

HLL INFRA TECH SERVICES LIMITED
A Government of India Enterprise

**Tender Document for the Reconstruction
of Arasalar Complex –Civil, Electrical &
Air conditioning works.**

PART-III
Special Conditions of Contract & Price Bid

TENDERNO.HITES/IDS/16/06/JIPMERII/KK- 04

June 2016

INFRASTRUCTURE DEVELOPMENT DIVISION

SECTION I

SPECIAL CONDITIONS OF CONTRACT

1.0 Scope of Work

1.1 The construction works shall, inter-alia, include the following, as specified or as directed.

A) Building Works:

- a) Site clearance, removal of trees and stumps and dismantling and removal of obstructions etc. before commencement of the Works;
- b) True and proper setting-out and layout of the Works, setting of bench marks, preparation of working drawings for temporary works and provisions of all necessary labour, equipments, appliances and materials in connection therewith;
- c) Civil works including Earthwork, Concrete Work, Structural Work, Steel Work, Brick Work, Wood Work, Aluminium work, Flooring and Stone work, Roofing and Waterproofing Work, Finishing, Miscellaneous and Site Development Work etc.; and as detailed in documents.
- d) Drainage and water supply, plumbing and sanitary installation, pumping system and water treatment system etc.;
- a) Any other item of works as may be required to be carried out for proper execution and completion of works in all respect in accordance with provisions of the Contract

B) Other Works - General

- a) All aspects of quality assurance of various components of the Works;
- b) Cleaning of site and handing over of the Works;

- c) Rectification of the defects in the completed works and comprehensive maintenance of equipment/plants as per manufacturer's instruction during the Defects Liability Period;
 - d) The defects liability period shall be 1 year for the building work and 3 years for the service equipment -DG set, HVAC, lift, medical gas, BMS, UPS etc.
 - e) Submission of 'Shop Drawings' as required during the execution of work;
 - f) Submission of 'As-Built Drawings' of Works and operation and service manual including list of spares of equipments/plants on completion of the Works;
 - g) Provision and maintenance of fully furnished and equipped site office accommodation for the Employer's Representative and the Employer and laboratory for testing with and including supply of testing equipments and consumable, all as described in the relevant specifications;
- 1.3 The successful tenderer will be expected to complete the Works within 12 calendar months from the 15th date from the date of issue of letter of acceptance or date of handing over of site whichever is later.
- 1.4 Throughout these tender documents, the terms "tender" and "bid" and derivatives tenderer/bidder, tender/bid and tendering/bidding etc. are synonymous and "day" means calendar day.
- 1.5 Agency shall be having BIFMA certification and specialized in interior furniture of approved vendors
- 1.6 Specialized agencies for water proofing work required.
- 1.7 The name of Arasalar complex to be renamed as Lecture and administrative complex.
- 2.0 Location of Site**
- The site is located at JIPMER –II campus at Karaikal, Puducherry.
- 3.0 Area for the Contractor**
- The Contractor will be allocated an area for his plant stores, compound workshop and site offices within the site area.
- 4.0 Dimensions and Levels**
- All dimensions and levels shown on the Drawings shall be verified by the Contractor on

the Site and he will be held responsible for the accuracy and maintenance of all the dimensions and the levels.

5.0

Recorded Survey

As early as practicable after receipt of the work order, the Contractor shall carry out complete survey of the developed site including taking spot levels covering the whole

of site. The spot levels shall be recorded on a drawing to be prepared by the Contractor and agreed by the Employer's Representative and the drawing shall be duly signed by the Contractor and the Employer's Representative and be maintained carefully for future reference.

6.0 Notice of Operation

The Contractor shall not carry out any important operation without the consent in writing of the Employer's Representative.

7.0 Assistance for Employer/Employer's Representative

The Contractor shall provide for the Employer/ Employer's Representative at all times during the Contract including Maintenance Period, a competent chainman and/or all such other men as he may require to assist him in carrying out or checking any measurements, levels, setting out or measuring up or inspection of work. The Contractor shall also provide ladders, gangways, etc., and the necessary attendance to move and adopt as required and directed for inspection or measurement of the works by the Employer/ Employer's Representative.

8.0 Drinking Water

The Contractor shall provide and maintain at his cost and expense adequate drinking water complying in every respect with the regulations of local authorities for his workmen, sub-contractors and other contractors workmen working in the project and the Employer's Representative.

9.0 Construction Record

The Contractor shall keep and provide to the Employer's Representative and accurate records of the dimensions levels and positions of all new work and any other information necessary for the Employer's Representative to be able to prepare complete drawings, recording details of the works as constructed.

10.0 Safety of Adjacent Structures and Trees

The Contractor shall provide and erect to the approval of the Employer's Representative such supports as may be required to protect efficiently all structures and protective guards to trees which may be endangered by the execution of the works

or otherwise take such permanent measures as may be required by the Employer's Representative to protect the structures and trees.

Trees if any, existing at the site except those which are essential to be removed as per direction of the Employer's Representative be protected and maintained carefully to retain its healthy life.

11.0 Ordering Material

It shall be the responsibility of the Contractor to procure and bring to site of works all materials including cement and steel required for fulfilling the contract.

The Bill of Quantities shall not be used as a basis for ordering materials and the Contractor shall be entirely responsible for assessing the quantities of materials to be ordered.

12.0 Temporary Services

The Contractor shall provide and maintain all temporary services on or about the site required for the execution of the works and shall remove them on completion.

13.0 Keep Site Clean

During the progress of the works and when directed by the Employer's Representative the Contractor shall keep the site clear of all rubbish and debris including that which may be deposited on the site by other sub- contractors until the date of issue of certificate of completion. The cost of keeping the site clean shall be deemed to have been included for in the rates.

On completion of the works, the Contractor shall at his own expense clear away and remove from the site not later than 7 days from the date of completion of works all constructional plant, surplus materials, rubbish and temporary works of every kind and leave the entire site and works clean and in a workmanlike condition to the satisfaction of the Employer's Representative.

14.1 (i) Office Accommodation for Contractor, Employer/ Employer's Representative and Visiting Officials

The Contractor shall provide and maintain all necessary office/s, workshops, stores, shelters, sanitary facilities, canteens and other temporary buildings for themselves and their staff at site to the approval of the Employer's Representative.

Within 30 days of the date of the work order/handling over of site the Contractor shall also provide without any extra cost office accommodation of approx. 30Sqm. for the Employer's Representative, inspecting officials and Meeting Room with attached Toilets. The office spaces shall be well lighted and cooled and shall be provided with adequate number of electric lights, plug points, ceiling fans, water cooler and Air-conditioners and all required furniture and fittings including cabinets and drawing stands. The layout and detail plan of all temporary office accommodations to be built at the site shall be to the approval of the Employer/ Employer's Representative.

All layout and detail plan of all temporary office accommodation to be built at the site shall be to the approval of the Employer's Representative.

All such facilities shall be removed at the completion of project or shifted/removed at any later date as directed by the Employer's Representative. All expenses for maintenance of the above facilities as well as running expenses shall be borne by the Contractor at no extra cost.

(ii) Telephone

The Contractor shall maintain one telephone at site at his own and shall pay all bills for calls and maintenance. The Telephone shall be installed by the Contractor and the Contractor shall allow the use of the telephone to all other contractors/sub-contractors engaged on the works, and may recover proportionate call charges from them. He shall also allow free use of one telephone to the Employer's Representative and other visiting officials for phone calls in connection with the works.

(iii) Testing Facilities (Site Laboratory)

The Contractor shall allow for providing all tests as required by the Specification and/or as instructed by the Employer's Representative including providing all necessary materials or samples and cost for testing all such tests from outside laboratories as required and approved by the Employer's Representative.

The Contractor shall set up at the site for use of the Employer's Representative a laboratory complete with the necessary equipment for testing of construction materials and concrete, all of which will revert to the Contractor at the end of the Contract. The Contractor shall also provide such labour, Lab. Technician, materials, and transport as the Employer's Representative may require to assist him in carrying out normal tests and checks on materials and workmanship and setting out and measurement of the work. The Contractor shall provide but not limited to the following materials, equipment and facilities in the site laboratory. The layout of the laboratory shall be got approved by the Employer's Representative before installation :

- i) A set of I.S. sieves for sieve analysis
- ii) Weighing scales upto 2 kg. and upto 20 kg.
- iii) Graduated cylinder 500 c.c. and Thermometer for temperature tests
- iv) Slump cone, 18 Nos. Cube Moulds (15 cm size) with standard poking rods.
- v) Concrete cube testing machine
- vi) Adequate curing facilities under shade.

15.0 Lighting for Works

The Contractor shall at all times provide adequate and approved lighting as required for the proper execution and supervision and inspection of the works.

16.0 Site Instruction Book

The Employer's Representative shall maintain a site instruction book on the site in which he or his authorized representatives remarks, instructions, decisions and other

essential details, of the work shall be recorded. The Contractor shall regularly note the contents of this book and initial if signifying his having done so and take immediate action on the same. The book shall not be removed from the Employer's Representative office.

17.0 Progress Report

The Contractor shall submit monthly progress reports indicating status of each activity planned for the period under consideration and summary of each completed and planned activity and the anticipated starting dates for activities planned but not in progress, schedule of materials including the details of materials received and Expected Time of Arrival (ETA) of other materials as ordered and such other details affecting the programme and progress of work to the Employer's Representative in a form as required by him which shall also include reasonable number of progress photographs of the works.

18.0 Site Meetings

Progress and quality evaluation meetings will be held at the site every week. The Contractor's senior representative in charge of the project alongwith his site-in-charge and other staff including of approved Sub-Contractors and suppliers as required shall participate in these progress review meetings and ensure all follow up actions.

19.0 Return of Plant

The Contractor shall supply to the Employer's Representative a monthly return showing full particulars on a form, to be approved by him of the items of plant including location and state of each and the sections of the works on which they are employed. This return is to be presented before the 10th day of each month.

20.0 Contractor to Verify Site Measurements

The Contractor shall check and verify all site measurements whenever requested by other Specialists Contractors or by nominated or other Sub-Contractors to enable them to prepare their own shop drawings and pass on the information with sufficient promptness as will not in any way delay the work. A copy of all such information passed on shall be given to the Employer's Representative.

21.0 Hoardings

The Contractor shall at his cost put up a suitable hoarding of approximate size 4 m x 3 m in English and Hindi to a design to be approved by the Employer's Representative before the Commencement of Work. The board shall include the name of the Project, Owner/Employer's Representative, Architect/Consultant & the Contractor as directed by the Employer and shall be installed at a location with adequate frames and supports as approved by the Employer's Representative.

22.0 Statutory Obligations, Notices, Fees and Charges

(1) (a) The Contractor shall comply with and give all notices required by any act, any instrument rule or order made under any Act, or any regulation or byelaw of any local authority or of any agency which has jurisdiction with regard to the Works or with whose systems the same are or will be connected (all requirements to be so complied with being referred to in these Conditions as the statutory requirements).

(b) If the Contractor shall find any divergence between the statutory requirements and all or any of the contract documents or any variation instruction issued in accordance with these Conditions. He shall immediately give to the Employer's Representative a written notice specifying the divergence.

(c) If the Contractor gives notice under paragraph (b) of this sub-clause or if Employer's Representative shall otherwise discover or receive notice of a divergence between the statutory requirements and all or any of the contract documents or any variation, instructions issued in accordance with these Conditions, the Employer's Representative shall within 7 days of discovery or on receipt of a notice, issue instructions in relation to the divergence, if and insofar as the instructions require the works to be varied, they shall be deemed to be Employer's Representative instructions issued in accordance with these conditions.

(d) (i) If in any emergency compliance with paragraph (a) of this sub-clause requires the Contractor to supply materials or execute work before receiving instructions under paragraph (c) of this sub-clause the Contractor shall supply such limited materials and execute such limited work as are reasonably necessary to secure the statutory requirements.

(ii) The Contractor shall forthwith inform the Employer's Representative of the emergency and of the steps that he is taking under this paragraph of these conditions.

(iii) Work executed and materials supplied by the Contractor shall be deemed to have been executed and supplied pursuant to an Employer's Representative instruction in accordance with these Conditions provided that the emergency arose because of a divergence between the statutory requirements and all or any of the documents referred to in these Conditions or any variation, instructions issued in accordance with these Conditions, and the Contractor has complied with subparagraph (ii).

(e) Provided that the Contractor complies with paragraph (b) of this sub-clause, the Contractor shall not be liable to the Employer under this Contract if the works do not comply with the statutory requirements from the Contractor having carried out work in accordance with the documents referred to these Conditions or any variation instruction issued in accordance with Clause (d)(i) of these Conditions.

(2) The Contractor shall pay and indemnify the Employer against liability in respect of any fees or charges (including any rates or taxes) legally demandable under any Act, any instrument, rule or order made under any Act, law or any regulation or byelaw of any local authority or of any statutory or agency in respect of works.

(3) It shall be the Contractor's responsibility to obtain all licences, permits, etc. from the local authorities as required in relation to the execution of work at the site.

Any assistance which the owner renders to the Contractor in terms hereof or otherwise relative to the above matters, shall not for any cause afford a basis or defense to the Contractor for any of his obligations under the contract nor ground for extension of time for completion.

23.0 Bar-bending Schedule for reinforcement Work

The Contractor shall prepare a detailed bar-bending schedule for all R.C.C. work and get them approved by the Employer's Representative well in advance of Construction and copies of such approved bar-bending schedules shall be submitted to the Employer's Representative for their use.

24.0 Specialist Sub-Contractor

The Contractor shall employ an Architect for the detailed design, structural design etc. and get all the specialist works such as the Sanitary Plumbing & Drainage works, Electrical works such as DGs et, UPS, Fire Protection Works, False Ceiling, Aluminium works, Doors, Waterproofing works, HVAC, Lift, Medical gas etc. executed through approved specialist sub-contractors having requisite experience as per the section IV in the technical bid in the particular trade. The list of such specialist sub-contractors the contractor proposes to use shall be submitted with his tender along with

details of their experience and on approval by the Employer's Representative the particular sub-contractor only shall be appointed for carrying out the work. The Employer/ Employer's Representative shall have the right to reject any specialist sub-contractor proposed in which case the contractor shall get the work executed by another specialist sub-contractor who meets with the approval of the Employer/ Employer's Representative and no claim by the Contractor regarding this aspect shall be entertained.

25.0 Shop Drawings

The Contractor and/or his approved sub-contractors shall prepare shop drawings for specialist trades such as Sanitary & Plumbing, Electrical & Mechanical works, Fire Protection Works, False Ceiling, Aluminium Doors & Windows, removable partitions and any other item as stipulated in the specifications in respect to the requirement under the contract. The shop drawings shall follow the design and detailing requirements as indicated in the Architect's drawings, specifications and Bill of Quantities and shall incorporate the fabrication details as proposed by the Contractor/Sub-Contractors, the features and exact conditions as available at the site of construction, any aspect related to coordination with other disciplines which might interfere with the proper installation of his work and any other details that the Employer's Representative might stipulate. Three copies of these shop drawings shall be submitted by the Contractor to the Employer's Representative. The Employer's Representative shall at his earliest convenience forward 2 copies of shop drawings to the Employer / Architect for their comments/approval. On receiving such comments/approval in general from the Employer's Representative, one copy of the approved shop drawing shall be forwarded to the contractor by the Employer's Representative. On receiving the final approval on the shop drawings, further work on the item shall be proceeded with by the Contractor. The Contractor shall submit these shop drawings to the Employer's Representative sufficiently early and well in advance to order for procurement of materials at site considering the overall time schedule to allow the Employer's Representative reasonable time to scrutinise the drawings and get it reviewed before further processing by the Contractor. Any plea of delay on this aspect by the Contractor shall not be entertained.

The Employer's Representative approval of fabrication working details and shop drawings, however, shall not relieve the contractor of his responsibility for errors and incorrect setting out and co-ordination between the trades or disciplines. The Architect's approval shall be in general and not intended to serve as a check and shall not relieve the contractor from furnishing the materials and performing the works as required by the Drawings and specifications.

Should the Contractor prove unable to produce satisfactory "Shop Drawings" or be unable to produce drawings to conform to the progress of the work, the Employer's Representative reserves the right to take whatever steps are necessary to have drawings undertaken by others and debit to the contractor's account.

Any decision taken by the Employer's Representative to have shop drawings produced elsewhere shall not relieve the Contractor of his contractual obligations and the contractor must provide to the Employer's Representative all necessary details, physical dimensions, descriptive literature of all equipment and materials to be incorporated on drawings within 10 days of a request from the Employer's Representative. No extension in contractual delivery time shall be allowed on account of the time consumed in submission and reviewing of defective drawings and resubmission of the drawings after being incorporated with the comments of the Architect.

26.1 As Built Drawing

The Contractor shall furnish 3 sets of drawings "as erected" and approved by different statutory authorities in accepting the work in its entirety and completion

(i) As built and Record Drawings

Before the works for any Section thereof are completed in accordance with clause 48 hereof, the Contractor shall furnish to the Employer all operating and maintenance instructions/manual/technical catalogues together with as-built drawings of the works as completed, in sufficient detail in the opinion of the Employer's Representative to enable the Employer to maintain, dismantle, reassemble and adjust all parts of the works. The Contractor shall submit the as-built drawings and record drawings for whole of the works including civil works, plumbing, drainage and water supply, electrical and all other services for approval of the Employer's Representative. Firstly, a set of draft drawing shall be submitted and on approval of which the final as built drawings shall be submitted and shall comprise each 3 prints and one reproducible of each drawing covering all essential information for proper and easy maintenance.

In addition to the above, the contractor shall also submit E & M and B& R inventories and warranty/ guarantee certificates for the electrical/ mechanical equipments.

The works shall not be considered to be completed until such approved instructions, manuals, drawings have been supplied to the Employer. Cost or charges for the purpose shall be included in the price for relevant work.

Operating & Maintenance instructions and list of Spares

The Contractor shall submit to the Employer's Representative for approval, as early as possible before dispatch of any equipments etc. general instructions namely operations and maintenance instruction manuals concerning the correct manner of assembling, operating and maintaining the work with special references to any recently developed features. This instruction manual shall be submitted, immediately following approval of the drawings together with the lists of spare parts separately. The contractor shall also quote for the Operation of utilities during the warranty period and rate for the Operation and maintenance of utilities installed in the building after the warranty period. This will not be considered for tender comparison purpose.

The manual shall be submitted for approval in the same manner as the drawings and when finally approved, copies shall be prepared and forwarded to the Employer's Representative. The Contractor shall ensure that the erection supervisor has a copy in his office at site.

The instruction manual shall describe in detail the erection procedure and the use of all erection equipment and measurement devices. The procedure for assembling, adjusting, operating and dismantling of each component, system and machine shall be described and illustrated. The maintenance of each component shall be described including the recommended frequency of inspections and lubrication.

The Contractor shall, in preparing the instruction manual, take into account the lack of experience and familiarity of the operating personnel with this type of equipment.

The Contractor shall be fully responsible for ensuring that all plant and materials supplied under this contract are suitable for use under local climatic conditions.

27.0 Photographs of Works Carried Out

The Contractor shall every month supply at his own cost a reasonable number of post card size clear coloured photographs of the works carried out from time to time as per the instructions of the Employer's Representative. In the event of any dispute or termination of the contract either by the Employer or the Contractor as provided, the Contractor shall arrange to obtain photographs of the works completed in A-4 size upon the date of such termination of contract.

28.0 Approved Makes

The specifications provide a list of approved makes of some materials specified. The Employer's Representative has the right to choose any of the approved makes from the list, which according to him is the best and most suitable for the purpose. The tender price quoted shall cover

for this aspect. Only when it is not possible to use any of the approved makes, either due to non-availability or due to technical reasons, the Contractor shall propose alternative materials and if found suitable these shall be approved by the Employer's Representative for construction but without any extra cost to the Employer.

Termination

If, the Contractor failing to complete the works within the stipulated period of completion, the Employer may, notwithstanding anything contained to the contrary in the contract, terminate at any time the contract, without being liable in any manner whatsoever to the contractor by 14 days' notice in writing to the contractor and proceed to complete or get completed the works which have remained incomplete/not done at the time of such termination, at the risk and cost of the Contractor.

Issue of Extra Construction Drawings

Extra prints of drawing for construction shall be issued for client's record. This shall be in addition to the as-built drawings.

31.1 GENERAL

31.2 Unless provided otherwise the work shall be carried out as per printed CPWD Specifications for Works 2009 (for Civil) Volume I & II, CPWD Specifications for Heating Ventilation & Air Conditioning (2004), CPWD Specifications for Electrical Works Part I (Internal - 2005), Part II (External – 1994), Part III (Lifts & Escalators - 2003) Part IV (Sub Station - 2007), Part V (Wet Risers & Sprinkler System - 2006) & Part VII (DG Sets - 2006) with upto-date correction slips.

32.1 SPECIALIST AGENCIES

32.2 Agencies to be engaged by the main contractor shall have to fulfil the eligibility criteria laid down below and they shall be engaged only with the prior approval of the Engineer-in-Charge.

32.2. If the main contractor fails to associate with or engage specialist agencies for execution of works listed from serial number 3 onwards in clause 2 of NIT within prescribed time or furnishes incomplete details or furnished details of ineligible agencies even after the tenderer is given due opportunity, the entire scope of such component of works shall be withdrawn from the tender and the same shall be got executed by the Engineer-in-Charge at the risk and cost of the main contractor.

32.3. In case the main contractor intends to change any of the agencies so engaged during the operation of the contract, he shall obtain prior approval of Engineer-in-Charge. The new agency/agencies shall also have to satisfy the laid down eligibility criteria. In case engineer-in-charge is not satisfied with the performance of any agency, he can direct the contractor to change the agency executing such items of work and this shall be binding on the contractor.

32.4. Same milestones shall be applicable for all components of work. The agencies so engaged will ensure that their components of the work are executed in time without giving any chance for slippage of m milestones of the project. The amount to be withheld under Clause 5 of the contract will be decided by the Engineer-in-Charge. In the event of not achieving the necessary milestones as assessed from milestone bar chart, specified percentage of the tendered value of work will be withheld for failure of each milestone.

32.5. Specialist Agencies for works listed from serial number 3 onwards in the NIT, shall meet the eligibility criteria laid down herein and shall be employed with the prior approval of the Engineer-in-Charge.

Architect

The Architect or one of the Directors in the case of an Architectural Firm shall be registered with the Council of Architecture and shall provide comprehensive architectural consultancy on the basis of the concept plans appended to this tender document.

Internal Electrical Installation:

The Specialist Agency should have satisfactorily completed under their own name at least two internal electrical installations for similar buildings each costing not less than 1.50 crores (at least one of them in Central Government/Central Government Autonomous Bodies/Central Government PSUs) during last five years ending last day of the month of May 2011. Certificate of satisfactory completion/commissioning and working of the plant with date of completion, value as per final bill paid duly certified by authorized official not below the rank of Executive Engineer/ Project Manager to be enclosed. They should have a valid electrical license of applicable class issued from the State Govt. of Puducherry.

SECTION II

LIST OF APPROVED MANUFACTURERS / AGENCIES

Services / Materials to be consumed in the work shall be of the following manufacturers / agencies. In case the required materials / services are not available or the materials / services available with the manufacturers / agencies mentioned below do not meet the specifications (decision of the E-in-C in this regard shall be final & binding), the contractor shall obtain materials / services from the manufacturers / agencies approved by the E-in-C in writing.

1. LIST OF APPROVED MAKES / AGENCIES FOR CIVIL & PLUMBING MATERIALS

S. No	Materials	Manufacturers / Agencies
1	Ready mixed Concrete	UltraTech, RMC, RAMCO, ACC, Birla
2	Ordinary Portland Cement (Minimum 43 Grade)	UltraTech, RAMCO, India Cements, Birla (Grasim), ACC
3	Reinforcement/Structural Steel (Each LOT shall accompany manufacturer's Test Certificate)	SAIL, TISCO, RINL or BIS approved manufacturers
4	Stainless Steel	Salem Steel or as approved by E-in-C
5	White Cement	JK Cement, Birla White
6	Sand	Only River sand after approval of the sample by E-in-C
7	Bricks, Stones slabs, Lime, Neeru Stone aggregate	Samples to be got approved by E-in-C before use
8	Vitrified Tiles	Nitco, Johnson, Naveen, Euro, Morbito, Somany
9	Flush doors	Kutty Flush Doors, Mysore Boards, Indian Plywood

		Mfg, Co, 'KIT' Ply' brand or any BIS approved brand
10	Fire check steel doors	Godrej, Sukri, Pacific works controls
11	FRP Doors	Fibrevent, Techno skills or Equivalent (or as approved by E-in-C)
12	Aluminium Fittings	Everite, Garnish, Crown Classic
13	Hydraulic floor Spring	Everite, Garnish, Hardwyn
14	Aluminium Extruded Sections	Jindal, Hindalco, Indalco
15	Aluminium Doors/Windows	As approved by E-in-C
16	Paints, Distempers	Jenson & Nicholson, Asian, ICI, Nerolac
17	Glazing	Float Glass of Modiguard or Saint-Gobain
18	Water proofing Works	As approved by E-in-C
19	Hydraulic Door Closers	Hardwyn, Everite, Garnish
20	Water Proofing Cement Paint	Showcem India, ICI, Nerolac
21	Ceramic Glazed Floor Tiles	Nitco, Orient, Kajaria, Somany, Naveen
22	Super plasticizer	CICO, MC Bauchemie (India) Pvt Ltd, Roffes Construction Chemicals, Pedilite Industries
23	PVC Flooring	Armstrong
24	False Ceiling (a) Fibre (b) Galvanized Steel (c) Calcium Silicate	Armstrong, Gyproc (Saint-Gobain) Armstrong, Gyproc (Saint-Gobain) Aerolite, Gyproc (Saint-Gobain)
25	Cast Iron Pipe and Fittings (Soil Pipes)	BIC, HEP, NECO, Ajmera

26	RC Hume Pipes	Indian Hume Pipe Co, Spun Pipe Co., Sementia, CH Patel & Co or Equivalent
27	Stoneware Pipes & Fittings	Dalmia, Parry, TACEL or equivalent
28	Cast Iron Pressure Pipes & Fittings	Tisco, BRM, KESORM or Equivalent
29	GI Pipes (ISI marked)	TATA, Zenith, Jindal, Gujarat Steel, ITC
30	GI Fittings (ISI marked)	'R' Brand, UNIK or equivalent
31	Gunmetal Valves & Fittings	Premier, Leader, Zoloto, or ISI marked brand
32	CI Sluice Valves, Check valves	IVC (Calcutta) Kirloskar/ Upadyaya/or with ISI mark
33	CP Brass Sanitary and water supply Fittings	Jaguar/Essess/SOMA/BILMAT/ Dripless or equivalent approved by E-In-C
34	Vitreous China Sanitary ware	Hindustan, EID Parryware, Cera
35	WC Seats & Covers	Commander, Diplomat, Admiral
36	Polyethylene/Polypropylene CISTERN	EVERLAST, FLUSHFLO, ESYFLO, CHALLENGER, CHAMPION, COMMANDER, MARVEL, Slimline
37	CI Fixtures, CI Cover & Frame	Ashok Iron Works/Bombay Iron Works/A Husainji / Ismaelji, Neco, BIC, RIF
38	CPVC Pipes	Astral Polytechnik, Ashirvad, Ajay Industrial corp
39	Curtain/Wall/Structural Glazing	Specialist Agency to be employed with Prior Approval of E-In-C
40	Plywood Products, Particle Boards & Veneers	Duroply (Green Marked, BWR Century Plywood, Green Plywood Kitply, Mysore Boards
41	Adhesive	Pidilite, Araldite
42	Plastic Laminates	Formica, Greenlam, Bakelite HYLAM

43	Powder Coatings	Berger/Nerocoat/Jenson & Nicholson
44	Tile Joint Filler	Bal Adhesives & Grouts, "ROFFE" Rainbow Tile Mate, Silicon Sealnet of GE Bayer Silicon/"Zentrival FM" of MC-Bauchemie (India) P Ltd
45	Resin Bonded Glass Wool	Crown Fibre Glass/Rock lloyd or equivalent approved by E-in-C
46	MS Tubes	TATA or equivalent
47	Roof Water Proofing	India Water Proofing, CICO, SIKA
48	Silicon Sealant	GE Bayer Silicone, SIKA
49	Anchor Fastener	Hilti, Bosch
50	Formwork Release Agent	Fosroc, MBT, MC Bauchemie CICO, ADO Conmat
51	EPOXY	FOSROC, SIKA Qualcrete, Aradlite MBT
52	Water proofing System	CICO, FOSROC, SIKA, Supreme Siltech Chemicals, ADO Conmat
53	Modular Operation Theatre	MGI India P Ltd, PES or Equivalent
54	Stainless Steel Sinks	Prestige/AMC/Jayna/Kingston/Neelkanth
55	CP Waste, Spreaders for Urinals	Jaguar / Essess
56	Sensor based Auto Flushing System for Urinals	AOS Systems/Angash
57	SFRC Manhole Covers	Southern Concrete Industries, Rajvaibav Enterprises or equivalent
58	UPVC Pipes/Fittings	Supreme/Prince/ Finolex
59	Mirror	Atul / Modifloat/Saint Gobain/Golden Fish

4. LIST OF APPROVED MAKES FOR ELECTRICAL AND SUBSTATION ITEMS

S. No	Materials	Manufacturers / Agencies
1	H.T.Panel	Crompton/ABB/Alsthom/Siemens/Ashok Leyland
2	Transformer	Crompton/kirloskar/Voltamp/Alsthom/(DRY, Cast Resin) / BHEL/ Universal
3	Bus trunking/Rising mains	(Along with all accessories) L&T /Schneider/GE/Control &Switchgear
4	LT Panels	GE/ABB/L&T/SIMENS/SCHNEIDER
5	ACBs	Same as in (4)
6	MCCBs	Same as in (4)
7	MCBs with DBs	Legrand/Hager/Alsthom/Merlin/Gerin/ Havells/Standard/Indo-asian
8	Accessories of HT/LT Panels	As per manufacturer's specified make
9	HT/LT UG cables	Cable corporation/Universal/Gloster/Havells/NICO /Polycab
10	Wiring cables	Polycab/Havells/RR Cables/Finolex
11	Switches (SFU)	GE/ABB/L&T/Siemens/Schneider
12	Modular Switches (SFU)	Legrand /Carbtree/EssEsskay(signature)MK/clipsal/Northwest
13	Piano Type switches and Boxes	Anchor/Leader
14	Cubicle Type Fuse Unit	Siemens /GE/L&T/Siemens/Schneider
15	SFUs/Isolators	Siemens/GE/L&T/ABB/ SCHNEIDER
16	Starters / Contractor/Bi	Siemens/L&T/ABB

	metal Relay	
17	Push Button/Indicating Lamps (LED type)	Siemens/L&T/ABB
18	CTs	Kappa
19	Control Fuse Base with HRC fuse	GEC / Alsthom
20	Selector Switch	Salezer
21	Measuring Instruments	AE/IMP/Rishab
22	MS Conduit	Supreme /BEC/NIL /or any Other ISI marked
23	PVC Conduit	Precision/Avon Plast/Clipsal
24	Accessories for PVC Conduit	Precision/Avon Plast
25	Capacitors	Universal / Siemens/L&T / GE
26	Relays	L&T/EE/GE
27	Digital Meters	Enercon/Alacrity/L&T
28	Jointing Kits	Rey Chem/3 Birla

5. LIST OF APPROVED MAKES FOR FIRE HYDRANT SYSEM

S. No	Materials	Manufacturers / Agencies
1	Diesel Engine	Kirloskar/Cummins
2	Fire Pumps	Kirloskar/Mather & Platt/Seimens
3	Electrical Motors	Kirloskar / Seimens
4	MS Pipes ('C' Class)	TATA / ZENITH
5	Butterfly Valves	Intervolve / Audco/ Leader

6	BALL VALVE (15-40 mm Dia)	RB/ITAP/Leader
7	Sluice Valves	Kirloskar/Kalpana/UNIK'R' Brand
8	Non-Return Valve (Flap Type C I)	Intervolve/Audco
9	Hydrant Valves	Newage/Minimax/Peter Autokit
10	Hose	Newage, Premier Extra, Padmini, Aqua Dura
11	Fire Extinguisher	Safex/Minimax/Peter Autokit
12	Pressure Guage	HD/Waree/H-GURU/Fiebig
13	Pressure Switch	Danfoss/Indfoss
14	Termination Lugs	Dowells/Usha
15	PVC insulated Copper Wires	FINOLEX/WINCAP/POLYCAB
16	Cables	Universal/CCI/Gloster
17	SFU's/FSU's	Ee/L&T/C&S
18	HRC Fuses	Havells/Ee
19	Over Load Relays	Ee/L&T
20	Single Phase Preventer	L&T/ Minilac
21	Indicating Lamps & Push Buttons	L&T /Technic
22	Air Break Contractors	Seimens/L&T/ABB
23	Sprinkler Head	HD/Tyco/Reliable/Fireasfe
24	Sprinkler lcv	HD/Tyco/Viking/Reliable/Fireasfe/Wormac
25	Gunmetal Branch Pipe	Newage/Minimax/WINCO/Kailash
26	Threaded pipe fittings	R Brand/Unik

27	Air Release Valve	Rb/Tbs/Cimbric
28	First Aid Hose Reel Drum	Minimax /Newage
29	First Aid Hose pipe	Padmini/Swastik/Usha Fire
30	Suction Strainer	Grandprix /Jaypee/Kirloskar/Leader
31	Battery	Exide/Amco
32	Pipe Protection	Pipe Kote (4mm Thick)
33	Pipe Support	Hi-Tech /Fabricated As per Site Conditions
34	Nozzle	Newage/Winco/Kailash
35	Foot valve (Gunmetal)	Neta/Leader
36	Foot Valve (Cast iron)	Kirloskar

6. LIST OF APPROVED MAKES FOR FIRE DETECTION SYSTEM

S. No	Materials	Manufacturers / Agencies
1	Addressable Smoke and Heat Detectors and Multi Criteria	Notifier/Edwards/Bosch
2	PVC Insulated Copper Cables	Finolex/Lapp/Belden
3	Addressable Panel	Edwards/Bosch Notifier
4	Duct Detectors/Manual Call Box/input Module/Control Module	Zicon, Firepro, Honeywell, Siemens, Schneider, Bosch
5	Strobe	System Sensor /UL listed
6	Conduit	BEC/Vimco

