

CUBE/ADM/RFP/B&C/023/2024-25

06 Feb 2025

**REQUEST FOR QUOTATION**

**COMPREHENSIVE DESIGN & ENGINEERING SERVICES FOR A 500-UNIT RESIDENTIAL APARTMENT COMPLEX IN JIGANI, BANGALORE**

**1. Introduction.**

The Centre for Urbanization, Buildings & Environment (CUBE) invites quotations from reputed, qualified, and experienced consultants for Comprehensive Design & Engineering Services for the construction of a Residential Apartment Complex consisting of 500 dwelling units at Jigani, Bangalore. The scope of work includes, but is not limited to Architectural Design, BIM/Revit Modelling, Structural Design & Analysis, MEP Design (Mechanical, Electrical, and Plumbing), Cost Estimation & Budgeting. The anticipated project duration is 30 months, with 4 months for Design & Engineering Services, 2 months for approvals and 24 months for construction.

**2. Project Details.**

- 2.1. **Development Type:** Residential Apartment Complex with amenities, including a Clubhouse
- 2.2. **Location:** Jigani, Anekal Taluk, Bengaluru, Karnataka
- 2.3. **Plot Area:** 8 Acres

**3. Terms of Reference.**

- 3.1. **Building Configuration:** Basement + Stilt + 11 Floors (Preferred)
- 3.2. **Total Dwelling Units:** Minimum 500 units
- 3.3. **Construction Technology:** Integrated Concrete Construction using **MIVAN Formwork** and **3D EPS Panels**
- 3.4. **Product Mix:** (Can be increased subject to feasibility and approval)
  - (a) **3 BHK:** 213 units
  - (b) **2.5 BHK:** 146 units
  - (c) **2 BHK:** 108 units
- 3.5. **Sustainability and Design Considerations**
  - (a) **Sustainability Certification:** LEED / GRIHA Compliance
  - (b) **Thermal & Acoustic Comfort Measures**
  - (c) **Implementation of BIM (Revit) for Design Optimization**
  - (d) **Estimated Construction Cost:** Rs. 2,200 per sq. ft.
- 3.6. **Design & Planning Requirements** The project design shall ensure:
  - (a) Optimal **light, ventilation, Vaastu compliance, privacy, and aesthetics**
  - (b) All units to have **exterior city views**
  - (c) A **clubhouse** of appropriate size with luxury amenities
- 3.7. **Space Efficiency & Design Features:**
  - (a) **Spacious units with optimal room sizes**
  - (b) **Vaastu-compliant layouts** ensuring positive energy flow
  - (c) **Properly concealed ODU locations** to maintain façade aesthetics

- 3.8. **Community Infrastructure & Amenities** The development shall include:
- (a) **Grand entrance with feature wall & façade lighting**
  - (b) **Controlled entry & 24x7 CCTV security**
  - (c) **Well-planned parking, bicycle & pedestrian tracks**
  - (d) **Lush green landscaping & open spaces**
  - (e) **Outdoor Amenities:**
    - Amphitheatre, Hammock Court, Senior Citizen Court, Reflexology Walkway
    - Cycling Track, Adventure Rock Climbing, Skating Rink
    - Multipurpose Sports Court, Jogging Track, Golf Putting Green
    - Pet Park, Kids' Play Areas, Interactive Floor Games
  - (f) **Indoor Amenities:**
    - Banquet Hall, Mini Theater, Co-working Space, Learning Center
    - Gym, Yoga Studio, CrossFit Corner, Functional Workout Zone
    - Kids' Play Areas, Arcade Games, Board Games, Art & Craft Room
    - Salon, Sauna, Jacuzzi, Plumeria Courtyard
  - (g) **Swimming Pool:** With kid's pool, poolside loungers, jacuzzi, and in-pool daybeds
  - (h) **Clubhouse Facilities:**
    - Double-height **Reception Lounge & Banquet Hall**
    - **Exclusive Gym, Indoor Kids Play Area, Video Games Room**
    - **Library, Salon, Sauna, Jacuzzi, Multipurpose Hall**
- 3.9. **Vaastu Compliant Homes For Enhancing A Positive Living**
- (a) Conscious efforts have been taken during design phase to have all of the units Vaastu compliant
  - (b) Most units have North or East facing entry doors
  - (c) All apartments have kitchens placed in Southeast and Northwest
  - (d) All apartments have Southwest Bedrooms
  - (e) No apartments have toilets in Northeast
  - (f) No units have Bed headboard in the North

#### 4. **Prequalification Criteria.**

To ensure the selection of a competent and experienced service provider, the following prequalification criteria must be met.

##### 4.1. **Experience**

- (a) The bidder must have successfully executed at least one design and engineering work of a project cost not less than Rs. 400 crores contracted value during the last 5 financial years.
- (b) Alternatively, the bidder must have successfully executed at least two design and engineering works of a project cost not less than Rs. 250 crores contracted value during the last 5 financial years.

##### 4.2. **Single Project Experience**

- (a) The bidder must have completed a single project with a built-up area exceeding 7 lakh sqft, covering comprehensive design services, including architectural, structural, MEP design, engineering, and BIM.

(b) Alternatively, if qualifying under Clause 4.1's second condition (two projects of Rs. 250 crores each), the combined built-up area of these two projects must not be less than 7 lakh sqft.

#### 4.3. Financial Stability

(a) The bidder's average annual turnover must be not less than Rs. 5 crores during the last three financial years.

(b) The bidder must not have incurred any loss in more than two years during the last five financial years (between 2020-2025). The balance sheet of the firm must be submitted.

#### 4.4. Firm Existence and Expertise

(a) The bidder's firm must have existed for more than 20 years.

(b) The bidder must have a minimum of 5 registered architects and structural engineers within the firm.

#### 4.5. Sector Experience

(a) The bidder must have experience in designing buildings for the mass housing sector.

(b) The bidder must have worked on more than 5 high-rise building projects in the last 5 years.

(c) The bidder must have worked on more than 3 monolithic technology construction projects using MIVAN formwork in the last 5 years.

**4.6. Timely Completion.** The bidder must have a proven track record of timely completing works/projects taken up during the last 3 years.

### 5. Tender Evaluation.

The bid evaluation process will be conducted in three distinct stages.

#### 5.1. Stage 1: Prequalification Evaluation

Bidders will be assessed based on the prequalification criteria outlined in Section 4. Only bidders who meet the minimum prequalification requirements will proceed to the next stage.

#### 5.2. Stage 2: Technical and Financial Evaluation

Shortlisted bidders (those who successfully passed the prequalification stage) will be evaluated based on the following criteria:-

(a) Proposed Design & Engineering Approach (30 Marks). This criterion assesses the bidder's understanding of the project requirements, the innovativeness and feasibility of their proposed design approach, the methodology they will employ, and their proposed solutions to potential challenges.

(b) Past Relevant Projects & Performance (30 Marks). This evaluation considers the bidder's experience in similar projects, the scale and complexity of those projects, their track record of successful project completion, and client feedback or references. Evidence of past performance, such as completion certificates, client testimonials, and awards, should be submitted.

(c) BIM & Technological Capabilities (20 Marks). This assesses the bidder's proficiency in Building Information Modeling (BIM) software and processes, their capacity to leverage technology effectively in design and construction, their access to necessary hardware and software, and their ability to integrate BIM into the project workflow.

(d) Team Experience & Credentials (20 Marks). This criterion evaluates the qualifications, experience, and expertise of the proposed project team members, including architects, engineers, BIM specialists, and other key personnel. Resumes, professional certifications, and relevant experience should be documented.

Minimum Qualification Benchmark: 70 Marks (out of 100) for the Technical Evaluation. Bidders must achieve this minimum score to be considered for the financial evaluation.

### 5.3. Stage 3: Financial Evaluation.

Technically qualified bidders (those who achieve the minimum score in the technical evaluation) will have their financial bids evaluated. The contract will be awarded based on the Quality & Cost-Based Selection (QCBS) Method, using a weighted average of the technical and financial scores.

(a) Final Score (S) Calculation. The final score (S) for each bidder will be calculated as follows:

$$\text{Final Score (S)} = (\text{Technical Score} \times 0.80) + (\text{Financial Score} \times 0.20)$$

(b) Financial Score Calculation. The financial score for each bidder will be calculated as follows:

$$\text{Financial Score} = (\text{Lowest Financial Bid} / \text{Bidder's Quoted Price}) \times 100$$

Where:

- *Lowest Financial Bid:* The lowest bid price submitted by any technically qualified bidder.
- *Bidder's Quoted Price:* The bid price submitted by the specific bidder being evaluated.

(c) Award Criteria. The contract will be awarded to the bidder with the highest Final Score (S), calculated using the QCBS method described above. In the event of a tie in the final scores, the bidder with the higher technical score will be given preference.

(d) Price Negotiation. CUBE reserves the right to conduct price negotiations with the top-ranked bidder(s) before awarding the contract to ensure the most competitive pricing.

### 6. Contract Agreement.

The successful bidder will be notified in writing of their selection and will be issued a Letter of Intent (LOI). The selected bidder will be required to formally acknowledge the LOI and execute a legally binding contract with CUBE within seven (7) days of the LOI issuance. The contract will be prepared on non-judicial stamp paper of appropriate value and will detail all terms and conditions of the agreement, including scope of work, deliverables, payment schedule, intellectual property rights, confidentiality obligations, indemnification clauses, dispute resolution mechanisms, and termination clauses.

### 7. Performance Security.

The selected bidder will be required to submit a Performance Security within seven (7) days of the LOI issuance. The Performance Security shall be equal to five percent (5%) of the total contract price and must be furnished in the form of an unconditional and irrevocable Demand Draft or Bank Guarantee from a scheduled commercial bank acceptable to CUBE, payable at Chennai in favor of "CENTRE FOR URBANIZATION BUILDINGS AND ENVIRONMENT." The Performance Security will serve as a guarantee of the bidder's faithful performance of all contractual obligations. It will be returned to the bidder thirty (30) days after the successful completion of the project, acceptance of all deliverables by CUBE, and release of the final payment, subject to no outstanding claims or disputes.

### 8. Retention Money.

Five percent (5%) of the value of each certified payment will be retained by CUBE as Retention Money. The Retention Money will be held as security for the satisfactory completion of the project and will be released to the consultant after the successful completion of all works, acceptance of all deliverables by CUBE, and the expiration of the defects liability period of [12 months] from the date of project completion. The Retention Money will not accrue any interest.

### 9. Proposal Submission Requirements.

#### 9.1. Envelop A [Technical Bid].

Contains all technical proposal documents as specified in the RFQ. Clearly mark the envelope "Technical Bid - CUBE/ADM/RFP/B&C/023/2024-25."

- (a) **Cover Letter:** Formal letter summarizing your qualifications and interest.
- (b) **Company Profile:** Legal details, establishment date, ownership, organization chart, key personnel CVs.
- (c) **Firm Registration:** Registration certificate and proof of existence (20+ years).
- (d) **Project Experience:**
  - Completion certificates for qualifying projects.
  - List of high-rise projects (last 5 years).
  - Details of MIVAN formwork projects (last 5 years).



- (e) **Financial Documents:**
  - Audited balance sheets and P&L statements (2020-2025).
  - CA certification of average annual turnover (last 3 years).
- (f) **Personnel Details:** List of registered architects and structural engineers with certificates.
- (g) **Design Portfolio:**
  - Evidence of mass housing sector experience.
  - Design portfolio (7 lakh sq ft+ projects).
- (h) **Performance Record:** Timely completion certificates (last 3 years).
- (i) **Project Understanding & Approach:** Your understanding of the project, key challenges, design philosophy, methodology, and sustainability approach.
- (j) **Technical Proposal:**
  - Design Concept: Site plan, floor plans, elevations, renderings, design rationale.
  - BIM Plan: Software, LOD, protocols, clash detection, team roles.
  - Sustainability Strategy: Approach to target rating (energy, water, materials, IEQ).
  - Quality Control Plan: Procedures for ensuring quality.
- (k) **Work Plan & Schedule:** Timeline, milestones, deliverables, resources.
- (l) **Supporting Documents:** Additional documents supporting compliance with tender requirements.
- (m) **Declaration:** Signed certification of accuracy.

### 9.2. Envelop B [Financial Bid].

Contains the financial proposal as per Annexure II. Clearly mark the envelope "Financial Bid - CUBE/ADM/RFP/B&C/023/2024-25."

### 9.3. Master Envelope.

Both sealed envelopes (A and B) must be placed in a larger outer envelope, which should be clearly marked with the RFQ number (CUBE/ADM/RFP/B&C/023/2024-25), project title, and your firm's name and address.

### 9.4. Submission Address.

(a) The complete quotation package (outer envelope containing both sealed envelopes) must be submitted to the following address.

(b) Centre for Urbanization, Buildings & Environment (CUBE) Module 6, 6th Floor, Block C, Phase II Building IIT Madras Research Park Kanagam Road, Tharamani Chennai - 600 113 India

**9.5. Queries and Clarifications.**

- (a) All queries, clarifications, or requests for assistance regarding the bidding procedures should be directed to the Senior Executive, CUBE, at Phone No. +91 44 6121 0922 or Email: [office@cubeiitm.org](mailto:office@cubeiitm.org).
- (b) Bidders are encouraged to submit their questions in writing (email preferred) to ensure a clear and documented response.
- (c) The deadline for submitting queries is [**19 Feb 2025**]. CUBE will endeavour to respond to all queries within [**24 Hrs**].
- (d) Any clarifications or addenda to the RFQ will be issued in writing and distributed to all prospective bidders.

**10. Non-Disclosure Agreement.**

Information related to the examination, clarification, evaluation, and recommendation for the selection of Applicants will not be disclosed to any person who is not officially involved in the process or a retained professional adviser advising CUBE on matters concerning the Selection Process. CUBE will treat all information submitted as part of the Proposal with confidentiality and will require all those with access to such material to do the same. CUBE will not disclose any information unless required by a statutory entity empowered by law to demand such disclosure or to enforce or assert any right or privilege of the statutory entity and/or CUBE.

B. John Joseph  
Senior Manager - Projects  
Building & Construction  
CUBE

### SCOPE OF WORK

The Consultant shall be responsible for the following tasks related to the design and engineering of a 500-unit residential apartment complex in Jigani, Bangalore, on an 8-acre plot, with a preferred configuration of B+S+11 floors, utilizing MIVAN formwork and 3D EPS panels, targeting LEED/GRIHA certification, and aiming for a construction cost of Rs. 2,200/sq.ft.

#### 1. Architectural Design Development.

##### 1.1. Concept Design.

- (a) Prepare and submit **a minimum of two concept schemes** and designs in coordination with the Structural Engineer & MEP Consultant, incorporating the project's vision of "A PREMIUM COMMUNITY FOR A SUPERLATIVE LIFE," emphasizing light, ventilation, Vastu, privacy, and aesthetics.
- (b) Design philosophy to prioritize modern aesthetics, user comfort, functional optimization, and Vastu compliance, ensuring all units have exterior views.
- (c) Architectural design to leverage BMTPC-approved innovative construction technologies, specifically MIVAN Formwork and 3D EPC Panels, for faster construction and enhanced performance. The design should accommodate a minimum product mix of 3 BHK (213 units), 2.5 BHK (146 units), and 2 BHK (108 units), subject to feasibility studies and CUBE's approval. Attempt must be made to go for a higher quantity of units.
- (d) Design a grand entrance arch with dedicated entry and exit, a contemporary 19-floor elevation with facade lighting, and well-planned circulation at ground and basement levels, including bicycle and pedestrian tracks. Building orientation should maximize wind flow and minimize heat gain.

##### 1.2. Master Plan.

- **Land Use Zoning:** Optimize spatial allocation for residential blocks, clubhouse, amenities, open spaces, roads, and services.
- **Circulation & Connectivity:**
  - Well-defined entry & exit points with **vehicular and pedestrian segregation**.
  - Adequate **driveways, parking, service roads, and emergency access**.
  - Provision for **visitor parking, EV charging stations, and car wash bays**.
- **Landscape & Outdoor Amenities:**
  - Lush **green landscaping** with **theme gardens**, wellness zones, and **open spaces**.
  - A **luxury clubhouse** with **premium indoor and outdoor amenities** (refer to Annexure A).
  - **Swimming pool, kids' play area, senior citizen relaxation zones, multipurpose sports courts, jogging track, pet park, and barbecue zones**.
- **Security & Surveillance:** 24/7 **CCTV surveillance, RFID-based access control, and gated security systems**.



### 1.3. Site Development Plans.

- Internal roads & parking bays with pedestrian & cyclist integration.
- Drainage, sewage, and stormwater management systems.
- Landscape lighting, signage, and wayfinding.
- Service infrastructure (DG yard, STP, water treatment plant).
- Other external works, including provisions for car wash bays, charging bays, and air filling stations

### 1.4. Detailed Architectural Drawings.

(a) Produce detailed plans, sections, elevations, and a 3D walkthrough showcasing the grand entrance, contemporary elevation, well-planned circulation, lush landscaping, and the extensive amenity offerings. Special attention should be given to the double-height reception lobby in the clubhouse.

(b) Integrate architectural details and specifications into the BIM model, ensuring data-rich and clash-free models through close coordination with the BIM team from project inception to completion. The design should prioritize spacious homes with well-sized bedrooms, 8'x5' minimum toilets, dedicated utilities, linear living and dining areas, uninterrupted exterior views from bedrooms and balconies, wide kitchens, minimal space wastage, and planned ODU locations. All units should be designed to be Vastu compliant, with consideration for entry door orientation, kitchen placement, and bedroom placement.

(c) Architectural details include: -

- Site Plan: Showing building footprints, setbacks, boundaries, north arrow, surrounding features, landscaping, parking, and access roads.
- Floor Plans: Detailed plans for each floor of every building block, including dimensions, room names, wall thicknesses, furniture layouts (where applicable), door and window locations, and all other relevant annotations.
- Elevations: All building elevations showing exterior finishes, window and door types, overall dimensions, and materials.
- Sections: Building sections through key areas, illustrating floor heights, wall thicknesses, material transitions, and structural elements.
- Roof Plan: Showing roof slope, drainage, access details, and any rooftop features.
- Reflected Ceiling Plans: Showing lighting fixtures, ceiling fans, diffusers, and other ceiling-mounted elements.
- Detailed Staircase Drawings: Plans, sections, and elevations of all staircases, including handrail details.
- Toilet/Bathroom Details: Enlarged plans and sections showing plumbing fixture locations, waterproofing details, and finishes.
- Kitchen Details: Layouts and details of kitchen areas, including countertop materials, cabinet layouts, and appliance locations.
- Joinery Details: Details of built-in furniture, wardrobes, and other joinery elements.
- Facade Details: Detailed drawings of the building facade, including materials, cladding systems, and window/door installations.

### 1.5. Compliance.

Designs must comply with local regulations, fire and safety codes, NBC norms, accessibility standards, and the project's sustainability goals (LEED/GRIHA).

## 2. BIM Integration and Design Coordination

### 2.1. Level of Development (LOD)

- (a) LOD 200: Conceptual design
- (b) LOD 300: Detailed design and tender coordination
- (c) LOD 350: Construction coordination and clash detection

### 2.2. BIM Modeling Requirements

- (a) Use industry-standard software (e.g., Revit, Navisworks)
- (b) Develop clash-free and integrated models for architectural, structural, and MEP disciplines

**2.3. Model Integration & Clash Detection:** A fully integrated, clash-free model shall be maintained using industry-standard software. Clash detection reports and constructability analyses will be performed.

**2.4. Model Updates & Validation:** Regular updates and validation at key milestones, following a documented quality control process.

**2.5. Collaboration & Communication:** A centralized platform and regular meetings will facilitate effective communication and model reviews.

### 2.6. Design Coordination and Deliverables

- (a) Conduct regular design coordination meetings
- (b) Provide BIM models, clash detection reports, and design coordination meeting minutes
- (c) Ensure model updates and validation at defined milestones

## 3. Structural Design Development

### 3.1. Design Basis.

- (a) Thoroughly assess the geotechnical reports, site topography, soil profiles, and groundwater conditions to frame an economical foundation design.
- (b) Evaluate structural systems suitable for the project's design requirements, functionality, and architectural aesthetics. The consultant should develop the design basis in coordination with Architect & MEP Consultant.
- (c) Provide a Design Basis Report for the structural and foundation design for the proposed building, ancillary facilities and other elements like retaining walls, compound walls, landscaping elements, site services components and so on, as may be required. Design Basis Report should cover all relevant codes, standards, load considerations, and analysis methods.

### 3.2. Modelling & Analysis.

- (a) Develop a 3D structural model using software (e.g., ETABS, STAAD Pro, or SAP2000) to represent the structural system, load paths, and load distribution.

(b) Determine dead loads, live loads, seismic loads, wind loads, and other applicable loads according to IS 875 (Part 1, 2, 3, 5) & IS 1893 (Part 1) and project specifications.

(c) Conduct static and dynamic analysis, ensuring structural integrity and stability under all load conditions. Optimize structural members for material efficiency and cost-effectiveness.

### 3.3. Structural Design and Detailing.

(a) Design foundations based on geotechnical data, considering load-bearing requirements and soil conditions.

(b) Prepare framing plan, structural designs for beams, columns, slabs, and other superstructure elements, complying with IS codes for reinforced concrete or steel structures.

(c) Integrate seismic and wind-resistant considerations per applicable IS Codes and relevant guidelines to enhance structural stability.

(d) Design structural provisions for elevators, escalators, and staircases, ensuring accessibility and compliance with safety standards.

### 3.4. Detailed Drawings.

(a) Develop detailed structural drawings, including foundation layout, column layout, beam and slab details, and reinforcement detailing for all design components as may be required.

(b) Ensure that structural drawings are in sync with architectural and MEP requirements.

3.5. Compliance. All design considerations and analyses should comply with the applicable IS Codes and relevant standards.

## 4. MEP Design Development.

4.1. Design Basis Report. Comprehensive DBR covering MEP and site services design philosophy and detailed calculations.

4.2. Building Services Design. Building Services Designs and Drawings prepared for HVAC, Water Supply and Sewage disposal, Electrical [including Solar Energy option], Mechanical, Fire Fighting, CCTV, PA System and IBMS for specific areas. Detailed scope of work is given below.

4.3. Electrical Systems. The electrical systems will be designed to meet the relevant Standards and Codes and will be in line with industry best practices. Key elements of the power distribution system, including primary and backup power systems (transformers, generators, UPS) with load calculations, diversity factors, and power quality standards will be arrived at. It will cover energy-efficient lighting systems for both interiors and exteriors, detailing light intensity, luminaire selection, and automated control strategies to enhance sustainability. Solar power integration possibilities will also be explored to supplement energy needs. Earthing and lightning protection systems will be designed per safety standards, with grounding requirements and surge protection to ensure optimal safety and resilience.

4.4. Heating, Ventilation, and Air Conditioning (HVAC). The scope, limited to Clubhouse, includes conducting thermal load calculations and system sizing, with due consideration to climate, occupancy loads, and air exchange rates. Additionally, energy

efficiency will be prioritized throughout the design with use of appropriate features and components.

4.5. Fire Protection and Detection Systems. The scope encompasses the design of comprehensive fire suppression and detection systems according to the Design Basis Report (DBR), detailing sprinkler layouts, detection types, and control panels while ensuring compliance with safety codes. It also includes provisions for emergency evacuation incorporating safe exit strategies, travel distances, exit signage, and fire-resistant materials.

4.6. Water Supply, Sewerage and Plumbing. The scope involves designing potable water and sewerage systems, including water supply and drainage, specifying water pressure, flow rates, and fixture efficiency. It also includes incorporating water-saving measures such as greywater recycling, rainwater harvesting, and plumbing fixture requirements.

4.7. CCTV and PA Systems. Incorporate security systems, including CCTV, access control and PA system, detailing camera locations, power, and connectivity requirements.

4.8. Site Services Planning and Design. The Consultant shall develop comprehensive and detailed designs, layouts, and sections for all necessary site services, ensuring their efficient integration and compliance with relevant codes and regulations. This includes, but is not limited to, Water Treatment Plant (WTP) design (treatment processes, unit sizing, equipment specifications, control systems, layout, and sections), Sewage Treatment Plant (STP) design (treatment processes, unit sizing, equipment specifications, treated water disposal/reuse plan, odor control, layout, and sections), Stormwater Drainage System design (pipe sizing, layout, catch basins, manholes, outfalls, layout, and sections), Diesel Generator (DG) Set specifications (power output, fuel type, noise levels, emissions, layout, and sections), Solar Energy Systems design (panel layout, mounting structures, inverter specifications, grid connection, layout, and sections), Rainwater Harvesting (RWH) System design (collection areas, filtration systems, storage tanks, recharge/reuse methods, layout, and sections), Sewerage System design (pipe sizing, layout, manholes, connections, layout, and sections), and other services such as Solid Waste Management, Landscaping and Irrigation, External Lighting, Security Systems, and Telecommunications Systems, including relevant layouts, specifications, and details, all while ensuring coordination with other disciplines, compliance with codes and standards, complete documentation, and prioritization of sustainability.

4.9. The consultants should integrate the MEP layout and technical specifications into the BIM model. They should maintain close coordination with the BIM team from project inception to completion, ensuring data-rich and clash-free models.

## 5. Sustainability.

5.1. Rating/Certification. The designs and drawings shall comply with either one of the requirements of: -

- (a) LEED (Leadership in Energy and Environmental Design) 3-Star rating or equivalent
- (b) IGBC (Indian Green Building Council) 3-Star rating or equivalent
- (c) GRIHA (Green Rating for Integrated Habitat Assessment) 3-Star (Version 3) rating or equivalent

5.2. **Sustainable Design Principles.** The consultant shall incorporate sustainable design principles, including: -

- (a) Energy efficiency
- (b) Water conservation
- (c) Material selection and waste reduction
- (d) Indoor air quality and occupant health
- (e) Site selection and land use

5.3. **Sustainable Building Features.** The consultant shall incorporate sustainable building features, including: -

- (a) Renewable energy systems (e.g., solar, wind)
- (b) Rainwater harvesting and greywater reuse
- (c) Green roofs and walls
- (d) High-performance building envelope
- (e) Low-flow fixtures and greywater reuse systems

5.4. **Documentation and Certification.** The consultant shall provide documentation and support for certification, including: -

- (a) LEED, IGBC, or GRIHA certification application
- (b) Energy modeling and simulation reports
- (c) Water conservation and efficiency reports
- (d) Material selection and waste reduction reports

5.5. **Cost Considerations.** The Consultant shall consider the cost implications of achieving the target rating and provide cost-effective solutions for implementing sustainable design strategies. Life-cycle cost analysis should be performed where relevant.

5.6. **Performance Verification.** The Consultant shall outline a plan for verifying the performance of sustainable design features during construction and operation, including testing, commissioning, and monitoring.

## 6. **Project Estimation & Costing.**

(a) Preparation of the Bill of Quantities (BOQ) and cost estimation for civil and structural works, MEP (Mechanical, Electrical, and Plumbing), firefighting, and site development works, based on approved design documents and in compliance with local SOR/DSR and/or applicable market rates.

(b) Detailed quantity take-off and preparation of measurement book as per the prescribed format from the given tender drawings / GFC drawings.

(c) Carryout detailed rate analysis in accordance with the latest versions of local SOR, DSR and market rates.

(d) Submission of approved project estimate files in soft copies in excel format.

## 7. **Inputs for Detailed Project Report (DPR).**

(a) Preparation of coordinated drawings for architectural, structural, and MEP trades.

(b) Bill of Materials (BOM) for civil, structural, and MEP works.

(c) Technical specifications for materials, construction processes, and finishes.

(d) Environmental, safety, and regulatory compliance documentation.



### 8. Submission of Tender Drawings and Specifications.

The Consultant shall prepare and submit tender documents, which shall include: -

- (a) Tender Drawings. Comprehensive and detailed architectural, structural, and MEP drawings suitable for tendering.
- (b) Specifications for Bill of Materials (BOM). Detailed specifications for all materials, quantities, and grades required for tender submission.
- (c) Cost Estimation. Detailed cost estimation based on the Bill of Quantities (BOQ) aligned with the applicable Schedule of Rates (SOR) – DSR.

### 9. Good for Construction Drawings.

The Consultant shall prepare and submit all relevant Good for Construction (GFC) Drawings, which will include but are not limited to the following:

- 9.1. Master Plan & Details. Comprehensive GFC drawings depicting:
  - (a) Overall site layout.
  - (b) Building footprints, landscaping areas, and utility zones.
  - (c) Vehicular and pedestrian circulation, parking arrangements, and setbacks.
- 9.2. Landscape Plan & Details. Detailed drawings and specifications for:
  - (a) Soft scaping elements, including plantations and lawns.
  - (b) Hardscaping features like pavements, outdoor seating, and boundary walls.
  - (c) Lighting, signage, and any special features like water bodies.
- 9.3. Architectural Drawings. Complete architectural detailing for buildings and other site elements:
  - (a) Plans, sections, and elevations of all structures.
  - (b) Detailed room layouts, partitioning, and furniture placement.
  - (c) Wall sections, door/window schedules, and finish schedules.
  - (d) Specifications for key materials and design elements.
- 9.4. Site Services. GFC drawings for the design and layout of site-wide services, including:
  - (a) Sewage Treatment Plant (STP). Process flow diagrams, tank details, and pipeline routing.
  - (b) Fire Services: Layout of fire water tanks, hydrants, sprinklers, and pumps.
  - (c) Diesel Generator (DG) Set. Location, foundation, and connections.
  - (d) Solar Energy Utilization. Solar panel layouts, electrical connections, and storage systems.
  - (e) Stormwater Drainage. Drainage layout plans, collection systems, and outfall details.
  - (f) Other Onsite Infrastructure and Utilities. Designs for utilities such as gas pipelines, solid waste management systems, etc.
- 9.5. Building Service. Detailed GFC drawings for building-specific services:
  - (a) HVAC. Air-conditioning and ventilation systems with ducting layouts.
  - (b) Water Supply and Sewage Disposal. Plumbing layouts for potable water, greywater, and sewage systems.
  - (c) Electrical Systems. Power distribution, lighting, and integration of solar energy options.



- (d) Mechanical Services. Lifts, escalators, and service equipment layouts.
- (e) Fire Fighting System. Placement of sprinklers, fire extinguishers, and detection systems.
- (f) Building Management System (BMS). Control system layouts (if applicable).
- (g) CCTV. Security camera placements and wiring diagrams.
- (h) Public Address (PA) System. Speaker locations and wiring layouts.

9.6. Structural Drawings. Complete structural GFC drawings, including:

- (a) Foundation details, including pile caps and footings.
- (b) Structural framing plans for floors, roofs, and elevations.
- (c) Reinforcement details for beams, columns, slabs, and walls.
- (d) Connection details for steel structures, if applicable.

## 10. Support during Construction Phase

The Consultant shall provide comprehensive support during the construction phase to ensure the project is executed according to the design intent, contract documents, and quality standards. This support includes, but is not limited to, the following: -

10.1. **Clarifications to RFIs (Requests for Information):** Timely and accurate responses to RFIs submitted by contractors, addressing any design or construction-related queries. The Consultant shall establish a clear process for receiving, tracking, and responding to RFIs, ensuring that responses are provided within agreed-upon timeframes to avoid construction delays.

10.2. **Review and Approval of Contractor Shop Drawings:** Thorough review and approval of contractor shop drawings to verify compliance with design specifications and construction requirements. The Consultant shall check dimensions, details, materials, and coordination with other trades. Any discrepancies or deviations shall be clearly communicated to the contractor for correction.

10.3. **Approval of Makes and Shades of Finishes, Materials, and Specifications:** Review and approval of proposed makes and shades of finishes, materials, and equipment to ensure they meet the project's aesthetic and performance requirements. The Consultant shall provide clear guidelines for material submissions and shall review samples and mock-ups as necessary.

10.4. **Validation of As-Built Drawings:** Verification and validation of as-built drawings submitted by the contractor upon project completion. The Consultant shall compare the as-built drawings with the construction drawings and specifications to ensure accuracy and completeness. Any discrepancies shall be documented and corrected.

10.5. **Witnessing of Testing & Commissioning Reports:** Attendance at and witnessing of testing and commissioning activities for various building systems (e.g., HVAC, electrical, fire protection) to ensure proper functioning and compliance with performance criteria. The Consultant shall review testing reports and provide feedback as needed.

10.6. **Scheduled Site Visits:** A minimum of ten (10) scheduled site visits throughout the construction phase to observe progress, address any on-site issues, and ensure adherence to design intent and quality standards. The Consultant shall prepare site visit reports documenting observations, issues, and recommendations. The frequency and timing of site visits can be adjusted based on project needs and construction progress. Beyond the

minimum scheduled visits, the consultant should be responsive to requests for additional site visits as reasonably required.

**10.7. Construction Progress Meetings:** Participation in regular construction progress meetings to discuss project status, address any challenges, and provide design-related input.

**10.8. Design Modifications:** Handling any necessary design modifications or variations that may arise during construction, ensuring that changes are properly documented, approved, and integrated into the project documentation.

**10.9. Dispute Resolution:** Providing technical expertise and support in resolving any disputes that may arise between the client and the contractor related to design or construction issues.

**10.10. Final Project Handover:** Assisting with the final project handover process, including the review of operation and maintenance manuals, warranties, and other project closeout documents.

The Consultant's support during the construction phase is crucial for ensuring the successful completion of the project. The Consultant shall be proactive, responsive, and collaborative in their approach, working closely with the contractor and other stakeholders to address any issues and maintain the project's quality and schedule.

## 11. Statutory Submissions.

The Consultant shall provide comprehensive facilitation support to the Client in obtaining all necessary statutory approvals for the project. While the Client is responsible for the formal submission of applications, payment of statutory fees, and liaising with approving authorities, the Consultant shall prepare and provide all required design and engineering documentation, calculations, reports, and drawings to enable the Client to complete the application process effectively.

The Consultant's facilitation support shall include, but not be limited to, the following:-

**11.1. Identification of Applicable Regulations:** The Consultant shall identify all relevant local, state, and national regulations, codes, and standards applicable to the project, including those related to building permits, environmental clearances, fire safety, accessibility, and other relevant areas.

**11.2. Documentation Preparation:** The Consultant shall prepare and provide all necessary design and engineering documents, including:

(a) **Architectural Drawings:** Site plan, floor plans, elevations, sections, roof plan, landscape plan, parking layout, accessibility details, fire safety drawings (architectural aspects), and other relevant drawings as required by local authorities.

(b) **Structural Drawings and Calculations:** Foundation plan, column layouts, beam layouts, slab layouts, structural details, structural design report/calculations, geotechnical investigation report, and structural stability certificate.

(c) **MEP Drawings and Specifications:** Electrical drawings, plumbing drawings, HVAC drawings (if applicable), fire fighting drawings, MEP equipment specifications, energy efficiency calculations, and other relevant MEP documentation.

(d) **Environmental Impact Assessment (EIA) Input:** Data related to energy use, water consumption, waste generation, and building materials for the EIA report.

- (e) **Environmental Management Plan (EMP) Input:** Information on how the design minimizes environmental impact for the EMP.
- (f) **Technical Reports and Calculations:** Supporting calculations and reports for various approvals, including hydraulic calculations for water supply and sewage disposal, electrical load calculations, fire safety reports, and others as required.
- (g) **Green Building Certification Documentation (if applicable):** LEED, GRIHA, or other green building rating system documentation.
- (h) **As-Built Drawings:** Record drawings reflecting the final constructed condition.

**11.3. Information for Application Forms:** The Consultant shall provide the Client with all necessary technical information required to complete the various statutory application forms, including:-

- (a) **Project Description:** A concise summary of the project.
- (b) **Technical Specifications:** Details of materials, finishes, and equipment.
- (c) **Cost Estimates:** Detailed cost breakdowns.
- (d) **Project Schedule:** Timeline for project completion.
- (e) **Land Survey Details:** Precise survey information.
- (f) **Title Deed Information:** Details from the title deed.
- (g) **Area Calculations:** Built-up area, FAR, etc.
- (h) **Consultant Certificates:** Certificates from the architect, structural engineer, and MEP engineers.

**11.4. Support for NOCs:** The Consultant shall prepare and provide all technical documentation required for obtaining No Objection Certificates (NOCs) from various departments, including fire, environment, traffic, water, electricity, and others as required. This includes specific drawings, calculations, reports, and clarifications.

**11.5. Liaisoning Support (Technical):** While the Client is responsible for formal liaisoning, the Consultant shall provide technical support by:

- (a) Attending meetings with approving authorities (when requested by the Client) to explain design aspects and address technical queries.
- (b) Providing clarifications and additional information as requested by the approving authorities.
- (c) Revising drawings and documents as required to address comments from the approving authorities.

**11.6. Statutory Forms (Client Responsibility):** The Client is responsible for obtaining and completing the following forms, and the Consultant will provide the necessary information to facilitate their completion:-

- **DTCP Application Forms:** Application for layout approval, building permit, etc.
  - (a) **ULB Application Forms:** Application for building permit, NOCs, etc.
  - (b) **SEAC Application Forms:** Application for environmental clearance.
  - (c) **KSPCB Application Forms:** Application for CFE, CTO, etc.
  - (d) **RERA Application Forms:** Project registration application.
  - (e) **Fire Department Forms:** Application for fire safety NOC.
  - (f) **Water Supply and Sewerage Board Forms:** Application for connection.
  - (g) **Electricity Board Forms:** Application for connection.
  - (h) **Lift Installation Approval Forms:**
  - (i) **Occupancy Certificate Application Form:**
  - (j) **Other relevant forms as required by local authorities.**

**11.7. Statutory Fees and Liaisoning (Client Responsibility):** The Client shall be solely responsible for the payment of all statutory fees associated with the approvals process and for all formal liaisoning with the approving authorities.

**12. Deliverables**

S. No.	Stage	Discipline	Deliverables
3.1	Design Development	Architectural	<ul style="list-style-type: none"> <li>➤ Preliminary floor plans, elevations, sections, and roof plan.</li> <li>➤ Space planning and functional layouts, including furniture placement.</li> <li>➤ Basic finishes schedule and material palette.</li> <li>➤ Tentative materials and product specifications, including manufacturer details where possible.</li> <li>➤ Preliminary landscape concept plan.</li> <li>➤ 3D massing model for visualization and urban context analysis.</li> <li>➤ Preliminary accessibility compliance report.</li> <li>➤ Preliminary Vastu compliance report.</li> </ul>
		Structural	<ul style="list-style-type: none"> <li>➤ DBR (Structural system concept, design philosophy, and preliminary calculations).</li> <li>➤ Preliminary sizing of structural elements (beams, columns, slabs, foundations).</li> <li>➤ Load calculations (gravity, wind, seismic) and assumptions.</li> <li>➤ Schematic structural layouts and framing plans.</li> <li>➤ Geotechnical investigation report review and recommendations.</li> </ul>
		MEP	<ul style="list-style-type: none"> <li>➤ Concept layouts for HVAC (including cooling load calculations), electrical (including single-line diagrams), plumbing (water supply and drainage), and firefighting systems.</li> <li>➤ Preliminary equipment sizing and specifications for major systems.</li> <li>➤ Utility connection points and capacities.</li> <li>➤ Preliminary energy efficiency analysis.</li> <li>➤ Preliminary fire safety strategy and code compliance review.</li> </ul>
		Site Development	<ul style="list-style-type: none"> <li>➤ Concept master plan with roads, pathways, parking (including electric vehicle charging provisions), and landscaping.</li> <li>➤ Preliminary site drainage plan and levels.</li> <li>➤ Preliminary utility layouts (water, sewer, power, telecom).</li> <li>➤ Preliminary traffic impact study (if required).</li> </ul>
		Cost Estimate	<ul style="list-style-type: none"> <li>➤ Initial cost estimate for all disciplines (civil, structural, MEP, landscaping, etc.) based on area calculations and preliminary unit costs.</li> <li>➤ Cost breakdown by major components and systems.</li> </ul>
		Sustainability	<ul style="list-style-type: none"> <li>➤ Preliminary sustainability charrette report.</li> <li>➤ Initial assessment of LEED/GRIHA/IGBC credit potential.</li> <li>➤ Preliminary energy model and analysis.</li> </ul>
3.2	Detailed Project Report (DPR)	Architectural	<ul style="list-style-type: none"> <li>➤ Final floor plans, sections, elevations, and roof plan.</li> <li>➤ Detailed schedules for doors, windows, and finishes.</li> <li>➤ Accessibility compliance details and drawings.</li> <li>➤ 3D Walkthrough Model (interactive and navigable).</li> <li>➤ Floor finish and tile layout plans.</li> <li>➤ Staircase and handrail drawings.</li> </ul>

S. No.	Stage	Discipline	Deliverables
			<ul style="list-style-type: none"> <li>➤ Terrace floor plan and details.</li> <li>➤ Detailed landscape design drawings and specifications.</li> <li>➤ Vastu compliant unit plans and building layout.</li> </ul>
		Structural	<ul style="list-style-type: none"> <li>➤ Final structural system and design report, including justification for chosen system.</li> <li>➤ Detailed load calculations and analysis results.</li> <li>➤ Preliminary reinforcement details for key structural elements.</li> <li>➤ Foundation design report and recommendations.</li> </ul>
		MEP	<ul style="list-style-type: none"> <li>➤ Finalized layouts for HVAC, plumbing, electrical, and firefighting systems, including riser diagrams and schematics.</li> <li>➤ Single-line diagrams for electrical distribution, including load calculations.</li> <li>➤ Equipment lists and specifications for all major MEP equipment.</li> <li>➤ Energy efficiency analysis report.</li> <li>➤ Fire safety report and code compliance review.</li> </ul>
		Site Development	<ul style="list-style-type: none"> <li>➤ Final master plan with road widths, parking layout (including EV charging stations), and landscaping details.</li> <li>➤ Detailed stormwater drainage system design and calculations.</li> <li>➤ Layouts for water supply and sewage disposal systems, including pipe sizing and routing.</li> <li>➤ Basement and still car parking layout with ventilation and lighting design.</li> <li>➤ Traffic impact study (if required).</li> </ul>
		Cost Estimate	<ul style="list-style-type: none"> <li>➤ Detailed BOQ for all components, including quantities and units.</li> <li>➤ Financial analysis with cost breakdowns, project phasing, and life-cycle cost analysis.</li> </ul>
		Statutory Approvals	<ul style="list-style-type: none"> <li>➤ Drawings and documents for local authority approvals (building permit, environmental clearances, fire safety approvals, etc.).</li> </ul>
		Incorporation of comments	<ul style="list-style-type: none"> <li>➤ Compliance report for planning permission, building plan, environmental, safety, and regulatory standards, incorporating suggestions from the Government of Karnataka.</li> </ul>
3.3	Tender Submission	Tender Drawings	<ul style="list-style-type: none"> <li>➤ Detailed architectural, structural, and MEP drawings.</li> <li>➤ Site development layouts for utilities, drainage, and landscaping.</li> </ul>
		Specifications and BOQ	<ul style="list-style-type: none"> <li>➤ Technical specifications for materials, finishes, and equipment.</li> <li>➤ Detailed BOQ of MEP systems with item descriptions, quantities, and unit rates.</li> </ul>
		Tender Documents	<ul style="list-style-type: none"> <li>➤ General and special conditions of the contract.</li> <li>➤ Payment terms and milestones.</li> <li>➤ List of deliverables from contractors/vendors.</li> </ul>
		Preliminary Schedule	<ul style="list-style-type: none"> <li>➤ Proposed timeline for project execution.</li> </ul>
		Vendor Prequalification	<ul style="list-style-type: none"> <li>➤ Criteria for contractor experience, financial stability, and technical capacity.</li> </ul>
3.4	Statutory Documents	Department of Town and Country	<ul style="list-style-type: none"> <li>➤ Site plan and layout plan.</li> <li>➤ Land ownership documents (Title Deed, Sale Deed).</li> <li>➤ Encumbrance Certificate.</li> </ul>



S. No.	Stage	Discipline	Deliverables
		Planning (DTCP)	<ul style="list-style-type: none"> <li>➤ Land Use Conversion Certificate (if applicable).</li> <li>➤ NOC from local bodies (if applicable).</li> </ul>
		Urban Local Bodies (ULB)	<ul style="list-style-type: none"> <li>➤ Building permit application form.</li> <li>➤ Approved building plans and drawings.</li> <li>➤ Structural stability certificate.</li> <li>➤ NOC from the Fire Department.</li> <li>➤ NOC from the Water Supply and Sewerage Board.</li> <li>➤ NOC from the Electricity Board.</li> </ul>
		State Environmental Impact Assessment Authority (SEIAA) / State Expert Appraisal Committee (SEAC)	<ul style="list-style-type: none"> <li>➤ Environmental Impact Assessment (EIA) report.</li> <li>➤ Environmental Management Plan (EMP).</li> <li>➤ NOC from Karnataka State Pollution Control Board (KSPCB).</li> </ul>
		Karnataka State Pollution Control Board (KSPCB)	<ul style="list-style-type: none"> <li>➤ Consent for Establishment (CFE) application form.</li> <li>➤ Consent to Operate (CTO) application form.</li> <li>➤ Environmental clearance certificate.</li> </ul>
		Real Estate Regulatory Authority (RERA)	<ul style="list-style-type: none"> <li>➤ Project registration application form.</li> <li>➤ Approved project plans and specifications.</li> <li>➤ Details of the promoter and project.</li> <li>➤ Financial statements and audit reports.</li> </ul>
		Fire Department	<ul style="list-style-type: none"> <li>➤ Fire safety plan and drawings.</li> <li>➤ NOC from the Fire Department</li> </ul>
		Water Supply and Sewerage Board	<ul style="list-style-type: none"> <li>➤ Application for water supply and sewerage connection.</li> <li>➤ Hydraulic calculations for water supply and sewage disposal.</li> <li>➤ NOC from the Water Supply and Sewerage Board</li> </ul>
		Electricity Board	<ul style="list-style-type: none"> <li>➤ Application for electricity connection.</li> <li>➤ Electrical load calculations.</li> <li>➤ NOC from the Electricity Board</li> </ul>
		Lift Installation Approval	<ul style="list-style-type: none"> <li>➤ Lift installation drawings and specifications.</li> <li>➤ NOC from the Electrical Inspectorate.</li> </ul>
		Accessibility Compliance	<ul style="list-style-type: none"> <li>➤ Accessibility compliance certificate.</li> <li>➤ Drawings showing compliance with accessibility standards</li> </ul>
		Waste Management Plan	<ul style="list-style-type: none"> <li>➤ Solid waste management plan.</li> <li>➤ NOC from the local waste management authority.</li> </ul>
		Safety Compliance	<ul style="list-style-type: none"> <li>➤ Safety compliance certificate.</li> <li>➤ Approval from the Directorate of Industrial Safety and Health.</li> </ul>
		Occupancy Certificate	<ul style="list-style-type: none"> <li>➤ Completion certificate.</li> <li>➤ Application for occupancy certificate from the local municipal authority</li> </ul>
3.5	Good for Construction (GFC)	Master Plan & Details	<ul style="list-style-type: none"> <li>➤ Overall site layout plan with accurate dimensions, north arrow, and legend.</li> <li>➤ Building footprints, setbacks, and property lines.</li> <li>➤ Landscaping areas, including plant schedules and irrigation layouts.</li> </ul>



S. No.	Stage	Discipline	Deliverables
			<ul style="list-style-type: none"> <li>➤ Utility zones (water, sewer, power, telecom) with locations and sizes.</li> <li>➤ Vehicular and pedestrian circulation, including road widths, parking layouts (with EV charging stations), and walkway details.</li> <li>➤ Grading and drainage plan with contours, spot elevations, and drainage structures.</li> <li>➤ Site sections and details showing retaining walls, slopes, and other site features.</li> <li>➤ Boundary wall details, including materials and dimensions.</li> <li>➤ Signage and wayfinding plan.</li> </ul>
		Landscape Plan & Details	<ul style="list-style-type: none"> <li>➤ Softscaping plan with plant species, sizes, and locations.</li> <li>➤ Hardscaping plan with paving materials, patterns, and dimensions.</li> <li>➤ Irrigation plan showing pipe layouts, sprinkler locations, and control systems.</li> <li>➤ Landscape lighting plan with fixture types and locations.</li> <li>➤ Details of site furniture, water features, and other landscape elements.</li> <li>➤ Planting schedules and specifications.</li> </ul>
		Architectural Drawings	<ul style="list-style-type: none"> <li>➤ Complete floor plans for all levels, including dimensions, room names, and furniture layouts.</li> <li>➤ Building elevations showing exterior finishes, window and door locations, and overall dimensions.</li> <li>➤ Building sections showing floor heights, wall thicknesses, and material transitions.</li> <li>➤ Roof plan with drainage and access details.</li> <li>➤ Detailed schedules for doors, windows, and finishes, including materials, sizes, and specifications.</li> <li>➤ Special area details (e.g., lobbies, staircases, elevator shafts, restrooms) with enlarged plans, sections, and elevations.</li> <li>➤ Partition, ceiling, and joinery details, including materials, dimensions, and fixing methods.</li> <li>➤ Millwork details for cabinets, built-ins, and other custom elements.</li> <li>➤ Staircase details, including risers, treads, handrails, and landings.</li> <li>➤ Accessibility details, including ramps, handrails, and accessible fixtures.</li> <li>➤ Reflected ceiling plans showing lighting fixtures, diffusers, and other ceiling-mounted elements.</li> <li>➤ Enlarged plans and details for wet areas (bathrooms, kitchens, laundry rooms) showing plumbing fixture locations and waterproofing details.</li> <li>➤ Fire-rated wall and partition details</li> </ul>
		Site Services	<ul style="list-style-type: none"> <li>➤ Sewage Treatment Plant (STP) with process flow diagrams, tank details, pipeline routing, and equipment specifications.</li> <li>➤ Fire services layout showing fire water tanks, hydrants, sprinklers, pumps, and pipe routing.</li> <li>➤ Diesel Generator (DG) set location, foundation details, and electrical connections.</li> <li>➤ Solar energy utilization plan showing solar panel layouts, electrical connections, and storage systems.</li> </ul>

S. No.	Stage	Discipline	Deliverables
			<ul style="list-style-type: none"> <li>➤ Stormwater drainage plan with pipe sizes, invert levels, and outfall details.</li> <li>➤ Water supply and distribution network with pipe sizes, valve locations, and meter details.</li> <li>➤ Sewerage collection system with pipe sizes, manhole locations, and cleanout points.</li> <li>➤ Electrical distribution network with cable routing, transformer locations, and panel schedules.</li> <li>➤ Telecommunications network layout with conduit routing and equipment locations.</li> <li>➤ Gas pipeline routing and meter locations (if applicable).</li> <li>➤ Solid waste management system details.</li> <li>➤ Irrigation system layout and details.</li> </ul>
		Building Services (MEP)	<ul style="list-style-type: none"> <li>➤ Fully detailed HVAC layouts showing ductwork, diffusers, grilles, and equipment locations.</li> <li>➤ Electrical layouts showing lighting fixtures, power outlets, switches, and circuiting.</li> <li>➤ Plumbing layouts showing water supply and drainage piping, fixture locations, and riser diagrams.</li> <li>➤ Firefighting system layout showing sprinkler heads, pipe routing, and fire alarm devices.</li> <li>➤ Equipment schedules and specifications for all major MEP equipment.</li> <li>➤ Control diagrams and schematics for building management systems (BMS).</li> <li>➤ Coordination drawings showing all MEP systems overlaid to ensure clash-free installation.</li> <li>➤ Riser diagrams for all vertical MEP systems.</li> </ul>
		Structural Drawings	<ul style="list-style-type: none"> <li>➤ Foundation plan showing footing locations, sizes, and reinforcement details.</li> <li>➤ Column layout plan with column sizes and orientations.</li> <li>➤ Beam layout plans for all floors with beam sizes and reinforcement details.</li> <li>➤ Slab layout plans with slab thicknesses and reinforcement details.</li> <li>➤ Wall sections showing wall thicknesses, materials, and reinforcement details.</li> <li>➤ Connection details for steel structures (if applicable).</li> <li>➤ Retaining wall details (if applicable).</li> <li>➤ Staircase details, including reinforcement and handrail connections.</li> <li>➤ Lift core and shaft details.</li> <li>➤ Bar bending schedules for all reinforced concrete elements.</li> </ul>
3.6	BIM		<ul style="list-style-type: none"> <li>➤ LOD 200 models (Conceptual Design).</li> <li>➤ LOD 300 models (Detailed Design &amp; Tender Coordination).</li> <li>➤ LOD 350 models (Construction Coordination &amp; Clash Detection).</li> <li>➤ BIM Execution Plan (BEP).</li> <li>➤ Clash detection reports at each relevant stage.</li> <li>➤ BIM coordination meeting minutes.</li> </ul>
3.7	Sustainability		<ul style="list-style-type: none"> <li>➤ Final LEED/GRIHA/IGBC documentation package for certification.</li> <li>➤ Energy model reports and analysis data.</li> </ul>

S. No.	Stage	Discipline	Deliverables
			<ul style="list-style-type: none"> <li>➤ Material certifications and specifications.</li> <li>➤ Commissioning plans and reports.</li> <li>➤ Operations and maintenance manuals for sustainable features.</li> </ul>
3.8	Construction Support		<ul style="list-style-type: none"> <li>➤ Clarifications to RFIs from contractors.</li> <li>➤ Review and approval of contractor shop drawings.</li> <li>➤ Approval of makes and shades of finishes, materials, and specifications.</li> <li>➤ Validation of As-Built drawings.</li> <li>➤ Witnessing of testing &amp; commissioning reports.</li> <li>➤ Minimum of ten (10) scheduled site visits and detailed site visit reports.</li> <li>➤ Participation in construction progress meetings.</li> <li>➤ Timely processing of change orders and variations.</li> <li>➤ Assistance with final project handover and closeout documentation.</li> </ul>

### 13. Project Duration

The estimated total duration of the project is 30 months from the date of issue of Work Order. Design & Engineering to Issuance of GFC – 4 + 2 Months.  
Construction (Supervision) – 24 Months or till the completion, whichever is later.

### 14. Timeline & Payment Schedule.

S. No.	Stage	Timeline	% Payment
(a)	Submission & approval of Concept Design	T+21 Days	10%
(b)	Submission & approval of Architectural Design	A+30 Days	10%
(c)	Submission & approval of Structural Designs	A+45 Days	10%
(d)	Submission & approval of MEP & Site Development Design	A+60 Days	10%
(e)	Submission & approval of BOQ and Estimation	A+75 Days	5%
(f)	Submission & approval of DPR	A+80 Days	5%
(g)	Submission & approval of Statutory Drawings	B+7 Days	10%
(h)	Good for Construction (GFC) Drawings	B+30 Days	20%
(i)	Support during the Construction Phase	As required	15%
(j)	Project Completion	As required	5%

#### Note.

T – Date of Acceptance of Work Order  
A – Date of Approval of Conceptual Drawing.  
B – Date of Approval of DPR.

### 15. Payment Terms.

subject to: -

- Payments shall be made as per the agreed contractual terms,
- (a) Milestone Completion: Satisfactory completion of each designated milestone as outlined in the timeline.
- (b) Quality Adherence: Adherence to all quality assurance and design guidelines.

- (c) **Deliverable Submission:** Timely submission of all required deliverables and documents as specified for each milestone (see referenced sections for details).
- (d) **Invoice Processing:** A minimum processing time of 21 days for invoices from the date of receipt of a valid invoice. The invoice must clearly reference the milestone achieved and the corresponding deliverable list.

## 16. Special Conditions of Contract.

16.1. Compliance with Applicable Codes and Standards. The Consultant shall ensure all designs, calculations, drawings, and specifications comply with the latest versions of all applicable local, state, and national codes, standards, and regulations across all disciplines. This includes, but is not limited to:

(a) **Architectural Design:** Adherence to the National Building Code (NBC) 2016 (and latest amendments), local Building Bye-Laws (specific to the project location), Accessibility Standards (Harmonized Guidelines, NBC Part 9 and latest amendments), Energy Conservation Building Code (ECBC) 2017 (and latest amendments), relevant Vastu guidelines (if specified by the client), and any other applicable local or regional regulations.

(b) **Structural Design:** Compliance with relevant Indian Standards (IS) including, but not limited to, IS 456 (Plain and Reinforced Concrete), IS 800 (Steel Structures), IS 1893 (Earthquake Resistant Design), IS 875 (Loads), IS 4326 (Earthquake Resistant Construction), IS 13920 (Ductile Detailing of Reinforced Concrete Structures Subjected to Seismic Forces), and other relevant IS codes based on the specific structural systems used. The design shall also consider soil conditions as per the Geotechnical Investigation Report.

(c) **MEP, HVAC, and Fire Fighting Systems:** Adherence to NBC, relevant IS standards (e.g., IS 1646 (Fire Safety of Buildings), IS 3043 (Earthing), IS 2189 (Electrical Installations), IS 15769 (HVAC), and others), and applicable IEC (International Electrotechnical Commission) and NFPA (National Fire Protection Association) standards. The Consultant is solely responsible for ensuring all designs meet all regulatory, safety, and environmental requirements. This includes obtaining necessary approvals and certifications related to fire safety, electrical safety, and other MEP systems.

16.2. Fixed Work Order Value. The Work Order value is a lump sum and fixed, encompassing all services specifically described in the Scope of Work. It is not subject to variation due to changes in built-up area, project cost, or minor design modifications within the agreed scope. Any additional work outside the agreed scope, including significant design changes requested by the client after design freeze at specific milestones, or additional services requested by the client, shall require a separate written agreement with CUBE Consultancy, detailing the scope of the additional work and the associated fees, before such work commences.

16.3. Timeline. Time is of the essence in this contract. The project duration for the Design & Engineering phase is 120 days (or as otherwise specified) from the date of receipt of the Letter of Intent (LoI) or Work Order. The Consultant shall strictly adhere to the timelines specified in the contract for each stage of deliverables. Any delay in submission of deliverables at any stage shall be treated as a material breach of contract, invoking the Penalty Clause, unless a valid extension is approved in writing by CUBE before the scheduled delivery date. Requests for extensions must be accompanied by a detailed justification and a revised schedule.

16.4. Penalty Clause for Delays. In the event of a delay in the completion of deliverables or breach of timelines specified in the contract, the Consultant shall be liable to pay a penalty of 0.5% of the total contract value per week of delay, or part thereof, subject to a maximum of 5% of the total contract value. The penalty will be calculated based on the delayed deliverables only. CUBE reserves the right to deduct the penalty amount from any payments due to the Consultant.

16.5. Incentive for Timely Completion. If the Consultant completes all deliverables for the Design & Engineering phase and obtains all necessary approvals within the specified timelines and without any validly imposed penalties, an incentive of 5% of the total contract value shall be awarded. The conditions for the eligibility of the incentive are:

(a) Timely Approvals: Each deliverable must be completed and approved as per the defined timeline without any significant delays (minor delays acceptable at CUBE's discretion).

(b) No Non-Conformities or Unresolved Issues: No non-conformities or unresolved issues are raised during the contract execution at any stage. This includes revisions, rework, or re-submissions due to incomplete or incorrect submissions. Any rework required due to Consultant error will disqualify the incentive.

(c) Review and Documentation: Each milestone approval needs to be documented with clear approval signatures from the client or authorized representatives. No substantial design changes should occur after the approval at any stage. Minor changes may be acceptable at CUBE's discretion, but any rework necessitated by such changes will disqualify the incentive.

(d) Completion of Each Stage: All stages of the Design & Engineering phase must be completed and approved without delay, ensuring that the Consultant complies with the agreed timelines and quality standards.

16.6. Quality Assurance and Control (QA/QC). The Consultant shall implement a comprehensive Quality Assurance and Quality Control (QA/QC) plan during all phases of the assignment to ensure strict adherence to the approved specifications, relevant standards, and best practices. This plan shall be submitted to CUBE for review and approval. Regular quality checks and audits shall be conducted by the Consultant, and documented. Any deviations or substandard work shall be rectified by the Consultant promptly and at no extra cost to CUBE.

16.7. Coordination with Stakeholders. The Consultant shall ensure seamless coordination with all stakeholders, including but not limited to architects, engineers, contractors, third-party agencies, and client representatives, to avoid misalignment or delays in deliverables. Regular progress updates, joint reviews, and coordination meetings (virtual or in-person) shall be conducted as agreed upon by CUBE and the Consultant to facilitate alignment and resolve conflicts promptly. The Consultant shall be responsible for documenting and distributing minutes of these meetings.

16.8. Revisions and Reworks. The Consultant shall incorporate reasonable and necessary revisions or modifications to the design and deliverables before formal submission for approvals. The contract price includes up to **two rounds of revisions based on client feedback or design adjustments**. These two revisions are included within the scope of work and contract value. Any further revisions or significant rework requested by the client after these two revisions, or due to changes in client requirements or other factors not directly attributable to Consultant error, will be considered outside the original scope of work. Such additional revisions or rework will be subject to a separate written agreement outlining the scope of work and associated fees, which must be agreed upon by both parties before the Consultant commences any related work.



16.9. Compliance with Instructions. The Consultant shall diligently follow all reasonable and technically sound instructions issued by the Engineer-in-Charge or authorized client representatives to ensure satisfactory completion of work. This includes adherence to statutory compliances and ensuring efficient and effective functioning of all services, whether explicitly stated in the contract or reasonably implied.

16.10. Due Diligence. The Consultant shall conduct all due diligence required to complete the assignment in all respects. This includes undertaking necessary research, site visits, consultations, and analysis to ensure accurate and reliable deliverables. The Consultant shall be responsible for verifying all design data and assumptions. Multiple revisions may be required based on client requirements, updated drawings, or scenarios, before formal submission for approvals, at no additional cost.

16.11. Ownership of Intellectual Property. All documents, reports, drawings, BIM models, and other materials generated by the Consultant during the contract term, including copyright therein, shall become the exclusive property of CUBE. The Consultant hereby assigns all rights, title, and interest in such intellectual property to CUBE. The Consultant shall maintain strict confidentiality and shall not disclose, share, or utilize any information for purposes outside this contract without prior written approval from CUBE.

16.12. Confidentiality Clause. The Consultant shall not disclose any proprietary or confidential information obtained during the course of the assignment, including but not limited to design details, technical specifications, cost data, and client information, to any third party, unless required by law or explicitly permitted in writing by CUBE. This obligation shall survive the termination of the contract.

16.13. Termination Clause. CUBE reserves the right to terminate the contract at any stage if the Consultant fails to adhere to the agreed terms, demonstrates unsatisfactory performance, breaches the confidentiality clause, or becomes insolvent. In the event of termination, the Consultant shall be entitled to payment for services satisfactorily performed up to the termination date. If a resolution cannot be reached regarding the termination, the dispute will be referred to mediation or arbitration, as mutually agreed upon by both parties. The jurisdiction for any legal proceedings shall be Chennai, and both parties consent to the exclusive jurisdiction of the courts in that location.

16.14. Force Majeure. Neither party shall be held liable for delays or non-performance caused by unforeseen circumstances beyond their reasonable control, such as natural disasters (earthquakes, floods, etc.), pandemics, acts of God, war, civil unrest, or government-imposed restrictions (excluding those related to project approvals, which are the Consultant's responsibility to facilitate as outlined in Section 1.11). In such cases, the affected party shall promptly notify the other party in writing, providing details of the force majeure event, its anticipated impact on performance, and the measures being taken to mitigate the effects of the force majeure event. An extension of time for performance, commensurate with the impact of the force majeure event, may be granted by mutual written agreement, taking into account the duration and impact of the force majeure event and the efforts made by the affected party to overcome it. However, financial obligations accrued prior to the force majeure event shall remain due and payable. The party claiming force majeure shall use reasonable efforts to resume performance as soon as reasonably practicable.



**Annexure**

**Schedule of Rates**

<u>S. No</u>	<u>Description</u>	<u>Unit</u>	<u>Amount in Figures</u>	<u>Amount in Words</u>
1	Providing comprehensive Architectural, Structural, and MEPFH Design & Engineering services, including coordination during construction until project completion, as per the detailed scope of works, deliverables, and terms & conditions outlined in the RFQ document for an approximate built-up area of 6,20,000 square feet. Fee includes, but is not limited to: - <ul style="list-style-type: none"> <li>➤ Master Plan development</li> <li>➤ Conceptualization</li> <li>➤ Detailed design</li> <li>➤ GFC submission</li> <li>➤ Quantity surveying and cost estimation</li> <li>➤ BIM detailing</li> <li>➤ Statutory submissions</li> <li>➤ Coordination during construction until project completion</li> </ul>	LOT		

**Payment Terms.**

1. **Scope Inclusion.** The fee covers all services detailed in the RFQ and this agreement, including but not limited to those listed in the description above.
2. **Milestone Payments.** Payment shall be made as per the milestone schedule defined in *RFQ document*. Each invoice shall clearly reference the specific milestone achieved, list the associated deliverables submitted (referencing the relevant section in the Scope of Work), and provide supporting documentation as required.
3. **Lump Sum Basis.** The fees specified are lump sum amounts for each service, irrespective of the actual built-up area. Any variations in the built-up area during construction will not affect the agreed-upon lump sum fees, unless such variations are directly attributable to errors or omissions in the Consultant's design.
4. **Taxes.** The fee is exclusive of GST, which will be paid as applicable and as per prevailing tax regulations.
5. **Rate Discrepancy.** The rates for the services shall be expressed in both numerical figures and written words. In case of any discrepancy, the rate stated in words shall prevail.
6. **Payment Certification.** Payment will be released upon written certification by [project in charge that the relevant milestone has been achieved and the deliverables have been accepted.
7. **Invoice Submission.** Invoices shall be submitted [Frequency - e.g., monthly] and shall include detailed breakdowns of the services rendered, the corresponding milestone achieved, and all supporting documentation.