

Response To Pre-Bid Queries (Pre-Bid date: 05.10.2017)

NIB Ref: HITES/PCD/NCI-AIIMS/02/17-18 Dated: 14.09.2017

Schedule No. 02 - 256 Slice Dual Energy CT (RfX no. 3000002190)

Sl. No	Tender Page No & Para	TENDER SPECIFICATION	NAME OF THE FIRM	REPRESENTATION RECEIVED FROM THE FIRMS	COMMITTEE RECOMMENDATION
1	Page 60	State-of-the-art, USFDA approved, <b>256 slice per rotation</b> whole body CT scanner with Dual energy scanning capability should be quoted with following essential specifications.	WIPRO GE HEALTHCARE	State-of-the-art, USFDA approved, <b>128 slice per rotation</b> whole body CT scanner with SPECTRAL scanning capability should be quoted with following essential specifications. in the specification "256 slice" - the specification of 256 slices acquisition from 64 row of detector is not possible in a single axial mode rotation and there for we request to change this specification as <b>128 slice</b> acquisition per rotation.	State-of-the-art, USFDA approved, <b>256 slice or more per rotation</b> whole body CT scanner with Dual energy scanning capability should be quoted with following essential specifications.
2			ERBIS ENGINEERING CO. LTD	State-of-the-art, USFDA approved, 512 slice per rotation using <b>256 physical rows of detector</b> . Whole body CT scanner with Dual energy scanning capability should be quoted with following essential specifications.	
3	Page 60 Para 1.a	Quoted model must have AERB type approval.	Philips India Ltd	Quoted model must have <b>AERB type approval/NOC</b>	Quoted model must have AERB type approval. <b>Model which do not have AERB Approval may be supplied with the undertaking that the supplier shall be responsible for obtaining the AERB Type approval of the system within reasonable time, at no cost nor liability to the Institute.</b>
4			Philips India Ltd	High frequency generator with output of at least <b>120 KW.</b>	
5	Page 60 Para 2.a	<b>2. X-Ray Generator:</b> a. High frequency generator with output of at least 100 KW.	ERBIS ENGINEERING CO. LTD	a) High frequency generator with output of at least <b>70 KW.</b>	no change considered.
6	Page 60 Para 2.b	<b>2. X-Ray Generator:</b> b. The mA range available should be 50mA to 800mA or better.	ERBIS ENGINEERING CO. LTD	b) The mA range available should be <b>50mA to 600mA or better</b>	
7	Page 60 Para 3.a	<b>3. X-Ray Tube:</b> a. Anode heat storage capacity of 8.0 MHU or higher or the tube with direct cooling technology	ERBIS ENGINEERING CO. LTD	• Anode Heat storage capacity of <b>7.5MHU or higher</b> with direct cooling Technology.	no change considered.
8	Page 60 Para 3.b	<b>3. X-Ray Tube:</b> b. Tube cooling rate of 1600 KHU per minute or more.	ERBIS ENGINEERING CO. LTD	• Tube cooling rate of <b>1300KHU</b> per minute or more.	
9	Page 60 Para 3.c	<b>3. X-Ray Tube:</b> c. Tube voltage 80KV to 140KV or better.	ERBIS ENGINEERING CO. LTD	• Tube voltage of <b>80KV to 135KV</b> or more.	no change considered.
10	Page 60 Para 4.a	Detector and Data Acquisition System: a. Solid state detector: specify the detector material	WIPRO GE HEALTHCARE	<b>Solid state Gemstone detector, dual layer detector, dual source dual detector</b> using the whole 4cm or more z axis of the detector with full 50cm FOV during the dual energy acquisition.	
11			ERBIS ENGINEERING CO. LTD	• Dynamic CT Angiography; 4D CT DSA, time- resolved perfusion with minimum range of <b>16 cm.</b>	no change considered.



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12			WIPRO GE HEALTHCARE	c. The detector should allow simultaneous acquisition of 128 or more slices per rotation with slice thickness of 0.625mm or lower for all types of scans and applications	
13	Page 60 Para 4, c	4. <b>Detector and Data Acquisition System:</b> c. The detector should allow simultaneous acquisition of 256 or more slices per rotation with slice thickness of 0.625mm or lower for all types of scans and applications	ERBIS ENGINEERING CO. LTD	• The detector should allow simultaneous acquisition / generation of 512 or more slices per rotation with slice thickness of 0.625mm or lower for all types of scans and applications	4. <b>Detector and Data Acquisition System:</b> c. The detector should allow simultaneous generation of 256 or more slices per rotation with slice thickness of 0.625mm or lower for all types of scans and applications
14			Philips India Ltd	The detector should allow simultaneously generating 256 or more slices per rotation with slice thickness of 0.625mm or lower for all types of scans and applications.	
15	Page 60 Para 5, b	5. <b>Gantry:</b> b. Gantry aperture should be 70 cm or more in diameter.	ERBIS ENGINEERING CO. LTD	• Gantry aperture should be 78 cm or more in diameter.	no change considered.
16	Page 60 Para 5, d	5. <b>Gantry:</b> d. The scan time for a 360 Degree rotation should be 0.35 second or lower	Philips India Ltd	The scan time for a 360 Degree rotation should be 0.27 second or lower	no change considered.
17			Siemens Healthcare	Request you to amend as "d. The scan time for a 360 Degree rotation should be 0.28 second or lower"	
18	Page 60 Para 5, e	5. <b>Gantry:</b> e. The gantry tilt of minimum 25 degree which can be operated both from gantry and console room.	Siemens Healthcare	Request you to delete this point	
19			ERBIS ENGINEERING CO. LTD	• The gantry tilt of minimum 20 degree which can be operated both from gantry and console room.	5. <b>Gantry:</b> e. The gantry tilt of minimum 25 degree
20	Page 60 Para 6, a	6. <b>Patient Table:</b> a. Carbon fiber table top with a metal free scan able range of 200 cm or more	WIPRO GE HEALTHCARE	6. <b>Patient Table:</b> a. Carbon fiber table top with a metal free scan able range of 150 cm or more	no change considered.
21	Page 61 Para 7, a	Operator Console: a. The latest computer should be offered with 64 Bit processor with minimum RAM of 4 GB.	Philips India Ltd	The latest computer should be offered with 32 Bit processor with minimum RAM of 4 GB.	Operator Console: a. The latest computer should be offered with 32 Bit processor with minimum RAM of 4 GB.
22	Page 61 Para 7, d	Operator Console: d. The Hard Disk capacity for both image and raw data should be 250 GB or more.	WIPRO GE HEALTHCARE	d. The Hard Disk capacity for both image and raw data should be 500 GB or more.	no change considered.
23			WIPRO GE HEALTHCARE	8. <b>Spiral Scan:</b> a. The detector should allow simultaneous acquisition of 128 or more slices per rotation with slice thickness of 0.625mm or lower for all types of applications	
24	Page 61 Para 8, a	Spiral Scan: a. The detector should allow simultaneous acquisition of 256 or more slices per rotation with slice thickness of 0.625mm or lower for all types of applications	ERBIS ENGINEERING CO. LTD	a. The detector should allow simultaneous acquisition / generation of 512 or more slices per rotation with slice thickness of 0.625mm or lower for all types of applications	Spiral Scan: a. The detector should allow simultaneous generation of 256 or more slices per rotation with slice thickness of 0.625mm or lower for all types of applications
25			Philips India Ltd	The detector should allow simultaneously generating 256 or more slices per rotation with slice thickness of 0.625mm or lower for all types of applications	
26	Page 61 Para 8, b	8. <b>Spiral Scan:</b> b. The scan time for a 360 Degree rotation should be 0.35 second or lower	Philips India Ltd	The scan time for a 360 Degree rotation should be 0.27 second or lower	
27			Siemens Healthcare	Request you to amend as "b. The scan time for a 360 Degree rotation should be 0.28 second or lower"	no change considered.



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28	Page 61 Para 9.b	9. Dose Reduction: b. Latest Modality based Iterative Reconstruction Technique to be quoted as standard. (Admire/ VEO/IMR or equivalent).	WIPRO GE HEALTHCARE	9. Dose Reduction: b. Latest Modality based Iterative Reconstruction Technique to be quoted as standard. (Admire/ ASIR-V/IMR or equivalent).	9. Dose Reduction: b. Latest Raw Data based Iterative Reconstruction Technique to be quoted as standard.
29	Page 61 Para 11.a	1a. Image Resolution: a. The system should have a high contrast resolution of at least 17 lp/cm for axial and spiral scan 0%MTF with full 50cm FOV	ERBIS ENGINEERING CO. LTD	a. The system should have a high contrast resolution of at least 14 lp/cm at 2%MTF or 17 lp/cm 0%MTF for axial and spiral scan with full 50cm FOV	no change considered.
30	Page 62 Para 13.b	13. Archival (Operator Console): b. Software for Remote Diagnostics Service over a telephone line	ERBIS ENGINEERING CO. LTD	• Remote Diagnostics Service over a telephone line shall be an optional feature and preferred if available.	no change considered.
31	Page 62 Para 14.d	14. Post Processing and reporting with Client Server Architecture d. Server Hardware: Dell/HP/IBM dual CPU; RAM- 64 GB minimum; Data Disc: RAID level 5; Graphical processing unit: NVIDIA GPU or equivalent; Image storage minimum 4 TB (as PACS will be there)	Siemens Healthcare	Request you to amend as " d. Server Hardware: Dell/HP/IBM dual CPU; RAM- 64 GB minimum; Data Disc: RAID level 5; Graphical processing unit: NVIDIA GPU or equivalent; Image storage minimum 2.5 TB (as PACS will be there) "	14. Post Processing and reporting with Client Server Architecture d. Server Hardware: Dell/HP/IBM dual CPU; RAM- 32 GB minimum; Data Disc: RAID level 5; Graphical processing unit: NVIDIA GPU or equivalent; Image storage minimum 2.5 TB.
32	Page 63 Para 16.f	16. Advanced applications with one floating user license f. Tumor Comparison: Able to compare exams with previous imaging studies using RECIST criteria, PET CT cross time point evaluation – 4 time points comparison, quantification of tumor growth rates.	Siemens Healthcare	Request you to amend as " f. Tumor Comparison: Able to compare exams with previous imaging studies using RECIST criteria, PET CT cross time point evaluation – quantification of tumor growth rates between time points, 8 time point visualization and synchronized navigation "	no change considered.
34	Page 63 Para 16.g	16. Advanced applications with one floating user license g. Multimodality Image fusion: between PET-CT, PET-MR, CT-MR, MR-SPECT, MR-MR, MR-US, CT-US etc.	Siemens Healthcare Private Limited	Request you to amend as " g. Multimodality Image fusion: between PET-CT, PET-MR, CT-MR, MR-SPECT, MR-MR etc. "	16. Advanced applications with one floating user license g. Multimodality Image fusion: between PET-CT, PET-MR, CT-MR, MR-SPECT, MR-MR etc.
35	Page 63 Para 16.h	16. Advanced applications with one floating user license h. Colonography: Noninvasive evaluation of the entire colon, including external and endoscopic SSD views, 3D VR views and virtual dissection views	Siemens Healthcare Private Limited	Request you to amend as " h. Colonography: Noninvasive evaluation of the entire colon, including external and endoscopic SSD views, 3D VR views and virtual dissection views automated computer assisted reader for polyp detection "	no change considered.



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36	Page 63 Para 18	18. Dual Energy CT Scanner: The system must have dual energy capabilities and wide range of applications should be available. Dual Energy / Spectral CT in 128 slice acquisition and automatic post-processing should be offered as standard. (GSI / Twin Beam / IQon Spectral/ equivalent).	Siemens Healthcare Private Limited	Request you to amend as " The system must have dual energy capabilities and wide range of applications should be available. Dual Energy / Spectral CT in 256 slice acquisition and automatic post-processing should be offered as standard. (GSI / Twin Beam / IQon Spectral/ equivalent). "	18. Dual Energy CT Scanner: The system must have dual energy capabilities and wide range of applications should be available. Dual Energy / Spectral CT in 256 slice generation and automatic post-processing should be offered as standard.
37			WIPRO GE HEALTHCARE	Dual Energy CT Scanner: The system must have dual energy capabilities and wide range of applications should be available. Dual Energy / Spectral CT in 128 slice acquisition and automatic post-processing should be offered as standard. (GSI / Dual Source/Dual Detector / IQon Spectral).	
38	Page 64 Para 20	Dual Energy contrast applications	WIPRO GE HEALTHCARE	Mean effective atomic number estimation for accurate material classification Material Separation and image creation with any known material like iron, fat, water, iodine, muscle, uric acid etc and any additional material can be created with known molecular formulae Mono Chromatic images for removing artifacts Metal Artifact Reduction for elimination of metal artifact using GSI Iodine mapping and perfusion quantification for lung with mg /cc iodine estimation. Renal stone characterization with classification with typing of stones	no change considered.
39	Page 64 Para 20.a	20. Dual Energy contrast applications a. Contrast augmentation & tissue visualization	ERBIS ENGINEERING CO. LTD	We request you to kindly keep these points as OPTION	no change considered.
40	Page 64 Para 20.b	20. Dual Energy contrast applications b. Compare and quantify lesions and tissues	ERBIS ENGINEERING CO. LTD	We request you to kindly keep these points as OPTION	no change considered.
41	Page 64 Para 20.c	20. Dual Energy contrast applications c. Direct Angio for single run neuro angios	ERBIS ENGINEERING CO. LTD	We request you to kindly keep these points as OPTION	no change considered.
42	Page 64 Para 21.d	21. Accessories d. Dual Head Pressure Injector of reputed make with 50 sets of Syringes & 200 sets of tubings. Specify the make of Injector.	Anaecon India Healthcare	This indicates that you are allowing reuse of the syringes for 4 patients where as the syringes are for single use and disposable accordingly the syringes should be as many as the patient tubes. Further new technology injectors which are syringeless are also available now and for center of excellence like NCI under AIIMS these should be considered. AIIMS Delhi has already taken syringeless injectors which are working very efficiently for them saving lot of costs and contrast. These result in better workflow and no exposure of the contrast while loading in syringes thereby reducing contrast related allergy cases. Accordingly as an alternative a Triple Head syringeless injector with 50 Pump hose and 200 patient tubes should also be asked for as an alternative.	21. Accessories d. Triple-Head Syringeless Pressure Injector of reputed make with 100 sets of Pump Hose & 500 sets of patient tubings. Specify the make of Injector. Provide original datasheet of the quoted model.
43	Page 65	SITE MODIFICATION WORKS: It should also include Lead lined door with lead glass peeping window, radiation warning indicators and signages, Aluminium false ceiling, GVT floor tiles and full height wall tiles. All site modification works should comply with specified standards of the hospital.	Siemens Healthcare Private Limited	Request you to amend as "It should also include Lead lined door with lead glass peeping window, radiation warning indicators and signages, Grid/Gypsum false ceiling, GVT floor tiles and full height wall tiles. All turnkey work should comply with specified standards of the hospital.	no change considered.



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44	Page 65	<b>SITE MODIFICATION WORKS:</b> a. CT Examination Room b. Console room c. CT equipment / UPS room.	Siemens Healthcare Private Limited	Request you to amend as " • Examination room • Console room • Equipment room/UPS room • Change room • Prep room"	<b>AMENDED PARA :</b> SITE MODIFICATION - 256 SLICE DUAL ENERGY CT attached.
45	Page 65 Para f	<b>Civil work</b> f) Ceiling-to-wall ceramic tiling.	Siemens Healthcare Private Limited	Request you to amend as "Ceramic Wall tiles of size 600mmx600mm upto false ceiling height in CT Exam Room, Change and Prep room"	<b>AMENDED PARA :</b> SITE MODIFICATION - 256 SLICE DUAL ENERGY CT attached.
46	Page 65	a) Flooring 600 x 600 mm glazed vitrified (GVT) tiles with 100mm tile skirting in CT Examination room.	Siemens Healthcare Private Limited	Request you to amend as "600 x 600 mm glazed vitrified (GVT) tiles with 100mm tile skirting in CT Examination room, <b>Change and Prep room.</b> "	<b>AMENDED PARA :</b> SITE MODIFICATION - 256 SLICE DUAL ENERGY CT attached.
47	Page 66 Para 3	<b>3 AIR CONDITIONING:</b> Ductable package air conditioners may be used according to room requirement and suitability. Humidity control should be effective to eliminate moisture condensation on equipment surface.	Siemens Healthcare Private Limited	Request you to amend as "Total 18 TR (12 TR Working+6 TR Standby) Ductable Split Units / Split Air-conditioning that is required for the CT equipment, examination room, Patient prep and Console areas have to be installed by the vendor. Humidity control should be effective to eliminate moisture condensation on equipment surface."	<b>AMENDED PARA :</b> SITE MODIFICATION - 256 SLICE DUAL ENERGY CT attached.
48		Suggested by Bidder	Siemens Healthcare Private Limited	<b>To be added</b> Fire detection system - Comprises of fire panel, smoke / heat detectors.	<b>AMENDED PARA :</b> SITE MODIFICATION - 256 SLICE DUAL ENERGY CT attached.
49		Suggested by Bidder	WIPRO GE HEALTHCARE	Calcium removal from Dual energy CT coronary scan Plaque characterization- to differentiate between soft, fatty, fibrous, calcium etc Accurate Perfusion quantification with iodine material mapping of Myocardium Dual Energy Coronary CT Angiography (cardiac imaging) for any heart rate without medication with high temporal resolution. High Definition in Cardiac with 18lp/cm resolution	no change considered.
50	ADDED PARA. 23	<b>23. Instructions</b>		ADDED PARA. 23	<b>ADDED PARA. 23</b> Instructions 23.1 : Original Product Datasheet of main unit and all accessories, including third party items to be provided.
51	ADDED PARA. 23	<b>23. Instructions</b>		ADDED PARA. 23	<b>ADDED PARA. 23</b> Instructions 23.2 : There should be at least three installations of the quoted model globally. Satisfactory performance certificate by users on their letterhead must be attached.
42	Page 64 Para 21.8	<b>21. Accessories added para:</b>		ADDED PARA.21.g.:	<b>ADDED PARA. 21. Accessories</b> added para: Crash cart - 1 no.s



## SITE MODIFICATION SCOPE OF WORK – 256 SLICE CT UNIT

1	<p>The vendor should inspect the site at NCI, Jhajjar, before quoting and ensure that the unit can be installed in the available space without any functional compromise.</p> <p>The Site drawing of the Institute can be obtained from the Project office of NCI - AIIMS, room no. 161, 1st floor, DBRAIRCH, AIIMS campus, New Delhi.</p> <p>Complete equipment layout site plan and details of work (BOQ) should be part of technical bid.</p> <p>Provisions should be made for placing the various accessories in console room, work-station and printer locations.</p> <p>It should also include Lead lined door with lead glass peeping window, radiation warning indicators and signage, Aluminium false ceiling, GVT floor tiles and wall tiles/painting.</p> <p>All site modification works should comply with specified standards of the hospital.</p>
2	While preparing the plan, the following aspects have to be addressed.
a)	Care should be taken to provide easy negotiation of the patient stretchers/ trolleys through corridors and doors.
b)	Radiation shielding for doors, walls, windows etc.
c)	Furniture like desk, chairs, shelves etc.
d)	Patient stretcher and other furniture/ accessory to make the scan centre functional.
3	<b>The cost of Site Modification will be considered for Ranking / Evaluation purpose.</b>
4	<b>Moreover Bidders will have to quote the Unit Rates of the following components of Site Modification work.</b>
a)	Civil works
b)	Electrical work
d)	Air Conditioning (HVAC)
e)	Interior Furnishing & Furniture
f)	Miscellaneous
g)	Fire alarm & Detector
	<b>Scope of work for Site Modification CT unit :-</b>
	<b>The supplier should inspect the proposed site and submit all the detailed equipment layout drawing and BOQ for the proposed CT Scan Centres.</b>
5	<b>The CT SCAN CENTRE shall consist of the following rooms:</b>
a.	CT Gantry Room
b.	Console room
c.	Equipment room
d.	UPS room / Electrical room
e.	Patient preparation & Change room
	<b>The actual area of Site Modification works done will be considered for payment, based on the unit rates and site measurements</b>
6	<b>Civil work</b>
a)	Civil construction work including construction of brick wall if any, plastering, flooring as per the approved plan and equipment layout plan.
b)	Concrete bed at CT equipment area.
c)	Platform for unloading and shifting the CT should be provided if necessary.
d)	Cable tray, trench & channel – necessary trenches, cable tray and channels at required location would be provided.
e)	All the construction work to be done as per the final plan approved by the Institute.
f)	False Ceiling-to-floor ceramic wall tiling in : CT Gantry Room , Console room , Patient preparation & Change room.
7	<b>Flooring</b>
a)	600 x 600 mm vitrified tiles with 100mm tile skirting to match in CT examination room, console room.
b)	50 mm thick cement concrete flooring with (eg. Armstrong, Gerflor, Tarkett) CT equipment & UPS room.
8	<b>Painting</b>
a)	Two coats Plastic Emulsion Paint over 2 coats of wall putty including primer in Equipment & UPS rooms.
9	<b>False Ceiling</b>

Handwritten signatures and initials are present at the bottom of the page, including names like "Vas", "Sg", "V", "D", "Rana", and "Prerna".



a)	<b>Lightweight Aluminium ceiling panels</b> , acoustical-treated, supported on grid or finished seamless with support above ceiling. Powder coated finish (colour to be approved by Institute). Ceiling height to suit the equipment mount and clearances.
<b>10</b>	<b>Electrical work</b>
a.	The supplier shall be required to specify the total load requirements for the CT scan centre including the load of air conditioning , room lighting and for the accessories if any. The supply line will be provided by the Institute up to one point within the CT Scan centre area. The distribution panel shall be provided by the vendor. Few lights in each room shall be connected to the UPS to provide emergency lighting.
b.	The electrical work shall include the following:
c.	Wiring – All interior electrical wiring- with main distribution panel board, necessary MCBs, DB, joint box, switch box etc. the wires shall be of copper of different capacity as per the load and should be renowned make as listed below.
e.	Switches light and power points should be of modular type and of standard make as listed below.
f.	General lights – LED light fittings with 500 Lux Illumination
<b>11</b>	<b>AIR CONDITIONING: minimum 14 TR ( 9 TR Working + 5 TR Standby)</b>
a.	Duct-able package air conditioners and split AC units may be used according to room requirement and suitability. Humidity control should be effective to eliminate moisture condensation on equipment surface. The Air conditioning should be designed with standby provision to function 24 hours a day.
b.	The outdoor units of AC should have grill coverings to prevent theft and damage.
c.	<b>Environment specifications:</b>
i.	Relative Humidity range: To be maintained between 60% and 80% in all areas except equipment room ; which shall be as per requirement of the equipment.
ii.	Temperature ranges: $22 \pm 2^{\circ} \text{C}$ in all areas except equipment room which shall be as per requirement of the equipment.
iii.	Air conditioning load: The heat load calculations and maintaining the desired temperature and humidity shall be the responsibility of the bidder.
<b>12</b>	<b>Furniture:</b>
a)	Revolving chairs height adjustable, medium-back with hand-rest in the Control room, Radiologist room and viewing area. – <b>4 NO.S</b>
b)	Chairs for patient waiting area – Three seater (chrome plated). - <b>10 NO.S</b>
c)	Cupboard with laminate door shutters for storage of spare parts and accessories and records as per requirement. – <b>3 NO.S</b>
d)	Drug trolleys – <b>1 NO.</b>
e)	Patient trolley with rubber foam mattress - <b>1 NO</b>
f)	Name boards for all rooms
g)	Tables for Workstation and Radiologist - <b>2 NO.S</b>
h)	Changing rooms should have change lockers and dressing table.
i)	Dustbins: <b>10 NO.S</b>
	All furniture items should be of standard make as mentioned in the table below.
<b>13</b>	<b>Miscellaneous:</b>
i.	LED X-ray Film viewer with adjustable brightness; capable of holding 3 films of 14"x17" size. – <b>2 no.s</b>
ii.	Cabling of Network (LAN) connectivity for camera system, console system, workstation, servers and computers etc.
iii.	Cabling for Broadband connection: for REMOTE SERVICE of CT system.
<b>14</b>	<b>Fire alarm &amp; Detector:</b>
i.	Fire alarm (along with new/existing panel) should be provided in all rooms, wherever site modification is being carried out. Fire alarm shall comprise of fire panel, smoke / heat detectors. The vendor should discuss with the engineering section and the department before quoting for Site-Modification
ii.	Fire extinguisher Dry CO2 type as required for the building safety. – One per room
<b>15</b>	<b>LIST OF ITEMS AND SUGGESTED MANUFACTURERS.</b>
	<b>ITEMS</b> <b>PREFERRED MAKES</b>
A	<b>FLOORING VITRIFIED TILES</b> -Somany, Kajaria , H&R Johnson, RAK india

B	PAINT	- Dulux, Asian Paints , Nerolac
C	PLUMBING	- Kohler, Jaguar , Grohe , Roca
D	SANITARY ITEMS	- CERA, Hindware, Parryware
E	ELECTRICAL	
1	CABLES	- Finolex, Havells ,V-Guard
2	SWITCHES	- Legrand, L&T, Crabtree , Roma
3	DISTRIBUTION BOX , MCB	- Legrand, L&T, Siemens, Havels
4	LIGHT FITTINGS	- Philips / Crompton / Wipro/syska
F	AIR CONDITIONING	- Daikin, Hitachi, Blue Star, Voltas,
G	FURNITURE	- Hermen Miller , Godrej, Featherlite, Geeken

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