Engineer-in-Charge after recommendations and discussions with Employer, just after the award of Contract. A quality assurance programme of the contractor shall generally cover the following:

- His organization structure for the management and implementation of the proposed quality assurance programme.
- Documentation control system.
- Qualification data for Bidder's key personnel.
- The procedure for purchases of materials, parts components and selection of sub-contractor's services including vendor analysis, source inspection, incoming raw material inspection, verification of material purchases etcetera
- System for shop manufacturing and site erection controls including process controls and fabrication and assembly control.
- Control of non-conforming items and system for corrective actions.
- Inspection and test procedure both for manufacture and field activities.
- Control of calibration and testing of measuring instruments and field activities.
- System for indication and appraisal of inspection status.
- System for quality audits.

- System for authorizing release of manufactured product to the BCA.
- System for maintenance of records.
- System for handling storage and delivery.
- A quality plan-detailing out the specific quality control measures and procedures adopted for controlling the quality characteristics relevant to each item of equipment furnished and/or services rendered.

The Engineer-in-Charge or his duly authorized representative reserves the right to carry out quality audit and quality surveillance of the system and procedure of the Contractor/his Vendor's quality management and control activities.

1.7.2. Quality Assurance Documents

The Contractor shall be required to submit the following Quality Assurance Documents within three weeks after dispatch of the equipment.

- All Non-Destructive Examination procedures, stress relief and weld repair procedure actually used during fabrication and reports including radiography interpretation reports.
- Welder and welding operator qualification certificates.
- Welder's identification list, listing welders and welding operator's qualification procedure and welding identification symbols.
- Raw material test reports on components as specified by the specification and/or agreed to in the quality plan.
- Stress relief time temperature charts/oil impregnation time temperature charts.
- Factory test results for testing required as per applicable codes/ mutually agreed quality plan/standards referred in the technical specification.
- The quality plan with verification of various customer inspection points (CIP) as mutually and methods used to verify the inspection and testing points in the quality plan were performed satisfactorily.

1.8. Additional Conditions for Tree Re-plantation

The Hon'ble High Court, Allahabad in its Judgment in the case of PIL Civil no. 14580 of 2017 has observed that the old trees are preserved /protected and if necessary, those shall be relocated within the campus at appropriate place, as far as possible.

The contractor shall ensure strict adherence to the above directions of the Hon'ble High Court, Allahabad. Efforts shall be made to preserve, as far as possible, the old trees at their existing locations. To be spelled out the contractor shall verify these details with respect to the layout of the various buildings/services/external services including roads/pathways etcetera and ensure that there is minimum relocations of trees. In case of extreme exigencies, where such trees need relocation, the contractor shall undertake the relocation at appropriate locations within the compound ~~without any extra cost.~~

1.9. Additional Conditions of National Green Tribunal

i. The Contractor shall not store/ dump construction material or debris on the metaled road.

ii. The Contractor shall get prior approval from Engineer-in-Charge for the area where the construction material or debris can be stored beyond the metaled road. This area shall not cause any obstruction to the free flow of traffic

/inconvenience to the pedestrians. It should be ensured by the Contractor that no accidents occur on account of such permissible storage.

iii. The Contractor shall take appropriate protection measures like raising wind breakers of appropriate height on all sides of the plot/area using CGI sheets or plastic and/or other similar material to ensure that no construction material dust fly outside the plot area.

iv. The Contractor shall ensure that all the trucks or vehicles of any kind which are used for construction purposes/or are carrying construction material like material like cement, sand and other allied material are fully covered. The Contractor shall take every necessary precaution that the vehicles are properly cleaned and dust free to ensure that en-route their destination, the dust, sand or any other particles are not released in air/contaminate air.

v. The Contractor shall provide mask to every worker working on the construction site and involving in loading, unloading and carriage of construction material and construction debris to prevent inhalation of dust particles.

vi. The Contractor shall provide mask to every worker working on the construction site and involved in loading, unloading and carriage of construction material and construction debris to prevent inhalation of dust particles.

vii. The Contractor shall ensure that C&D waste site only and due record shall be maintained by the Contractor.

viii. The Contractor shall compulsorily use wet jet in grinding and stone cutting.

ix. The Contractor shall comply with all the preventive and protective environmental steps as stated in the MoEF guidelines, 2006.

x. The Contractor shall carry out on- Road-Inspection for black smoke generating machinery. The Contractor shall use cleaner fuel.

xi. The Contractor shall use vehicles having pollution under control certificate. The emissions can be reduced by a large extent by reducing the speed of a vehicle to 20 Km.ph. Speed bumps shall be used to ensure speed reduction. In case where speeds reduction cannot effectively reduce fugitive dust, the Contractor shall divert traffic to nearby paved areas.

xii. The Contractor shall ensure that the construction material is covered by tarpaulin. The Contractor shall take all other precaution to ensure that no dust particles are permitted to pollute air quality as a result of such storage.

xiii. The paving of the path for plying of vehicles carrying construction material is more permanent solution to dust control and suitable for longer duration projects. The BCA shall carry out cost benefit ratio analysis of the same.

xiv. It is mandatory to use of wet jet in grinding and stonecutting.

xv. Wind breaking wall around construction site.

xvi. As per EIA Notification of 2006, sufficient green belt around the building shall be provided. Such green belts shall be in existence prior to applying for occupancy certificate and handing it over.

xvii. The Contractor shall take appropriate protection measures like raising wind breakers of appropriate height on all sides of the plot/area using CGI sheets or plastic and / or other similar material to ensure that no construction material dust fly outside the plot area.

xviii. The paving of the path for plying of vehicles carrying construction material

is more permanent solution to dust control and suitable for longer duration projects. The EPC Contractor shall carry out cost benefit ratio analysis of the same. Based on the benefit ratio analysis, the EPC Contractor shall include the item of paving of path in schedule of item which can be utilized as a permanent path for BCA after construction of project.

xix. It shall be ensured that C& D waste is transported from the site in after keeping due record on behalf of Engineer-in-charge. The C& D waste shall only be dumped at sites declared as Dumping ground and having arrangements for recycling of C& D waste by local administration.

xx. If any violation of orders of MoEF including guidelines of State Government, SPCB or any officer of any department shall lead to stoppage of work for which Contractor shall be responsible and no hindrance shall be accounted in this regard.

1.9.1. Intellectual Property Rights and Royalties

i. Insofar as the patent, copyright or other intellectual property rights in any Plant, Design Data, plans, calculations, drawings, documents, Materials, know-how and information relating to the Works shall be vested in the Contractor, the Contractor shall grant to the Engineer-in-Charge or there successors and assignees a royalty-free, non-exclusive and irrevocable license (carrying the right to grant sub-licenses) to use and reproduce any of the works, designs or inventions incorporated and referred to in such Plant, documents or Materials and any such know-how and information for all purposes relating to the Works (including without limitation the design, manufacture, installation, reconstruction, Testing, commissioning, completion, reinstatement, extension, repair and operation of the Works).

ii. If any patent, registered design or software is developed by the Contractor specifically for the Works, the title thereto shall vest in the Employer and the Contractor shall grant to the Employer a non-exclusive irrevocable and royalty-free license (carrying the right to grant sub-license) to use, repair, copy, modify, enhance, adapt and translate in any form such Software for his own use.

iii. If the Contractor uses proprietary software for the purpose of storing or utilizing records the Contractor shall obtain at his own expense the grant of a license or sub-license to use such software in favour of the Employer and shall pay such license fee or other payment as the grantor of such license may require provided that the use of such software under the license may be restricted to use relating to the design, construction, reconstruction, manufacture, completion, reinstatement, extension, repair and operation of the Works or any part thereof.

iv. The Contractor's permission referred to above shall be given, inter alia, to enable the Employer to disclose (under conditions of confidentiality satisfactory to the Contractor) programmes and documentation for a third party to undertake the performance of services for the Employer in respect of such programmes and documentation.

v. Any software is developed under the Contract or used by the Contractor for the purposes of storing or utilizing records over which the Contractor or a third party holds title or other rights, the Contractor shall permit or obtain for the Employer (as the case may require) the right to use and apply that Software free of additional charge (together with any modifications, improvements and developments thereof) for the purpose of the design, manufacture, installation, reconstruction, testing, commissioning, completion, reinstatement, extension, repair, modification or operation of the Works, or any part thereof, or for the purpose of any Dispute.

vi. The Employer reserves the right to use other Software on or in connection with the Works.

1.10. Obtaining Information's related to Execution of work:

No claim by the Contractor for additional payment will be entertained which in consequent upon failure on his part to obtain correct information as to any matter affecting the execution of the works, nor will any misunderstandings or the obtaining of incorrect information or the failure to obtain information relieve him from any risks or from the entire responsibility for the fulfillment of the contract.

1.11. Examination of Work before covering up:

(a) RFI (Request for Inspection) system shall be followed at site. The RFI shall be raised to the Engineer-in-Charge or on his behalf to the PMC/Authority Engineer. No part of the works shall be covered up or put out of view without the written RFI approval by Engineer-in-Charge or on behalf by PMC/Authority Engineer. The contractor shall give due notice to the Engineer-in-charge whenever any such work is or ready or about to be ready for examination and the Engineer-in-charge shall, examine and measure any work before it is covered up or put out of view and to examine foundations before further work is placed thereon.

(b) Uncovering and making openings

The contractor shall uncover any part or parts of the works or make openings in or through the same as the Engineer-in-charge may direct from time to time and shall reinstate and make good such part or parts to the satisfaction of the Engineer-in-charge at his own cost.

1.12. Miscellaneous:

(a.)Tax Deduction at Source

All Taxes and surcharge as applicable on date shall be deducted from the amount due to the Contractor towards the value of the work done. TDS certificate thereof shall be issued to the Contractor.

(b.) By-Laws of Statutory Authorities

The Contractor and his labour shall not violate municipal /sanitation /health or any other byelaws.

(c.)Delay in starting the work

No compensation shall be allowed for any delay caused in the starting of the work on account of acquisition of land, encroachment or in the case of clearance of works, on account of any delay in according sanction to estimates in issue of drawings, decisions etcetera However, the extension of time shall be granted as per relevant conditions of Contract. A hindrance register shall have to be maintained at the site, duly issued by Engineer-in-Charge mentioning the detailed reasons thereof. The hinderance shall be recorded by the Contractor/PMC/Authority Engineer/PWD & shall be responded by other agency as recorded & seen. When the hinderance is over the same shall also be recorded by the responding agency & accepted by other party too.

(d.) Site instruction book

For the purpose of quick communication between, Engineer-in-charge, PMC/Authority Engineer and the Contractor or his representative, site instruction book shall be maintained at site as described below:

Any communication, relating the works may be conveyed through instructions in the site instruction book. Such a communication from Engineer-in-charge, PMC/Authority Engineer to the Contractor shall be deemed to have been

adequately served in terms of the contract once the entries are made and signed by the authorized representative of the contractor. For this purpose, the contractor should authorize one of his employees on the site itself. Site instruction book shall have machine numbered pages and shall be carefully maintained and remain under custody of Engineer-in-charge. The contractor can also avail of the site instructions book for urgent communication with Engineer-in-charge. Any instruction which Engineer-in-charge or on behalf by PMC/Authority Engineer may like to issue to the Contractor may be recorded by the Engineer-in-charge or on his behalf by PMC/Authority Engineer in site instruction book.

(e.)Signage

The Contractor shall provide at his own cost, sign board(s) at directed location(s) having overall size preferably 2 metres by 4 metres, or any other size, indicating name of the project, and a three-D view of the project as well as the name of the Contractor, PMC/Authority Engineer & BCA with addresses, cost of the Project, date of start & completion, as approved by Engineer-In-Charge. The signboard should be illuminated during night.

(f.) No idling charges or compensation shall be paid for idling of the contractor's labour, staff or P&M etcetera on any ground or due to any reason whatsoever.

(g.) The Contractor shall mobilize and employ sufficient resources for completion of all the works within the stipulated time period as per agreement and as indicated in the approved Bar Chart/ Network. No additional payment will be made to the contractor for any multiple shift work or other incentive methods contemplated by him in his work schedule even though the time schedule is approved by Engineer-in-charge.

2. Contract Price and Payments

2.1 The Bidder shall quote their rates in the prescribed format as per "Vol. 7-FINANCIAL Bid" of the tender documents. The quoted rates shall be inclusive of all costs towards site visits, planning, designing , site surveys, soil investigations all material, labour, plant and machinery, tools and tackles, batching plant etcetera including water & electricity, overhead charges, all taxes **(excluding GST)**, duties, levies statutory charges / levies applicable from time to time and others as specified etcetera, incidental works and all other charges for items contingent to the work, such as, packing, forwarding, insurance, freight and delivery at Site, watch and ward of all materials & successful installation, testing & commissioning at site etcetera, including handing over of the works to the Administrative department during the DLP period etcetera complete as per Scope of Work. The quoted rates shall also include cost of all other inputs required in the execution of the item, all taxes and duties including Goods & Services Tax. The fee paid by the contractor for obtaining various statutory approvals shall be reimbursed to him after submission of payment receipts and other relevant documents by the contractor.

i. Rates quoted shall be firm and shall not be subject to any price variations except as specifically provided in the contract.

ii. Unless otherwise specified the rates tendered by the contractor shall be all inclusive and shall apply to all shapes, heights, lifts, leads and depth of the building and nothing extra shall be payable to him on any account.

iii. Royalty, whenever payable, shall be borne by the contractor on the boulders, metal, shingle, sand and bajri etcetera, or any other materials collected by him for the work direct to the revenue authority of the District / State Government concerned and nothing extra shall be payable on this account.

iv. The words "as specified", "as described", "as shown", "as directed", or "as approved", shall mean as described in the specifications, Schedule of

Quantities and other Contract documents as shown on the drawings or as directed by Engineer-in-Charge.

2.2 The payments shall be made on the area basis w.r.t each building. The area for purposes of payment shall be the plinth area actually constructed. In order to ensure the adoption of a uniform method of working out Plinth Areas from plans, guidelines conforming to IS 3861-2002 will be applicable.

2.3 All running / intermediate & final payments shall be made to the contractor in accordance with the following schedule and on pro-rata basis:

Schedule of Payment

Note: - The Payment schedule given below is tentative. It shall be reviewed as per site specific conditions & as per final design requirements of EPC Project, as agreed up on by Employer on recommendation of PMC/Authority Engineer.

Payment Schedule: The Amount quoted by Contractor shall be derived as follows:

PROJECT: - REDEVELOPMENT OF MOINUL HAQ INTERNATIONAL CRICKET STADIUM AT PATNA, BIHAR				
	PROJECT COST Rs. 0.00 Lakhs			
Sl. No.	**Particulars / Component**	**As per New Schedule**		
		Value in %	**Amount** *(in Lakhs)*	**Annexure No. for Details**
1	Design, Planning, Engineering and Construction on EPC Basis of **(G+4) SOUTH PAVILION** Cricket Stadium Building with support services & allied facilities by incorporating stipulated specifications, all services including handling over complete as per scope of work and directions of Engineer in charge.	11.00%	0.00	*Annexure - 1*
2	Design, Planning, Engineering and Construction on EPC Basis of **(G+4) NORTH PAVILION** Cricket Stadium Building with support services & allied facilities by incorporating stipulated specifications, all services including handling over complete as per scope of work and directions of Engineer in charge.	10.00%	0.00	*Annexure - 2*
3	Design, Planning, Engineering and Construction on EPC Basis of **GENERAL STAND 1&2** Building with support services & allied facilities by incorporating stipulated specifications, all services including handling over complete as per scope of work and directions of Engineer in charge.	16.00%	0.00	*Annexure - 3*
4	Design, Planning, Engineering and Construction on EPC Basis of **HOTEL with Swimming pool G+4** Building with support services & allied facilities by incorporating stipulated specifications, all services including handling over complete as per scope of work and directions of Engineer in charge.	6.00%	0.00	*Annexure - 4*
5	Design, Planning, Engineering and Construction on EPC Basis of **Multi Level Car parking G+8** Building with support services & allied facilities by incorporating stipulated specifications, all services including handling over complete as per scope of work and directions of Engineer in charge.	7.00%	0.00	*Annexure - 5*
6	Design, Planning, Engineering and Construction on EPC Basis of **Boys Hostel G+4** Building with support services & allied facilities by incorporating stipulated specifications, all services including handling over complete as per scope of work and directions of	2.00%	0.00	*Annexure - 6*

	Engineer in charge.			
7	Design, Planning, Engineering and Construction on EPC Basis of **Girls Hostel G+4** Building with support services & allied facilities by incorporating stipulated specifications, all services including handling over complete as per scope of work and directions of Engineer in charge.	2.00%	0.00	*Annexure - 7*
8	Design, Planning, Engineering and Construction on EPC Basis of **Dining Block G** Building with support services & allied facilities by incorporating stipulated specifications, all services including handling over complete as per scope of work and directions of Engineer in charge.	0.43%	0.00	*Annexure - 8*
9	Design, Planning, Engineering and Construction on EPC Basis of **Services** Building with support services & allied facilities by incorporating stipulated specifications, all services including handling over complete as per scope of work and directions of Engineer in charge.	0.90%	0.00	*Annexure - 9*
10	Design, Planning, Engineering and Construction on EPC Basis of **PITCHES and MOAT** Building with support services & allied facilities by incorporating stipulated specifications, all services including handling over complete as per scope of work and directions of Engineer in charge.	3.15%	0.00	*Annexure - 10*
11	Design, Planning, Engineering and Construction on EPC Basis of **External Development** Building with support services & allied facilities by incorporating stipulated specifications, all services including handling over complete as per scope of work and directions of Engineer in charge.	2.91%	0.00	*Annexure - 11*
12	Design, Planning, Engineering and Construction on EPC Basis of Internal &**External Plumbing and Fire Fighting Development** Building with support services & allied facilities by incorporating stipulated specifications, all services including handling over complete as per scope of work and directions of Engineer in charge.	4.70%	0.00	*Annexure - 12*
13	Design, Planning, Engineering and Construction on EPC Basis of **External Electrical work '** with support services & allied facilities by incorporating stipulated specifications, all services including handling over complete as per scope of work and directions of Engineer in charge.	22.00%	0.00	*Annexure - 13*
14	Design, Planning, Engineering and Construction on EPC Basis of **External ELV work '** with support services & allied facilities by incorporating stipulated specifications, all services including handling over complete as per scope of work and directions of Engineer in charge.	1.61%	0.00	*Annexure - 14*
15	Design, Planning, Engineering and Construction on EPC Basis of **FURNITURE** with support services & allied facilities by incorporating stipulated specifications, all services including handling over complete as per scope of work and directions of Engineer in charge.	10.30%	0.00	*Annexure - 15*
		100.00%	**0.00**	

Annexure - 1

Design, Planning, Engineering and Construction on EPC Basis of (G+4) SOUTH PAVILION Cricket Stadium Building with support services & allied facilities by incorporating stipulated specifications, all services including handling over complete as per scope of work and directions of Engineer in charge.

	TOTAL COST AS PER PERCENTAGE BREAKUP				
Sl.	**Description of Component**	**Break up of total % payable cost for the sub component**			**% of Total payable cost- for the component**
No.			**Item**	**Sub**	
A.	**Planning, Design & Engineering Works -** Investigation, planning, Designing and obtaining approvals for works				2.00%
	a. On approval of Engineer-in-charge, the inception report & detailed survey and architectural drawings ready for submission for approval of local bodies and statutory authorities			0.30%	
	b. On approval of structure design by the proof consultant and Engineer-in-charge			0.30%	
	c. On obtaining all required approvals from statutory authorities and local bodies for commencement of construction as per requirements and directions of Engineer-in-charge.			0.30%	
	d. On submission of all Good for Construction drawings as per requirements & directions of Engineer-in-charge:			0.70%	
	i. Architectural drawings		0.30%		
	ii. Structural design & Drawings		0.30%		
	iii. Design & Drawings for Services		0.10%		
	e. On completion of construction			0.40%	
	i. On Completion of Foundation work		0.05%		
	ii. On Completion of 100% Super structure		0.05%		
	iii. On Completion of work		0.10%		
	iv. On obtaining required statutory approvals after completion of works		0.10%		
	v. On handing over to Client		0.10%		
B.	**CONSTRUCTION**				98.00%
	I. Civil Works			68.70%	
	i. Foundation Work upto plinth level, etc., complete		**17.00%**		
	a. Excavation of foundation	1.00%			
	b. RCC Work in Foundation	11.00%			
	c. RCC work in column/Shear wall/Slab & Beam up-to Plinth	2.50%			
	d. Completion of brickwork below plinth, under floor filling, antitermite treatment, PCC & DPC etc.	2.50%			
	ii. Structure Work RCC frame of the entire building from plinth level to terrace, stair roof, overhead tank, Lift machine room, etc., complete		**23.00%**		
	a. Ground Floor		5.50%		
	1. column upto beam bottom	2.00%			
	2. RCC in slab	3.50%			

	b. First Floor		5.50%		
	1. column upto beam bottom	2.00%			
	2. RCC in slab	3.50%			
	C. Second Floor		5.50%		
	1. column upto beam bottom	2.00%			
	2. RCC in slab	3.50%			
	d. Third Floor		5.50%		
	1. column upto beam bottom	2.00%			
	2. RCC in slab	3.50%			
	e. Mumty, Machine room/OHT		1.00%		
	1. column upto beam bottom	0.25%			
	2. RCC in slab	0.75%			
	iii. Brickwork & partitioning work		**7.00%**		
	a. Ground Floor	1.50%			
	b. First Floor	1.50%			
	C. Second Floor	1.50%			
	d. Third Floor	1.50%			
	e. Mumty, Machine room/OHT	1.00%			
	iv. Flooring, Skirting, Dado, Wall lining work, waterproofing etc., complete		**4.50%**		
	a. Ground Floor	1.00%			
	b. First Floor	1.00%			
	C. Second Floor	1.00%			
	d. Third Floor	1.00%			
	e. Mumty, Machine room/OHT	0.50%			
	v. Doors & Windows, etc., complete		**6.20%**		
	a. Ground Floor	1.50%			
	b. First Floor	1.50%			
	C. Second Floor	1.50%			
	d. Third Floor	1.50%			
	e. Terrace	0.20%			
	vi. Internal Finishes(Internal Plastering & painting works)		**3.50%**		
	vii. False Ceiling Work, etc., complete		**1.00%**		
	viii. Finishing Works– External Plastering & painting works, etc., complete		**5.00%**		
	ix.Other Works, viz. Steel work, railing, panelling, glazing etc., complete		**1.00%**		
	x.Other Misc. Works, viz. plinth protection, apron drain, brick edging etc., complete		**0.50%**		
	II. Services				
	a. Electrical Works		**6.00%**		
	i. Internal conduiting, wiring, electrical works, LT Panels & Cabling, Rising main &MCBs, DBs, RCBOs& other related works, etc, complete	3.00%		29.30%	
	ii. Earthing & Lightning Protection System & Cable tray, etc., complete	1.00%			
	iii. Light Fixtures, Fans, etc., complete	2.00%			
	b. Lifts & Escalators		**3.00%**		
	i. On order	0.50%			

	ii. Material received at site	1.50%			
	iii. On installation	1.00%			
	c. ELV Work		**5.00%**		
	i.CCTV	3.00%			
	ii.Access Control System Work	0.50%			
	iii.Conference Room AV System	0.50%			
	iv. EPABX System Work	0.50%			
	v.Networking System Work	0.50%			
	d. HVAC Work		**5.00%**		
	i.on Installation	2.00%			
	ii.Comissioning & Handing Over	3.00%			
	e. Fire Protection System		**4.30%**		
	i. Wet Riser System/Down Comer System, etc., complete	1.00%			
	ii. Automatic Sprinkler System, etc., complete	1.00%			
	iii. Fire Extinguishers, etc., complete	1.00%			
	iv. Fire Alarm System (manual/Automatic) etc., complete	1.00%			
	v. Other Works, etc., complete	0.30%			
	F. Water Supply & Sewerage System		**4.00%**		
	i. Water Supply System, etc., complete	1.50%			
	ii. Sanitary & Sewerage System, etc., complete	1.50%			
	iii. Fittings & Fixtures, etc., complete	1.00%			
	g. Completion and Handling Over		**2.00%**		
	i. Testing	0.50%			
	ii. Commissioning	0.50%			
	iii. Handing over	1.00%			
	Total				**100.00%**

Annexure - 2

Design, Planning, Engineering and Construction on EPC Basis of (G+4) NORTH PAVILION Cricket Stadium Building with support services & allied facilities by incorporating stipulated specifications, all services including handling over complete as per scope of work and directions of Engineer in charge.

	TOTAL COST AS PER PERCENTAGE BREAKUP				
Sl.	**Description of Component**	**Break up of total % payable cost for the sub component**			**% of Total payable cost- for the component**
No.			**Item**	**Sub**	
A.	**Planning, Design & Engineering Works -** Investigation, planning, Designing and obtaining approvals for works				2.00%
	a. On approval of Engineer-in-charge, the inception report & detailed survey and architectural drawings ready for submission for approval of local bodies and statutory authorities			0.30%	
	b. On approval of structure design by the proof consultant and Engineer-in-charge			0.30%	

	c. On obtaining all required approvals from statutory authorities and local bodies for commencement of construction as per requirements and directions of Engineer-in-charge.			0.30%	
	d. On submission of all Good for Construction drawings as per requirements & directions of Engineer-in-charge:			0.70%	
	i. Architectural drawings		0.30%		
	ii. Structural design & Drawings		0.30%		
	iii. Design & Drawings for Services		0.10%		
	e. On completion of construction			0.40%	
	i. On Completion of Foundation work		0.05%		
	ii. On Completion of 100% Super structure		0.05%		
	iii. On Completion of work		0.10%		
	iv. On obtaining required statutory approvals after completion of works		0.10%		
	v. On handing over to Client		0.10%		
B.	**CONSTRUCTION**				98.00%
	I. Civil Works			68.70%	
	i. Foundation Work upto plinth level, etc., complete		**17.00 %**		
	a. Excavation of foundation	1.00%			
	b. RCC Work in Foundation	11.00%			
	c. RCC work in column/Shear wall/Slab & Beam up-to Plinth	2.50%			
	d. Completion of brickwork below plinth, under floor filling, antitermite treatment, PCC & DPC etc.	2.50%			
	ii. Structure Work RCC frame of the entire building from plinth level to terrace, stair roof, overhead tank, Lift machine room, etc., complete		**23.00 %**		
	a. Ground Floor		5.50%		
	1. column upto beam bottom	2.00%			
	2. RCC in slab	3.50%			
	b. First Floor		5.50%		
	1. column upto beam bottom	2.00%			
	2. RCC in slab	3.50%			
	C. Second Floor		5.50%		
	1. column upto beam bottom	2.00%			
	2. RCC in slab	3.50%			
	d. Third Floor		5.50%		
	1. column upto beam bottom	2.00%			
	2. RCC in slab	3.50%			
	e. Mumty, Machine room/OHT		1.00%		
	1. column upto beam bottom	0.25%			
	2. RCC in slab	0.75%			
	iii. Brickwork & partitioning work		**7.00%**		
	a. Ground Floor	1.50%			
	b. First Floor	1.50%			
	C. Second Floor	1.50%			
	d. Third Floor	1.50%			

	e. Mumty, Machine room/OHT	1.00%		
	iv. Flooring, Skirting, Dado, Wall lining work, waterproofing etc., complete		**4.50%**	
	a. Ground Floor	1.00%		
	b. First Floor	1.00%		
	C. Second Floor	1.00%		
	d. Third Floor	1.00%		
	e. Mumty, Machine room/OHT	0.50%		
	v. Doors & Windows, etc., complete		**6.20%**	
	a. Ground Floor	1.50%		
	b. First Floor	1.50%		
	C. Second Floor	1.50%		
	d. Third Floor	1.50%		
	e. Terrace	0.20%		
	vi. Internal Finishes(Internal Plastering & painting works)		**3.50%**	
	vii. False Ceiling Work, etc., complete		**1.00%**	
	viii. Finishing Works– External Plastering & painting works, etc., complete		**5.00%**	
	ix.Other Works, viz. Steel work, railing, panelling, glazing etc., complete		**1.00%**	
	x.Other Misc. Works, viz. plinth protection, apron drain, brick edging etc., complete		**0.50%**	
	II. Services			
	a. Electrical Works		**6.00%**	
	i. Internal conduiting, wiring, electrical works, LT Panels & Cabling, Rising main &MCBs, DBs, RCBOs& other related works, etc, complete	3.00%		
	ii. Earthing & Lightning Protection System & Cable tray, etc., complete	1.00%		
	iii. Light Fixtures, Fans, etc., complete	2.00%		
	b. Lifts & Escalators		**3.00%**	
	i. On order	0.50%		
	ii. Material received at site	1.50%		
	iii. On installation	1.00%		
	c. ELV Work		**5.00%**	
	i.CCTV	3.00%		29.30%
	ii.Access Control System Work	0.50%		
	iii.Conference Room AV System	0.50%		
	iv. EPABX System Work	0.50%		
	v.Networking System Work	0.50%		
	d. HVAC Work		**5.00%**	
	i.on Installation	2.00%		
	ii.Comissioning & Handing Over	3.00%		
	e. Fire Protection System		**4.30%**	
	i. Wet Riser System/Down Comer System, etc., complete	1.00%		
	ii. Automatic Sprinkler System, etc., complete	1.00%		

	iii. Fire Extinguishers, etc., complete	1.00%			
	iv. Fire Alarm System (manual/Automatic) etc., complete	1.00%			
	v. Other Works, etc., complete	0.30%			
	F. Water Supply & Sewerage System		**4.00%**		
	i. Water Supply System, etc., complete	1.50%			
	ii. Sanitary & Sewerage System, etc., complete	1.50%			
	iii. Fittings & Fixtures, etc., complete	1.00%			
	g. Completion and Handling Over		**2.00%**		
	i. Testing	0.50%			
	ii. Commissioning	0.50%			
	iii. Handing over	1.00%			
	Total				**100.00%**

Annexure - 3

Design, Planning, Engineering and Construction on EPC Basis of GENERAL STAND 1&2 Building with support services & allied facilities by incorporating stipulated specifications, all services including handling over complete as per scope of work and directions of Engineer in charge.

	TOTAL COST AS PER PERCENTAGE BREAKUP				
Sl.	**Description of Component**	**Break up of total % payable cost for the sub component**			**% of Total payable cost- for the component**
No.			**Item**	**Sub**	
A.	**Planning, Design & Engineering Works -** Investigation, planning, Designing and obtaining approvals for works				
	a. On approval of Engineer-in-charge, the inception report & detailed survey and architectural drawings ready for submission for approval of local bodies and statutory authorities			0.30%	
	b. On approval of structure design by the proof consultant and Engineer-in-charge			0.30%	
	c. On obtaining all required approvals from statutory authorities and local bodies for commencement of construction as per requirements and directions of Engineer-in-charge.			0.30%	
	d. On submission of all Good for Construction drawings as per requirements & directions of Engineer-in-charge:			0.70%	2.00%
	i. Architectural drawings		0.30%		
	ii. Structural design & Drawings		0.30%		
	iii. Design & Drawings for Services		0.10%		
	e. On completion of construction			0.40%	
	i. On Completion of Foundation work		0.05%		
	ii. On Completion of 100% Super structure		0.05%		
	iii. On Completion of work		0.10%		
	iv. On obtaining required statutory approvals after completion of works		0.10%		
	v. On handing over to Client		0.10%		

B.	**CONSTRUCTION**				
	I. Civil Works				
	i. Foundation Work upto plinth level, etc., complete		**18.50 %**		
	a. Excavation of foundation	1.00%			
	b. RCC Work in Foundation	12.50%			
	c. RCC work in column/Shear wall/Slab & Beam up-to Plinth	2.50%			
	d. Completion of brickwork below plinth, under floor filling, antitermite treatment, PCC & DPC etc.	2.50%			
	ii. Structure Work RCC frame of the entire building from plinth level to terrace, stair roof, overhead tank, Lift machine room, etc., complete		**48.00 %**		
	Stand -1				
	a. LVL 1		6.00%		
	1. column upto beam bottom	2.00%			
	2. RCC in slab	4.00%			
	b. LVL 2		6.00%		
	1. column upto beam bottom	2.00%			
	2. RCC in slab	4.00%			
	c. LVL 3		6.00%		
	1. column upto beam bottom	2.00%			
	2. RCC in slab	4.00%			
	d. LVL 4		6.00%		
	1. column upto beam bottom	2.00%			
	2. RCC in slab	4.00%		98.00%	98.00%
	Stand -2				
	a. LVL 1		6.00%		
	1. column upto beam bottom	2.00%			
	2. RCC in slab	4.00%			
	b. LVL 2		6.00%		
	1. column upto beam bottom	2.00%			
	2. RCC in slab	4.00%			
	c. LVL 3		6.00%		
	1. column upto beam bottom	2.00%			
	2. RCC in slab	4.00%			
	d. LVL 4		6.00%		
	1. column upto beam bottom	2.00%			
	2. RCC in slab	4.00%			
	iii. Brickwork & partitioning work		**5.00%**		
	a. LVL 1	1.00%			
	b. LVL 2	1.00%			
	c. LVL 3	1.50%			
	d. LVL 4	1.50%			
	iv. Flooring, Skirting, Dado, Wall lining work, waterproofing etc., complete		**4.00%**		
	a. LVL 1	1.00%			
	b. LVL 2	1.00%			
	c. LVL 3	1.00%			

	d. LVL 4	1.00%			
	vi. Internal Finishes(Internal Plastering & painting works)		**3.00%**		
	vii. False Ceiling Work, etc., complete		**1.00%**		
	viii. Finishing Works– External Plastering & painting works, etc., complete		**5.00%**		
	ix.Other Works, viz. Steel work, railing, panelling, glazing etc., complete		**4.00%**		
	x.Other Misc. Works, viz. plinth protection, apron drain, brick edging etc., complete		**2.00%**		
	. Fire Protection System		**2.50%**		
	i. Wet Riser System/Down Comer System, etc., complete	0.10%			
	ii. Automatic Sprinkler System, etc., complete	0.10%			
	iii. Fire Extinguishers, etc., complete	1.00%			
	iv. Fire Alarm System (manual/Automatic) etc., complete	1.00%			
	v. Other Works, etc., complete	0.30%			
	.Water Supply & Sewerage System		**3.00%**		
	i. Water Supply System, etc., complete	1.00%			
	ii. Sanitary & Sewerage System, etc., complete	1.00%			
	iii. Fittings & Fixtures, etc., complete	1.00%			
	Completion and Handling Over		**2.00%**		
	i. Testing	0.50%			
	ii. Commissioning	0.50%			
	iii. Handing over	1.00%			
	Total				**100.00%**

Annexure - 4

Design, Planning, Engineering and Construction on EPC Basis of HOTEL with Swimming pool G+4 Building with support services & allied facilities by incorporating stipulated specifications, all services including handling over complete as per scope of work and directions of Engineer in charge.

	TOTAL COST AS PER PERCENTAGE BREAKUP				
Sl.	**Description of Component**	**Break up of total % payable cost for the sub component**			**% of Total payable cost- for the component**
No.			**Item**	**Sub**	
A.	**Planning, Design & Engineering Works -** Investigation, planning, Designing and obtaining approvals for works				2.00%
	a. On approval of Engineer-in-charge, the inception report & detailed survey and architectural drawings ready for submission for approval of local bodies and statutory authorities			0.30%	
	b. On approval of structure design by the proof consultant and Engineer-in-charge			0.30%	
	c. On obtaining all required approvals from statutory authorities and local bodies for commencement of construction as per requirements and directions of Engineer-in-charge.			0.30%	

	d. On submission of all Good for Construction drawings as per requirements & directions of Engineer-in-charge:			0.70%	
	i. Architectural drawings		0.30%		
	ii. Structural design & Drawings		0.30%		
	iii. Design & Drawings for Services		0.10%		
	e. On completion of construction			0.40%	
	i. On Completion of Foundation work		0.05%		
	ii. On Completion of 100% Super structure		0.05%		
	iii. On Completion of work		0.10%		
	iv. On obtaining required statutory approvals after completion of works		0.10%		
	v. On handing over to Client		0.10%		
B.	**CONSTRUCTION**				98.00%
	I. Civil Works			73.00%	
	i. Foundation Work upto plinth level, etc., complete		**13.50 %**		
	a. Excavation of foundation	1.00%			
	b. RCC Work in Foundation	10.00%			
	c. RCC work in column/Shear wall/Slab & Beam up-to Plinth	1.50%			
	d. Completion of brickwork below plinth, under floor filling, antitermite treatment, PCC & DPC etc.	1.00%			
	ii. Structure Work RCC frame of the entire building from plinth level to terrace, stair roof, overhead tank, Lift machine room, etc., complete		**25.50 %**		
	a. Ground Floor		5.00%		
	1. column upto beam bottom	2.00%			
	2. RCC in Beam & slab	3.00%			
	b. First Floor		5.00%		
	1. column upto beam bottom	2.00%			
	2. RCC in Beam & slab	3.00%			
	c. second Floor		5.00%		
	1. column upto beam bottom	2.00%			
	2. RCC in Beam & slab	3.00%			
	d. third Floor		5.00%		
	1. column upto beam bottom	2.00%			
	2. RCC in Beam & slab	3.00%			
	e. fourth Floor		5.00%		
	1. column upto beam bottom	2.00%			
	2. RCC in Beam & slab	3.00%			
	f. Mumty, Machine room/OHT		0.50%		
	1. column upto beam bottom	0.25%			
	2. RCC in Beam & slab	0.25%			
	iii. Brickwork & partitioning work		**7.75%**		
	a. Ground Floor	1.50%			
	b. First Floor	1.50%			
	c. Second Floor	1.50%			
	d. Third Floor	1.50%			
	e. Fourth Floor	1.50%			

	c. Paprapet & Mumty/Machine room/Terrace	0.25%			
	iv. Flooring, Skirting, Dado, Wall lining work, waterproofing etc., complete		**7.75%**		
	a. Ground Floor	1.50%			
	b. First Floor	1.50%			
	c. Second Floor	1.50%			
	d. Third Floor	1.50%			
	e. Fourth Floor	1.50%			
	c. Paprapet & Mumty/Machine room/Terrace	0.25%			
	v. Doors & Windows, etc., complete		**5.00%**		
	a. Ground Floor	1.00%			
	b. First Floor	1.00%			
	c. Second Floor	1.00%			
	d. Third Floor	1.00%			
	e. Fourth Floor	1.00%			
	c. Paprapet & Mumty/Machine room/Terrace	0.00%			
	vi. Internal Finishes(Internal Plastering & painting works)		**3.50%**		
	vii. False Ceiling Work, etc., complete		**3.00%**		
	viii. Finishing Works– External Plastering & painting works, etc., complete		**4.00%**		
	ix.Other Works, viz. Steel work, railing, panelling, glazing etc., complete		**1.00%**		
	x.Other Misc. Works, viz. plinth protection, apron drain, brick edging etc., complete		**2.00%**		
	II. Services				
	a. Electrical Works		**6.50%**		
	i. Internal conduiting, wiring, electrical works, LT Panels & Cabling, Rising main &MCBs, DBs, RCBOs& other related works, etc, complete	3.00%			
	ii. Earthing & Lightning Protection System & Cable tray, etc., complete	1.50%			
	iii. Light Fixtures, Fans, etc., complete	2.00%			
	b. Water Supply & Sewerage System		**3.50%**		
	i. Water Supply System, etc., complete	1.00%			
	ii. Sanitary & Sewerage System, etc., complete	1.50%		25.00%	
	iii. Fittings & Fixtures, etc., complete	1.00%			
	c. Fire Protection System		**3.50%**		
	i. Wet Riser System/Down Comer System, etc., complete	1.00%			
	ii. Automatic Sprinkler System, etc., complete	1.00%			
	iii. Fire Extinguishers, etc., complete	0.50%			
	iv. Fire Alarm System (manual/Automatic) etc., complete	0.50%			
	v. Other Works, etc., complete	0.50%			
	d. Lifts & Escalators		**3.00%**		
	i. On order	1.00%			

	ii. Material received at site	2.00%			
	iii. On installation	1.00%			
	f. ELV Work		**2.50%**		
	i.CCTV	1.00%			
	ii.Access Control System Work	0.25%			
	iii.Conference Room AV System	0.25%			
	iv. EPABX System Work	0.25%			
	v.Networking System Work	0.75%			
	HVAC Work	4.00%	**4.00%**		
	g. Completion and Handling Over		**2.00%**		
	i. Testing	0.50%			
	ii. Commissioning	0.50%			
	iii. Handing over	1.00%			
	Total				**100.00%**

Annexure - 5

Design, Planning, Engineering and Construction on EPC Basis of Multi Level Car parking G+8 Building with support services & allied facilities by incorporating stipulated specifications, all services including handling over complete as per scope of work and directions of Engineer in charge.

	TOTAL COST AS PER PERCENTAGE BREAKUP				
Sl.	**Description of Component**	**Break up of total % payable cost for the sub component**			**% of Total payable cost- for the component**
No.			**Item**	**Sub**	
A.	**Planning, Design & Engineering Works -** Investigation, planning, Designing and obtaining approvals for works				2.00%
	a. On approval of Engineer-in-charge, the inception report & detailed survey and architectural drawings ready for submission for approval of local bodies and statutory authorities			0.30%	
	b. On approval of structure design by the proof consultant and Engineer-in-charge			0.30%	
	c. On obtaining all required approvals from statutory authorities and local bodies for commencement of construction as per requirements and directions of Engineer-in-charge.			0.30%	
	d. On submission of all Good for Construction drawings as per requirements & directions of Engineer-in-charge:			0.70%	
	i. Architectural drawings		0.30%		
	ii. Structural design & Drawings		0.30%		
	iii. Design & Drawings for Services		0.10%		
	e. On completion of construction			0.40%	
	i. On Completion of Foundation work		0.05%		
	ii. On Completion of 100% Super structure		0.05%		
	iii. On Completion of work		0.10%		

	iv. On obtaining required statutory approvals after completion of works		0.10%		
	v. On handing over to Client		0.10%		
B.	**CONSTRUCTION**				98.00%
	I. Civil Works			77.25%	
	i. Foundation Work upto plinth level, etc., complete		**14.50 %**		
	a. Excavation of foundation	1.00%			
	b. RCC Work in Foundation	11.00%			
	c. RCC work in column/Shear wall/Slab & Beam up-to Plinth	1.50%			
	d. Completion of brickwork below plinth, under floor filling, antitermite treatment, PCC & DPC etc.	1.00%			
	ii. Structure Work RCC frame of the entire building from plinth level to terrace, stair roof, overhead tank, Lift machine room, etc., complete		**34.10 %**		
	a. Ground Floor		3.75%		
	1. column upto beam bottom	1.25%			
	2. RCC in Beam & slab	2.50%			
	b. First Floor		3.75%		
	1. column upto beam bottom	1.25%			
	2. RCC in Beam & slab	2.50%			
	c. second Floor		3.75%		
	1. column upto beam bottom	1.25%			
	2. RCC in Beam & slab	2.50%			
	d. third Floor		3.75%		
	1. column upto beam bottom	1.25%			
	2. RCC in Beam & slab	2.50%			
	e. fourth Floor		3.75%		
	1. column upto beam bottom	1.25%			
	2. RCC in Beam & slab	2.50%			
	f. Fifth Floor		3.75%		
	1. column upto beam bottom	1.25%			
	2. RCC in Beam & slab	2.50%			
	g. Sixth Floor		3.75%		
	1. column upto beam bottom	1.25%			
	2. RCC in Beam & slab	2.50%			
	h. Seventh Floor		3.75%		
	1. column upto beam bottom	1.25%			
	2. RCC in Beam & slab	2.50%			
	I. Eight Floor		3.75%		
	1. column upto beam bottom	1.25%			
	2. RCC in Beam & slab	2.50%			
	j. Mumty, Machine room/OHT		0.35%		
	1. column upto beam bottom	0.10%			
	2. RCC in Beam & slab	0.25%			
	iii. Brickwork & partitioning work		**4.60%**		
	a. Ground Floor	0.50%			
	b. First Floor	0.50%			
	c. Second Floor	0.50%			

	d. Third Floor	0.50%			
	e. Fourth Floor	0.50%			
	f. Fifth Floor	0.50%			
	g. Sixth Floor	0.50%			
	h. Seventh Floor	0.50%			
	I. Eight Floor	0.50%			
	j. Paprapet & Mumty/Machine room/Terrace	0.10%			
	iv. Flooring, Skirting, Dado, Wall lining work, waterproofing etc., complete		**6.95%**		
	a. Ground Floor	0.75%			
	b. First Floor	0.75%			
	c. Second Floor	0.75%			
	d. Third Floor	0.75%			
	e. Fourth Floor	0.75%			
	f. Fifth Floor	0.75%			
	g. Sixth Floor	0.75%			
	h. Seventh Floor	0.75%			
	I. Eight Floor	0.75%			
	c. Paprapet & Mumty/Machine room/Terrace	0.20%			
	v. Doors & Windows, etc., complete		**4.60%**		
	a. Ground Floor	0.50%			
	b. First Floor	0.50%			
	c. Second Floor	0.50%			
	d. Third Floor	0.50%			
	e. Fourth Floor	0.50%			
	f. Fifth Floor	0.50%			
	g. Sixth Floor	0.50%			
	h. Seventh Floor	0.50%			
	I. Eight Floor	0.50%			
	c. Paprapet & Mumty/Machine room/Terrace	0.10%			
	vi. Internal Finishes(Internal Plastering & painting works)		**4.50%**		
	vii. False Ceiling Work, etc., complete		**2.00%**		
	viii. Finishing Works– External Plastering & painting works, etc., complete		**4.00%**		
	ix.Other Works, viz. Steel work, railing, panelling, glazing etc., complete		**1.00%**		
	x.Other Misc. Works, viz. plinth protection, apron drain, brick edging etc., complete		**1.00%**		
	II. Services				
	a. Electrical Works		**6.50%**		
	i. Internal conduiting, wiring, electrical works, LT Panels & Cabling, Rising main &MCBs, DBs, RCBOs& other related works, etc, complete	3.00%		20.75%	
	ii. Earthing & Lightning Protection System & Cable tray, etc., complete	1.50%			
	iii. Light Fixtures, Fans, etc., complete	2.00%			

	b. Water Supply & Sewerage System		**2.25%**		
	i. Water Supply System, etc., complete	1.00%			
	ii. Sanitary & Sewerage System, etc., complete	1.00%			
	iii. Fittings & Fixtures, etc., complete	0.25%			
	c. Fire Protection System		**4.50%**		
	i. Wet Riser System/Down Comer System, etc., complete	1.50%			
	ii. Automatic Sprinkler System, etc., complete	1.50%			
	iii. Fire Extinguishers, etc., complete	0.50%			
	iv. Fire Alarm System (manual/Automatic) etc., complete	0.50%			
	v. Other Works, etc., complete	0.50%			
	d. Lifts & Escalators		**2.00%**		
	i. On order	0.50%			
	ii. Material received at site	1.00%			
	iii. On installation	0.50%			
	f. ELV Work		**3.50%**		
	i.CCTV	1.00%			
	ii.Access Control System Work	--			
	iii.Conference Room AV System	--			
	iv. EPABX System Work	0.50%			
	v.EV charging System Work	2.00%			
	g. Completion and Handling Over		**2.00%**		
	i. Testing	0.50%			
	ii. Commissioning	0.50%			
	iii. Handing over	1.00%			
	Total				**100.00%**

Annexure - 6

Design, Planning, Engineering and Construction on EPC Basis of Boys Hostel G+4 Building with support services & allied facilities by incorporating stipulated specifications, all services including handling over complete as per scope of work and directions of Engineer in charge.

	TOTAL COST AS PER PERCENTAGE BREAKUP				
Sl.	**Description of Component**	**Break up of total % payable cost for the sub component**			**% of Total payable cost- for the component**
No.			**Item**	**Sub**	
A.	**Planning, Design & Engineering Works -** Investigation, planning, Designing and obtaining approvals for works				2.00%
	a. On approval of Engineer-in-charge, the inception report & detailed survey and architectural drawings ready for submission for approval of local bodies and statutory authorities			0.30%	
	b. On approval of structure design by the proof consultant and Engineer-in-charge			0.30%	

	c. On obtaining all required approvals from statutory authorities and local bodies for commencement of construction as per requirements and directions of Engineer-in-charge.			0.30%	
	d. On submission of all Good for Construction drawings as per requirements & directions of Engineer-in-charge:			0.70%	
	i. Architectural drawings		0.30%		
	ii. Structural design & Drawings		0.30%		
	iii. Design & Drawings for Services		0.10%		
	e. On completion of construction			0.40%	
	i. On Completion of Foundation work		0.05%		
	ii. On Completion of 100% Super structure		0.05%		
	iii. On Completion of work		0.10%		
	iv. On obtaining required statutory approvals after completion of works		0.10%		
	v. On handing over to Client		0.10%		
B.	**CONSTRUCTION**				98.00%
	I. Civil Works			80.50%	
	i. Foundation Work upto plinth level, etc., complete		**16.00 %**		
	a. Excavation of foundation	1.00%			
	b. RCC Work in Foundation	10.00%			
	c. RCC work in column/Shear wall/Slab & Beam up-to Plinth	2.50%			
	d. Completion of brickwork below plinth, under floor filling, antitermite treatment, PCC & DPC etc.	2.50%			
	ii. Structure Work RCC frame of the entire building from plinth level to terrace, stair roof, overhead tank, Lift machine room, etc., complete		**30.50 %**		
	a. Ground Floor		6.00%		
	1. column upto beam bottom	2.00%			
	2. RCC in Beam & slab	4.00%			
	b. First Floor		6.00%		
	1. column upto beam bottom	2.00%			
	2. RCC in Beam & slab	4.00%			
	c. second Floor		6.00%		
	1. column upto beam bottom	2.00%			
	2. RCC in Beam & slab	4.00%			
	d. third Floor		6.00%		
	1. column upto beam bottom	2.00%			
	2. RCC in Beam & slab	4.00%			
	e. fourth Floor		6.00%		
	1. column upto beam bottom	2.00%			
	2. RCC in Beam & slab	4.00%			
	f. Mumty, Machine room/OHT		0.50%		
	1. column upto beam bottom	0.25%			
	2. RCC in Beam & slab	0.25%			
	iii. Brickwork & partitioning work		**7.75%**		
	a. Ground Floor	1.50%			

	b. First Floor	1.50%			
	c. Second Floor	1.50%			
	d. Third Floor	1.50%			
	e. Fourth Floor	1.50%			
	c. Paprapet & Mumty/Machine room/Terrace	0.25%			
	iv. Flooring, Skirting, Dado, Wall lining work, waterproofing etc., complete		**7.75%**		
	a. Ground Floor	1.50%			
	b. First Floor	1.50%			
	c. Second Floor	1.50%			
	d. Third Floor	1.50%			
	e. Fourth Floor	1.50%			
	c. Paprapet & Mumty/Machine room/Terrace	0.25%			
	v. Doors & Windows, etc., complete		**5.00%**		
	a. Ground Floor	1.00%			
	b. First Floor	1.00%			
	c. Second Floor	1.00%			
	d. Third Floor	1.00%			
	e. Fourth Floor	1.00%			
	c. Paprapet & Mumty/Machine room/Terrace	0.00%			
	vi. Internal Finishes(Internal Plastering & painting works)		**4.50%**		
	vii. False Ceiling Work, etc., complete		**1.00%**		
	viii. Finishing Works– External Plastering & painting works, etc., complete		**4.00%**		
	ix.Other Works, viz. Steel work, railing, panelling, glazing etc., complete		**2.00%**		
	x.Other Misc. Works, viz. plinth protection, apron drain, brick edging etc., complete		**2.00%**		
	II. Services				
	a. Electrical Works		**6.50%**		
	i. Internal conduiting, wiring, electrical works, LT Panels & Cabling, Rising main &MCBs, DBs, RCBOs& other related works, etc, complete	3.00%			
	ii. Earthing & Lightning Protection System & Cable tray, etc., complete	1.50%			
	iii. Light Fixtures, Fans, etc., complete	2.00%			
	b. Water Supply & Sewerage System		**4.00%**	17.50%	
	i. Water Supply System, etc., complete	1.50%			
	ii. Sanitary & Sewerage System, etc., complete	1.50%			
	iii. Fittings & Fixtures, etc., complete	1.00%			
	c. Fire Protection System		**1.50%**		
	i. Wet Riser System/Down Comer System, etc., complete	--			
	ii. Automatic Sprinkler System, etc., complete	---			
	iii. Fire Extinguishers, etc., complete	0.50%			

	iv. Fire Alarm System (manual/Automatic) etc., complete	0.50%			
	v. Other Works, etc., complete	0.50%			
	d. Lifts & Escalators		**2.00%**		
	i. On order	0.50%			
	ii. Material received at site	1.00%			
	iii. On installation	0.50%			
	f. ELV Work		**1.50%**		
	i.CCTV	1.00%			
	ii.Access Control System Work	--			
	iii.Conference Room AV System	--			
	iv. EPABX System Work	0.50%			
	v.Networking System Work	--			
	g. Completion and Handling Over		**2.00%**		
	i. Testing	0.50%			
	ii. Commissioning	0.50%			
	iii. Handing over	1.00%			
	Total				**100.00%**

Annexure - 7

Design, Planning, Engineering and Construction on EPC Basis of Girls Hostel G+4 Building with support services & allied facilities by incorporating stipulated specifications, all services including handling over complete as per scope of work and directions of Engineer in charge.

	TOTAL COST AS PER PERCENTAGE BREAKUP				
Sl.	**Description of Component**	**Break up of total % payable cost for the sub component**			**% of Total payable cost- for the component**
No.			**Item**	**Sub**	
A.	**Planning, Design & Engineering Works -** Investigation, planning, Designing and obtaining approvals for works				2.00%
	a. On approval of Engineer-in-charge, the inception report & detailed survey and architectural drawings ready for submission for approval of local bodies and statutory authorities			0.30%	
	b. On approval of structure design by the proof consultant and Engineer-in-charge			0.30%	
	c. On obtaining all required approvals from statutory authorities and local bodies for commencement of construction as per requirements and directions of Engineer-in-charge.			0.30%	
	d. On submission of all Good for Construction drawings as per requirements & directions of Engineer-in-charge:			0.70%	
	i. Architectural drawings		0.30%		
	ii. Structural design & Drawings		0.30%		
	iii. Design & Drawings for Services		0.10%		
	e. On completion of construction			0.40%	
	i. On Completion of Foundation work		0.05%		

	ii. On Completion of 100% Super structure		0.05%		
	iii. On Completion of work		0.10%		
	iv. On obtaining required statutory approvals after completion of works		0.10%		
	v. On handing over to Client		0.10%		
B.	**CONSTRUCTION**				98.00%
	I. Civil Works			80.50%	
	i. Foundation Work upto plinth level, etc., complete		**16.00 %**		
	a. Excavation of foundation	1.00%			
	b. RCC Work in Foundation	10.00%			
	c. RCC work in column/Shear wall/Slab & Beam up-to Plinth	2.50%			
	d. Completion of brickwork below plinth, under floor filling, antitermite treatment, PCC & DPC etc.	2.50%			
	ii. Structure Work RCC frame of the entire building from plinth level to terrace, stair roof, overhead tank, Lift machine room, etc., complete		**30.50 %**		
	a. Ground Floor		6.00%		
	1. column upto beam bottom	2.00%			
	2. RCC in Beam & slab	4.00%			
	b. First Floor		6.00%		
	1. column upto beam bottom	2.00%			
	2. RCC in Beam & slab	4.00%			
	c. second Floor		6.00%		
	1. column upto beam bottom	2.00%			
	2. RCC in Beam & slab	4.00%			
	d. third Floor		6.00%		
	1. column upto beam bottom	2.00%			
	2. RCC in Beam & slab	4.00%			
	e. fourth Floor		6.00%		
	1. column upto beam bottom	2.00%			
	2. RCC in Beam & slab	4.00%			
	f. Mumty, Machine room/OHT		0.50%		
	1. column upto beam bottom	0.25%			
	2. RCC in Beam & slab	0.25%			
	iii. Brickwork & partitioning work		**7.75%**		
	a. Ground Floor	1.50%			
	b. First Floor	1.50%			
	c. Second Floor	1.50%			
	d. Third Floor	1.50%			
	e. Fourth Floor	1.50%			
	c. Paprapet & Mumty/Machine room/Terrace	0.25%			
	iv. Flooring, Skirting, Dado, Wall lining work, waterproofing etc., complete		**7.75%**		
	a. Ground Floor	1.50%			
	b. First Floor	1.50%			
	c. Second Floor	1.50%			

	d. Third Floor	1.50%			
	e. Fourth Floor	1.50%			
	c. Paprapet & Mumty/Machine room/Terrace	0.25%			
	v. Doors & Windows, etc., complete		**5.00%**		
	a. Ground Floor	1.00%			
	b. First Floor	1.00%			
	c. Second Floor	1.00%			
	d. Third Floor	1.00%			
	e. Fourth Floor	1.00%			
	c. Paprapet & Mumty/Machine room/Terrace	0.00%			
	vi. Internal Finishes(Internal Plastering & painting works)		**4.50%**		
	vii. False Ceiling Work, etc., complete		**1.00%**		
	viii. Finishing Works– External Plastering & painting works, etc., complete		**4.00%**		
	ix.Other Works, viz. Steel work, railing, panelling, glazing etc., complete		**2.00%**		
	x.Other Misc. Works, viz. plinth protection, apron drain, brick edging etc., complete		**2.00%**		
	II. Services				
	a. Electrical Works		**6.50%**		
	i. Internal conduiting, wiring, electrical works, LT Panels & Cabling, Rising main &MCBs, DBs, RCBOs& other related works, etc, complete	3.00%			
	ii. Earthing & Lightning Protection System & Cable tray, etc., complete	1.50%			
	iii. Light Fixtures, Fans, etc., complete	2.00%			
	b. Water Supply & Sewerage System		**4.00%**		
	i. Water Supply System, etc., complete	1.50%			
	ii. Sanitary & Sewerage System, etc., complete	1.50%			
	iii. Fittings & Fixtures, etc., complete	1.00%			
	c. Fire Protection System		**1.50%**		
	i. Wet Riser System/Down Comer System, etc., complete	--		17.50%	
	ii. Automatic Sprinkler System, etc., complete	---			
	iii. Fire Extinguishers, etc., complete	0.50%			
	iv. Fire Alarm System (manual/Automatic) etc., complete	0.50%			
	v. Other Works, etc., complete	0.50%			
	d. Lifts & Escalators		**2.00%**		
	i. On order	0.50%			
	ii. Material received at site	1.00%			
	iii. On installation	0.50%			
	f. ELV Work		**1.50%**		
	i.CCTV	1.00%			
	ii.Access Control System Work	--			
	iii.Conference Room AV System	--			
	iv. EPABX System Work	0.50%			

	v.Networking System Work	--			
	g. Completion and Handling Over		**2.00%**		
	i. Testing	0.50%			
	ii. Commissioning	0.50%			
	iii. Handing over	1.00%			
	Total				**100.00%**

Annexure - 8

Design, Planning, Engineering and Construction on EPC Basis of Dining Block G Building with support services & allied facilities by incorporating stipulated specifications, all services including handling over complete as per scope of work and directions of Engineer in charge.

	TOTAL COST AS PER PERCENTAGE BREAKUP				
Sl. No.	**Description of Component**	**Break up of total % payable cost for the sub component**			**% of Total payable cost- for the component**
			Item	**Sub**	
A.	**Planning, Design & Engineering Works -** Investigation, planning, Designing and obtaining approvals for works				2.00%
	a. On approval of Engineer-in-charge, the inception report & detailed survey and architectural drawings ready for submission for approval of local bodies and statutory authorities			0.30%	
	b. On approval of structure design by the proof consultant and Engineer-in-charge			0.30%	
	c. On obtaining all required approvals from statutory authorities and local bodies for commencement of construction as per requirements and directions of Engineer-in-charge.			0.30%	
	d. On submission of all Good for Construction drawings as per requirements & directions of Engineer-in-charge:			0.70%	
	i. Architectural drawings		0.30%		
	ii. Structural design & Drawings		0.30%		
	iii. Design & Drawings for Services		0.10%		
	e. On completion of construction			0.40%	
	i. On Completion of Foundation work		0.05%		
	ii. On Completion of 100% Super structure		0.05%		
	iii. On Completion of work		0.10%		
	iv. On obtaining required statutory approvals after completion of works		0.10%		
	v. On handing over to Client		0.10%		
B.	**CONSTRUCTION**				98.00%
	I. Civil Works			78.00%	
	i. Foundation Work upto plinth level, etc., complete		**18.50%**		
	a. Excavation of foundation	2.00%			

	b. RCC Work in Foundation	12.50%			
	c. RCC work in column/Shear wall/Slab & Beam up-to Plinth	2.50%			
	d. Completion of brickwork below plinth, under floor filling, antitermite treatment, PCC & DPC etc.	1.50%			
	ii. Structure Work RCC frame of the entire building from plinth level to terrace, stair roof, overhead tank, Lift machine room, etc., complete		**26.50%**		
	a. Ground Floor		26.00%		
	1. column upto beam bottom	6.00%			
	2. RCC in slab	20.00%			
	b. Terrace		0.50%		
	1. columns	0.25%			
	2. RCC works ect., completed	0.25%			
	iii. Brickwork & partitioning work		**9.00%**		
	a. Ground Floor	7.50%			
	b. Terrace Floor	1.50%			
	iv. Flooring, Skirting, Dado, Wall lining work, water proofing etc., complete		**8.00%**		
	a. Ground Floor	6.00%			
	b. Terrace Floor	2.00%			
	v. Doors & Windows, etc., complete		**6.00%**		
	a. Ground Floor	5.50%			
	b. Terrace Floor	0.50%			
	vi. Internal Finishes(Internal Plastering & painting works)		**5.50%**		
	vii. False Ceiling Work, etc., complete		-------		
	viii. Finishing Works– External Plastering & painting works, etc., complete		**3.00%**		
	ix.Other Works, viz. Steel work, railing, panelling, etc., complete		**1.00%**		
	x.Other Misc. Works, viz. plinth protection, apron drain, brick edging etc., complete		**0.50%**		
	II. Services				
	a. Electrical Works		**10.50%**		
	i. Internal conduiting, wiring, electrical works, LT Panels & Cabling, Rising main &MCBs, DBs, RCBOs& other related works, etc, complete	4.50%			
	ii. Earthing & Lightning Protection System & Cable tray, etc., complete	2.50%			
	iii. Light Fixtures, Fans, etc., complete	3.50%		20.00%	
	b. Water Supply & Sewerage System		**7.00%**		
	i. Water Supply System, etc., complete	3.00%			
	ii. Sanitary & Sewerage System, etc., complete	2.00%			
	iii. Fittings & Fixtures, etc., complete	2.00%			
	c. Fire Protection System		**0.50%**		

	i. Wet Riser System/Down Comer System, etc., complete	----			
	ii. Automatic Sprinkler System, etc., complete	----			
	iii. Fire Extinguishers, etc., complete	0.25%			
	iv. Other Works, etc., complete	0.25%			
	d. Lifts & Escalators		**0.00%**		
	i. On order	-----			
	ii. Material received at site	-----			
	iii. On installation	-----			
	e. Completion and Handling Over		**2.00%**		
	i. Testing	0.50%			
	ii. Commissioning	0.50%			
	iii. Handing over	1.00%			
	Total				**100.00%**

Annexure - 9

Design, Planning, Engineering and Construction on EPC Basis of Services Building with support services & allied facilities by incorporating stipulated specifications, all services including handling over complete as per scope of work and directions of Engineer in charge.

	TOTAL COST AS PER PERCENTAGE BREAKUP				
Sl.	**Description of Component**	**Break up of total % payable cost for the sub component**			**% of Total payable cost- for the component**
No.			**Item**	**Sub**	
A.	**Planning, Design & Engineering Works -** Investigation, planning, Designing and obtaining approvals for works				2.00%
	a. On approval of Engineer-in-charge, the inception report & detailed survey and architectural drawings ready for submission for approval of local bodies and statutory authorities			0.30%	
	b. On approval of structure design by the proof consultant and Engineer-in-charge			0.30%	
	c. On obtaining all required approvals from statutory authorities and local bodies for commencement of construction as per requirements and directions of Engineer-in-charge.			0.30%	
	d. On submission of all Good for Construction drawings as per requirements & directions of Engineer-in-charge:			0.70%	
	i. Architectural drawings		0.30%		
	ii. Structural design & Drawings		0.30%		
	iii. Design & Drawings for Services		0.10%		
	e. On completion of construction			0.40%	
	i. On Completion of Foundation work		0.05%		
	ii. On Completion of 100% Super structure		0.05%		

	iii. On Completion of work		0.10%		
	iv. On obtaining required statutory approvals after completion of works		0.10%		
	v. On handing over to Client		0.10%		
B.	**CONSTRUCTION**				
	I. Civil Works				
	i. Foundation Work upto plinth level, etc., complete		**18.50%**		
	a. Excavation of foundation	2.00%			
	b. RCC Work in Foundation	12.50%			
	c. RCC work in column/Shear wall/Slab & Beam up-to Plinth	2.50%			
	d. Completion of brickwork below plinth, under floor filling, antitermite treatment, PCC & DPC etc.	1.50%			
	ii. Structure Work RCC frame of the entire building from plinth level to terrace, stair roof, overhead tank, Lift machine room, etc., complete		**26.50%**		
	a. Ground Floor		26.00%		
	1. column upto beam bottom	6.00%			
	2. RCC in slab	20.00%			
	b. Terrace		0.50%		
	1. columns	0.25%			
	2. RCC works ect., completed	0.25%		78.00%	
	iii. Brickwork & partitioning work		**9.00%**		
	a. Ground Floor	7.50%			98.00%
	b. Terrace Floor	1.50%			
	iv. Flooring, Skirting, Dado, Wall lining work, water proofing etc., complete		**8.00%**		
	a. Ground Floor	6.00%			
	b. Terrace Floor	2.00%			
	v. Doors & Windows, etc., complete		**6.00%**		
	a. Ground Floor	5.50%			
	b. Terrace Floor	0.50%			
	vi. Internal Finishes(Internal Plastering & painting works)		**5.50%**		
	vii. False Ceiling Work, etc., complete		-------		
	viii. Finishing Works– External Plastering & painting works, etc., complete		**3.00%**		
	ix.Other Works, viz. Steel work, railing, panelling, etc., complete		**1.00%**		
	x.Other Misc. Works, viz. plinth protection, apron drain, brick edging etc., complete		**0.50%**		
	II. Services				
	a. Electrical Works		**10.50%**		
	i. Internal conduiting, wiring, electrical works, LT Panels & Cabling, Rising main &MCBs, DBs, RCBOs& other related works, etc, complete	4.50%		20.00%	

	ii. Earthing & Lightning Protection System & Cable tray, etc., complete	2.50%			
	iii. Light Fixtures, Fans, etc., complete	3.50%			
	b. Water Supply & Sewerage System		**7.00%**		
	i. Water Supply System, etc., complete	3.00%			
	ii. Sanitary & Sewerage System, etc., complete	2.00%			
	iii. Fittings & Fixtures, etc., complete	2.00%			
	c. Fire Protection System		**0.50%**		
	i. Wet Riser System/Down Comer System, etc., complete	----			
	ii. Automatic Sprinkler System, etc., complete	----			
	iii. Fire Extinguishers, etc., complete	0.25%			
	iv. Other Works, etc., complete	0.25%			
	d. Lifts & Escalators		**0.00%**		
	i. On order	-----			
	ii. Material received at site	-----			
	iii. On installation	-----			
	e. Completion and Handling Over		**2.00%**		
	i. Testing	0.50%			
	ii. Commissioning	0.50%			
	iii. Handing over	1.00%			
	Total				**100.00%**

Annexure - 10

Design, Planning, Engineering and Construction on EPC Basis of PITCHES and MOAT Building with support services & allied facilities by incorporating stipulated specifications, all services including handling over complete as per scope of work and directions of Engineer in charge.

	TOTAL COST AS PER PERCENTAGE BREAKUP				
Sl.	**Description of Component**	**Break up of total % payable cost for the sub component**			**% of Total payable cost- for the component**
No.			**Item**	**Sub**	
A.	**Planning, Design & Engineering Works -** Investigation, planning, Designing and obtaining approvals for works				2.00%
	a. On approval of Engineer-in-charge, the inception report & detailed survey and architectural drawings ready for submission for approval of local bodies and statutory authorities			0.30%	
	b. On approval of structure design by the proof consultant and Engineer-in-charge			0.30%	

	c. On obtaining all required approvals from statutory authorities and local bodies for commencement of construction as per requirements and directions of Engineer-in-charge.			0.30%	
	d. On submission of all Good for Construction drawings as per requirements & directions of Engineer-in-charge:			0.70%	
	i. Architectural drawings		0.30%		
	ii. Structural design & Drawings		0.30%		
	iii. Design & Drawings for Services		0.10%		
	e. On completion of construction			0.40%	
	i. On Completion of Foundation work		0.05%		
	ii. On Completion of 100% Super structure		0.05%		
	iii. On Completion of work		0.10%		
	iv. On obtaining required statutory approvals after completion of works		0.10%		
	v. On handing over to Client		0.10%		
B.	**PITCHES & MOAT CONSTRUCTION**		**96.00%**	98.00%	98.00%
a	Completion of Sub Base Works in all respect.	34.00%			
b.	Completion of Drainage System in all respect.	15.00%			
c.	Completion of Irrigation System in all respect.	8.00%			
d.	Completion of Grassing in all respect.	14.00%			
e.	Completion of Main & Practice Pitches in all respect.	5.00%			
f.	After Handover to client all test certificates, manuals & Training	20.00%			
G.	**Completion and Handling Over**		**2.00%**		
	i. Testing	0.50%			
	ii. Commissioning	0.50%			
	iii. Handing over	1.00%			
	Total				**100.00%**

Annexure - 11

Design, Planning, Engineering and Construction on EPC Basis of External Development Building with support services & allied facilities by incorporating stipulated specifications, all services including handling over complete as per scope of work and directions of Engineer in charge.

	TOTAL COST AS PER PERCENTAGE BREAKUP				
Sl.	**Description of Component**	**Break up of total % payable cost for the sub component**			**% of Total payable cost- for the component**
No.			**Item**	**Sub**	
A.	**Planning, Design & Engineering Works -** Investigation, planning, Designing and obtaining approvals for works				2.00%
	a. On approval of Engineer-in-charge, the inception report & detailed survey and architectural drawings ready for submission for approval of local bodies and statutory authorities			0.30%	
	b. On approval of structure design by the proof consultant and Engineer-in-charge			0.30%	
	c. On obtaining all required approvals from statutory authorities and local bodies for commencement of construction as per requirements and directions of Engineer-in-charge.			0.30%	
	d. On submission of all Good for Construction drawings as per requirements & directions of Engineer-in-charge:			0.70%	
	i. Architectural drawings		0.30%		
	ii. Structural design & Drawings		0.30%		
	iii. Design & Drawings for Services		0.10%		
	e. On completion of construction			0.40%	
	i. On Completion of Foundation work		0.05%		
	ii. On Completion of 100% Super structure		0.05%		
	iii. On Completion of work		0.10%		
	iv. On obtaining required statutory approvals after completion of works		0.10%		
	v. On handing over to Client		0.10%		
B.	**EXTERNAL DEVELOPMENT**		**96.00%**	98.00%	98.00%
i	GATE WITH GUARD ROOM (7 NOS)	12.00%			
ii	UG TANK	5.00%			
iii	ROAD WORK	40.00%			
iv	PATHWAY	5.00%			
v	PARKING	5.00%			
vi	HORTICULTURE AND LANDSCAPING	4.00%			
vii	BOUNDRY WALL	15.00%			
viii	DRAIN	10.00%			
G.	**Completion and Handling Over**		**2.00%**		
	i. Testing	0.50%			

	ii. Commissioning	0.50%			
	iii. Handing over	1.00%			
	Total				**100.00%**

Annexure - 12

Design, Planning, Engineering and Construction on EPC Basis of Internal &External Plumbing and Fire Fighting Development Building with support services & allied facilities by incorporating stipulated specifications, all services including handling over complete as per scope of work and directions of Engineer in charge.

	TOTAL COST AS PER PERCENTAGE BREAKUP				
Sl. No.	**Description of Component**	**Break up of total % payable cost for the sub component**			**% of Total payable cost-for the component**
			Item	**Sub**	
A.	**Planning, Design & Engineering Works -** Investigation, planning, Designing and obtaining approvals for works				2.00%
	a. On approval of Engineer-in-charge, the inception report & detailed survey and architectural drawings ready for submission for approval of local bodies and statutory authorities			0.30%	
	b. On approval of structure design by the proof consultant and Engineer-in-charge			0.30%	
	c. On obtaining all required approvals from statutory authorities and local bodies for commencement of construction as per requirements and directions of Engineer-in-charge.			0.30%	
	d. On submission of all Good for Construction drawings as per requirements & directions of Engineer-in-charge:			0.70%	
	i. Architectural drawings		0.30%		
	ii. Structural design & Drawings		0.30%		
	iii. Design & Drawings for Services		0.10%		
	e. On completion of construction			0.40%	
	i. On Completion of Foundation work		0.05%		
	ii. On Completion of 100% Super structure		0.05%		
	iii. On Completion of work		0.10%		
	iv. On obtaining required statutory approvals after completion of works		0.10%		
	v. On handing over to Client		0.10%		
B.	**EXTERNAL PLUMBING & FIRE FIGHTING**		**96.00%**	98.00%	98.00%
i	Internal Plumbing Works(Stadium)	11.00%			
ii	Internal Plumbing Works(Boys & Girls Hostel, Hotel & Dining Hall)	5.00%			
iii	External Sewerage Works	5.00%			
iv	External Water Supply System(Domestic & Irrigation)	4.00%			
v	Storm Water Drains	6.00%			
vi	Rain Water Harvesting	13.00%			
vii	Pumps & Water Treatment	5.80%			
viii	Sewage Treatment Plant	23.00%			
ix	Effluent Treatment Plant	1.00%			

x	Hot Water System(Stadium)	0.20%			
xi	Hot Water System(Boys & Girls Hostel, Hotel & Dining Hall)	3.00%			
xii	Fire Fighting System (Stadium)	16.00%			
xiii	Fire Fighting System(Boys & Girls Hostel & Hotel)	3.00%			
G.	**Completion and Handling Over**		**2.00%**		
	i. Testing	0.50%			
	ii. Commissioning	0.50%			
	iii. Handing over	1.00%			
	Total				**100.00%**

Annexure - 12

Design, Planning, Engineering and Construction on EPC Basis of Internal &External Plumbing and Fire Fighting Development Building with support services & allied facilities by incorporating stipulated specifications, all services including handling over complete as per scope of work and directions of Engineer in charge.

	TOTAL COST AS PER PERCENTAGE BREAKUP				
Sl.	**Description of Component**	**Break up of total % payable cost for the sub component**			**% of Total payable cost-for the component**
No.			**Item**	**Sub**	
A.	**Planning, Design & Engineering Works -** Investigation, planning, Designing and obtaining approvals for works				2.00%
	a. On approval of Engineer-in-charge, the inception report & detailed survey and architectural drawings ready for submission for approval of local bodies and statutory authorities			0.30%	
	b. On approval of structure design by the proof consultant and Engineer-in-charge			0.30%	
	c. On obtaining all required approvals from statutory authorities and local bodies for commencement of construction as per requirements and directions of Engineer-in-charge.			0.30%	
	d. On submission of all Good for Construction drawings as per requirements & directions of Engineer-in-charge:			0.70%	
	i. Architectural drawings		0.30%		
	ii. Structural design & Drawings		0.30%		
	iii. Design & Drawings for Services		0.10%		
	e. On completion of construction			0.40%	
	i. On Completion of Foundation work		0.05%		
	ii. On Completion of 100% Super structure		0.05%		
	iii. On Completion of work		0.10%		
	iv. On obtaining required statutory approvals after completion of works		0.10%		
	v. On handing over to Client		0.10%		
B.	**EXTERNAL PLUMBING & FIRE FIGHTING**		**96.00%**	98.00%	98.00%
i	Internal Plumbing Works(Stadium)	11.00%			
ii	Internal Plumbing Works(Boys & Girls Hostel, Hotel & Dining Hall)	5.00%			

iii	External Sewerage Works	5.00%			
iv	External Water Supply System(Domestic & Irrigation)	4.00%			
v	Storm Water Drains	6.00%			
vi	Rain Water Harvesting	13.00%			
vii	Pumps & Water Treatment	5.80%			
viii	Sewage Treatment Plant	23.00%			
ix	Effluent Treatment Plant	1.00%			
x	Hot Water System(Stadium)	0.20%			
xi	Hot Water System(Boys & Girls Hostel, Hotel & Dining Hall)	3.00%			
xii	Fire Fighting System (Stadium)	16.00%			
xiii	Fire Fighting System(Boys & Girls Hostel & Hotel)	3.00%			
G.	**Completion and Handling Over**		**2.00%**		
	i. Testing	0.50%			
	ii. Commissioning	0.50%			
	iii. Handing over	1.00%			
	Total				**100.00%**

Annexure - 13

Design, Planning, Engineering and Construction on EPC Basis of External Electrical work ' with support services & allied facilities by incorporating stipulated specifications, all services including handling over complete as per scope of work and directions of Engineer in charge.

	TOTAL COST AS PER PERCENTAGE BREAKUP				
Sl.	**Description of Component**	**Break up of total % payable cost for the sub component**			**% of Total payable cost-for the component**
No.			**Item**	**Sub**	
A.	**Planning, Design & Engineering Works -** Investigation, planning, Designing and obtaining approvals for works				2.00%
	a. On approval of Engineer-in-charge, the inception report & detailed survey and architectural drawings ready for submission for approval of local bodies and statutory authorities			0.30%	
	b. On approval of structure design by the proof consultant and Engineer-in-charge			0.30%	
	c. On obtaining all required approvals from statutory authorities and local bodies for commencement of construction as per requirements and directions of Engineer-in-charge.			0.30%	
	d. On submission of all Good for Construction drawings as per requirements & directions of Engineer-in-charge:			0.70%	
	i. Architectural drawings		0.30%		
	ii. Structural design & Drawings		0.30%		

	iii. Design & Drawings for Services		0.10%		
	e. On completion of construction				
	i. On Completion of Foundation work		0.05%		
	ii. On Completion of 100% Super structure		0.05%		
	iii. On Completion of work		0.10%	0.40%	
	iv. On obtaining required statutory approvals after completion of works		0.10%		
	v. On handing over to Client		0.10%		
B.	**EXTERNAL PLUMBING & FIRE FIGHTING**		**96.00%**		
i	HT Work	1.00%			
ii	Transformer & Bus Duct	6.00%			
iii	D.G. SET	23.00%			
iv	Distribution Panel	4.00%			
v	L.T Cable Work	3.00%			
vi	External Lighting Work	18.00%			
vii	Earthing Work	0.20%			
viii	Panel Protection System	1.00%			
ix	Cable Tray Work	0.10%			
x	On Grid Solar Power Backup System	2.00%			
xi	HSD Tank Work	0.35%		98.00%	98.00%
xii	DG Set Exhaust piping Work	0.60%			
xiii	Sports Lighting Work	18.00%			
xiv	Physical Security System	0.75%			
xv	Digital Score Board	9.00%			
xxv	Broadcasting System	9.00%			
G.	**Completion and Handling Over**		**2.00%**		
	i. Testing	0.50%			
	ii. Commissioning	0.50%			
	iii. Handing over	1.00%			
	Total				**100.00%**

Annexure - 14

Design, Planning, Engineering and Construction on EPC Basis of External ELV work ' with support services & allied facilities by incorporating stipulated specifications, all services including handling over complete as per scope of work and directions of Engineer in charge.

	TOTAL COST AS PER PERCENTAGE BREAKUP				
Sl.	**Description of Component**	**Break up of total % payable cost for the sub component**			**% of Total payable cost-for the component**
No.			**Item**	**Sub**	
A.	**Planning, Design & Engineering Works -** Investigation, planning, Designing and obtaining approvals for works				2.00%

	a. On approval of Engineer-in-charge, the inception report & detailed survey and architectural drawings ready for submission for approval of local bodies and statutory authorities			0.30%	
	b. On approval of structure design by the proof consultant and Engineer-in-charge			0.30%	
	c. On obtaining all required approvals from statutory authorities and local bodies for commencement of construction as per requirements and directions of Engineer-in-charge.			0.30%	
	d. On submission of all Good for Construction drawings as per requirements & directions of Engineer-in-charge:			0.70%	
	i. Architectural drawings		0.30%		
	ii. Structural design & Drawings		0.30%		
	iii. Design & Drawings for Services		0.10%		
	e. On completion of construction			0.40%	
	i. On Completion of Foundation work		0.05%		
	ii. On Completion of 100% Super structure		0.05%		
	iii. On Completion of work		0.10%		
	iv. On obtaining required statutory approvals after completion of works		0.10%		
	v. On handing over to Client		0.10%		
B.	**ELV WORK**		**96.00%**	98.00%	98.00%
i	External CCTV System	14.00%			
ii	External EV Charging System	3.50%			
iii	IBMS System Work	78.50%			
G.	**Completion and Handling Over**		**2.00%**		
	i. Testing	0.50%			
	ii. Commissioning	0.50%			
	iii. Handing over	1.00%			
	Total				**100.00%**

Annexure - 15					
Design, Planning, Engineering and Construction on EPC Basis of FURNITURE with support services & allied facilities by incorporating stipulated specifications, all services including handling over complete as per scope of work and directions of Engineer in charge.					
	TOTAL COST AS PER PERCENTAGE BREAKUP				
Sl.	**Description of Component**	**Break up of total % payable cost for the sub component**			**% of Total payable cost-for the component**
No.			**Item**	**Sub**	

A.	**Planning, Design & Engineering Works -** Investigation, planning, Designing and obtaining approvals for works				
	a. On approval of Engineer-in-charge, the inception report & detailed survey and architectural drawings ready for submission for approval of local bodies and statutory authorities			0.30%	
	b. On approval of structure design by the proof consultant and Engineer-in-charge			0.30%	
	c. On obtaining all required approvals from statutory authorities and local bodies for commencement of construction as per requirements and directions of Engineer-in-charge.			0.30%	2.00%
	d. On submission of all Good for Construction drawings as per requirements & directions of Engineer-in-charge:			0.70%	
	i. Architectural drawings		0.30%		
	ii. Structural design & Drawings		0.30%		
	iii. Design & Drawings for Services		0.10%		
	e. On completion of construction			0.40%	
	i. On Completion of Foundation work		0.05%		
	ii. On Completion of 100% Super structure		0.05%		
	iii. On Completion of work		0.10%		
	iv. On obtaining required statutory approvals after completion of works		0.10%		
	v. On handing over to Client		0.10%		
B.	**ELV WORK**		**96.00%**	98.00%	98.00%
i	FURNITURE	48.00%			
ii	CHAIRS	48.00%			
G.	**Completion and Handling Over**		**2.00%**		
	i. Testing	0.50%			
	ii. Commissioning	0.50%			
	iii. Handing over	1.00%			
	Total				**100.00%**

2.4. Submission of bill Statement for Works

a. The BCA shall make interim payments to the Contractor as certified by the PMC/Authority Engineer on completion of a stage, as specified and valued in accordance with the proportion of the Contract Price assigned to each item and its stage in Volume -7 of the Contract Document.

b. The interim payment shall be made on "Pro rata basis" and shall be worked out on the percentage of work done out of total scope of work under their activity/item.

c. The Contractor shall base its claim for interim payment for completed till the end of the month for which the payment is claimed, valued in accordance with the above sub-Clause, supported with necessary particulars and documents in accordance with this Agreement.

d. The proportion assigned to an item will apply only to the Contract Price stated in this Agreement. It shall not apply to any additions or reductions to the Contract Price arising from

the issue of any Order for Change of Scope.

e. The Contractor shall submit interim RA bill, within the time stipulated as per General Conditions of Contract to the PMC/Authority Engineer by the Engineer-In-Charge in the form as directed, showing the amount calculated to which the Contractor considers himself entitled for completed Works. The interim RA bill shall be accompanied with the required supporting documents.

f. The Contractor should submit a compliance certificate, as per Appendix A attached to GCC, in every bill as per provisions of the EPF and ESI Act as amended from time to time.

2.2. Production of Records

a. The Contractor shall, whenever required by the Engineer-in-Charge, produce or cause to be produced for examination by the Engineer, any quotation, invoice, cost or other account books, vouchers, receipts, letters, memoranda or any copy of or extract from any such documents and also furnish information and returns, as may be required, relating to the execution of this Contract or relevant for verifying or ascertaining the cost of execution of this Contract or ascertaining the Materials supplied by the Contractor are in accordance with the Specifications laid down in the Contract. The Engineer's decision on the question of relevancy of any documents, information or returns shall be final and binding on the parties.

b. If any part or item of the work is allowed to be carried out by a subcontractor, assignee or any subsidiary or allied firm, the Engineer shall have power to secure the books of such sub-Contractor, assignee or any subsidiary or allied firm through the Contractor, and shall have power to examine and inspect the same. The above obligations are without prejudice to the obligations of the Contractor under any statute, rules or order.

3. Site Management

a. The contractor may construct temporary office, storage, accommodation and labour huts within the site premises where the space is available at site. In case, where surplus land is not available within the site and/or not permitted by the Employer, the contractor shall arrange the land for temporary office, storage, accommodation and labour huts at his own cost and is responsible for taking the clearance of local authorities, if required, for setting up / construction for labour camp and same is deemed to be included in the rates quoted by the contractor for the works. The contractor shall check the availability of land before tendering and no claim whatsoever in this regard shall be entertained. The contractor shall ensure that the area of labour huts is kept clean and sanitary conditions are maintained as laid down by the local authorities controlling the area. The land for the above purposes shall be so placed that it does not hinder the progress of work or access to the worksite. The vacant possession of the land used, for the purpose shall be given back by contractor after completion of the work.

3.2. Contractor's Working Area

a. Suitable working space will be provided by the Contractor to the Engineer-in- Charge & PMC/Authority Engineer as per site conditions and availability. The Contractor may have to carry out some cutting / filling work for making this area workable. The cost of all such Works shall be deemed to have been included in the contract price quoted for the Works and no payment shall be made on this account.

b. Before commencement of the work, the Contractor shall obtain approval of the Engineer-in charge for the location of cement godown, steel stacking and fabrication yard, site office and shall from time to time take instructions from the Engineer – in- charge regarding collection and stacking of materials at the site. No excavated earth or building material shall be stacked on areas where other buildings, roads, services or compound wall or any other structure are to be constructed.

3.3. Site Office:

a. The Contractor shall construct/provide one site office (semi-permanent structure) for use by Engineer-in-charge & his subordinate staff i.e. PMC/Authority Engineer and his staff consisting of 2 rooms with toilet and one conference Room (30-seater) with toilet having area not less than 350 Sqm for PMC/ Employer officers & staff. The location and plan shall be got approved from Engineer-in-Charge. Specification for the site office shall be suitable and matching for running an office which shall be got approved from Engineer-in-charge. The Contractor shall provide a typical plan of site office & conference room (having light fixtures, wiring &, AC etcetera) with specification within 15 days of award of work. The site office shall have a sample room, A.C conference room, staff rooms along with toilets & pantry with file storage facility, computers (8 Nos.), Broad band (2 Nos.) and printers (2 Nos.) with their consumables, a telephone, licensed version Primavera software, Auto-CAD etcetera All running cost & charges for office including Electricity bill, water supply bills, RO/drinking water bills etcetera shall be borne by the Contractor. The Contractor shall provide the following furniture (new) for use of PMC/Authority Engineer & BCA officers & staff at site office.

S. No.	Articles	Quantity
1.	Office Table	09 Nos.
2.	Revolving Chairs	09 Nos.
3.	Visitor's Chairs	24 Nos.
4.	Steel Almirah	09 Nos.
5.	Sofa (2 seater)	02 Nos.

b. IP based Video Surveillance System shall also be provided for surveillance of different locations of project site & site office. In the surveillance system, the cameras shall be provided at different locations of the project site so that the output is available at the Corporate/Regional office of Employer. The system shall be able to work on both wired as well as wireless network. The recording shall be preferably stored for at least 30 days. Along with video surveillance system, video conference facility, complete in all respects with necessary required equipment and software shall be provided at site office for frequent/periodical interaction between project site office and Corporate /Regional office of Employer / PMC/Authority Engineer.

c. Electricity & drinking water shall also be provided by the contractor free of cost for such period.

3.4. Contractor's Temporary Structures

i. The Contractor may, at his own expense and subject to the approval of the Engineer-in-charge and statutory authorities, as required, construct temporary structures for its site office, stores;

Workshop etcetera in the working area allocated to him as above and remove the same on completion of Works. The Contractor shall furnish such details of his Temporary Works as may be called for by the Engineer-in-charge and the Contractor shall satisfy the Engineer-in-charge as to their structural safety. The Contractor shall be solely responsible for the stability and structural safety of all temporary works including obtaining statutory approvals and payment of statutory fees, if any. Should it be necessary to shift the temporary works to some other place during the execution of the works, the Contractor shall do so, at his own cost.

ii. Initial and Final Clearance of site for temporary works:

The Contractor shall be responsible for the clearance of the site of all scrub, debris, rubbish, etcetera to be removed off site to a location to be provided by the contractor and approved by the Engineer- in-charge. However, no trees shall be removed without the prior permission of the Engineer-in-charge. The structures, services and works required to be demolished and removed shall also be removed off site to a location as mentioned above. The Contractor shall obtain necessary permissions and approvals from the local authorities for such disposals. The demolition shall include digging, excavating and removal of substructures, foundations and buried works. The cost of all this shall be borne by the Contractor.

The above is applicable for all site offices, labour camps, and godowns etcetera, which are not required after the work is completed.

iii. Storage, Cleaning and Dewatering

The Contractor shall at all the times during construction keep the Site clean and free from all debris and unwanted materials on a daily basis as per instructions of the Engineer-in-charge.

Storage of materials shall be in an organized manner and in proper compartments as directed by the Engineer - in- Charge. Storage on suspended floors shall not be permitted unless specifically approved in writing by the Engineer-in-charge for specific materials in specific locations and in approved manner. The Engineer-in-charge shall be furnished with load details, if requested, before seeking approval for storage.

Regular cleaning operations shall be undertaken to remove all dust, debris, waste materials etcetera A cleaning schedule shall be maintained.

The Contractor shall make his own arrangement for storage of those materials, which can be accommodated at site. Contractor shall be fully responsible for safe custody of the same. Materials shall be considered as “Delivered at Site” only after the physical presence of materials at site are verified by the Engineer-in-charge. Storage of materials / equipment elsewhere shall not be considered as “Delivered at Site.”

The Contractor shall be responsible to keep entire site free from water due to water coming from any source at any level and shall protect all materials and works from being damaged by the water from any source. Contractor shall make proper arrangements for drainage prior to use of water for curing, testing, cleaning etcetera

Any expenditure incurred by the Contractor in fulfillment of his obligations under this sub-clause shall be deemed to have been included in the financial Bid and subsequent contract.

iv. The security deposit of the contractor shall be released only after contractor demolishes all structures including foundations and gives back clear vacant possession of this land.

3.5. Care of Works

From the commencement to the certified completion of the whole of works, the contractor shall be responsible for the care, safety and maintenance of the works executed under the contract thereof and of all temporary works. In case of any damage/ loss or injury shall happen to the works or to any part thereof or to any temporary works from any cause whatsoever save and except the expected risks, the contractor shall at his own cost repair and make good the same,

so that on completion the works shall be in good order and condition in conformity to every respect with the requirements of the contract. The contractor shall also be liable for any damage to the works occasioned by him including his subcontractors in the course of any operations carried out by him for the purpose of completing any outstanding work and complying with his obligations under the Contract. In case of failure on the part of the contractor the damage/ loss/ injury shall be made good by the Employer at the risk and cost of the contractor.

3.6. Safety in Construction

The contractor shall adhere to the safety, health & environmental guidelines as prescribed in the tender document. The contractor shall employ only such methods of construction, tools and plant as are appropriate for the type of work or as approved by Engineer-in-Charge in writing.

The contractor shall take all precautions and measures to ensure safety of works and workmen and shall be fully responsible for the same. Safety pertaining to construction works such as excavation, centering and shuttering, trenching, blasting, demolition, electric connections, scaffolds, ladders, working platforms, gangway, mixing of bituminous materials, electric and gas welding, use of hoisting and construction machinery shall be governed by the Safety code, relevant safety codes and the direction of Engineer-in-Charge

The Contractor shall be fully responsible for the adequacy, stability and safety of all site operations and methods of construction, the contractor shall ensure that all safety norms are followed as per contractual and other statutory requirements.

3.7. Contractor's Labour Camp

The Contractor shall make arrangements at his own expense for labour camp / accommodation for labour and staff to be employed for execution of the work and their conveyance to Site. Proper ID Cards shall be got approved /authorized by the contractor from the Engineer-in-charge to authorize the Contractor's staff and workers to enter the Site.

3.8. Mobilization of Resources:

Contractor shall not mobilize his resources in terms of materials, machinery, tools & plants, facilities required to implement the project and shall not pay any advances to any party unless he receives letter of Award from Employer or Employer's representative. Contractor shall himself be responsible for such cost incurred without receipt of notice to proceed and no such claim of contractor shall be entertained by the Employer.

3.9. Water Supply & Power Supply

The Contractor shall make his own arrangement for water supply at Site for drinking as well as construction purposes & Power Supply at his own cost. Non- availability of power supply and /or water from whatever source shall not entail any additional claims or extension of Contract period in this account.

3.10. Watch & Ward and Lighting

The Contractor shall throughout the execution and completion of the Works and the remedying of the site and the Works and the remedying of any defects therein have full regard for the safety of all persons entitled to be on the site and keep the site and the Works in an orderly state to avoid any accident or danger and provide safety measures, lights, guards, fencing and barricades where ever necessary or required by the Engineer-in-charge, or by any duly constituted authority, for the execution and for the protection of the Work, and/or for the safety and convenience of the public or others and take all reasonable steps to protect the environment on and off the site and to avoid damage or nuisance to person or property of the public or others resulting from pollution, noise and other causes etcetera at his own cost.

3.11. Temporary Barricading

The Contractor shall at his own expense, erect and maintain in good condition temporary barricades all around the working area as per directions of the Engineer-in-charge. The barricading shall be as required or at least 3 meter high approx., whichever is higher. The specifications of barricading shall be got approved from Engineer-in-charge.

a. The contractor shall make, till completion of the project arrangements for/of:

i. Proper pumping for removing water from the basement or elsewhere at site.

ii. Proper security, safety, transportation, manpower, lighting arrangement for execution of works at night.

iii. Tower crane, batching plant and other plants &machinery, tools and tackles required for timely execution of work.

iv. Proper barricading around site so that surrounding area is made free from disturbances.

v. Diversion of underground services with the approval of Engineer-in- charge.

b. Restriction in work areas.

(a).The contractor must see the site of the work, its approaches carefully before tendering, No claim of any sort shall be entertained on account of any site conditions. If any approach from main road is required or existing approach is to be improved and maintained, for cartage and materials by the contractor, the same shall be done by the contractor his own cost.

(b). No Entry/exit/roads other than specified by the Engineer-in-charge for purpose of construction activities will be allowed to be used for construction activity purposes or movement of trucks/lorries/load- carriers and nothing extra/ delay whatsoever will be accounted for on this part.

(c).The Contractor shall take all necessary precautions to prevent any nuisance or inconvenience to the owners, tenants or occupiers of adjacent properties and to the public in general and to prevent any damage to such properties and any pollution of smoke, streams and water-ways. He shall make good at his cost and to the satisfaction of the Engineer-in-Charge, any damage to roads, paths, cross drainage works or public or private property whatsoever caused thereon by the Contractor. All waste or superfluous materials shall be removed by the Contractor without any reservation entirely to the satisfaction of the Engineer-in- Charge.

(d). In the event of any restrictions being imposed by the Security agency, Employer, Traffic or any other authority having jurisdiction in the area on the working or movement of labour /material, the Contractor shall strictly follow such restrictions and nothing extra shall be payable to the Contractor on this account.

(e).In case the contractor is not permitted to erect the huts for labour at the site of work, the contractor will have to make his own arrangement to provide such accommodation elsewhere and nothing extra shall be paid on this account.

(f). The contractor shall obtain approval of the PMC/Authority Engineer/Engineer-in-Charge to erect the hutments for labour etcetera at the site of work; denial of approval shall not affect the construction activities.

(g).The contractor shall take all precautions to avoid accidents by exhibiting necessary caution boards such as day and night boards, speed limit boards, red lights and providing barriers. He shall be responsible for all damages and accidents caused due to negligence on his part. No hindrance shall be caused to traffic during the execution of the work.

c. Site Data

(a). The Contractor, with the Tender documents, has been made available such relevant data in BCA's possession on hydrological and sub-surface conditions. The accuracy or reliability of the data/studies/reports and of any other information supplied at any time by the BCA is not warranted with respect to the viability of his design and execution of Works and the Contractor shall be responsible for interpreting all such data. The Contractor shall conduct further investigations considered necessary by him at his own cost and any error, discrepancies if found in BCA's data at any stage will not constitute ground for any claim for extra time and costs.

(b). The Contractor shall be deemed to have obtained all necessary information as to risks, contingencies and other circumstances which may influence or affect the Tender or Works.

(c). The Contractor shall also be deemed to have inspected and examined the Site, its surroundings, the above data and other available information with respect to the viability of his design and execution of Works and to have satisfied himself before submitting the Tender, as to all the relevant matters including without limitation:

i. the form and nature of the Site, type of soil including the sub-surface conditions;

ii. the hydrological and climatic conditions;

iii. the extent and nature of the work, Plant, and Materials necessary for the execution and completion of the Works and the remedying of any defects.

iv. the applicable laws, procedures and labour practices

v. The Contractor's requirement for access, accommodation, facilities, personnel, power, transport and other services.

vi. the risk of injury or damage to property adjacent to the Site and to the occupiers of such property or any other risk.

d. Access Route

The Contractor shall be deemed to have satisfied himself as to the suitability and availability of the access routes he chooses to use. The Contractor shall (as between the parties) be responsible for the maintenance of access routes. The Contractor shall provide at his cost signs or directions, which he may consider necessary or as instructed by Engineer for the guidance of his staff, labour and others. The Contractor shall obtain any permission concessions and related easement right that may be required from the relevant authorities for the use of such routes, signs and directions.

The Employer will not be responsible for any claims which may arise from the use or otherwise of any access route. The Employer does not guarantee the suitability or availability of any particular access route, and will not entertain any claim for any non-suitability or non-availability for continuous use during construction of any such route.

e. The Contractor shall pay all traffic surcharges and other royalties, licence fees, rent and other payments or compensation, if any, for getting stone, sand, gravel, clay or other materials, machine, process, systems, work methods, or Contractor's Equipment required for the Works.

f. Traffic regulation and safety measures by the Contractor

i. The Contractor shall take all the required measures and make arrangements for the safety of other inhabitants during the construction of the Project or a Section thereof in accordance with the provisions of Specifications as applicable.

It shall provide, erect and maintain all such barricades, signs, markings, flags, and lights as may be required by Good Industry Practice for the safety of the traffic passing through the Section under construction or maintenance.

ii. All works shall be carried out in a manner creating least interference to traffic passing through the Project Site or a Section thereof. In stretches where construction or maintenance works on the carriageway are taken up, the Contractor shall ensure that proper passage is provided for the traffic. Where it is not possible or safe to allow traffic on part width of the carriageway, a temporary diversion of proper specifications shall be constructed by the Contractor at its own cost. The Contractor shall take prior approval of the Engineer for any proposed arrangement for traffic regulation during Construction and Maintenance, which approval shall be granted promptly and reasonably.

4. Employment of Personnel

Not withstanding the provisions in the General Condition of the Contract, the contractor shall preferably employ Indian Nationals as his representatives, servants and workmen after verifying their antecedents and loyalty. He shall ensure that no personnel of doubtful antecedents and any other nationality in any way is associated with the works.

a. The Contractor shall ensure his presence at site all times during working hours throughout the course of the Contract or depute a Competent representative who shall be empowered to receive instructions from the Engineer-in-Charge in respect of all matters likely to arise in connection with the execution & coordination of the works at the site.

b. Unless the Contractor's Representative is named in the Contract, the Contractor shall, within 7 days of issue of LOA, submit to the Employer for consent the name and particulars of the person the Contractor proposes to appoint. The Contractor shall not revoke the appointment of the Contractor's Representative without the prior information to the Engineer-in-charge. The Contractor's Representative so nominated shall have full authority to act on behalf of the Contractor. The Contractor's Representative shall give his whole time to directing the preparation of the Construction and/or Manufacture Documents and the execution of the Works. The Contractor's Representative shall receive (on behalf of the Contractor) all notices, instructions, consents, no objection certificate approvals, certificates, determinations and other communications under the Contract. Whenever the Contractor's Representative is to be absent from the Site, a suitable replacement person shall be appointed, with prior consent of Engineer-in-charge. Failure on part of the Contractor to comply with these provisions shall constitute a breach of Contract leading to action under Clause 3 of General Condition of Contract.

c. The contractor should submit curriculum vitae (CV) of the key personnel proposed to be deployed at site as per Schedule "F" of GCC for supervision and execution of work.

A list of all technical and key personal staffs must be submitted to the Engineer- in-Charge with their area of work / responsibility with verified signature and the link persons to receive the instructions at site (in case the main person was not found at site) during the inspection by representative of Engineer-in-charge. Any staff of contractor found incapable/unsuitable to execute the assigned work shall be replaced by the Contractor if desired by the Engineer-in-Charge.

The Contractor shall ensure that the personnel engaged by it in the performance of its obligations under this Contract are at all times appropriately qualified, skilled and experienced in their respective functions.

The contractor under normal circumstances would not be allowed to replace the key personnel during the execution of the contract. However, for any reasons, due to unavoidable circumstances if it becomes necessary in the interest of the project to replace any one / all the above key personnel the contractor must submit the CV of the new personnel (having qualifications and experience as per requirement of the contract) to Engineer-in-Charge for their approval.

d. The Contractor's Representative may delegate any of his powers, functions and authorities to any competent person, and may at any time revoke any such delegation. Any such delegation or

revocation shall be in writing and shall not take effect until the Engineer-in-charge has given prior consent thereto. The Contractor's Representative and such persons shall be fluent in the language of day-to-day communication and the Contractor shall be bound by and fully liable for the acts or omissions of the Contractor's Representatives or any of his employees and/or delegates, agents or nominees.

e. In case Engineer-in-Charge/ Employer/Employer's represntative observes misconduct negligence or incompetence etcetera on the part of any representative, agent, servant and workmen or employees etcetera of the contractor, the Employer shall have full power and without giving any reason to the contractor, instruct the contractor to remove such engineer / staff / worker from site and provide suitable replacements. The decision of the Engineer-in-charge shall be final and binding on the contractor. The contractor shall not be allowed any compensation on this account.

f. Contractor's Authorized Representative shall take joint measurements and sign the measurement books / bills. Any direction, explanations, instructions or notices given by the Engineer-in-charge to such representative shall be held to be given to the Contractor. In case of absence of said Representative other alternative representative should also be mentioned having same responsibilities.

g. No unauthorized persons shall be allowed on the site. The contractor shall provide complete security arrangement for the campus during construction to avoid trespassing. The Contractor shall ensure all such persons are kept out and shall take steps to prevent trespassing. However, the contractor will make sure to provide free access at any time for Engineer-in-charge to the site and other working places.

h. In case the Contractor is required to employ foreign nationals for execution of work, then the employment of foreign personnel by the Contractor and/or its Sub-contractors and their sub. Contractors shall be subject to grant of requisite regulatory permits and approvals including employment/residential visas and work permits, if any required, and the obligation to apply for and obtain the same shall and will always be of the Contractor. Notwithstanding anything to the contrary contained in this Contract, refusal of or inability to obtain any such permits and approvals by the Contractor or any of its Sub-contractors or their sub-contractors shall not constitute Force Majeure Event, and shall not in any manner excuse the Contractor from the performance and discharge of its obligations and liabilities under this Contract**.**

5. <u>Safety, Health and Environment</u>

Over and above the provisions made in Safety Code (part of General Conditions of Contract) the following will also be applicable:

5.1. In respect of all workmen directly or indirectly employed in the work for the performance of the contractor's part of this agreement, the contractor shall at his expense arrange for the safety provisions as per Indian Standard Safety codes shown below and shall at his own expense provide for all facilities in connection there with. In case the contractor fails to make arrangement and provide necessary facilities, he shall be liable to pay compensations prescribed under Workmen Compensation Act 1923 as amended from time to time 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 on that behalf from the contractor, and no claims what so ever shall been pertained.

5.2. Details regarding some special provisions to be followed by contractor are as follows:

a. Usage of quality Personal Protection Equipment's (PPEs) through approved vendors. PPEs would include amongst others the following items:

i. Safety Helmets.

ii. Hearing Protection.

iii. Respiratory Protection.

iv. Eye Protection.

v. Protective Gloves.

vi. Safety Footwear.

vii. High Visibility Clothing (Jacket) with approved Logo

All the items should be got approved before issued to the use in the work. The contractor shall provide all the PPE (Personnel Protective Equipment) and safety appliances required to carry out the job to all the workmen deployed by the contractor and also ensure that his workmen use those PPE and safety appliances while on the job. The contractor shall not pay any cash amount in lieu of PPE to the workers/sub-contractors and expect them to buy and use during work. If the contractor fails to ensure provision of safety appliances and its workmen do not use the PPE and safety appliances as needed for safe working, the owner may ask the contractor to stop the work and comply with safety requirements first. The contractor shall at all time maintain a minimum of 10% spare PPEs and safety appliances and properly record and show to the Engineer-in-Charge during the inspections. Failing to do so shall invite appropriate compensations as per the provisions of under Workmen's Compensation Act 1923 as amended from time to time.

It is always the duty of the contractor to provide required PPEs for all visitors. Towards this required quantity of PPEs shall be kept always at the security post.

b. Colour coding for helmets

Safety Helmet Color Code (Every Helmet should have the LOGO affixed/painted)	Person to use
White	Employer /Engineer-in-Charge staffs, All Designers, Architect, Consultants, etcetera
Violet	Contractor (Engineers / Supervisors)
Blue	All Sub-contractors (Engineers / Supervisors)
Red	Electricians (Both Contractor and Sub-contractor)
Green	Safety Professionals (Both Contractor and Sub-contractor)
Orange	Security Guards / Traffic marshals
Yellow	All workmen
White (with "VISITOR" sticker)	Visitors

i) Logo shall have its outer dimension 2"X2" and shall be conspicuous.
ii) Logo shall be either painted or affixed.
iii) No words shall come either on Top / Bottom of Logo.

c. Working at Heights

Contractor shall ensure that work at height is properly planned for any emergencies and rescue appropriately supervised, and carried out in a manner, which is reasonably practicable safe. Contractor shall ensure that work at height is carried out only when the weather conditions do not jeopardize the health or safety of persons involved in the work. Guardrail, Toe-board,

Barrier or similar collective means of protection shall be of sufficient dimensions, of sufficient strength and rigidity for the purposes for which they are being used, and otherwise suitable.

Working Platform shall be of sufficient dimensions to permit the safe passage of persons and the safe use of any plant or materials required to be used and to provide a safe working area-having regard to the work being carried out there. Possess a suitable surface and, in particular, be so constructed that the surface of the working platform has no gap through which a person, material or object could fall and injure a person. A working platform and any supporting structure shall not be loaded so as to give rise to a risk of collapse or to any deformation, which could affect its safe use. Strength and stability calculations for scaffolding shall be carried out by the contractor. The dimensions form and layout of scaffolding decks shall be appropriate to the nature of the work to be performed and suitable for the loads to be carried and permit work and passage in safety.

A personal fall protection system designed for use with an anchor shall be securely attached to at least one anchor, and each anchor and the means of attachment thereto shall be suitable and of sufficient strength and stability for the purpose of supporting any foreseeable loading. Suitable and sufficient steps shall be taken to prevent any person falling or slipping from a personal fall protection system. Any other steps in the opinion of engineer-in-charge suggested will also be taken in Protection system

Only metal ladders shall be allowed. Any surface upon which a ladder rests shall be stable, firm, of sufficient strength and of suitable composition safely to support the ladder so that its rungs or steps remain horizontal, and any loading intended to be placed on it. A ladder shall be so positioned as to ensure its stability during use. A suspended ladder shall be attached in a secure manner and so that, with the exception of a flexible ladder, it cannot be displaced and swinging is prevented. No interlocking or extension ladder shall be used unless its sections are prevented from moving relative to each other while in use.

d. Lifting appliances and gears.

The contractor shall maintain a register for record of examinations and test details of all lifting appliances. This register should also contain a system of identification of all tools and tackles, its date of purchase, safe working load etcetera Contractors can utilize the services of any competent person as defined in Factories Act, 1948 and approved by Chief Inspector of Factories with the permission of the Engineer-in-Charge.

e. Automatic safe load indicators

Every lifting appliance and gear like cranes, hydras etcetera, if so constructed that the safe working load may be varied by raising or lowering of the jib or otherwise shall be attached with an automatic indicator of safe working loads approved by Bureau of Indian standards/ International certifying bodies which gives a warning to the operator and arrests further movements of the lifting parts.

f. Qualification of operator of lifting appliances and of signaler etcetera

The contractor shall not employ any person to drive or operate a lifting machine like crane, hydra etcetera whether driven by mechanical power or otherwise or to give signals to work as a operator of a rigger or derricks unless he is above twenty-one years of age and possesses a valid heavy transport vehicle driving license as per Motor Vehicle Act and Rules, is absolutely competent and reliable, possesses the knowledge of the inherent risks involved in the operation of lifting appliances by undergoing a formal training at any institution of national importance, is medically examined periodically.

6. Requirements for Planning & Design Capabilities

6.1. For planning and design, the Bidder should have in- house design capacity to carryout comprehensive planning and design of this project as per requirements and the Bidder with his in-house design capacity should have satisfactorily completed planning & design of at least one

similar completed by him with his in-house design capacity.

6.2. In case, the Bidder does not have in house capacity to carryout comprehensive planning and design of this project, then the Bidder shall engage a Firm/ Consultant which shall provide the required comprehensive consultancy services for planning and design from commencement to completion of the project based on the Master plan & Concept designs and DBR provided to the Bidder as a part of Bidding documents. The criteria for engagement of such Firm/Consultant shall be asunder:

a. The Firm/ Consultant which should be an Indian Consultancy firm and should have in-house design capabilities with minimum experience of 7 years in the field of Consultancy.

b. The Firm / Consultant should have provided the consultancy services for the planning & design of at-least one similar completed work including finishing works, water supply and sanitary installations, electrical works, fire-fighting, LV works during the last 10 years ending the previous day to the last date of submission of tender.

c. The Bidder shall within 7 days of award of work shall submit the details with the design capabilities along with documentary evidence of the Firm/Consultant proposed to be engaged by him and meeting the criteria as given in a & b above for approval by Engineer-In-Charge. The Senior Architect and Structural Engineer of the Design Consultant as proposed by the EPC contractor shall be approved by the Employer after recommendation by the PMC, Engineer-in-charge and Superintending Engineer.

d. The approved Firm/Consultant shall be associated with the project from commencement till completion.

e. Irrespective of the approval of Firm/Consultant as proposed by the Bidder and approved by Engineer-In-Charge, the entire responsibility for all coordination and providing the required design services is sole responsibility of the Contractor.

f. The Contractor's in house design personnel or approved Firm/Consultant design personnel (in case of outside agency) inclusive of Architects, Structural, MEP, Landscaping etcetera shall regularly visit the project site and other locations during execution of work for discussions, clarifications and attending various meetings with Engineer-in-Charge/ Employer wr.t the project and as per directions of Engineer-In-Charge.

6.3. Design and Construction

6.3.1. Obligations prior to commencement of Works

Within 7 (seven) days of the Commencement Date, the Contractor shall:

(a) appoint its representative (the "Contractor's Representative") duly authorised to deal with the Engineer-in-Charge/ Employer in respect of all matters under or arising out of or relating to this Agreement;

(b) appoint a design head (the "Design Head") who will head the Contractor's design units and shall be responsible for surveys, investigations, collection of data, and preparation of preliminary and detailed designs.

(c) undertake and perform all such acts, deeds and things as may be necessary or required before commencement of Works under and in accordance with this Agreement including approval from Statutory Authorities, Applicable Laws and Applicable Permits; and

(d) Make its own arrangements for procurement of materials needed for the Project under and in accordance with the Applicable Laws and Applicable Permits.

6.3.2. Project completion Schedule is set out in the contract document. Design shall be developed in conformity with the specifications and standards set forth in the contract document.

6.3.3. Engagement of Proof Checking Consultant

The Proof checking consultant for vetting/proof checking of structural designs shall be engaged by the Contractor and the same shall be from any Indian Institute of Technology/National Institute

of Technology as approved by Employer for which the requisite request shall be submitted by the Contractor. The Contractor shall get the structural details / design & drawings proof checked from the approved proof checking consultant as per requirements and at his own cost. Nothing extra shall be payable to the contractor by Employer on this account.

6.3.4. The Contractor shall submit the designs and drawings, duly certified by the Proof Consultant, to the Engineer-in-Charge for review. Provided, however, that the contractor shall ensure and provide the Engineer-In-Charge additional drawings that may be required for its review in accordance with Good Industry Practice. The programme for submission of the design shall be finalized in consultation with the Engineer-In-Charge.

6.3.5. Considering the need for complying the specific acoustics parameters w.r.t project the Contractor shall arrange to comply with required acoustical parameters in designs and construction of various facilities in line with the provisions of the DBR and as per scope of work.

6.3.6. Considering the need for specific green building parameters and to obtain the required GRIHA Green Building Rating Certification w.r.t project the Contractor shall arrange to comply with required Green Building parameters in designs and construction of various facilities in line with the provisions of the DBR and as per scope of work.

6.3.7. Contractor's Warranty of Design

(a) The Contractor shall be fully responsible, for the suitability, adequacy, integrity, durability and practicality of the Contractor's proposal.

(b) The Contractor warrants that the Works have been or will be designed, manufactured, installed and otherwise constructed and to the highest standards available using proven up-to-date good practice. By submitting the Drawings for review to the Engineer-in-charge, the Contractor shall be deemed to have represented that it has determined and verified that the design and engineering, including field construction criteria related thereto, are in conformity with the Scope of the Project, the Specifications and Standards and the Applicable Laws.

(c) The Contractor warrants that the Contractor's Proposals meet the requirements and is fit for the purpose thereof. Where there is any inadequacy, insufficiency, impracticality or unsuitability in or of the Requirements or any part thereof, the Contractor's Proposal shall take into account, address or rectify such inadequacy, insufficiency, impracticality or unsuitability at Contractor's own cost.

(d) The Contractor warrants that the Works will, when completed, comply with enactments and regulations relevant to the Works.

(e) The Contractor warrants that the design of the Works and the manufacture of plant have taken or will have taken full account of the effects of the intended manufacturing and installation methods, Temporary Works and Contractor's Equipment.

(f) The Contractor shall also provide a guarantee from the Designer for the design for suitability, adequacy, and practicality of design for Employer's Requirements.

(g) The Contractor shall indemnify the Employer against any damage, expense, liability, loss or claim, which the BCA might incur, sustain or be subject to arising from any breach of the Contractor's design responsibility and/or warranty set out in this Clause.

(h) The Contractor further specifies and is deemed to have checked and accepted full responsibility 'for the Contractor' s Proposal and warrants absolutely that the same meets the Employer's Requirements:

The Contractor shall be fully responsible for the Plants, Materials, goods, workmanship, preparing, developing and coordinating all design Works to enable that part of the Works to be constructed and/or to be fully operational in accordance with the Contract's requirements.

Apart from the Contractor, the above warranty shall also be applicable for his designer. This warranty shall be a part of his sub contract with the designer and should be made available at the time of signing of the Agreement.

No claim for additional payment or extension of time shall be entertained and/or no review and/or observation of the Engineer-In-Charge and/or its failure to review and/or convey its observations on any Drawings shall relieve the Contractor of its obligations and liabilities under this Agreement in any manner nor shall the Engineer or the Employer be liable for the same in any manner; and if errors, omissions, ambiguities, inconsistencies, inadequacies or other Defects are found in the Drawings, they and the construction works shall be corrected at the Contractor's cost, notwithstanding any review under this section.

6.3.8. In respect of the Contractor's obligations with respect to the design and Drawings of the Project as set forth in tender document, the following shall apply:

(a) The contractor shall furnish design and drawings to Engineer-in-Charge/ PMC**/**Authority Engineer and in such sequence as is consistent with the Project Completion Schedule, required number of copies of all Drawings, to the Engineer-in- Charge/ PMC**/**Authority Engineer for review;

(b) Within 7 (seven) days of the receipt of the Drawings, the Engineer-in- charge shall review the same and convey its observations to the Contractor with particular reference to their conformity or otherwise with the Scope of the Project and the Specifications and Standards. The Contractor shall not be obliged to await the observations of the Engineer-in-Charge/ PMC**/**Authority Engineer on the Drawings submitted pursuant hereto beyond the said period of **21 (twenty-one) days** and may begin or continue Works at its own discretion and risk;

(c) If the aforesaid observations of the Engineer-in-Charge/ PMC**/**Authority Engineer indicate that the Drawings are not in conformity with the Scope of the Project or the Specifications and Standards, such Drawings shall be revised by the Contractor and resubmitted to the PMC**/**Authority Engineer /Engineer-in-Charge for review within 7 days of receipt of communication from Engineer. The PMC**/**Authority Engineer/ Engineer-in-Charge shall give its observations, if any, within 7 (seven) days of receipt of the revised Drawings; and

(d) the Contractor shall be responsible for delays in submitting the Drawing as set forth in Schedule-F caused by reason of delays in surveys and field investigations, and shall not be entitled to seek any relief in that regard from the Employer.

6.3.9. The Contractor's time and cost impacts of revisions arising from review by the PMC**/**Authority Engineer /Engineer-in-Charge of designs caused by the Contractor's non-compliance with the requirements of this Agreement shall be borne by the Contractor, unless there is a change in the Scope of the Works.

6.3.10. The Works shall be executed in accordance with the design reviewed by the PMC**/**Authority Engineer /Engineer-in-Charge, and shall not thereafter be amended or altered without the prior written approval of the PMC**/**Authority Engineer /Engineer-in-Charge. If PMC**/**Authority Engineer / Engineer-in-Charge becomes aware of an error or defect of a technical nature in the design that PMC**/**Authority Engineer /Engineer-in-Charge shall promptly give notice to the other Party of such error or defect. Such error or defect shall be rectified by the Contractor, without any cost to the PMC**/**Authority Engineer /Engineer-in-Charge.

7. <u>Setting out of the Works</u>

The contractor shall be responsible for the true and proper setting-out of the Works in relation to original points, lines and levels or reference issued by Engineer- in- charge in drawing or in writing and for the correctness, subject as above mentioned, of the position, levels, dimensions and alignment of all parts of works and for the provision of all necessary instruments,

appliances and labour in connection therewith. If, at any time during the progress of the works, and during defects liability period, any error shall appear or arise in the position, levels, dimensions or alignment of any part of the Works, the Contractor, on being required to do by the Engineer-in-charge and/ or his authorized representative shall at his own cost, rectify such error to the satisfaction of the Engineer-in-charge. The checking of any setting out or of any line or level by the Engineer-in-charge not in any way relieve the Contractor of his responsibility for the correctness thereof. The Contractor shall carefully protect and preserve the benchmarks; sight-rails, pegs and other things used in setting-out the Works. Any rectification works required should be done by the Contractor at his own cost.

8. Quality of Materials & Equipment's, Workmanship and Test

8.1. All the materials used in the work shall be subjected to the mandatory tests as prescribed in the specifications detailed in Schedule F of the General Conditions of Contract and other specifications referred to in the contract and workmanship shall be the best of the respective kinds described in the Contract and in accordance with the Engineer-in- charge's instructions and shall be subjected from time to time to such tests as the Engineer-in-charge may direct at the place of manufacture or fabrication or on the Site or at an approved testing laboratory. The source of supply and / or manufacturing within/ outside India may be inspected by the Engineer-in-charge or any representative as nominated by the Employer. All the expenditure towards travel, lodging, testing etcetera on this account is deemed to be included in the rate quoted.

The contractor shall upon the instruction of the Engineer-in-charge's representative furnish him with documentation to prove that the materials & goods comply with the requirements of contract and for requirement stated above. The Engineer-in-charge may issue instruction in regard to removal of material from site or any work, if these are not in accordance with the contract. The contractor shall provide such assistance, instruments, machinery, labour and materials as are required for examining, measuring, sampling, testing of material or part of work.

8.2. Audit Inspection/ Technical Examination/Third Party Inspection

The Employer / Engineer-In-Charge shall have the right to cause technical Audit Inspection by Audit team under Chief Technical Examiner etcetera Third Party Inspection of the works and the final bills of the contractor including all supporting vouchers, abstracts, etcetera to be made as per payments of the final bill. The Contractor shall provide all assistance and full access to site to carry out inspection and perform tests at site, to provide samples for testing in outside laboratories and to show site records and their records as asked for by the inspecting teams. Findings of such inspection shall be notified to contractor and contractor shall be bound to take remedial measures to the satisfaction of Engineer-in-charge. If as a result of such Technical Examination/Third Party Inspection, the sum is found to have been overpaid in respect of any work done by the contractor 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 the Employer / Engineer-in-charge to recover the same from the Security Deposit or Performance Security of the contractor or from any dues payable to the contractor. 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.

In the case of any audit examination and recovery consequent on the same the contractor shall be given an opportunity to explain his case and the decision of the Employer / Engineer-in-charge shall be final. Payment on this account will be recovered from the contractor.

In the case of Technical Audit /Third Party Quality Assurance /Audit by an independent agency/ individual/firm/institute at any time, consequent upon which there is a recovery from the contractor, recovery shall be made with orders of the Employer / Engineer-in-charge whose

decision shall be final.

8.3. Samples

i. The Employer will not supply any materials required for execution of the Works under this Contract. The Contractor must, therefore, make his own arrangements for timely procurement of various materials including steel and cement etcetera

ii. Prior to ordering any equipment/ material/ system, the Contractor shall submit to the Engineer-in-charge the catalogues, along with samples from approved list of manufacturers. No material shall be procured without written approval of the Engineer-in-charge.

iii. All samples of materials and /or items of works in adequate numbers, sizes, shades & pattern as per specifications shall be supplied free of charge by the contractor without any extra charge. All other expenditure required to be incurred like conveyance for taking the samples for testing at the laboratory, packing, etcetera, shall be borne by the contractor. If the test results do not conform to the specifications and standards laid down, the materials shall be rejected, the contractor shall remove such materials from site. The laboratory for testing of samples shall be decided by Employer /Engineer – in- charge, whose decision shall be final and binding.

iv. Contractor shall submit Samples to the Engineer-in-charge for approval. If certain items proposed to be used are of such nature that samples cannot be presented or prepared at the site, detailed literature / test certificate of the same shall be provided to the satisfaction of the Engineer-in-charge. Each Sample will be identified clearly as to material, Supplier, pertinent data such as catalogue numbers and the use for which intended and otherwise as the Engineer-in-charge may require to review the submittals for the limited purposes required by paragraph (d) below. The numbers of each sample to be submitted will be as specified in the Specifications, or as shall be specified by the Engineer-in-charge.

v. Submittal Procedures

a. Before submitting each Sample, Contractor shall have determined and verified all materials with respect to intended use, fabrication, shipping, handling, storage, assembling and installation pertaining to the performance of the Work and All information relative to Contractor's sole responsibilities in respect of means, methods, techniques, sequences and procedures of construction and safety precautions and programmes incident thereto.

b. Each submittal will bear a specific written indication that Contactor has satisfied Contractor's obligation under the Contract Documents with respect to Contractor's review and approval of that submittal.

c. At the time of each submission, contractor shall give the Engineer-in- charge specific written notice of such variations, if any; that the sample submitted may have from the requirements of the contract document. Such notice shall be separate from the submittal and in addition shall cause a specific notation to be made on each sample submitted for review and approval of each such variation

vi. Review and Approval:

a. Sample shall be reviewed and approved only to determine if the items covered by the submittals will, after installation or incorporation in the work, conform to the information given in the contract documents and be compatible with the design concept of the completed project functioning as a whole as indicated by the contract documents, drawings.

b. Review and approval will not extend to means, methods, techniques, sequences or procedures of construction. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions. Contractor shall make corrections required by Engineer-in-charge and shall submit as required new Samples for review and approval.

Contractor shall direct specific attention in writing to revisions other than the corrections called for and by the Engineer- in-charge on previous submittals.

c. Above referred review and approval of Samples shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Document unless Contractor has in writing called the Engineer-in-charge attention to each such variation at the time of submission as specified above and received written approval of each such variation by specific written notation thereof incorporated in or accompanying the Sample approval; nor will any approval by Engineer- in-charge relieve Contractor from responsibility for complying with the requirements of contract.

d. Only when the samples are approved in writing by the Engineer-in- charge, the contractor shall proceed with the procurement and installation of the particular material / equipment. The approved samples shall be signed by the Engineer-in-charge for identification and shall be kept on record at site office until the completion and acceptance of the work and shall be available at the site for inspection / comparison at any time. Samples approved shall be kept in the sample room till the complete ion of the work. The contractor shall keep with him a duplicate of such samples to enable him to process the matter.

e. For items of works where the samples are to be made at the site, the same procedure shall be followed. All such samples shall be prepared at a place where it can be left undisturbed until the completion of the project.

f. The Engineer-in-charge shall communicate his comments / approval to the Contractor to the samples at his earliest convenience. Any delay that might occur in approving of the samples for reasons of its not meeting with the specifications or other discrepancies, inadequacy in furnishing samples of appropriate quality from various manufacturers and such other aspects causing delay on the approval of the materials / equipment's etcetera, shall be ascribable to the account of the contractor. In this respect the decision of the Engineer-in-charge shall be the final.

vii. On delivery of the supplies of materials / equipment's for permanent works at the site, the contractor shall specifically arrange to get the supply inspected by the Engineer-in-charge and compared with the approved sample and his specific approval obtained before using the same in the work.

viii. Cost of Tests

The cost of making any test shall be borne by the Contractor as intended by or provided for the Contract or as found necessary by the Engineer-in- charge for ascertaining whether the quality of materials intended to be used by the Contractor in the Works is acceptable, whether any finished or partially finished work is appropriate for the purposes for which it was intended to fulfill.

ix. Testing facilities

The Contractor shall, at his own cost, provide testing facilities as per CPWD specifications and IS Codes at site as stipulated in the General Conditions of Contract (GCC) or as directed by the Engineer-in-charge including staff required for testing. The tests shall be carried out jointly in the presence of Engineer-in-charge or his representative and the contractor or his representative.

The contractor shall also provide suitable weighing and measuring arrangement and testing instruments and machines for testing of materials and cubes at site as per details given in GCC.

The contractor shall carryout all the mandatory tests and shall maintain records of testing & checks of material, in formats, checklists etcetera to be given by Engineer-in-charge. All such records shall be maintained jointly by the contractor and Engineer-in-charge these shall remain under the custody of the Engineer-in-charge.

The laboratory shall be connected to the main potable water, electricity and other Services.

Some of the mandatory tests for each item of work and /or materials shall be carried out in

approved outside laboratory as directed by the Engineer- in-charge. The Contractor shall bear the entire cost of testing charges for samples of items of work and /or materials and also the other expenditure towards making samples, packaging, and transport etcetera

The materials brought at site of work shall not be used in the work before getting satisfactory test result as per relevant mandatory tests, detailed in the relevant CPWD specifications and BIS codes.

8.4. Manufacturer's Instructions

Where manufacturers have furnished specific instructions relating to the materials and equipment used, covering points not specifically mentioned in these documents, manufacturer's instructions shall be followed with the approval of Engineer-in-charge.

8.5. Inspection & Testing during manufacturing of Equipment

The Engineer-in-charge shall be entitled to inspect, examine and test during manufacturing of the materials and workmanship and check the progress of manufacturing of all fabrication materials to be supplied under the contract on the contractor's premises during working hours, and if part of the said materials is being manufactured on other premises, the contractor shall obtain Engineer- in-charge permission to inspect the same at such premises. This inspection, examination or testing shall not relieve the contractor from any obligation under the contract. Inspection Call for any equipment shall be given 15 days in advance from the actual date of Inspection.

Following Equipment shall be invariably offered for Inspection:-

1) HT & LT Panels
2) Bus Ducts & Rising Mains

In case of other equipment, the Contractor shall intimate Engineer-in-charge regarding their readiness so as to decide their inspection if any.

The Engineer-in-charge reserves the right to request inspection and testing at manufacturer's Works at all reasonable times during manufacture of items for this Contract.

The Engineer-in-charge (PMC) or his authorized representative & Employer shall have full power to inspect the materials and workmanship at the Contractor's Works or at any place from which the materials or equipment is obtained. Approval by the Engineer-in-charge of any material or equipment shall in no way relieve the Contractor of his responsibility for meeting the requirements of the specifications. The cost incurred towards boarding, lodging etcetera (inland/abroad) of inspection engineer/engineers deputed by Employer shall be fully borne by the contractor & all such costs shall be deemed to be included in the Bid. Nothing extra shall be paid on this account whatsoever. The inspection and testing shall cover, but not limited to, the following:-

i. Routine and typical tests for the various items of equipment shall be performed at the Manufacturer's/ Contractor's Workshop in the presence of Engineer-in-charge or his authorized representative, results recorded and test certificates issued.

ii. After installation has been virtually completed, the Contractor shall carry out under the direction and in the presence of the representative of the Engineer-in-charge such tests and inspections as have been specified, or as considered necessary to determine whether or not the requirements of the item, drawings and specifications have been fulfilled. In case the work does not meet the full intent of the drawings and specifications and further tests after making require changes and as considered necessary shall be done again, the Contractor shall carry them out and bear the expenses thereof. If tests fail to demonstrate the satisfactory nature of the installation or any part thereof, then no claims for the extra cost of modifications, replacement or retesting will be considered. The decision of the Engineer–in-charge shall be regarded as

final as to what constitutes a satisfactory test.

iii. The Contractor shall provide all necessary instruments such as Theodolite, Dumpy level, steel tapes, weighing machine, plumb bobs, spirit levels, hammers, micro-meters, thermometers, hydraulic cube testing machine, smoke test machine and labour, etcetera for conducting tests. All such equipment's shall be tested for calibration by an approved laboratory. The Contractor shall make adequate records of the test procedures, readings and results to be maintained by the Engineer-in- charge who shall issue test certificates signed by the person authorized by him.

iv. The contractor shall arrange all necessary instruments, tools, tackles and testing facilities free of cost for such inspections. Contractor shall arrange for inspection visit(s) and bear all inspection costs including Inland/ abroad travel (Air/Rail/Road), lodging and boarding expenses etcetera free of cost for the Inspection Engineer(s) deputed by Employer.

v. The above general requirements as to testing shall be read in conjunction with any particular requirements specified elsewhere

vi. Dates for Inspection &Testing

The dates of Inspection & Testing, after receipt of written request by the Contractor, shall be mutually agreed by the Engineer-in-charge and the contractor.

vii. Facilities for Testing at Manufacturer's Works

Where the contract provides for tests on the premises of the contractor or of any sub-contractor the contractor shall provide such assistance, labour, materials, electricity, fuel, stores, apparatus and instruments as may be required and as may be reasonably demanded to carry out such tests.

viii. Rejection

If as a result of such inspection, examination or test of the works (other than a Test on Completion the Engineer-in-charge shall decide that such material is defective or not in accordance with the contract he shall notify the contractor accordingly stating in writing his observations and reasons thereof. The contractors shall with due diligence make good the defect and ensure that the material complies with the Contract. Thereafter, if required by the Engineer-in-charge, the tests shall be repeated under the same terms and conditions till satisfactory results are made available.

ix. Delivery of Materials and Equipment

The contractor shall be responsible for all materials and equipment brought at site for the purposes of the contract. Unless the Engineer-in- charge directs, no material shall be brought to the site which is not required for execution of the work.

x. Inspection & Testing and Re-inspection

All deficiencies revealed by testing and inspection shall be rectified by the contractor at his own expense and to the satisfaction and approval of the Engineer-in-charge. Rectified components shall be subject to re-testing till desired results are obtained.

xi. Delayed Tests

If the Engineer-in-charge opines that Tests on Completion are being delayed by the Contractor, the Engineer may by notice require the Contractor to carry out such Tests within14 (fourteen) days after the receipt of the notice. The Contractor shall carry out such Tests on such day or days as the Contractor may fix and of which he shall give notice to the Engineer.

If the Contractor fails to carry out the Tests on Completion within14 (fourteen) days, the Engineer may proceed with such Tests at the risk and cost of the Contractor. The Tests on Completion then shall be deemed to have been carried out in the presence of the Contractor and the results of such Tests shall be accepted as accurate.

xii. Inspection Reports

The contractor shall provide the Engineer - in- Charge with five copies of reports of all inspection and tests.

8.6. Access for Inspection

Persons nominated by Engineer-in-charge shall at all reasonable times have free access to work and/ or to the workshops, factories or other places where materials are lying or from which they are being obtained and the Contractor shall extend necessary service to Engineer-in-charge and their representatives every facility necessary for checking measurements, inspection and examination and test of the materials and workmanship.

9. Time Schedules

9.1. Time shall be the essence of the contract. Time allowed for carrying out the work as mentioned in the contract shall be strictly observed by the contractor and it shall be reckoned from the issue of the Date of letter for commencement of work. It may be noted that the "**Redevelopment of Moin-Ul-Haq Cricket Stadium at Patna, Bihar and their maintenance during Defect Liability Period on Engineering, Procurement and Construction (EPC) basis**" on EPC Basis involves construction of various building including development of the complex as detailed in the detailed user requirement. The buildings are required to be handed over in phases as per the milestones detailed in schedule "F" of the General Condition of the Contract. The contractor shall before commencing the work prepare a detailed work schedule. This schedule shall be strictly followed by the contractor. For completing the work in time, the contractor may have to work round the clock without interruption and no claim whatsoever shall be entertained on this account.

9.2. Commencement of Works

i. The Contractor shall commence the Works on the date specified in the Letter of Commencement for the work. Thereafter the Contractor shall proceed with due diligence, without delay, and in accordance with the programme or any revised or modified programme of the Works.

ii. The Contractor shall not commence the construction, manufacture or installation of the Works or of any part of the Works unless and until the Engineer has endorsed the relevant Drawings in accordance with the Employer 's Requirements.

9.3. Time for Completion

i. Project completion Schedule including setting out date of completion in phases as defined under Schedule F.

ii. Time is the essence of Contract and will remain so at all times during the pendency of the Contract including the extended period of Contract. The Contractor shall complete works as per completion schedule and ensure defect free completion and have passed the tests on the completion, including integrated testing where ever in the scope of work and commissioning of the whole of the Works and/or parts thereof before the same is taken over by the Administrative Department (Owner Department).

9.4. Mile Stones

i. The time allowed for execution of the Works and Mile Stones shall be as specified in the Schedule F. In case, the contractor does not achieve a particular milestone mentioned in or the re-scheduled milestone(s) by the Engineer-in-Charge/PMC/Authority Engineer, the amount shown against that milestone shall be retained and will be adjusted against the Liquidated Damages at the final grant of Extension of Time after completion of work.

ii. On failure to achieve a milestone, retaining of this amount from payments due to the contractor

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 entire retained 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 retained. However, no interest, whatsoever, shall be payable on such amount retained by the BCA.

9.5. Operation & Maintenance of Buildings handed over/taken over prior to the stipulated date of completion for the complete project.

iii. The "**Redevelopment of Moin-Ul-Haq Cricket Stadium at Patna, Bihar and their maintenance during Defect Liability Period on Engineering, Procurement and Construction (EPC) basis** involves Design, Engineering, Procurement and Construction (EPC) basis as per the Scope of work. The buildings and other services are required to be handed over in phases as per the milestones detailed in schedule "F" of the General Conditions of the Contract.

i. In respect of the buildings handed over/taken over in phases, prior to the stipulated date of completion of the entire project, the contractor shall carryouttheoperationandmaintenanceofsuchbuildingsandservicesfromthe completion of respective phases till the completion of the defect liability period of entire project.

10. Completion of Work

10.1. Physical and Virtual Completion of Work

When the phase of the work as per milestone/whole of the Work is physically and virtually complete and has satisfactorily passed required tests that may be prescribed under the Contract:-

a) The contractor shall give a written notice to this effect within 10 days of completion along with an undertaking to rectify any defects that may be found during inspection. The Engineer - in-Charge shall jointly inspect the work with the contractor within 15 days of receipt of such notice.

b) The Engineer-in-charge shall inspect the works completed to see if they are in such a condition so as to be put to its proper or other intended final use and / or occupied without any short comings and no major or minor items of works are remaining which in the opinion of the Engineer-in-charge will cause undue difficulties in satisfactory use/ occupation of the works.

10.2. Provisional Acceptance and Certificate of completion

The whole of the work shall be deemed to have been physically completed and provisionally accepted after fulfillment of all the following by the Contractor.

a) Physical completion of all works and obtaining all required approvals from the statutory authorities as required for occupation and use of the works and handing over such certificates to the Engineer-in-charge

b) Submitting As-Built Drawings, Catalogues, Brochures, and Data Sheets, manuals in the form as directed by Engineer in Charge

c) Issue of Certificate of Physical Completion by the Engineer-in-Incharge.

10.3. Certificate of Final Completion

The contract shall not be considered as completed until a Certificate of Final Completion has been issued by the Engineer-in-charge stating that the whole of the Works have been completed to his satisfaction and remedying / rectifying of defects have been satisfactorily completed.

The work shall be treated as complete when all the phases and components of the work are complete. The Certificate for Final Completion of the Composite work shall be recorded by the Engineer-in-charge after obtaining / recording of completion certificate of all the components.

Provided always that the issue of the Certificate of Final Completion shall be a condition precedent to payment or return to the Contractor the security deposit and / or Performance security in accordance with the conditions set out in the contract.

10.4. Certificate of Overall Completion

The Engineer-in-charge shall give the Certificate for Overall Completion as per the following, whichever is later:

- Twenty-eight days after the expiration of the Defects Liability Period

OR

- If different Defect Liability Periods shall become applicable to different sections or parts of the Works, the expiration of the last such period

OR

- As soon as thereafter any works ordered during such period and have been completed to the satisfaction of the BCA.

10.5. The contractor shall give performance test of the entire work as per standards specifications before the work is finally accepted and nothing extra whatsoever shall be payable to the contractor for the tests.

11. Handing over & Taking Over Process

Handing over & taking over process shall be done in phases in accordance to G.O. 178/2023/I-411303/901/23-5-2023-27(5)/2022 dated 20.10.2023 as per the scope of phased construction given in Schedule "F" of the tender document. For handing over & taking over process, in addition to clauses specified elsewhere, following services / works have to be complied with by the contractor:

a. Submission of Guarantees in stamp paper, of appropriate value, (in prescribed format) for all water proofing treatment and Anti termite treatment etcetera executed in the works for a period of ten years. If any defects noticed within 10 years from completion of defect liability period the contractor shall be sole responsible for the defects and same shall be rectified by the contractor as per information from Engineer-in-Charge/ PMC/Authority Engineer within a period of 10 days from the notice.

b. Rectification of all defects shall be carried out by the contractor before Handing over/ Taking over process.

c. As built drawings: - 6 (six) sets for Architectural, Structural, Plumbing, Electrical, HVAC system, Specialized services and other required drawings as approved by Engineer-in-charge along with their soft copies in the required software version shall be submitted by the contractor before handing over & taking over process.

d. All services/equipment are to be run and checked before handing over & taking over process as per requirements of Engineer-in-charge.

e. Contractor has to arrange water, electricity, fuel, consumables and manpower at their own cost for the purpose of testing of services and equipment's. No amount shall be payable on this account.

f. The Contractor shall submit catalogues, brochures, operation manual, manufacturer test certificate, Guarantee/ Warranty papers, license etcetera for all equipment /materials before handing over & taking over process.

12. Guarantees

Notwithstanding provisions in the General Condition of the Contract and elsewhere in

these Specific Conditions of Contract, the contractor shall furnish the **guarantees** in the prescribed form appended herewith. These guarantees shall be provided at the stage of virtual completion of work and shall be effective from the completion of work, to be reckoned from the date after the expiry of the maintenance period prescribed in the contract. In case a specialized agency has been approved for execution of a work/system, the Contractor shall ensure that the Guarantees shall be though such agencies (Obligators/Guarantor). The guarantees shall be provided in respect of following works (as per formats appended to this document) and any additional works, as provided for in the contract.

i. For removal of defects after completion in respect of Water Supply and Sanitary Installations.
ii. For Water Proofing Treatment for Basements
iii. For Water Proofing Treatment for Roof
iv. For Water Proofing Treatment (Under floors)
v. For Anti-Termite Works
vi. For Aluminum Works
vii. For Structural Glazing / Curtain Wall System/works
viii. For Mechanical/ Seismic Expansion Joint/Works
ix. For any other work, as prescribed in the tender document

13. Defect after completion

a) General

Any defect, shrinkage, settlement or other faults that may appear within the "Defects Liability Period" which in the opinion of the Engineer-in- charge are due to materials or workmanship not in accordance with the contract, shall be rectified as per the directions in writing of the Engineer-in- charge to the Authorized representative of the contractor within such reasonable time as shall be specified therein by the contractor, at his own cost. In case of default, the Engineer-in-charge may employ any person's to amend and make good such defects, shrinkage, settlements or other faults and all expenses consequent thereon or incidental thereto shall be borne by the contractor.

All preventive/routine & breakdown maintenance related to all works executed under this Contract shall be in the scope of Contractor & cost incurred to this effect shall be deemed to be included in the Bid. Nothing extra will be paid on this account whatsoever.

The scope of work shall, also include operation and maintenance of various Civil & E&M works shall be carried out by EPC Contractor either himself or through respective OEM & Vendors who are involved in supply & installation of works at site. O&M activities shall be provided up to completion of the defect liability period i.e. up to 36 months from the date of start of the project, as already detailed above and shall be separately paid as per respective terms and conditions of this Contract.

b) Execution of work of repair etcetera

Any defects, shrinkage, settlement or other faults which may appear or be noticed within the defect liability period, and arising in the opinion of the Engineer-in- charge from materials or workmanship not having in accordance with the contract, shall upon the direction in writing of the Engineer-in-charge's representative and within such reasonable time as shall be specified therein and without any delay, be amended and made good or replaced by the contractor at his own cost.

c) Cost of Execution of Work of Repair, Etcetera

All such works shall be carried out by the Contractor at his own expense if the necessity thereof shall, in the opinion of the Engineer-in- charge, be due to the use of materials or workmanship not in accordance with the Contract, or due to neglect or failure on the part of the Contractor to comply with any obligation, expressed or implied, on the Contractor's part under the Contract.

d) Contractor's personnel to be at site

During the defects liability period the contractor shall depute at least one of his authorized representative at site along with required tradesmen to attend the defects to the satisfaction of Engineer-in-charge.

14. Dues not paid by the Contractor

The contractor shall pay all dues or fees to Statutory authorities and Electric and Water supply authorities & Lift licensing authority etcetera within due period and indemnify the Employer and the Engineer-in-charge from any claims or compensations or penalties or damages arising out of non-payment of any such dues or fees. However, in case some dues or fees are not paid by contractor and or claims for compensations or penalties etcetera are raised by the Statutory authorities, the Employer may deposit the required amount or any or all of the above and recover or deduct the same from any money payable to the contractor by the Employer or any other means available to the Employer such as bank guarantee.

15. Urgent Repairs

If, by reason of any accident, or failure, or other event occurring to or in connection with the works, or any part thereof, either during the execution of the works, or during period of Defects Liability any remedial or other work or repair, shall, in the opinion of the Engineer-in-charge be urgently necessary for the safety of the Works and the Contractor is unable or unwilling to do such work or repair despite notice, the Engineer-in-charge may employ and pay other persons to carry out such work or repair as the case may be and may consider necessary. If the work or repair so done by the other agency is the work which, in the opinion of the Engineer-in-charge the Contractor was liable to do at his own expense under the Contract, all expenses incurred by Other agency in so doing shall be recoverable from the Contractor by the Engineer-in-charge, or shall be deducted by the Engineer-in- charge from any monies due or which may become due to Contractor.

16. Plant Temporary Works & Materials

a) Plant, etcetera Exclusive use for the Works

All Constructional Plant, Temporary Works and materials provided by the Contractor shall, when brought on to the Site, be deemed to be exclusively intended for the execution of the Works and the Contractor shall not remove the same or any part thereof except for the purpose of moving it from one part of the Site to another, without the consent, in writing of the Engineer-in-charge, which shall not be unreasonably withheld.

b) Removal of Plant etcetera

Upon completion of the Works, the Contractor shall remove from the Site all the said Constructional Plant and Temporary Works remaining thereon and any unused materials provided by the Contractor, within 10 days of obtaining the completion certificate/

Virtual completion of the work.

17. Reports by Contractor

a) The Contractor shall submit MSP (Microsoft) tracker activity wise bar charts, indicating the duration of various subheads of the work, for the complete work within 15 days of award of work or as per Clause 5 of the GCC, whichever is earlier, for approval by the Engineer - in- Charge. On the basis of approved bar charts contractor shall submit Progress Charts by the 4th day of every month. Soft copy of PERT chart shall be supplied whenever demanded by the Engineer-in-charge.

b) The Contractor shall submit Monthly Progress Report in triplicate in format approved by Engineer-in-charge. Failure to submit reports may result in holding up or delay in Payment of bills.

c) Monthly Progress Photographs:- The Contractor shall arrange at his own cost to maintain a progress record of the works by taking postcard size colour photographs (preferably digitized photographs) 6 Nos. or more per month per block as directed by the Engineer-in-charge during the construction stages and after completion shall supply three sets at no extra cost. The Contractor will be required to submit monthly reports on the progress of his work as per the format approved by the Engineer-in-charge.

d) The Contractor shall prepare Weekly Reports of planned and actual progress of work and subsequent week's scheduled work. These will also include material procurement status. These reports shall be submitted to the Engineer-in-charge & shall be reviewed in Weekly Co-ordination Meetings.

e) The Contractor shall file daily category-wise labour report to the Engineer-in- charge. The report shall indicate scheduled requirement against actual strength.

f) The contractor shall maintain daily weather record. Daily maximum and minimum temperature and corresponding, humidity shall be recorded and charted. Rainy days shall be recorded when the rain lasting more than one hour hampers the work. Any other inclemency in weather shall be recorded. The records shall be regularly shown to the Engineer-in-charge and his signature obtained.

18. Operations and Maintenance Manual

The Contractor shall provide and submit to the Engineer-in-charge with six copies of the Operation and Maintenance Instruction Manuals. The arrangement of these manuals shall be as follows:

SECTION A:	Index
SECTION B:	Salient features of the Project.
SECTION C:	Description and details of materials, items and fittings and fixtures used for the project along with Catalogues /Brochures Operation & Maintenance Manuals etcetera
SECTION D:	Operation & Maintenance instructions
SECTION E:	List of recommended Spare parts/consumables.

Until above mentioned documents are received and approved by the Engineer-in- charge, Contract shall not be considered as complete and payment will be withheld until such documents etcetera have been submitted to and approved by the Engineer-in-charge. The cost of providing such records including proper submission thereof is deemed to be included in the Bid.

19. Co-ordination Meetings

The Contractor shall be required to attend co-ordination meetings with the BCA and the other Contractors during the period of Contract as intimated by the Engineer- in-charge. All costs incidental to such interaction shall be to the Contractor's account and no claim will be entertained by the BCA on this account.

20. Compliance of Statutory Obligations and obtaining Approvals/ Completion Certificates:

The Contractor shall comply all the statutory obligations and obtain all required clearances to implement the project without any financial repercussions to Engineer- in-charge and ensure all follow up actions with the local authorities in this respect for smooth completion of the project. The Contractor shall obtain all necessary approvals from Municipal bodies and other local bodies including, Water/Sewer supply agencies, Electric Supply and inspectorate agencies, Police and Security Agencies, Chief Controller of Explosives, Fire Department, Civil Aviation Department, Lift inspector, Pollution Control Board, , tree replantation, permission for bore well and for temporary structures etcetera in accordance to prevailing rules, Building Bye-Laws etcetera, as the case may be with related to Construction/ Completion. The contractor shall be assisted by the Engineer-in-charge to obtain all NOC, completion & Occupancy certificates from respective local bodies and other statutory authorities, such as:

i) Construction Permit, if required

ii) Pollution control Board,

iii) Environment Clearances,

iv) Provisional & Final NOC from fire department,

v) Lift license i/c NOC,

vi) Chief Electrical Inspector CEA,

vii) Local Municipal authority.

viii) Airport Authority,

ix) Forest Department for tree replantation etcetera,

x) Explosive Department,

xi) Local Municipal authority for water and sewer connection,

xii) Building Occupancy Certificate

xiii) Any other statutory requirement for execution of work and to occupy the buildings and run the services in all respects.

Contractor shall organize all inspections of concerned authorities & obtain the NOC's within the time for completion. The Engineer-in-charge may, at the written request of the Contractor, assist him in obtaining the approvals from relevant authorities. However any such request by the Contractor shall not bind the Engineer-in-charge in any manner.

All expenditure on these accounts will be borne by the contractor. However the fees paid by the contractor to these statutory authorities only for obtaining the required statutory approvals shall be reimbursed by Employer on submission of valid payment receipts from these statutory authorities.

The contractor is required to submit the relevant drawings/filled application forms as per prescribed format & any other details like completion Drawings and any other statutory documentary requirements of local bodies in copies as per requirement to obtain the

above etcetera at their own cost.

21. Training and Operating Instructions

a. If required by the Engineer-in-charge, the Contractor shall at his cost, train members of the maintenance staff of Administrative Department either at his or the subcontractor's workshop or at such other place or places as may be considered suitable by the Engineer-in-charge.

b. Upon completion of all work and all tests, the Contractor shall furnish the necessary skilled/unskilled/semi-skilled personnel for operating the entire installation for a period of thirty (30) working days. During this period, the Contractor shall instruct and train the Administrative Department representative(s) in operation, adjustments and maintenance of the equipment installed.

c. The Contractor shall submit to the Engineer-in-charge draft comprehensive operating instructions and maintenance schedule for all systems and equipment included in this Contract. This shall be supplemented, not substituted, by manufacturer's operating and maintenance manuals. Upon approval of the draft, the Contractor shall submit to the Engineer-in-charge six (6) complete bound sets of operating and maintenance schedules along with manufacturers printed literature/catalogues.

22. Test Certificates

The contractor shall submit test certificates for all the materials / systems issued by the Engineer-in-Charge approved inspection / office / manufacturer certifying the Equipment / Materials / installation and its function are in agreement with the requirements of relevant specifications and accepted standards.

23. Quiet Operation and Vibration

All equipment's shall operate under all conditions of designed load without any sound or vibration, which is considered objectionable by the Engineer-in-charge. Such conditions shall be corrected by the Contractor at his own expense. Decision of the Engineer-in-charge shall be final in this regard.

24. Accessibility

The Contractor shall locate all equipment's, which require servicing, operation or regular maintenance in fully accessible positions. The exact location and size of access panels, required for each valve or other devices requiring attendance, shall be finalized and communicated to Engineer - in- Charge well in time, to facilitate working by other agencies, failing this, the Contractor shall make all the necessary repairs and changes at his own expense.

25. Licenses and Permits

The Contractor or the approved specialized agency engaged by them shall hold a valid license for services like plumbing, electrical, Lifts etcetera & wherever required in addition, issued by the Competent Authority under whose jurisdiction the work falls.

26 INSURANCE

26.1 Without limiting the Contractor's obligations and responsibilities stated elsewhere in the Contract, the Contractor shall at his own cost arrange, secure and maintain insurance in the name of the BCA and the contractor with an insurance company selected by the contractor and acceptable to the Employer, in such a manner that the Employer and the contractor are covered for all time during the period of contract i.e. the time period allowed for completion of work, extended period and the defect liability period. The insurance shall be effected in accordance with terms approved by the Employer and the contractor shall submit the insurance policies to the Engineer-In- Charge within one week of signing of the agreement along with the receipt of premium. The contractor shall timely pay and submit the receipts of payment of premiums for extensions of policies,

if any. The insurance shall cover the following: -

26.1.1 Contractor's All Risks Insurance

The contractor shall insure the work for a sum equivalent to the Contract value together with materials and Plant for incorporation therein, to the full replacement cost and it being understood that such insurance shall provide for compensation to be payable to rectify the loss or damage incurred, and, an additional sum of 15 (%) per-cent of such replacement cost to cover any additional costs of and incidental to the rectification of loss or damage including professional fees and the cost of demolishing and removing any part of the Works and of removing debris of whatsoever nature, and it being understood that such insurance shall provide for compensation to be payable to rectify the loss or damage incurred or such additional sums as specified and the interests of the Employer against ALL RISKS claims, proceedings, loss or damages, costs, charges and expenses from whatsoever cause arising out of or in consequence of the execution and maintenance of the work for which the contractor is responsible under the contract.

26.1.2 Workman Compensation & Employers Liability Insurance.

This insurance shall be effected for all the contractor's employees engaged in the performance of the contract. The Employer shall not be liable in respect of any damages or compensation payable at law in respect of or in consequence of any accident or injury to any workman or any other person in the employment of the contractor and the contractor shall indemnify and keep indemnified the Employer against all such damages and compensation and against all claims, demands, proceedings, costs, charges and expenses, whatsoever in respect or in relation thereof.

26.1.3 Third Party Insurance.

The contractor shall be responsible for making good to the satisfaction of the Engineer-in-Charge any loss or any damage to all structures and properties belonging to the Employer or being executed or procured or being procured by the Employer or of the other agencies within the premises of all work of the Employer if such loss or damage is due to fault and or the negligence or willful acts or omissions and commissions of the contractor, his employees, agents, representatives.

The contractor shall take sufficient care in moving his plants, equipment and materials from one place to another so that they do not cause any damage to any person or to the property of the Employer or any third party including overhead and underground cables and in the event of any damage resulting to the property of the BCA or to a third party during the movement of the aforesaid plant, equipment or materials, the cost of such damages including eventual loss of production, operation or services in any plant or establishment as estimated by the Employer or ascertained or demanded by the third party, shall be borne by the contractor.

Before commencing the execution of the work, the contractor, shall insure and indemnify and keep the Employer harmless of all claims, against the contractor's liability for any materials or physical damage, loss or injury which may occur to any property, including that of the Employer or to any person including any employee of Employer, or arising out of the execution of the work or in the carrying out of the contract, otherwise than due to the matters referred to in the provision to (a) above. Such insurance shall be effected for an amount sufficient to cover such risks. The terms shall include a provision whereby, in the event of any claim in respect of which the contractor, would be entitled to receive indemnify under the policy being brought or made against the Employer, the insurer willfully indemnify Employer against such claims and any costs, charges and expenses in respect thereof.

26.1.4 The Contractor shall also at times indemnify the BCA against all claims, damages or compensation under the provisions of Payment or Wages Act, 1936, Minimum Wages Act, 1948, Employer's Liability Act, 1938, the Workman's Compensation Act, 1947, Industrial Disputes Act, 1947 and Maternity Benefit Act, 1961,

or any modification thereof or any other law relating thereof and rules made there under from time to time.

26.1.5 The Contractor shall also at his own cost carry and maintain any and all other insurance(s) which he may be required for the Contractor's Equipment and other things brought onto the Site by the Contractor, for a sum sufficient to provide for their replacement at the Site

26.1.6 The Contractor shall also at his own cost carry and maintain any and all other insurance(s) which he may be required to take out under any law or regulation from time to time. He shall also carry and maintain any other insurance, which may be required by the Engineer-in-Charge.

26.1.7 **Cross liabilities:** -The insurance policy shall include a cross liability clause such that the insurance shall apply to the contractor and to the BCA as separate insured.

26.1.8 The Contractor shall prove to the Engineer-in-charge from time to time he has taken out all the insurance policies referred to above and has paid the necessary premiums for keeping the policies alive till expiry of the Defects Liability Period.

26.2 Evidence and Terms of Insurance

The Contractor shall provide evidence to the as soon as practicable after the respective insurance have been taken out but, in any case, prior to the start of work at the Site that insurance required under the Contract have been effected and shall, within 30 days of the Commencement Date, provide the insurance policies to the Employer. When providing such evidence and such policies to the Employer, the Contractor shall notify to the Engineer in Charge also. Such insurance policies shall be consistent with the general terms agreed prior to the issue of the Letter of Acceptance. The Contractor shall effect all insurance for which he is responsible with insurers and in terms approved by the Engineer-In-Charge.

26.3 Adequacy and cancellation of Insurance

26.3.1 The Contractor shall notify the insurers of changes in the nature, extent or programme for the execution of the Works and ensure the continuity and adequacy of the insurance at all times in accordance with the terms of the Contract and shall, when required, produce to the Engineer-in-Charge the insurance policies in force and the receipts for payment of the current premiums.

26.3.2 The aforesaid insurance policies shall provide that they shall not be cancelled till the Engineer-in-charge has agreed for cancellation.

26.4 Remedy on the contractor's failure to insure

If the contractor shall fail to effect and keep in force the insurance referred to above or any other insurance which he/they may be required to effect under the terms of the contract then and in any such case Engineer-in-charge may without being bound to, effect and keep in force any such insurance and pay such premium or premiums, as may be necessary for that purpose and from time to time deduct the amount so paid by the Engineer-in-charge from any moneys due or which may become due to the contractor or recover the same as a debt due from the contractor.

26.5 Compliance with Policy Conditions

In the event that the Contractor fails to comply with conditions imposed by the insurance policies effected pursuant to the Contract, the Contractor indemnify the BCA against all losses and claims arising from such failure.

Specific Conditions of Contract-ELECTRICAL SERVICES

1. General

i. The Specific Conditions of the Contract - Electrical Services shall read in conjunction with the Specific Conditions of the Contract-Scope of Work, and, Specific Condition of the Contract-General. In case of variations / deviations, if any, the Specific Conditions of the Contract- Electrical Services shall prevail.

ii. The electrical installations shall be in total conformity with the Shop Drawings, Single Line Diagrams (SLD), Design Basis Report, Schematic Drawings, Power & Control wiring drawings etcetera prepared by the Contractor and approved by the Engineer-in-charge & shall be tested & commissioned in the presence of the Contractor and the Engineer - in-Charge.

iii. The responsibility for the sufficiency, adequacy and conformity to the Contract requirements of the electrical installation work lies solely with the Contractor.

iv. The planning, design, construction and workmanship shall be in accordance with the best engineering practices to ensure satisfactory performance and service life and shall be complete in all respects. Any materials or accessories which may not have been specifically mentioned, but which are necessary for the satisfactory and trouble free operation and maintenance of the equipment shall be provided without any extra cost. This shall also include spares, consumables, tools & tackles required for commissioning of the equipment.

v. The Contractor shall obtain all statutory approvals (electrical loads, approval of drawing/ approval of meter room etcetera) from the concerned statutory authorities and permits required for the HT/LT electrical installation work. All statutory fee payable in this regard will be reimbursed against production of receipts/documentary evidence. On completion of work, the contractor shall obtain NOC from SEB/ Power Distribution Company & Director of Safety of the concerned state; a copy of the same shall be delivered to Employer. Contractor shall be responsible for dealing with SEB/ Power Distribution Company and other statutory authorities till project commissioning/ handing over and getting electricity in the complex.

vi. The Engineer-in-Charge shall have full power for getting the materials or work tested by independent agency at the electrical contractor's expenses in order to prove their soundness and adequacy. The contractor will rectify the defects/ suggestions pointed out by Engineer-in-Charge/independent agency at his own expenses.

2. Regulations and Standards

i. The installation shall comply in all respects with the requirements of Indian Electricity Act 1910, Indian Electricity Rules (IER) 1956 and other related Laws and Regulations as amended up to date, there under and special requirements, if any, of the State Electricity Boards/ Power Distribution Company etcetera The Bidder is liable to furnish the list of authorized licensed persons/ employed/deputed to carry out the works/perform the assigned duties to fulfill the requirements of IER 1956 as amended up to date.

ii. Wherever these Specific Conditions call for a higher standard of material and /or workmanship than those required by any of the above regulations, then these Specific Conditions shall take precedence over the said Regulation and Standards. All Internal & External Electrical works, LV works, ~~HVAC,~~ Fire Fighting, Fire detection & alarm system etcetera to be done as per specifications &relevant BIS codes and other applicable codes as relevant.

3. Conformity with Statutory Acts, Rules and Standards

i. All installations shall be in conformity with the Bye-laws, Regulations and Standards of the local authorities as applicable. But if the specifications and drawings call for a higher standard of material and/or workmanship than those required by any of the above Regulations and Standards, then the specifications and drawings provided in the contract shall take precedence over the said regulations and standards as per the directions of the Engineer-in-charge.

ii. However, if the drawings or specifications required something which violates the Bye-laws and Regulations, then the Bye-laws and Regulations shall govern the requirement of this installation as per the directions of the Engineer- in- charge.

iii. Indian Electricity Act and Rules: All electrical works in connection with installations of the system shall be carried out in accordance with the provision of the Indian Electricity Act, 1910 and the Indian Electricity Rules 1956, both amended up to date.

iv. CPWD Specifications: as at Schedule "F" of GCC.

v. Indian Standards: The system / components shall conform to relevant BIS wherever they exist and to the National Building Code-2016 and ECBC with latest amendments /addendums.

vi. Nothing in these specifications shall be construed to relieve the Contractor of his responsibility for the design, manufacture and installation of the equipment with all its accessories in accordance with applicable Statutory Regulations and safety codes inforce.

4. Completeness of Bid

All sundry fittings, assemblies, accessories, hardware items, foundation bolts, termination lugs for electrical connections as required, and all other sundry items which are useful and necessary for proper assembly and efficient working of the various components of the work shall be deemed to have been included in the quoted prices, whether such items are specifically mentioned in the Bid documents or not.

5. Works to be done by the Contractor:-

Unless and otherwise mentioned in the Bid documents, the following works shall be done by the Contractor, and their cost shall be deemed to be included in the contract price:

i. Foundations for equipment and components where required, including foundation bolts

ii. Cutting and making good all damages caused during installation and restoring the same to their original finish

iii. Sealing of all floor openings including shafts and niches etcetera provided for pipes, ducts, cables, bus bars etcetera from fire safety point of view, after laying of the same.

iv. Painting at site of all exposed metal surfaces of the installation other than pre- painted items like fittings, fans, switchgear/ distribution gear items, cubicle switch board etcetera damages during erection, shall however be rectified by the contractor.

v. Testing and commissioning of complete installation.

6. Cutting of structural members

No structural member shall be chased or cut without the written permission of the Engineer-in-Charge.

7. Drawings

The tender drawings have been appended to the tender document for guidance of the

contractor. The contractor shall plan and design all services and prepare shop drawings. The shop drawings shall cover, but not limited to, the extent and general arrangements of the fixtures, controlling switches, wiring system, distribution boards, panels, sub-panels etcetera The Contractor shall submit requisite number of working electrical drawings based on tender drawings including reflected ceiling plan for the Engineer-in-charge's approval. Contractor has to make necessary changes if any as per comments given by Engineer-in-charge before execution. The work shall be executed as indicated in the approved drawings, however any minor changes found essential to co-ordinate the installation of this work with the other trades shall be made in consultation with the Engineer-in-charge.

Any discrepancies noticed shall be reported to the Engineer-in-charge for clarification. In case of failure to do so Contractor shall not be entitled to any cost for omissions or defects in electrical drawings due to any conflict with other services work.

Any information/data shown/not shown in these drawings shall not relieve the contractor of his responsibility to carry out the work as per the specifications. Additional information required by the Bidder/tenderer for successfully completing the work shall be obtained by him.

8. Position of HT/LT Switch Boards

The recommended position of the switch boards, transformer as shown on the layout drawings will be adhered to as far as practicable.

The contractor shall procure such equipment/ materials as per list of the approved makes with prior approval of Engineer-In-Charge. For all non-specified items, approval of the Engineer-In-Charge shall be obtained prior to procurement of the same. Engineer-In-Charge/BCA shall in no way be liable for rejection of the any material due to poor quality, poor workmanship, poor material etcetera

9. Shop Drawings

Prior to the laying of the conduits and trunking, the Contractor shall submit the shop drawings for the approval of the Engineer-in-charge. The observations, if any, of Engineer-In charge shall be incorporated and drawings shall be re-submitted for the approval of the Engineer-in-charge.

The Contractor shall prepare and submit to the Engineer-in-charge for his approval detail shop drawings, General Arrangement Drawings, SLD, power/ control wiring drawing for Main & Sub Panels / Distribution Boards, special pull boxes, light & fan switchboards, telephone distribution boards, FDA system and lightning protection system and other equipment to be procured/ fabricated by the Contractor.

The contractor shall prepare detailed coordinated electrical shop drawing indicating lighting/lighting fixtures, convenience outlets, HT Panels, LT Panel Boards/ Panels, PCC, DB's, Rising Mains, Cable Schedule with other relevant services and submit for approval of the Engineer-in-Charge before commencing the work. The shop drawings shall indicate all setting out details and physical dimensions of all components, GA Drawings, wiring and cable details for 33/ 11 KV Panel Board, LT Panels, PCC's, MCC's, cable schedule and routes, manhole trap etcetera The fixing details for conduits indicating run and size of wire/cables, outlet/pull/junction boxes etcetera with fixing details etcetera shall be provided. All works shall be carried out after the approval of these drawings. However, approval of these drawings do not relieve the contractor of his responsibility for providing maintenance free and fool proof system including any missing component/

accessories to meet with the intent of the specifications. Contractor will submit requisite no of prints for preliminary approval and finally requisite sets of prints for distribution.

The Contractor shall submit and get approved the relevant drawings at least 15 days before placing of the orders with manufacturers/suppliers.

The approval of shop drawings, schedule, brochures etcetera by Engineer-in-charge and shall not relieve the Contractor from responsibility for any deviation from drawings or specifications unless he has in writing informed by Engineer-in-charge of such deviations at the time of submission of the drawings nor shall it relieve the Contractor from any responsibility for errors or omissions of any kind in the shop drawings.

10. Materials & Equipment and Approval Thereof

All the materials and equipment shall be of the approved make and design. Unless otherwise called for any approval by Engineer-in-Charge, only the best quality materials and equipment shall be used.

All materials and equipment shall be ISI marked, as applicable, and shall be of the make and design approved by the Engineer-in-charge. Unless otherwise called for, only the best Grade of materials and equipment shall be used. The Contractor shall be responsible for the safe custody of all materials and equipment's till these are taken over by Administrative Department and shall insure them against theft, damage by fire, earth quake etcetera A list of items of materials and equipment, together with a sample of each shall be submitted to the Engineer-in-charge for his approval and shall be kept in the sample box.

All materials used on the Works shall be new and of the approved quality, conforming to the relevant specifications. Prior approval shall be obtained in writing from the Engineer-in-charge for all materials proposed and when approved, sample shall be duly identified and labeled, it shall be deposited with the by Engineer-in-charge/ and shall be kept in the sample room at Site

10.1. Technical Submittals

The Contractor shall submit Technical Submittals for all materials, equipment and machinery for approval in writing of the Engineer-in-charge before placing orders. The material submittals shall comprise of at least the following:

i. Manufacturer's technical catalogues and brochures giving technical data about performance and other parameters
ii. Manufacturers drawings / sketches showing construction, dimensional and installation details
iii. Rating charts and performance curves clarifying rating of equipment proposed.
iv. The contractor is specifically instructed to propose & use environment friendly construction methods and other new technologies in building construction as per "New & Innovative Technologies 2018" issued by CPWD in 2018.

10.2. Samples, Catalogues, Brochures and Data

Contractor shall submit the samples & catalogue of the material, which are proposed to be used at Site as per the approved makes for obtaining approval of the Engineer-in-charge.

The Contractor shall submit the number of copies, as required, of all brochures / manufacturer's description data, operation manuals with internal complete circuit diagrams and other similar literature while obtaining the approval of product from Engineer-in-charge.

11. Inspection, Testing and Inspection Certificate

a. The Engineer-in-charge/BCA or duly authorized representative shall have at all reasonable times free access to the Contractor/ Manufacturer's premises or works and shall have the power at all reasonable times to inspect and examine the materials and workmanship of the works during its manufacture or erection, if part of the works is being manufactured or assembled at other premises or works, the Contractor shall obtain permission to inspect as if the works were manufactured or assembled on the Contractor's own premises or works. Inspection may be made at any stage of manufacture, dispatch or at site at the option of the Engineer-in-charge/BCA and the equipment if found unsatisfactory due to bad workmanship or quality, material is liable to be rejected.

b. All equipment being supplied shall conform to Routine and Type Tests in accordance with relevant IS Codes requirements stipulated under respective sections. Routine and Type Tests shall be carried out at manufacturers' works/ factories. Expenditure incurred on conducting such tests shall be to the Contractor's account. Bidder shall submit the routine & type tests reports to Engineer-In-charge.

c. The Engineer-in-Charge shall inform contractor within fifteen (15) days from the date of inspection or as defined, inform in writing to the Contractor of any objection to any drawings and all or any equipment and workmanship which in his opinion is not in accordance with the Contract. The Contractor shall give due consideration to such objections and make the necessary modifications accordingly.

d. Before dispatch to site, the contractor shall offer the equipment for inspection at premises of the manufacturer, 15 days in advance and inform Engineer-in- charge about the date of inspection. Subsequently, Engineer-in-charge shall depute its Inspection Engineer(s) for carrying out the inspection at premises of the manufacturer on mutually agreed date(s). Contractor shall invariably depute his representative(s) for witnessing the complete inspection procedure jointly with Inspection Engineer(s) of Engineer-in-charge.

e. The contractor shall arrange all necessary instruments, tools, tackles and testing facilities free of cost for such inspections. Contractor shall arrange for inspection visit(s) and bear all inspection costs including Inland/ abroad travel (Air/Rail/Road), lodging and boarding expenses etcetera free of cost for the Inspection Engineer(s) deputed by Engineer-in-charge.

f. For tests whether at the premises or at the works of the Contractor or of any Sub-Contractor, the Contractor except where otherwise specified shall provide

Free of charge such items as labour, materials, electricity, fuel, water, stores, apparatus and instruments as may be required by Engineer-in-charge or this authorized representative to carry out effectively such tests of the equipment in accordance with the Specification.

g. The inspection by Engineer-in-charge/ PMC/Authority Engineer and issue of Inspection Certificate thereon shall in no way limit the liabilities and responsibilities of the Contractor in respect of the agreed quality assurance programme forming a part of the Contract.

h. The BCA will have the right of having at his own expenses any other tests(s) of reasonable nature carried out at Contractor's premises or at site or in any other place in addition of aforesaid type and routine tests to satisfy that the material comply with the specifications.

i. The Employer reserves the right for getting any field tests not specified in respective

sections of the technical specification conducted on the completely assembled equipment at site. The testing equipment for these tests shall be provided by the Contractor.

j. Employer reserves the right to waive off inspection of any equipment, items etcetera at its sole discretion.

k. Notwithstanding approval of tests or equipment by the by Engineer-in-charge, the Contractor shall be required to perform site tests and prove the correctness of ratings and performance of equipment / machinery and materials supplied and installed by the Contractor as per the Contract specifications and conditions. The Engineer-in-charge shall also have the power to order the material or work to be tested by an independent agency at the Contractor's expense in order to prove soundness &adequacy.

12. Testing and Commissioning

The Contractor shall pay for and arrange without any cost to the Engineer-in-charge, all necessary balancing and testing equipment, instruments, materials, accessories, power, water, fuel and the requisite labour for testing. Any defects in materials and/ or in workmanship detected in the course of testing shall be rectified by the Contractor entirely at his own cost, to the satisfaction of the Engineer-in-charge. The installation shall be retested after rectification of defects and shall be commissioned only after approval by the Engineer-in-charge. All tests shall be carried out in the presence of the Engineer-in-charge or his representative.

13. PACKAGING

All the equipment shall be suitably protected, coated, covered or boxed and crated to prevent damage or deterioration during transit, handling and storage at Site till the time of erection. While packing all the materials, the limitation from the point of view of availability of Railway wagon/truck/trailer sizes in India should be taken account of the Contractor shall be responsible for any loss or damage during transportation, handling and storage due to improper packing. Any demurrage, wharf age and other such charges claimed by the transporters, railways etcetera shall be to the account of the Contractor. Employer takes no responsibility of the availability of any special packaging/transporting arrangement.

14. TESTS

i. Charging

On completion of erection of the equipment and before charging, each item of the equipment shall be thoroughly cleaned and then inspected jointly by the Engineer-in-charge, BCA and the Contractor for correctness and completeness of installation and acceptability for charging, leading to initial pre-commissioning tests at Site. The pre-commissioning tests to be performed as per relevant I.S. given and shall be included in the Contractor’s quality assurance programme.

ii. Commissioning Tests

The available instrumentation and control equipment will be used during such tests and the Contractor will calibrate all such measuring equipment and devices as far as practicable. However, unmeasurable parameters shall be taken into account in a reasonable manner by the Contractor for the requirement of these tests. The tests will be conducted at the specified load points and as near the specified cycle condition as practicable. The Contractor will apply proper corrections in calculation, to take into account conditions, which do not correspond to the

specified conditions.

All instruments, tools and tackles required for the successful completion of the Commissioning Tests shall be provided by the Contractor, free of cost.

Pre-commissioning test shall be carried out as per relevant IS and/or as specified.

The Contractor shall be responsible for obtaining statutory clearances from the concerned authorities for commissioning of the equipment. Performance Guarantee Certificates for Equipment

All equipment shall be guaranteed against unsatisfactory performance and/or break down for a minimum period of 36 (Thirty-six) months or as per Technical Specifications or as per OEM, whichever is higher, from the date of handing over of complete work to the Administrative Department. The equipment or component or any other part of installations of found defective with in the guarantee period shall be replaced/ repaired by the Contractor free of cost to the satisfaction of the Engineer-in-Charge. The above guarantee and/ or warrantee provided by the manufacturer will be submitted along with all the test certificates from manufacturer to Engineer-in- Charge.

15. Completion Drawings (As Built Drawings)

On completion of the work and before issue of certificate of virtual completion, the Contractor shall at his own cost submit to the Engineer-in-charge requisite Sets of layout drawings drawn at the approved scale indicating the actual installations. These drawings shall clearly indicate the complete plant layouts, and piping layouts, location wiring, exact location of all the concealed piping, valves, controls, wiring and other services. The Contractor shall also submit requisite sets of consolidated control diagrams, technical literature on all automatic controls and complete technical literature on all equipment and materials. The Contractor shall mount a set of all consolidated control diagrams and all piping diagrams/Single Line diagrams in a frame with glass, and display in the plant room.

Also, the contractor shall submit soft copy of 'As Built' drawings (in AutoCAD & PDF format) of the work including write up (trouble shooting, installation, operation and maintenance manual with instructions) incorporating all such changes and modifications during engineering and execution along with warrantee & guarantee certificates from manufacturers. As-Built Drawings for all buildings/ blocks/facilities constructed shall be provided as following:

a. Single Line diagrams showing all LT Panels, DB, Rising mains etcetera

b. Routing and locations of Conduits, inspection and junction boxes etcetera

c. Locations and rating of Light, Power and UPS sockets and switches

d. Location and details of main & sub distribution boards, distribution boards indicating the circuit number controlled by them

e. Type of fitting viz. fluorescent, pendants, brackets, bulkhead etcetera, including their rating & type of lamp, fans and exhaust fans

f. A complete wiring diagram as installed and schematic drawing showing all connections for the complete electrical system

g. Location of telephone outlets, junction boxes and sizes of various conduits and number & sizes of wire drawn

h. Layout of Telephone/ LAN/OF C cables

i. Location of all earthing stations, route and size of all earthing conductors, manholes etcetera

j. Layout and particulars of cables & sub mains.

k. Schematic drawing for Telephone & IPABX System

l. Layout of conduits & locations of for LAN/ Wifi Points

m. Layout and details of Earthing Network & Lightning protection system including Insulation tests and earth test results

n. PA System drawings & Fire Alarm Control System Drawings

o. ~~Cable TV/ Dish Antenna drawings~~

p. General Arrangement drawings for all Electrical & LV Equipment

q. Cable route layout of HT, LT, Control cables & other cables

r. External lighting drawing with road layout

s. GA & Layout Drawings for Audio Video & Stage Lighting System

t. Any other drawings/details as per requirements and directions of Engineer-in-charge

16. Checks during Defect Liability Period

During the Defect Liability Period/ Maintenance Period, the Contractor shall monthly check all controls in various areas to ensure that these are functioning satisfactorily. This shall apply to all pressure switches and pressure gauges, contacts, relays, controller switches, high and low pressure cut-outs etcetera

17. Check List

The Contractor shall provide to the BCA / Engineer-in-charge, 4 (four) copies of a comprehensive maintenance checklist and shall place a copy of it in the Substations & Plant Room. The checklist shall be a list of each piece of equipment in this Contract, and shall provide a space for each of the next fifty-two weeks to record the maintenance results and status of various equipments during the maintenance period. This list shall be updated every month at the time of inspection. The Contractor shall certify on this check list that he has examined each piece of equipment and that; it is operating as intended in the contract/ by the manufacturer, and that all necessary tests have been performed.

18. Repairs

All equipment that requires repairing shall be immediately serviced and repaired during the maintenance period. All spares/parts and labours shall be furnished by the contractor free of cost.

19. Training of Personnel

The Contractor shall arrange for training of the Administrative Department personnel prior to provisional takeover of the project including for the following:

a. Telephone Exchange

b. All other Equipment like pumps, panels etcetera

c. Adjustment of setting for controls and protective devices

d. Preventive maintenance

e. Operation of all electrical panels including their interconnectivity and inter locking scheme

f. All LV Works

g. Pumping System

h. Any other specialized system as executed under this contract

20. Safe Custody and Storage

Safe custody of all machinery and equipment dismantled, shifted & supplied by the Contractor shall be his own responsibility till the final taking over by the Administrative Department. The Contractor should, therefore, employ sufficient staff for watch and ward at his own expenses. BCA may, however, allow the Contractor to use the building space for temporary storage of such equipment, if such space is available.

21. Handling, Storing and Installation

- In accordance with the specific installation instructions as shown on manufacturer's drawings or as directed by the Engineer-in-Charge or his representative, the Contractor shall unload, store, erect, install, wire, test and place into commercial use all the equipment included in the contract. Equipment shall be installed in a neat, workmanlike manner so that it is level, plumb, square and properly aligned and oriented.
- Contractor shall follow the unloading and transporting procedure at site, as well as storing, testing and commissioning of the various equipment being procured by him separately. Contractor shall unload, transport, store, erect, test and commission the equipment as per instructions of the manufacturer's Engineer(s) and shall extend full co-operation to them.
- In case of any doubt/ misunderstanding as to the correct interpretation of manufacturer's drawings or instructions, necessary clarifications shall be obtained from the Engineer-in-Charge. Contractor shall be held responsible for any damage to the equipment consequent for not following manufacturer's drawings/instructions correctly.
- Where assemblies are supplied in more than one section, Contractor shall make all necessary connections between sections. All components shall be protected against damage during unloading, transportation, storage, installation, testing and commissioning. Any equipment damaged due to negligence or careless Ness or otherwise shall be replaced by the Contractor at his own expense.
- The Contractor shall submit to the Engineer-in-Charge every week, a report detailing all the receipts during the week. However, the Contractor shall be solely responsible for any shortages or damages in transit, handling and/or in storage and erection of the equipment at Site. Any demurrage, wharf age and other such charges claimed by the transporters, railways etcetera shall be to the account of the Contractor.
- The Contractor shall be fully responsible for the equipment/material until the same is handed over to the Administrative Department in an operating condition after commissioning. Contractor shall be responsible for the maintenance of the equipment/material while in storage as well as after erection until taken over by Administrative Department, as well as protection of the same against theft, element of nature, corrosion, damages etcetera
- The Contractor shall be responsible for making suitable indoor storage facilities, to

store all equipment, which require indoor storage.

- The words 'erection' and 'installation' used in the specification are synonymous.
- Exposed live parts shall be placed high enough above ground to meet the requirements of electrical and other statutory safety codes.
- The minimum phase to earth, phase to phase and section clearance along with other technical parameters for the various voltage levels shall be maintained as per relevant IS codes.

22. Operation and Running of entire system

The contractor shall pay for and arrange for operation & running of entire electrical system and other equipment for a minimum period of one month after satisfactory completion of work as desired by Engineer-in-charge. Cost of operation & running of entire system including required material e.g. Water, electricity, consumables, tools & tackles, requisite manpower etcetera shall be deemed to be included in the contract price and nothing extra shall be paid.

23. Layout of all services, SLD/ P&I diagrams, operating and maintenance instructions, DO's and Don'ts's etcetera for all the Substations, Plant rooms, pump room, control panels etcetera must be provided along with coloured prints at each floor.

Specific Conditions of Contract-HVAC SYSTEM

1. General

The Specific Conditions of the Contract - HVAC System shall be read in conjunction with the Specific Conditions of the Contract-Scope of Work, and, Specific Condition of the Contract-General. In case of variations / deviations, if any, the Specific Conditions of the Contract- HVAC System shall prevail.

2. Scope of Contract

The scope of works to be carried out under this section comprises of Design, Supply, Installation, Testing and Commissioning of Heating, Ventilation and Air-conditioning works as illustrated in Tender Drawings, Schematic Diagram, Design Basis Report, Technical Specifications etcetera

3. Stores and Materials

The contractor shall provide everything necessary for the proper execution of the work according to the intent and meaning of the drawings and specifications etcetera taken together whether the same may or may not be particularly shown or described therein provided that the same can be reasonably inferred therefrom.

4. Supply of Equipment

Equipment shall be strictly as per the list of approved makes/ manufacturers given in the Bid documents subject to approval of the Engineer-in-charge. The Contractor shall submit manufacturer's test certificates of equipment supplied.

5. Shop / Working Drawings etcetera

5.1. To achieve the desired parameters/requirements as specified in Design Basis Report/Technical Specifications/Tender Drawings etcetera, the Contractor shall prepare detailed Heat Load Sheets of all rooms/occupancies of Air conditioned areas, CFM sizing of Fans (ventilation/pressurization) & submit to Engineer-in-charge for approval.

5.2. Subsequent to approval of the scheme as above, the Contractor shall prepare and submit to the Engineer-in-charge for approval, requisite sets of detailed shop drawings/layouts of various rooms/floors, Plant Room, External Layout. GA drawing of various equipment like Chillers/Cooling Towers /pumps/AHUs /FCUs /Panels along with foundation & other relevant details etcetera, equipment characteristics, pump curves and capacity details of all equipment, accessories and devices etcetera as per specifications shall be submitted well in advance or as required for approval of Engineer-in-charge. The structure works should not be affected due to delay on this account. No claims for extension of time shall be entertained because of any delay in the work due to failure on part of the contractor to produce shop drawings in time.

5.3. If the Engineer-in-charge makes any amendment in the above drawings, the Contractor shall supply requisite sets of fresh drawings with the amendments duly incorporated, along with the drawings on which corrections were made. After final approval has been obtained from the Engineer - in- Charge, the Contractor shall submit a further requisite sets of shop drawings for the exclusive use of and retention by the Engineer-in- charge.

5.4. Approval of shop drawings shall not be considered as a guarantee of measurement or of building condition. It will in no way relieve the contractor from his responsibility of furnishing materials or performing work as required by the contract.

6. Completion Drawings (As Built Drawings):-

6.1. Following "AS BUILT" drawings shall be submitted by the Contractor on completion of

the work:

a. Plant Room/ AHU Room installation drawings giving complete details of the entire equipment including Chillers, Cooling Towers, Pumps, Hot Water Generators, AHU's and their foundations.

b. Ducting drawings showing all sizes, damper (Fire/VCD) locations and sizes of all air outlets and intakes, for all floors.

c. Electrical drawings showing cable sizes, equipment capacities, control components and control wiring.

d. Schematic control drawings giving detailed sequence of operation and notes to explain the operation of the control circuit.

e. Piping drawings showing all pipe sizes, valves and fittings etcetera

f. Any other drawings to be supplied as per instructions of the Engineer- in- charge.

7. Operation and Service Manuals

7.1. The Contractor shall submit requisite sets of operation and service manuals in respect of the air-conditioning plant including salient details of plant including internal circuit diagrams. Following minimum details shall be furnished:

i. Detailed equipment data as approved by the Engineer-in-charge.

ii. Manufacturer's maintenance and operating instruction.

iii. Approved test readings.

7.2. The Contractor shall also submit requisite sets of technical literature on all automatic controls and complete technical literature on all equipment and materials. The Contractor shall frame under glass, in the Air conditioning plant room all consolidated control diagrams and all piping diagrams.

7.3. Coloured Layouts of all electrical lines in A-1 size properly laminated to be fixed at various locations at the time of handing over of building.

8. Inspection at Work / Contractor's Premises

8.1. The Engineer-in-Charge/BCA or their representatives shall at all reasonable time have free access to the Contractor's premises/works. The Contractor shall give every facility to them and necessary help for inspection and examinations and test of the materials and workmanship.

8.2. These representatives shall have full powers to inspect drawings of any portion of the work or examine the materials and workmanship of the plant at the Contractor's works or at any other place from where the material or equipment is to be obtained. Acceptance of any material or equipment shall in no way, relieve the Contractor of his responsibility for meeting the requirement of the specifications.

9. Sub-contracting

The Contractor may sub-contract part of the works with the written approval of the Engineer-in-charge. Sub-contractors as approved by the Engineer - in- Charge shall be appointed for carrying out the entire work of supplying, installation, testing and commissioning of all the equipment covered under this package. However, the overall responsibility for compliance of the Contract lies with the Contractor. The agency/ sub-contractor so chosen shall be got approved from the Engineer-in-charge.

10. Technical Submittals

The Contractor shall submit Technical Submittals for all materials, equipment and machinery for approval in writing of the Engineer-in-charge before placing orders. The material submittals shall comprise of at least the following:

i. Manufacturer's technical catalogues and brochures, pump curves, Certifications etcetera giving technical data about performance and other parameters.

ii. Manufacturers drawings / sketches showing construction, dimensional and installation details.

iii. Rating charts and performance curves clarifying rating of equipment proposed.

11. Samples and Prototypes

The Contractor shall submit samples of items such as grilles/ diffusers, controls and/ or any other parts or equipment as required by the Engineer-in-charge for prior approval in writing before placing the order. The Contractor shall also construct prototype or samples of work as laid down in the Contract or as instructed by the Engineer-in-charge.

12. Testing and Commissioning

12.1. Tests on equipment as called for in the specifications shall be carried out by the Contractor in accordance with the specifications, the relevant Bureau of Indian Standard Codes (BIS) and International Standards.

12.2. The initial tests shall include but not be limited to the following:

i. To operate and check the proper functioning of all electrically operated components viz., compressor motor, pumps, blowers, air handling units, rotating machine, fans, boilers, etcetera

ii. To operate and check the proper functioning of all electrical panels, switch gears, safety and other controls

iii. To adjust and balance air, water, steam and gas quantities to provide the designed flow rates by adjusting valves, dampers, diverters etcetera

iv. To check the systems against leaks in different circuits, alignment of motor, `V' Belt adjustments etcetera

v. To check the vibration and noise levels of the equipment

vi. Setting of all control and all such other tests which are essential for smooth functioning of the plant.

12.3. The Contractor shall pay for and arrange without any cost, all necessary

Balancing and testing equipment, instruments, materials, accessories, power, water, fuel and the requisite labour for testing. Any defects in materials and/or in workmanship detected in the course of testing shall be rectified by the Contractor entirely at his own cost, to the satisfaction of the Engineer-in-charge. The installation shall be tested again after removal of defects if any and shall be commissioned only after approval by the Engineer- in- charge. All tests shall be carried out in the presence of the Engineer-in- charge or his representative.

13. Provisional Taking Over

After completion of the HVAC system, the same shall be put to a continuous running test for a period of 72 (Seventy Two) hours. All adjustments should be made prior to this test so that proper conditions / working are achieved during this testing. The Contractor shall pay for and arrange at his own cost for materials, accessories, power, water, fuel and the requisite labour for this testing the test

readings shall be noted in the Testing format approved by the Engineer-in-charge.

The plant will be provisionally taken over after successful completion of the above test and the defects liability period shall commence after provisional taking over of the system.

14. Final Performance and Capacity Test

In addition to the above testing, final performance and capacity tests shall be carried out on the equipment as per the "Testing Schedules" during the defects liability period as follows:

i. Peak summer / monsoon test during the period from 15th may to 31st July on the dates decided by Engineer-in-Charge. The installations should be able to maintain the specified inside temperature/conditions within the tolerance limits prescribed in the Contract and the duration of the test shall be 72hours.

ii. Peak winter test during the period from 1st December to 15th February on the dates decided by Engineer-in-Charge. The installations should be able to maintain the specified inside temperature within the tolerance limits permitted in the Contract. The duration of the test shall be 72 hours.

All the arrangements required for making the entire system operational /running, for the performance test as above, including cost of manpower, and fuel (Gas etcetera), electricity etcetera will be borne by the Contractor.

14.1. After provisional taking over of the plant, Administrative Department shall provide staff for operation. Staff will work under the supervision of the Contractor for proper operation of the plant. This responsibility of the Contractor shall continue till completion of test liabilities with respect to the plant or the maintenance period (thirty-six months), whichever is later.

14.2. The user shall have the right to operate all equipment, if these are in the operating condition if such equipment, have been accepted as complete and satisfactory. Repairs and alterations if required shall be carried out as and when directed by the Engineer-in-Charge. In special circumstances, Employer may request Air conditioning of some areas even before the completion of whole of HVAC work. The Contractor shall co-operate fully under such circumstances.

15. Guarantee and Defects Liability Period

15.1. The guarantee of HVAC works shall be valid for a period of 36 (thirty-six) months from the date of completion of the project as accepted by Employer. In case the contractor is not able to carry out the seasonal tests (summer/ monsoon & winter) within the stipulated period as mentioned above, the same can be carried out even after defects liability period. The Defect Liability period for HVAC shall be deemed to be extended till satisfactory completion of seasonal tests.

16. Performance Guarantee from Sub-contractor

16.1. The Contractor shall submit a performance guarantee certificate from the agency which executed the HVAC work, counter signed by the Contractor that the system shall maintain the desired parameters within tolerance limit of the specified parameters who shall also guarantee that the capacity of various components as well as the whole system covered under the scope of work, technical schedules and requirements etcetera, shall not be less than the specified capacities. The guarantee of the specific equipment supplied alone with regard to the performance of the system shall not be acceptable and overall responsibility of the Contractor for performance of HVAC work & its compliance with the Contract terms and conditions remains unchanged.

17. Maintenance

17.1. The Contractor shall carry out routine and special maintenance of the plant and attend to any defects that may arise in operation of the plant during the Defects Liability Period.

18. Validation: -Validation of Classified Areas (such as OTs/ICUs/Labs & other Critical Areas etcetera) shall be in the scope of HVAC contractor & nothing extra will be paid in this regard.

It shall include as follows:-

- Documentation for DQ/IQ/OQ with certificates of all brought items
- Duct leakage testing during duct installation as & when required.
- Air flow velocity test
- Air borne particulate test
- Temperature & RH monitoring test
- Area recovery test
- Room pressure balancing & any other test as required.

19. Painting

All equipment and ancillary items such as pipes, supports etcetera, will be painted in an approved manner, using standard paints as approved by BCA/ Engineer-in-charge

20. Safe Custody and Storage

The contractor shall be responsible for safe custody of all machinery and equipment supplied and installed till the final taking over by the Administrative Department.

21. Training of Personnel

The Contractor shall arrange to train the Administrative Department's personnel on the following aspects prior to provisional takeover of the plant:

a) Operation of plant
b) Gas charging and pumping down of the system
c) Adjustments of settings for controls and protective devices
d) Preventive maintenance
e) Disassembling and assembling of compressor including identification and replacement.

22. Operation and Running of entire system

The contractor shall pay for and arrange for operation & running of entire HVAC system for a minimum period of one month after satisfactory completion of installation including testing & commissioning of work as desired by Engineer-in-charge. Cost of operation & running of entire system including required material e.g. consumables, water, electricity, refrigerant, tools & tackles, requisite manpower etcetera shall be deemed to be included in the contract price and nothing extra shall be paid on this account.

Specific Conditions of Contract- HIGH MAST STADIUM LIGHT

1. General

The Specific Conditions of the Contract - HIGH MAST STADIUM LIGHT System shall be read in conjunction with the Specific Conditions of the Contract Scope of Work, and Specific Condition of the Contract-General. In case of variations / deviations, if any, the Specific Conditions of the Contract- HIGH MAST STADIUM LIGHT System shall prevail.

2. Scope of Contract

The scope of works to be carried out under this section comprises of Design, Supply, Installation, Testing and Commissioning of of the complete Signage, using fixed type of High Mast Towers, including the Civil Foundation Works as illustrated in Tender Drawings, Schematic Diagram, Design Basis Report, Technical Specifications etcetera

3. Qualification Criteria:

The contractor may engage sports lighting contractor fulfilling the following Eligibility: -

- Contractor should be registered should be in the business of providing lighting installations of supply and service of large external lighting.
- The Contractor must have carried out at least one similar work of stadium lighting in past last 5-7 years (i.e., must have successfully completed the work during March 2017 till date). Completion certificates/Final Bills/relevant documents establishing his work completion etc. to this effect are required to be enclosed.
- A Certificate/Undertaking on the letter head of the Company to the effect that the bidder has not been blacklisted anywhere in India or abroad by any organization. A self-certification to this effect is required to be enclosed.

Any prospective Contractor, not satisfying any of the above-mentioned qualification criteria shall be disqualified on technical grounds and the price bid of such disqualified bidder will not be considered for this tender.

4. Shop / Working Drawings etcetera

4.1. To achieve the desired parameters/requirements as specified in Design Basis Report/Technical Specifications/Tender Drawings etcetera, the Contractor shall prepare detailed lux level design & submit to Engineer-in- charge for approval. The mock-up shall be displayed and got approved by the Principal department's personnel, Engineer-in-charge and PMC team.

4.2. Subsequent to approval of the scheme as above, the Contractor shall prepare and submit to the Engineer-in-charge for approval, requisite sets of detailed shop drawings/layouts of all equipment, accessories and devices etcetera as per specifications shall be submitted well in advance or as required for approval of Engineer-in-charge. The structure works should not be affected due to delays on this account. No claims for extension of time shall be entertained because of any delay in the work due to failure on part of the contractor to produce shop drawings in time.

4.3. If the Engineer-in-charge makes any amendment in the above drawings, the Contractor shall supply requisite sets of fresh drawings with the amendments duly incorporated, along with the drawings on which corrections were made. After final approval has been obtained from the Engineer - in- Charge, the Contractor shall submit further requisite sets of shop drawings for the exclusive use of and retention by the Engineer-in- charge.

4.4. Approval of shop drawings shall not be considered as a guarantee of measurement or of

building conditions. It will in no way relieve the contractor from his responsibility of furnishing materials or performing work as required by the contract.

5. Completion Drawings (As Built Drawings):-

5.1. Following "AS BUILT" drawings shall be submitted by the Contractor on completion of the work:

- High mast, DB and panel and their foundations.
- Electrical drawings showing cable sizes, equipment capacities, control components and control wiring.
- Schematic control drawings giving detailed sequence of operation and notes to explain the operation of the control circuit.
- Any other drawings to be supplied as per instructions of the Engineer- in-charge.

6. Technical Specifications

6.1. Luminaire & housing

The LED Sports Floodlight Luminaire with Minimum wattage of 1.6-2.0kW.

Housing Made of Single piece die-cast housing with corrosion resistant Powder coating, anti-condensation design with lateral fins. The housing of the luminaire shall have excellent passive and thermal heat management design (active cooling system in flood housing with fan).

The driver is specially designed to have built-in surge voltage, open/short circuit.

The Luminaire should have L70 > 50000 hrs, CCT 5700K, CRI > 80, SDCM < 5, Single piece specially designed Sports application Lens cum high light transmittance Polycarbonate cover.

Ingress Protection: IP66, IP test report to be submitted from NABL accredited Laboratory.

The Driver should be dimmable and should have separate external DMX modules so that Normal functioning and DMX system are isolated.

The weight of proposed LED Luminaire hardware shall be between 20 to 30kg and of corrosion and weatherproof Stainless Steel for outdoor applications. The Confirmation from IIT/NIT should be submitted along with the design submission.

Type test report of luminaire as per IS 10322/ IEC 60598 or equivalent to be submitted.

Warranty upto 10 years.

The above-mentioned criteria as are indicative. The contractor will have to do a detailed design to satisfy the requirements as outlined by the ICC/BCCI. The contractor will also have to obtain a third-party review certification from a recommendable agency who can assure design in accordance with ICC/BCCI requirements for players and broadcasting.

6.2. Lux level requirements:

The following are the requirements of various levels of Illumination required for FOP.

Lighting Requirements for Broadcast Quality lighting as per ICC, BCCI

Maintained Average illuminance (lux)		Wicket	Infield	Outfield
	Vertical Illuminance Camera E_{Cam}	3000	2500	2000
	Horizontal Illuminance Camera E_{H}	3500	3000	2500
Illuminance Uniformities	Vertical & Horizontal Illuminance E_{Cam} & E_{H} Min/Avg	0.7	0.6	0.5
	Vertical & Horizontal Illuminance E_{Cam} & E_{H} Min/Max	0.6	0.5	0.4

7. Operation and Service Manuals

i. Detailed equipment data as approved by the Engineer-in-charge.

ii. Manufacturer's maintenance and operating instruction.

iii. Approved test readings.

8. Inspection at Work / Contractor's Premises

8.1. The Engineer-in-Charge/BCA or their representatives shall at all reasonable time have free access to the Contractor's premises/works. The Contractor shall give every facility to them and necessary help for inspection and examinations and test of the materials and workmanship.

8.2. These representatives shall have full powers to inspect drawings of any portion of the work or examine the materials and workmanship of the plant at the Contractor's works or at any other place from where the material or equipment is to be obtained. Acceptance of any material or equipment shall in no way, relieve the Contractor of his responsibility for meeting the requirement of the specifications.

9. Technical Submittals

The Contractor shall submit Technical Submittals for all materials, equipment and machinery for approval in writing of the Engineer-in-charge before placing orders. The material submittals shall comprise of at least the following:

iv. Manufacturer's technical catalogues and brochures, Certifications etcetera giving technical data about performance and other parameters.

v. Manufacturers drawings / sketches showing construction, dimensional and installation details.

vi. Rating charts and performance curves clarifying rating of equipment proposed.

10. Samples and Prototypes

The Contractor shall submit samples of items such as luminaries, drivers, Heat controls and/ or any other parts or equipment as required by the Engineer-in-charge for prior approval in writing before placing the order. The Contractor shall also construct prototype or samples of work as laid down in the Contract or as instructed by the Engineer-in-charge.

11. Testing and Commissioning

11.1. Tests on equipment as called for in the specifications shall be carried out by the Contractor in accordance with the specifications, the relevant Bureau of Indian Standard Codes (BIS) and International Standards.

11.2. The initial tests shall include but not be limited to the following:

i. To operate and check the proper functioning of all electrically operated components viz., compressor motor, pumps, blowers, air handling units, rotating machine, fans, boilers, etcetera

ii. To operate and check the proper functioning of all electrical panels, switch gears, safety and other controls

iii. To adjust and balance air, water, steam and gas quantities to provide the designed flow rates by adjusting valves, dampers, diverters etcetera

iv. To check the systems against leaks in different circuits, alignment of motor, `V' Belt adjustments etcetera

v. To check the vibration and noise levels of the equipment

vi. Setting of all control and all such other tests which are essential for smooth functioning of the plant.

11.3. The Contractor shall pay for and arrange without any cost, all necessary.

Balancing and testing equipment, instruments, materials, accessories, power, water, fuel and the requisite labour for testing. Any defects in materials and/or in workmanship detected in the course of testing shall be rectified by the Contractor entirely at his own cost, to the satisfaction of the Engineer-in-charge. The installation shall be tested again after removal of defects if any and shall be commissioned only after approval by the Engineer- in- charge. All tests shall be carried out in the presence of the Engineer-in- charge or his representative.

12. Guarantee and Defects Liability Period

12.1. The guarantee of high mast light works shall be valid for a period of 36 (Thirty-six) months from the date of completion of the project as accepted by Employer.

13. Maintenance

13.1. The Contractor shall carry out routine and special maintenance and attend to any defects that may arise in operation of the plant during the Defects Liability Period.

14. Operation and Running of entire system

The contractor shall pay for and arrange for operation & running of entire lighting system for a minimum period of one month after satisfactory completion of installation including testing & commissioning of work as desired by Engineer-in-charge. Cost of operation & running of entire system including required material e.g. consumables, electricity, cables, tools & tackles, requisite manpower etcetera shall be deemed to be included in the contract price and nothing extra shall be paid on this account.

Specific Conditions of Contract- FIELD OF PLAY (OUTFIELD) AND PITCHES

1. General

The Specific Conditions of the Contract - FIELD OF PLAY AND PITCHES System shall be read in conjunction with the Specific Conditions of the Contract Scope of Work, and Specific Condition of the Contract-General.

In case of variations / deviations, if any, the Specific Conditions of the Contract-FIELD OF PLAY AND PITCHES shall prevail.

2. Scope of Contract

The scope of works to be carried out under this section comprises of Design, Supply, construction, preparation and maintenance of the outfield and pitches, including the Civil, MEP Works as per tender drawings and ICC guidelines .

During execution of work if any suggestions/ correction is suggested by BCCI Curator or UPCA then same will have to be incorporated during execution of work at site at no additional cost

3. Qualification Criteria:

The EPC contractor shall engage a sub contractor having substantial experience in design, construction and maintenance of cricket field of play including pitch, outfield and practice pitches.

The EPC contractor shall submit the profile and experience of the proposed subcontractor for approval by the client/UPCA/BCCI.

4. Field of play Design

The material to be used in work like Black cotton soil , Mumbai Red soil , Bermuda tiff way 419 grass , Bermuda selection 1 grass , good earth ,Bajri ,etc shall be as per Criteria mentioned in tender document, DBR & IS Code .

The Cricket field of play including the pitches shall be fully complained the latest ICC guidelines. The irrigation system and sub soil drainage system will be designed to comply with the rain fall conditions of Patna and to ensure the system complies with ICC norms. The irrigation will be computerized pop-up system as per requirements.

The field of play will integrate all sub surface piping for cameras, power, data as per the ICC requirements.

The slopes of the pitch and outfield will be as per ICC guidelines.

The subsurface, grass and pitch shall be designed in coordination with BCCI/UPCA/Client to ensure the same meets requirements for ICC events.

The type of Bermuda grass shall be approved by the client.

Camera platforms, run out camera poles shall be provided as per requirements of ICC.

Nets for Practice pitch as per ICC guidelines.

Portable Sight screens to ensure cover across 7 pitches on north and south.

5. Completion Drawings (As Built Drawings):-

5.1. Following "AS BUILT" drawings shall be submitted by the Contractor on completion of the work:

- Subsoil Drainage System.

- Conduit drawings showing cable sizes and layout..
- Any other drawings to be supplied as per instructions of the Engineer- in-charge.

6. Technical Specifications

OUTFIELD DEVELOPMENT:

The below specification is indicative and the contractor shall seek approval from client before proceeding

The work comprises of preparation of the ground to the required depth as per the survey plan and requirements of the UPCA/BCCI/ICC, constructing the same within the specified time with the treatment as per the specifications UPCA/BCCI/ICC Curator and levels as per ICC guidelines and tender drawing and dressing the earth as per the directions and levels.

The soil is to be laid WITH COMPACTION @ MINIMUM 35 % in the ground to maintain the desired levels and dressing the top levels. The item shall be executed with the mechanical equipments like JCB or Pock lain machine in line and grading USING OF GRADER MACHINE according to the specific slope and leveling given by the UPCA/BCCI/ICC curator. The surface of excavated ground shall be prepared by loosening the earth and thereof consolidating and compacting with the vibratory roller or compactor capacity of 8-10 tonne and removing the foreign materials including maintaining necessary slope.

For bottom layer of outfield every layer requires dry compaction in the ratio 1:1, i.e. 100 % compaction than wet compaction respectively.

Top layer- (sandy loom soil-8" thick layer) @ 90:10 RATIO for sand and clay respectively in which first 4" layer req. compaction by vibro roller in dry and wet form and next layer req. only statics rolling in form of layer. Extra filling work with good earth: Good earth sandy loom shall be brought from the quarry near farms, approved by the UPCA/BCCI/ICC curator on the basis of soil test, required composition, clay contents, PH value and other chemical contents required in the soil. The intending tenderers should inspect and examine the quarry/ farms and its surroundings and satisfy themselves before submitting their offer as to the means of access to the quarry etc, they may require and in general shall themselves obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect their tender. All other expenses for execution of the item completely shall be borne by the tenderer. The excavated material from quarry will be initially being collected at quarry. it should be cleaned and free of foreign materials. The cleaned earth transported and deposited on the the ground. Earth shall be laid in the layers of 75mm thickness each layers. Each layer required in desired level and proper compaction. COMPACTION RATIO shall be 35 to 45 %. Certain minerals, manures and chemicals are to be mixed in the top layer before spreading top layer of the good earth on the ground. All mixing of the above shall be done strictly in accordance with the instructions of the engineer/architect and the ground experts of UPCA/BCCI/ICC.

The referred minerals, manures and chemicals shall be supplied by the contractor. The referred minerals, manures and chemicals mixing in accordance with the instructions of the BCCI Curator and the ground experts of UPCA/BCCI/ICC

shall be done by the tenderer and cost and nothing extra shall be payable on account of the same.

Pitch block Rainwater drain line (subsoil Drainage System): Design, supplying, installation, laying & commissioning of well-developed subsoil drainage system around the Pitch Square with a gradient of 1:100 Feet and connected to the main storm water Drainage system Connected with boundary storm water drain line as per the guideline provided by the UPCA/BCCI/ICC curator. Accessories required for the above work – 6/8 KG PVC material of approved makes.

TV Cable line: As per details drawing provided for the same. Tv cable line required at both north and south end pavilion block as per the guideline provided by the BCCI/ UPCA curator. Tv cable line shall be opposite from pitch rain water line. Tv Cable chamber required at every main pitches (05 nos) @ 24" from wicket line.

GRASS PLANTATION DEVELOPMENT:

I. Pre plantation preparation of the field by cleaning the area, de-weeding etc.
II. Application of anti-termite treatment throughout the field of play and up to an area of 5 mtrs outside the earthen area.
III. Pre plantation preparation by ensuring removal of stones pebbles etc. from the field of play.
IV. Pre-plantation preparation of the pitch and outfield with proper watering, compaction by use of roller to maintain a uniform gradient outwards to the boundary line as per regular gradient.
V. Application of manure mix suitable for healthy growth of the turf as per direction of consultant.
VI. Supply of high quality grass Tiff way 419 (Bermuda), already used at Indore/Pune/Jaipur/Nagpur/Varanasi etc. dark green shade, fine textured, consistent and uniform growth, free from any weeds, impurity and such other contamination from a reliable source.
VII. Laying of grass of the above variety with a desired density ratio as directed by the undersigned to ensure complete coverage of the pitch and ground as per the standard norms used for turf of pitch and cricket field.
VIII. Deployment of necessary labour, machines / equipments for lying of grass.
IX. Maintenance of the pitch and field post plantation for a period up to three months or 3 mowing attaining full density of grass whichever is later and to be confirmed by UPCA/BCCI/ICC Curator.

POST–PLANTATION MAINTANANCE

i. The post-plantation maintenance should continue till a period of three months after plantation of the entire field of play is complete.

ii. Maintenance of Playground Grass by appropriate de-weeding, application of manure, adequate Irrigation, suitable cycles of mowing, measured rolling for attaining proper levels and firmness.

iii. If the surface area is uneven, a light top dressing to be done into low lying areas.

iv. After the maintenance period or after achieving the full density of grass on the entire field of play, whichever is later, tenderer shall officially hand over the charge of the ground to the authority as directed by the undersigned.

v. Tenderer shall arrange for all machinery, equipment required for plantation, mowing.

7. Operation and Service Manuals

Operation & Maintenance shell be as per standards of ICC/IPL /BCCI . The Contractor has to deploy labor & required machinery including fuel at his own cost.

O&M for pitches and ground will start after work completion . After Completion of Ground & Pitches work for next 36 months (AS per DLP period) Ground & Pitches will be maintained by agency with required equipments as per BCCI Standard for which no payment will be done by BCA to contractor This includes Grass cutting , rolling , operating & maintaining POP UP system , spreading of fertilizers , insecticides as required to make sure optimum growth of Grass as per standards of BCCI manual

8. Technical Submittals

The Contractor shall submit Technical Submittals for all materials, equipment and machinery for approval in writing of the Engineer-in-charge before placing orders. The material submittals shall comprise of at least the following:

8.1. Manufacturer's technical catalogues and brochures, Certifications etcetera giving technical data about performance and other parameters.

8.2. Manufacturers drawings / sketches showing construction, dimensional and installation details.

8.3. Rating charts and performance curves clarifying rating of equipment proposed.

9. Guarantee and Defects Liability Period

9.1. The guarantee of works shall be valid for a period of 36 (Thirty six) months from the date of completion of the project as accepted by Employer.

10. Maintenance

10.1. The Contractor shall carry out routine and special maintenance of the outfield and pitch to any defects that may arise during the Defects Liability Period.

Specific Conditions of Contract-GRIHA RATING SYSTEM

1. This Project is to be designed & executed for achieving highest prevailing rating and atleast min. GRIHA 3 star rating Certifications as per latest version stipulated by GRIHA (Green Rating for Integrated Habitat Assessment) Council in respect of the buildings & blocks listed in the Design Basis Report.

2. Accordingly, the contractor is required to adhere to the various environment friendly and GRIHA compliance aspects of construction as well as documentation with respect to use of Materials, Manpower, Machinery and other relevant mandatory requirements. Nothing extra shall be payable over and above the quoted rates as per the financial Bid to comply with such requirements.

3. Certification of Facilities as per GRIHA Standards:

All required services from concept planning to completion, documentation including obtaining certification from GRIHA Secretariat/Council are included in the scope of work. This shall also include Energy Simulation and Modeling, Documentation & Co- ordination with GRIHA Council and obtaining Provisional & Final Certification. The Contractor shall ensure that the Project shall be registered with GRIHA Council after award of work. The Contractor shall be required to incorporate all the necessary provisions required for minimum Three Star GRIHA Rating in the drawings, specifications etcetera & to undertake the necessary documentation and submissions with GRIHA Council accordingly. They will also be required to provide the various services as referred below:

a. Feasibility:

The Contractor will evaluate the certification levels that may be achieved by the project. The feasibility report will comprise of a report, which will divide the overall points in three categories:

i) Points that are already planned, if any,

ii) Points which are possible to be planned

iii) Points those are not feasible (not applicable) for the project.

b. All the design and documents prepared for Civil, Structural, MEP, HVAC, and Firefighting Systems etcetera shall be in conformity to GRIHA requirements.

c. The Contractor, upon award of work, shall ensure registration of the Project with GRIHA Council.

d. The Contractor shall ensure that the materials are in conformity with the requirements to achieve Minimum Three Star Rating under GRIHA Green Building Rating Systems.

e. To periodically monitor the parameters set out in the planned score card & suggest remedial measures in case of any shortcomings.

f. To carry out Building Envelope Analysis, Orientation and Shading Analysis, Day lighting Studies, Energy Modeling, Water Balance Charts etcetera using relevant simulation tools.

g. Preparation, submission and documentation from initiation till completion and receipt of required Green Building Rating for the Project which amongst other requirements as per GRIHA shall include collection, compilation & preparation of filled-in templates/documents, under intimation & in co-ordination with Employer, submission of complete compliance documents as required by GRIHA Council in

order to get the minimum GRIHA- 3 Star Rating for the Project. This shall also include all required coordination with GRIHA Council etcetera and other relevant statutory bodies inclusive of responding to queries from these offices.

h. Contractor shall ensure & follow necessary Guidelines, Procedures and formats for records to be maintained (at various stages of the Project) as per requirements of GRIHA Council.

i. Contractor should apprise Engineer-in-Charge of the status with regard to implementation of provisions of GRIHA periodically as per the requirements.

j. The Contractor shall arrange to get the Energy Audit completed & report prepared through BEE Certified Energy Auditor as per GRIHA norms for obtaining Final GRIHA Certification from GRIHA Council & nothing extra is payable on this account.

k. The Contractor shall co-ordinate with GRIHA Council & all other relevant statutory authorities as per requirements and nothing extra is payable on this account. However, the required statutory fee payable to the GRIHA Council /statutory authorities, if any, will be borne by BCA. The Contractor shall incur such expenditure after prior approval of Employer who shall pay/ reimburse the same to Contractor on submission of payment receipts and documents towards this expenditure. However, Contractor shall be responsible for all the required coordination and laisoning work.

l. The contractor shall be responsible for carrying out Orientation Workshop, Due Diligence Site Visits etcetera & all expenditures on this account shall be borne by the Contractor.

m. Any suggestion/remedy indicated by GRIHA Council shall be the responsibility of the contractor, without any extra cost.

4. The Contractor shall also adhere to the following during construction:

4.1. Soil excavation, soil erosion and sedimentation control etcetera:- Proper site management strategies shall be followed on the site to ensure proper material staging, soil spill prevention, soil erosion and sedimentation control. The following strategies are listed below:

a) Temporary sedimentation basins shall be made on the lowest possible elevation on site during construction to manage all the storm water generated during rains at the site. Photographs of the sedimentation tank shall be submitted to the Engineer-in-charge.

b) Spill prevention and control: Spill prevention and control plans to ensure so as to stop the source of the spill and dispose the contaminated material and hazardous wastes. Hazardous wastes include pesticides, paints, cleaners, and petroleum products.

c) Proper construction material staging shall be executed on the site.

d) Trenches shall be laid along the periphery of the site to carry the storm water from the various locations on the site to the sedimentation basins.

e) During the earth excavation, top soil of 0.20m shall be stacked separately on or near by the site at a maximum height of 0.40m.

f) Vegetation / mulching of the areas shall be done where the excavated top soil is stacked.

g) The soil excavation, particularly during rainy season, shall be done in such a way to minimize site disturbance such as soil pollution due to spillage of construction material and

mixing with rainwater.

h) The existing vegetation shall be protected by preventing disturbance or damage to specified areas during construction. This will minimize the amount of bare soil exposed to erosive forces. All existing vegetation shall be barricaded on site and marked on a site survey plan.

i) Stacked top soil shall be mulched and protected by barricading as stated above and re-laid over pre-designated landscape areas post construction.

j) The contractor shall not store /dump construction material or debris on metalled road.

k) The contractor shall get prior approval from Engineer-in-Charge for the area where the construction material or debris can be stored beyond the metalled road. This area shall not cause any obstruction to the free flow of traffic/inconvenience to the pedestrians. It should be ensured by the contractor that no accidents occur on account of such permissible.

4.2. Proper site management strategies shall be followed on the site to ensure labour safety and sanitation. Some of these are listed below:

a) Display warning and safety signs all across the site. Also ensure that safety nets and harnesses are provided for construction workers working on higher floors. The walking boards and formwork shall also be stable. Workers shall be provided with safety equipment like safety helmets, jackets, boots and gloves.

b) Provide fire extinguishers and barrels of water with bucket tans on the site and sufficient light for workers to work safely at night.

c) The Contractor shall provide adequate level of sanitation and safety facilities for construction workers.

d) Provide accommodation and amenities for all staff and labours, employed for the purpose of, or in connection with the contract including fencing, water (both for drinking and other uses), electricity, furniture and other such requirements. In case the contractor makes his own arrangement, all such facilities shall be provided in such accommodation. On completion of the contract, such accommodation shall be removed and the site shall be cleared.

e) The contractor shall employ an officer on the site concerned solely with the safety and protection of all staff and labour against accidents. The officer shall be qualified and shall have authority to issue instructions and take protective measures to prevent accidents or the contractor may setup a working arrangement with a local practitioner to handle injury in an emergency situation.

f) Contractor shall provide PPE (Personal Protective Equipment) like safety shoes, safety belt/harness, Helmets to all workers at site.

g) The contractor shall provide mask to every worker working on the construction site and involved loading, unloading and carriage of construction material and construction debris to prevent inhalation of dust particles. The contractor shall provide all medical help, investigation and treatment to the workers involved in the construction of building and carry of construction material and debris relatable to dust emission.

h) The contractor shall establish a fully equipped first aid centre on site to deal with accidental injuries and workers health. The first aid box shall be marked with a red cross on a white background.

i) The contractor shall not allow an individual to work on site while his ability or alertness is impaired by fatigue, illness or some other cause which might expose him to injury.

4.3. Proper site management strategies shall be adopted on the site such as:

a) Preparation of site:

i. Clear vegetation only from the areas where work will start right away.

ii. Vegetate/mulch areas where vehicles don't ply.

iii. Apply gravel to the area where mulching/paving is impractical.

iv. Identify roads on site that would be used for vehicular traffic. Add surface gravel to reduce source of dust emission.

v. Limit vehicular speed on site to 10km/hour.

b) During Construction and Demolition (C&D):-

i. Water shall be sprayed to prevent dust pollution on the following:

a. Any dusty materials before transferring, loading and unloading.

b. Areas where demolition work is being carried out.

c. Areas where excavation or earth-moving activities are to be carried out.

d. Arrangements for wheel washing should be made near the entry/exit gates to prevent air pollution.

ii. The contractor shall ensure that C&D waste is transported to the C&D dedicated place within the site earmarked for storing and sorting construction waste side only and due record shall be maintained by the contractor.

iii. The contractor shall compulsory use of wet jet in grinding and stone cutting.

c) The following activities shall be carried out:

i. The contractor shall take appropriate protection measures like raising wind breakers of appropriate height on all sides of the plot/area using CGI sheets or plastic and / or other similar material to ensure that no construction material dust fly outside the plot area.

ii. The contractor shall ensure that all the trucks or vehicles of any kind which are used for construction purposes / or are carrying construction material like cement, sand and other allied material are fully covered. The contractor shall take every necessary precautions that the vehicles are properly cleaned and dust free to ensure that en- route their destination, the dust, sand or any other particles are not released in air /contaminate air.

iii. Covering full stockpile of dusty material with impervious sheeting.

iv. Transferring, handling/storing dry loose materials like bulk cement, dry pulverized fly ash inside a totally enclosed system.

d) Concrete Curing: - Use of gunny bags, ponding for curing purposes. Adding admixtures to concrete which cause a reduction in the water required for curing as per directions of the Engineer-in-charge. Also construct curing tanks on the site for efficient usage of water.

e) Efficient use of available water.

f) Plan utilities efficiently and optimize on-site circulation efficiency.

g) Reduce air and noise pollution due to storage / use of materials and machinery.

h) Preservation and protection of landscape during construction.

i) Reduction in waste of construction materials.

j) Implement recycling programme as far as possible to recycle construction waste materials during construction.

k) Suitable arrangement for preventing dust and debris entering duct work and working areas.

l) Create physical barriers between work and non-work areas.

m) Protection of materials and equipment against moisture dust etcetera

n) Keeping work area clean and dry as possible.

o) To take safety measures to avoid damage to existing plants and trees.

p) The contractor shall comply with all the preventive and protective environmental steps as stated in the MoEF guidelines,2006.

q) The contractor shall curry out on road- Inspection for black smoke generating machinery. The contractor shall use cleaner fuel.

r) The contractor shall use vehicle having pollution under control certificate. The emissions can be reduced by a large extent by reducing the speed of a vehicle to 20 km.ph. Speed bumps shall be used to ensure speed reduction. In cases where speed reduction cannot effectively reduce fugitive dust, the contractor shall divert traffic to nearby paved areas.

4.4. Materials:-

i. Use of materials which conform to the GRIHA Rating System criteria.

ii. Use of low emitting materials, adhesives and sealants to-

a) reduce / avoid use of materials, which are irritating and naturally cause health problems to the construction workmen and occupants.

b) achieve specified Volatile Organic Compounds (VOC) limits as per the GRIHA requirements.

5. The Contractor shall maintain proper record of all the materials/ equipment procured with respect to their source & specifications with details of their manufacturing and recycled content etcetera and submit along with all supporting documents to the Engineer-In-charge.

6. **Construction Waste Management Plan**:
As already detailed, the broad intent is to avoid materials going to landfills, during construction. It is required to develop a plan to recycle all possible waste generated during construction. Typical items would include land clearing debris, concrete, steel, ductwork, clean dimensional wood, paperboard and plastic used in packing, etcetera

7. **Indoor Air Quality (IAQ) Management plan**.
The HVAC works, in general, shall conform to ECBC 2017. The contractor shall be required to take the specific measures during construction with respect to following main areas of concern:

a. <u>HVAC System Protection</u>:

- When performing construction activities that produce dust, such as drywall

sanding, concrete cutting, masonry work, wood sawing or adding insulation, seal off the supply diffusers and return air system openings completely for the duration of the task.

- Shut down and seal off the supply diffusers and return air ducts during any demolition operations
- Till the HVAC system is put into use, seal-off the supply diffusers and return air system openings to prevent the accumulation of dust and debris in the duct system during construction.
- Do not use the mechanical rooms to store construction or waste materials. Keep rooms clean and neat.
- Provide periodic duct inspections during construction; if the ducts become contaminated due to inadequate protection, clean the ducts as per requirements and directions of Engineer-In-Charge

b. Contaminant Source Control:

i. Use low VOC products as indicated by the specifications to reduce potential problems

ii. Restrict traffic volume and avoid idling of motor vehicles as their emissions could be drawn into the building

iii. Utilize electric or natural gas alternatives for gasoline and diesel run equipment where possible and practical. Use low-sulphur diesel in lieu of regular diesel

iv. Cycle equipment off when not being used or needed

v. Exhaust pollution sources to the outside with portable fan systems

vi. Prevent exhaust from re-circulating back into the building

vii. Keep containers of wet products closed as much as possible. Cover or seal containers of waste materials that can release odour or dust.

viii. Protect stored on-site or installed absorptive building materials, for instance, Cement, Gypsum / POP etcetera from weather and moisture; wrap with plastic and seal tight to prevent moisture absorption.

c. Pathway Interruption:

i. Provide dust curtains or temporary enclosures to prevent dust from migrating to other areas, as applicable.

ii. Locate pollutant sources as far away as possible from supply ducts and areas occupied by workers when feasible. Supply and exhaust systems may have to be shut down or isolated during such activity.

iii. During construction, isolate areas of work to prevent contamination of clean or occupied areas. Pressure differentials may be utilized to prevent contaminated air from entering clean areas.

iv. Depending on weather, ventilation using 100% outside air will be used to exhaust contaminated air directly to the outside during use of VOC emitting materials.

d. Housekeeping:

i. Provide regular cleaning concentrating on HVAC equipment and building space to remove contaminants from the building prior to occupancy.

ii. All coils, air filters, fans & ducts shall remain clean during installation and, if required, will be cleaned prior to performing the testing, adjusting and balancing of the systems.

iii. Suppress and minimize dust with wetting agents or sweeping compounds. Utilize efficient and effective dust collecting methods such as a damp cloth, wet mop, or vacuum with particulate filters, or wet scrubber.

iv. Remove accumulations of water inside the building. Protect porous materials such as insulation and ceiling tile from exposure to moisture.

v. Thoroughly clean all interior surfaces prior to replacing filters and running HVAC system for system balancing, commissioning and building flush-out.

e. Scheduling and Construction Activity Sequence:

Schedule high pollution activities that utilize high VOC level products (including paints, sealers, insulation, adhesives, caulking and cleaners) to take place prior to installing highly absorbent materials (such as ceiling tiles, gypsum wall board, fabric furnishings, carpet and insulation, for example)

8. Green Building (GRIHA) provisions for Electrical works and Materials

The Electrical works, in general, shall conform to latest ECBC Norms (i.e. ECBC 2018). Moreover, the contractor shall be required to take the specific measures during construction with respect to following:

i. All items shall be as per the Green Building provisions and shall adhere to GRIHA Green Building rating system and other Green building standards. This is irrespective of whether the same have been mentioned in the technical specifications or the requirement.

ii. The vendor to conform during negotiation meetings and before quoting that the MAKE of MATERIAL specified in the e-Tender conforms to Green Building norms and requirements and in case of any queries would clarify during the negotiation meeting. Since we are aiming for the GRIHA 3 Star rating, it is mandated that all products have to be accordingly compliant and if the contractor has not accounted for it in his cost, he WILL NOT be entitled for any further compensation and will have to provide in the same cost.

iii. Minimum allowable luminous efficacy of all the lamps shall be as per latest ECBC 2018 & NBC2016.

9. **Photographs**:

During various stages of construction, the photographs shall be taken by contractor and submitted to the Engineer-In-charge, showing details of specific requirements / measures being taken by the contractor towards above for documentary compliance and records.

10. Contractor shall coordinate with suppliers of various materials and equipment to be procured by him for use in works and provide all required details with respect to their manufacturing facilities; raw materials etcetera as per requirements of GRIHA Certification guidelines. Preference should be given to GRIHA compliant products/ materials.

FORMATS FOR GUARANTEES

GUARANTEE TO BE EXECUTED BY THE CONTRACTOR FOR REMOVAL OF DEFECTS AFTER COMPLETION IN RESPECT OF WATER SUPPLY AND SANITARY INSTALLATIONS

(On a Non- Judicial Stamp Paper of Rs. 100/- (Rupees One hundred Only)

The agreement made this……. Day of ……. Two thousand and ……..
between…….. S/O.....(hereinafter called the GUARANTOR of the one part) and
the (herein after called the BCA of the other part). WHEREAS THIS agreement is supplementary to the contract. (Herein after called the Contract) dated and made between the GUARANTOR OF THE ONE PART AND the BCA of the other part, whereby the contractor inter alia, undertook to render the work in the said contract recited structurally stable workmanship and use of sound materials.

AND WHEREAS THE GUARANTOR agreed to give a guarantee to the effect that the said work will remain structurally stable and guarantee against faulty workmanship, finishing, manufacturing defects of materials and leakages etcetera

NOW THE GUARANTOR hereby guarantee that work executed by him will remain structurally stable, after the expiry of maintenance period prescribed in the contract for the minimum life of ten years, to be reckoned from the date of completion of work, to be reckoned after the expiry of maintenance period prescribed in the contract.

The decision of the Engineer- in- charge with regard to nature and cause of defects shall be final.

During the period of guarantee the guarantor shall make good all defects to the satisfaction of the Engineer- in- charge calling upon him to rectify the defects, failing which the work shall be got done by the BCA by some other contractor at the guarantor's cost and risk. The decision of the Engineer –in- charge as to the cost payable by the Guarantor shall be final and binding.

That if the guarantor fails to make goods all the defects, commits breach there-under then the guarantor will indemnify the Principal and his successor against all loss, damage cost expense or otherwise which may be incurred by him by reason of any default on the part of THE GUARANTOR in performance and observance of this supplementary agreement. As to the amount of loss and/or damage and/or cost incurred by the BCA the decision of the Engineer in charge will be final and binding on the parties.

IN WITNESS WEHREOF those presents have been executed by the obligator. And ….....by for and on behalf of the BCA on the day, month and year first above written.

Signed sealed and delivery by OBLIGATOR in the presence of:

1.
2.

SIGNED FOR AND ON BEHALF OF----------BY ..... in the present of:
1.
2.

GUARANTEE BOND TO BE EXECUTED BY THE CONTRACTOR FOR ANTI TERMITE TREATMENT.
(On a Non- Judicial Stamp Paper of Rs. 100/- (Rupees One hundred Only)

The agreement made this day of two thousand and between S/o (hereinafter called the GUARANTOR of the onep art) and the----------

(hereinafter called the BCA of the other part).

WHEREAS this agreement is supplementary to a contract (Herein after called the Contract) dated _____and made between the GUARANTOR OF THE ONE PART AND the BCA of the other part, whereby the contractor inter alia, undertook to render the building and structures in the said contract recited completely Anti Termite proof.

AND WHEREAS GUARANTOR hereby guarantee that the effect that the building and structures will remain completely Anti Termite proof for TEN years, to be reckoned from the date after the expiry of maintenance period prescribed in the contract.

NOW THE GUARANTOR hereby guarantees that Anti Termite treatment given by him under agreement Item No ..... , will render the structure completely Anti Termite proof and the minimum life of such Anti Termite treatment given by him will render the structures completely leak proof and the minimum life of such Anti Termite treatment shall be TEN years, to be reckoned from the date of completion of work.

Provided that THE GUARANTOR shall be not responsible for leakage caused by earth quake or structural defects or misuse of Building or alteration and for such purpose:

a. Misuse of Building shall mean any operation which will Anti Termite treatment to the Building.

b. Alteration shall mean construction of any addition or construction adjoining to existing Building whereby Anti Termite treatment is removed/damaged in parts;

c. The decision of the Engineer with regard to nature and cause of defects shall be final.

During this period of guarantee the guarantor shall make good all defects and in case of any defect being found to render the Anti Termite proof treatment of the building to the satisfaction of the Engineer at his cost and shall commence the work for rectification within seven days from the date of issue of the notice from the Engineer calling upon him to rectify the defects failing which the work shall be got done by the BCA by some other contractor at the GUARANTORS cost and risk. The decision of the Engineer as to cost, payable by the Guarantor shall be final and binding.

That if the guarantor fails to execute the Anti Termite treatment, or commits breach there-under then the guarantor will indemnify the Principal and his successor against all loss, damage, cost of expenses or otherwise which may be incurred by him by reason of any of any default on the part of the GUARANTOR in performance and observance of this supplementary agreement.

As to the amount of loss and/or cost incurred by the BCA on the decision of the Engineer in charge will be final and binding on the parties.

IN WITNESS WHEREOF those presents have been executed by the obligator_____and by_____

by for and on behalf of----------on the day, month and year first above written.

Signed sealed and delivered by
OBLIGATOR in presence of: 1.____2.

SIGNED FOR AND ONBEHALFOF---------- BY_____In presence of:
1._____2._____

GUARANTEE BOND TO BE EXECUTED BY THE CONTRACTOR FOR WATER PROOFING TREATMENTFOR BASEMENTS.
(On a Non- Judicial Stamp Paper of Rs. 100/- (Rupees One hundred Only)

The agreement made this_____day of_____two thousand and_____

between_____S/o_____(hereinafter called the GUARANTOR of the one part) and the----------
(hereinafter called the BCA of the other part).

WHEREAS this agreement is supplementary to a contract (Herein after called the Contract) dated and made between the GUARANTOR OF THE ONE PART AND the BCA of the other part, whereby the contractor inter alia, undertook to render the building and structures in the said contract recited completely water and leak proof.

AND WHEREAS GUARANTOR hereby guarantee that the effect that the building and structures will remain completely water and leak proof for TEN years, to be reckoned from the date after the expiry of maintenance period prescribed in the contract.

NOW THE GUARANTOR hereby guarantees that water proofing treatment given by him under agreement Item No....., will render the structure completely leak proof and the minimum life of such water proofing treatment given by him will render the structures completely leak proof and the minimum life of such water proofing treatment shall be TEN years, to be reckoned from the date of completion of work.

Provided that THE GUARANTOR shall be not responsible for leakage caused by earth quake or structural defects or misuse of Basement or alteration and for such purpose:

a. misuse of basement shall mean any operation which will damage proofing treatment to the basement of the Building.

b. Alteration shall mean construction of any addition or construction adjoining to existing basement whereby proofing treatment is removed in parts;

c. The decision of the Engineer with regard to nature and cause of defects shall be final.

During this period of guarantee the guarantor shall make good all defects and in case of any defect being found render the building water proof to the satisfaction of the Engineer at his cost and shall commence the work for rectification within seven days from the date of issue of the notice from the Engineer calling upon him to rectify the defects failing which the work shall be got done by the BCA by some other contractor at the GUARANTORS cost and risk. The decision of the Engineer as to cost, payable by the Guarantor shall be final and binding.

That if the guarantor fails to execute the water proofing, or commits breach there-under then the guarantor will indemnify the Principal and his successor against all loss, damage, cost of expenses or otherwise which may be incurred by him by reason of any of any default on the part of the GUARANTOR in performance and observance of this supplementary agreement.

As to the amount of loss and/or cost incurred by the BCA on the decision of the Engineer in charge will be final and binding on the parties.

IN WITNESS WHEREOF those presents have been executed by the obligator_____and by_____

by for and on behalf of on the day, month and year first above written.
Signed sealed and delivered by
OBLIGATOR in presence of: 1.____2.

SIGNED FOR AND ONBEHALFOF---------- BY_____In presence of:
1._____2._____

GUARANTEE BOND TO BE EXECUTED BY THE CONTRACTOR FOR WATER PROOFING TREATMENTFOR ROOF.

(On a Non- Judicial Stamp Paper of Rs. 100/- (Rupees One hundred Only)

The agreement made this_____day of_____two thousand and between _____S/o_____(hereinafter called the GUARANTOR of the one part) and the----------
(hereinafter called the BCA of the other part).

WHEREAS this agreement is supplementary to a contract (Herein after called the Contract) dated and made between the GUARANTOR OF THE ONE PART AND the BCA of the other part, whereby the contractor inter alia, undertook to render the building and structures in the said contract recited completely water and leak proof.

AND WHEREAS GUARANTOR hereby guarantee that the effect that the building and structures will remain completely water and leak proof for TEN years, to be reckoned from the date after the expiry of maintenance period prescribed in the contract.

NOW THE GUARANTOR hereby guarantees that water proofing treatment given by him under agreement Item No ..... , will render the structure completely leak proof and the minimum life of such water proofing treatment given by him will render the structures completely leak proof and the minimum life of such water proofing treatment shall be TEN years, to be reckoned from the date of completion of work.

Provided that THE GUARANTOR shall be not responsible for leakage caused by earth quake or structural defects or misuse of Basement or alteration and for such purpose:

a. misuse of roof shall mean any operation which will damage proofing treatment like chopping of fire wood and things of the same nature which might cause damage to the roof of the building.

b. Alteration shall mean construction of any additional storey or part of the roof or construction adjoining to existing roof whereby proofing treatment is removed in parts;

c. The decision of the Engineer with regard to nature and cause of defects shall be final.

During this period of guarantee the guarantor shall make good all defects and in case of any defect being found to render the building water proof to the satisfaction of the Engineer at his cost and shall commence the work for rectification within seven days from the date of issue of the notice from the Engineer calling upon him to rectify the defects failing which the work shall be got done by the BCA by some other contractor at the GUARANTORS cost and risk. The decision of the Engineer as to cost, payable by the Guarantor shall be final and binding.

That if the guarantor fails to execute the water proofing, or commits breach there-under then the guarantor will indemnify the Principal and his successor against all loss, damage, cost of expenses or otherwise which may be incurred by him by reason of any of any default on the part of the GUARANTOR in performance and observance of this supplementary agreement.

As to the amount of loss and/or cost incurred by the BCA on the decision of the Engineer in charge will be final and binding on the parties.

IN WITNESS WHEREOF those presents have been executed by the obligator_____and by_____

by for and on behalf of----------on the day, month and year first above written.

Signed sealed and delivered by
OBLIGATOR in presence of: 1.____2.

SIGNED FOR AND ONBEHALFOF---------- BY_____In presence of:
1._____2._____

GUARANTEE BOND TO BE EXECUTED BY THE CONTRACTOR FOR WATER PROOFING TREATMENT (UNDER FLOORS).
(On a Non- Judicial Stamp Paper of Rs. 100/- (Rupees One hundred Only)

The agreement made this_____day of_____two thousand and_____between _____S/o_____(hereinafter called the GUARANTOR of the one part) and the ----------
(hereinafter called the BCA of the other part).

WHEREAS this agreement is supplementary to a contract (Herein after called the Contract) dated and made between the GUARANTOR OF THE ONE PART AND the BCA of the other part, whereby the contractor inter alia, undertook to render the toilets, terraces and such related areas of the building in the said contract recited completely water and leak proof.

AND WHEREAS GUARANTOR hereby guarantee that the effect that the said toilets, terraces and such related areas will remain completely water and leak proof for TEN years, to be reckoned from the date after the expiry of maintenance period prescribed in the contract.

NOW THE GUARANTOR hereby guarantees that water proofing treatment under the floors in toilets, terraces and such related areas given by him under the contract, will render the areas completely water and leak proof and the minimum life of such water proofing treatment shall be TEN years, to be reckoned from the date of completion of work i.e. to be reckoned from the date after the expiry of maintenance period prescribed in the contract.

Provided that THE GUARANTOR shall be not responsible for leakage caused by earth quake or structural defects or misuse of floors or alteration and for such purpose:

a. misuse of such floors shall mean any operation which will damage proofing treatment and things of the same nature which might cause damage to the such floors of the building.

b. Alteration shall mean construction of any addition or construction adjoining to existing such floors whereby proofing treatment is removed in parts;

c. The decision of the Engineer with regard to nature and cause of defects shall be final.

During this period of guarantee the guarantor shall make good all defects and in case of any defect being found to render the building water proof to the satisfaction of the Engineer at his cost and shall commence the work for rectification within seven days from the date of issue of the notice from the Engineer calling upon him to rectify the defects failing which the work shall be got done by the BCA by some other contractor at the GUARANTORS cost and risk. The decision of the Engineer as to cost, payable by the Guarantor shall be final and binding.

That if the guarantor fails to execute the water proofing, or commits breach there-under then the guarantor will indemnify the Principal and his successor against all loss, damage, cost of expenses or otherwise which may be incurred by him by reason of any of any default on the part of the GUARANTOR in performance and observance of this supplementary agreement.

As to the amount of loss and/or cost incurred by the BCA on the decision of the Engineer in charge will be final and binding on the parties.

IN WITNESS WHEREOF those presents have been executed bythe obligator_____and by_____

by for and on behalf of----------on the day, month and year first above written.

Signed sealed and delivered by
OBLIGATOR in presence of: 1.____2.

SIGNED FOR AND ONBEHALFOF---------- BY_____In presence of:
1._____2._____

GUARANTEE BOND TO BE EXECUTED BY THE CONTRACTOR IN RESPECT OFALUMINIUM WORKS.

(On a Non- Judicial Stamp Paper of Rs. 100/- (Rupees One hundred Only)

The agreement made this_____day of_____two thousand and_____between _____S/o_____(hereinafter called the GUARANTOR of the one part) and the----------
(hereinafter called the BCA of the other part).

WHEREAS this agreement is supplementary to a contract (Herein after called the Contract) dated _____and made between the GUARANTOR OF THE ONE PART AND the BCA of the other part, whereby the contractor inter alia, undertook to render the Aluminum Works in the said contract recited safe against water leakage, unsound material and workmanship and defective anodizing etcetera

AND Whereas GUARANTOR agreed to give a guarantee to the effect that the Aluminum Work will remain safe against water leakage, unsound material and workmanship and defective anodizing for TEN years from the date of completion of work, to be reckoned from the date after the expiry of maintenance period prescribed in the contract.

NOW THE GUARANTOR hereby guarantees that the Aluminum Works executed by him will remain safe against water leakage, unsound material and workmanship and defective anodizing for TWO years from the date of completion of work, to be reckoned from the date after the expiry of maintenance period prescribed in the contract.

Provided that the guarantor shall not be responsible for any damage caused by earth quake or misuse of the Aluminum Work or alteration and for such purpose:

a. misuse of the Aluminum Work shall mean any operation which will damage the Aluminum Work executed by him;

b. Alteration shall mean construction of an addition to the Aluminum Work executed by him or part thereof or construction adjoining to the existing Aluminum Work whereby the Aluminum Work is likely to be effected/damaged;

c. The decision of the Engineer with regard to nature and cause of defects shall be final.

During this period of guarantee the guarantor shall make good all defects and in case of any defect being found to render the Aluminum Work to the satisfaction of the Engineer at his cost and shall commence the work for rectification within seven days from the date of issue of the notice from the Engineer calling upon him to rectify the defects failing which the work shall be got done by the BCA by some other contractor at the GUARANTORS cost and risk. The decision of the Engineer as to cost, payable by the Guarantor shall be final and binding.

That if the guarantor fails to execute the water proofing, or commits breach there-under then the guarantor will indemnify the Principal and his successor against all loss, damage, cost of expenses or otherwise which may be incurred by him by reason of any of any default on the part of the GUARANTOR in performance and observance of this supplementary agreement. As to the amount of loss and/or cost incurred by the BCA on the decision of the Engineer in charge will be final and binding on the parties.

IN WITNESS WHEREOF those presents have been executed bythe obligator_____and by_____

by for and on behalf of----------on the day, month and year first above written.

Signed sealed and delivered by
OBLIGATOR in presence of: 1.____2.

SIGNED FOR AND ONBEHALFOF---------- BY_____In presence of:
1._____2._____

GUARANTEE BOND TO BE EXECUTED BY THE CONTRACTOR IN RESPECT OFSTRUCTURAL GLAZING/ CURTAIN WALLSYSTEM/WORKS.

(On a Non- Judicial Stamp Paper of Rs. 100/- (Rupees One hundred Only)

The agreement made this_____day of_____two thousand and_____between _____S/o_____(hereinafter called the GUARANTOR of the one part) and the----------
(hereinafter called the BCA of the other part).

WHEREAS this agreement is supplementary to a contract (Herein after called the Contract) dated
_____and made between the GUARANTOR OF THE ONE PART AND the BCA of the other part, whereby the contractor inter alia, undertook to render the Structural Glazing / Curtain Wall System/ work under agreement Item No_____safe against water leakage, unsound material and workmanship and defective anodizing etcetera

AND Whereas GUARANTOR agreed to give a guarantee to the effect that the Structural Glazing/ Curtain Wall System/Work will remain safe against water leakage, unsound material and workmanship and defective anodizing for FIVE years from the date of completion of work, to be reckoned from the date after the expiry of maintenance period prescribed in the contract.

NOW THE GUARANTOR hereby guarantees that the Structural Glazing/ Curtain Wall System /Work executed by him will remain safe against water leakage, unsound material and workmanship and defective anodizing for FIVE years from the date of completion of work, to be reckoned from the date after the expiry of maintenance period prescribed in the contract.

Provided that the guarantor shall not be responsible for any damage caused by earth quake or misuse of the Structural / Curtain Wall System/ Work or alteration and for such purpose:

a. misuse of the Structural Glazing / Curtain Wall System /Work shall mean any operation which will damage the Structural Glazing / Curtain Wall System /Work executed by him;

b. Alteration shall mean construction of an addition to the Structural Glazing / Curtain Wall System Work executed by him or part thereof or construction adjoining to the existing Structural Glazing / Curtain Wall System / Work whereby the Structural Glazing / Curtain Wall System/Work is likely to be effected/ damaged;

c. The decision of the Engineer with regard to nature and cause of defects shall be final.

During this period of guarantee, the guarantor shall make good all defects and in case of any defect being found to render the Structural Glazing / Curtain Wall System /Work to the satisfaction of the Engineer-in- Charge at his cost and shall commence the work for rectification within seven days from the date of issue of the notice from the Engineer calling upon him to rectify the defects failing which the work shall be got done by the BCA by some other contractor at the GUARANTORS cost and risk. The decision of the Engineer as to cost, payable by the Guarantor shall be final and binding.

That if Guarantor fails to rectify the Structural Glazing / Curtain Wall System /work or commits breach there under then the Guarantor will indemnify the Principal and his successors against all loss, damage, cost, expense or otherwise which may be incurred by him by reason of any default on the part of the Guarantor in performance and observance of the supplementary agreement. As to the amount of loss and/ or damage and/or cost incurred by BCA, the decision of Engineer will be final and binding on the parties.

IN WITNESS WHEREOF those presents have been executed by the obligator_____and by_____

by for and on behalf of----------on the day, month and year first above written.

Signed sealed and delivered by
OBLIGATOR in presence of: 1.____2.

SIGNED FOR AND ON BEHALF OF ---------- BY_____In presence of:
1._____2._____

GUARANTEE BOND TO BE EXECUTED BY THE CONTRACTOR IN RESPECT OFSEISMIC/ MECHANICAL JOINT WORKS.

(On a Non- Judicial Stamp Paper of Rs. 100/- (Rupees One hundred Only)

The agreement made this day of_two thousand and between S/o _____(hereinafter called the GUARANTOR of the one part) and the (hereinafter called the BCA of the other part).

WHEREAS this agreement is supplementary to a contract (Herein after called the Contract) dated _____and made between the GUARANTOR OF THE ONE PART AND the BCA of the other part, whereby the contractor inter alia, undertook to render the Seismic/ Mechanical Joint System/Work under agreement Item No in the said contract recited safe against water leakage, unsound material and workmanship and defective anodizing etcetera.

AND Whereas GUARANTOR agreed to give a guarantee to the effect that the Seismic/ Mechanical Joint System/Work will remain safe against water leakage, unsound material and workmanship and defective anodizing for TEN years from the date of completion of work, to be reckoned from the date after the expiry of maintenance period prescribed in the contract.

NOW THE GUARANTOR hereby guarantees that the Seismic/ Mechanical Joint System/Works executed by him will remain safe against water leakage, unsound material and workmanship and defective anodizing for TWO years from the date of completion of work, to be reckoned from the date after the expiry of maintenance period prescribed in the contract.

Provided that the guarantor shall not be responsible for any damage caused by earth quake or misuse of the Seismic/ Mechanical Joint System/Work or alteration and for such purpose:

a. misuse of the Seismic/ Mechanical Joint System/Work mean any operation which will damage the Aluminum Work executed by him;

b. Alteration shall mean construction of an addition to the Seismic/ Mechanical Joint System/Work executed by him or part thereof or construction adjoining to the existing Seismic/ Mechanical Joint System/WorkwherebytheSeismic/MechanicalJointSystem/Workislikelytobeeffected/damaged;

c. The decision of the Engineer with regard to nature and cause of defects shall be final.

During this period of guarantee, the guarantor shall make good all defects and in case of any defect being found to render the Seismic/ Mechanical Joint System/Work non-functional to the satisfaction of the Engineer at his cost and shall commence the work for rectification within seven days from the date of issue of the notice from the Engineer –in-charge calling upon him to rectify the defects failing which the work shall be got done by the BCA by some other contractor at the GUARANTORS cost and risk. The decision of the Engineer as to cost, payable by the Guarantor shall be final and binding.

That if the guarantor fails to execute the Seismic/ Mechanical Joint System/Work, or commits breach there- under then the guarantor will indemnify the Principal and his successor against all loss, damage, cost of expenses or otherwise which may be incurred by him by reason of any of any default on the part of the GUARANTOR in performance and observance of this supplementary agreement. As to the amount of loss and/or cost incurred by the BCA on the decision of the Engineer in charge will be final and binding on the parties.

IN WITNESS WHEREOF those presents have been executed by the obligator_____and by_

by for and on behalf of----------on the day, month and year first above written.

Signed sealed and delivered by
OBLIGATOR in presence of: 1.____2.

SIGNED FOR AND ON BEHALF OF ---------- BY_____In presence of:
1._____2._____

END OF VOLUME 3