Volume-II

NATIONAL AGRI-FOOD BIOTECHNOLOGY INSTITUTE (NABI)

(Department of Biotechnology,
Ministry of Science and Technology, Govt. of India)
Knowledge City, Sector-81, SAS Nagar, Mohali, Punjab

FINANCIAL BID DOCUMENT

Provision of Acoustic treatment work at Laboratory Building, Main Campus, Sector-81, Mohali

TECHNICAL SPECIFICATIONS

1.0 STANDARD SPECIFICATIONS TO BE FOLLOWED

The work should be executed as per following CPWD specification and also the specification laid in tender document. In case, above specifications are not available for certain item, then the material should conform to ISI and BIS standards.

1.1 Civil Engineering Works

CPWD Specification 2009 Vol. I & II along with latest correction slips. These Specifications have replaced CPWD Specifications 1996 along with Correction Slips issued on them. These Specifications cover all types of Works. The specifications are available as a printed document issued by CPWD and also in soft copy PDF Format in CPWD website.

1.2 Electrical Engineering Works

(A) CPWD General Specifications for Electrical Works Part I Internal - 2013.
(B) CPWD General Specifications for Electrical Works Part II External - 1994.
(C) CPWD General Specifications for Electrical Works Part IV Sub Stations – 2013.

The above specifications shall be read with upto date correction slips (if any).

(A) CIVIL WORKS

WORKMANSHIP FOR THE ENTIRE PLUMBING WORK.

The workmanship shall be best of its kind and shall conform to the specifications, as below or Indian Standard Specifications in every respect or latest trade practices and shall be subject to approval of the Engineer-in- Charge. All materials and/or Workmanship which in the opinion of the Engineer-in- Charge is defective or unsuitable shall be removed immediately from the site and shall be substituted with proper materials and/or workmanship forthwith.

1. Wooden panelling of perforated panels:-

Providing and Fixing channelled wooden panelling of perforated panels of minimum thickness of 15mm , standard length & width of 2400 mm, 125 mm or as per site , made of a high density fibre board with minimum NRC value of 0.55, minimum density of 800 Kg/M3 density substrate with a laminated facing / wood veneer as per the approved shade/ species & finish and a melamine balancing layer on the reverse side. The boards shall have a perforation pattern perforation of 2mm & width of minimum 14mm of visible panel each. The panels shall provide a fire reaction of Class of 1 as per Part 7 of BS 476. The panels shall be “tongue-and-grooved or interlocking” with each other for intermediate fixing & suitable approved coloure powder coated aluminium beading/moulding at ends, top as per site requirement. The back of the perforated panel shall have sound absorbing non-woven acoustical fleece . The panels shall be mounted on aluminium splines/channels using clips-section of appropriate size as per recommendation by manufacturer & Engineer-in-Charge.

2mm thick pvc sheets shall be fixed on walls prior to fixing of panels. Suitable powder coated aluminium profiles shall be fixed at ends, of panelling and also at top where panelling is of mid height/sill levels etc. The work should be executed in proper level, alignment, plumb and neatly. Any cutting for accommodation of sockets, switches etc shall be made by contractor free of cost. The approved sample of perforated panel is available at office and may be checked before quote by bidder. The rate should be inclusive of all taxes, wastage, labour, profit scaffolding etc.

2. Fabric Wall Panelling:-

Providing and supplying of acoustic fabric panelling with square edges made of fibre glass substrate of minimum 25mm thickness wrapped on the front side with an acoustically transparent and classified for Fire reaction of minimum Class B-s1, d1 as per EN13501, fabric with approved combination of colour, size . The fabric panelling shall be having a minimum sound absorption level of 0.90 NRC to be affixed to wall using Wall panel impalers/aluminium section, studs, accessories as recommended by manufacturer along with 2mm thick pvc sheet on existing brick/rcc walls complete in all aspects including the cost of taxes, wastage, labour profits , scaffolding etc. The work should be executed in proper level, alignment, plumb and neatly. Any cutting for accommodation of sockets, switches etc shall be made by contractor free of cost **.**The fabric wall panelling shall be covered in suitable protective poly sheets till the handing over to prevent any damage, dusts etc. **After award of work, contractor shall provide a sample of fabric acoustics showing colour combinations for approval of Institute before implementation at site**. The fabric wall panelling shall be consisting of combinations of 2-3 or more colours as per approved pattern, colours, sizes etc.

3. Acoustic False Ceiling:-

Providing & Fixing of Soft Fibre Acoustical Suspended Ceiling System with Bevelled Tegular Edge Tiles 600 x 600 x20 mm with 15mm exposed Grid at all heights including cost of scaffolding etc. The tiles should have Humidity Resistance (RH) of 90%, NRC 0.9 - 1.0, Light Reflectance ≥85%, Colour White, Fire Performance Class 1 (BS 476 pt - 6 &7) , suitable for Green Building application, with Recycled content of 66%GW&74%RW.
The tile shall be laid on approved profile grid system with 15mm white flanges incorporating a 6mm central reveal in white/black colour and with a web height of 45mm and a load carrying capacity of minimum 15.68 Kgs/M2 with a minimum pull out strength of 100 kgs. Silhouette, Main Runners & Cross Tees to have mitred ends & notches to provide mitred cruciform junctions. The T Sections shall have a Galvanization of minimum 90 grams per M2 and to be installed with recommended suspension system along with fastners, hangers as recommended by manufacturer. **The sample of tile and grid is available at our office & can be seen by bidder before quote.** The rates should be inclusive of taxes, wastage, material, labour, profits, cutting for accomodation of lights, HVAC diffuser/grill, fire alarm detectors/speakers, firefighting sprinkler, etc complete in allaspects. The Tile & Grid system used together should carry a 10 year warranty. The work shall only be carried out by skilled workers with precision and as per standard engineering practice. Bidders may inspect the site to ascertain the wastage, scaffolding required for execution of work.

4.**:- Wooden Flooring:-**

Providing and fixing of interlocking wooden flooring consisting of one strip, 3mm top layer of hard wood veener, central layer of pine wood of 9 mm and 3 mm thick balancing layer of wood veneer at bottom. The surface is pre finished with several layers of UV hardened acrylic lacquer free from formaldehyde and solvents , free from inspects, wood worms etc . Before laying of wooden flooring , anti-termite treatment with Treatment at points of contact of wood work by chemical emulsion Chlorpyriphos/ Lindane (in oil or kerosene based solution) @ 0.5 litres per hole by drilling 6 mm

dia holes at downward angle of 45 degree at 150 mm centre to centre and sealing the same. The cost should include cost of material,sub-floor foam , adhesive, screws/fastners etc to prevent moisture, wastage, labour, profits etc complete in all aspects excluding the cost of skirting etc which shall be paid separately. In case of any undulation in the existing cement flooring, contractor shall make provisions for levelling of same at his cost and if any chase cutting & finishing is required after accommodation of any services/conduits shall be done at free . **The approved sample of wooden flooring is available in our office and may be seen by bidder before quote.**

(B) PLUMBING WORK

WORKMANSHIP FOR THE ENTIRE PLUMBING WORK.

The workmanship shall be best of its kind and shall conform to the specifications, as below or Indian Standard Specifications in every respect or latest trade practices and shall be subject to approval of the Engineer-in- Charge. All materials and/or Workmanship which in the opinion of the Engineer-in- Charge is defective or unsuitable shall be removed immediately from the site and shall be substituted with proper materials and/or workmanship forthwith.

MATERIALS FOR THE ENTIRE PLUMBING AND FIREFIGHTING WORK.

All materials shall be best of their kind and shall conform to the latest Indian Standards.
All materials shall be of approved quality as per samples and approved by the Engineer-in-Charges. As and when required by the Engineer-in- Charges, the contractor shall arrange to test the materials and/or portions of works at his own cost to prove their soundness and efficiency. If after tests any materials, work or portions or work are found defective or unsound by the Engineer-in-Charge, the contractor shall remove the defective material from the site, pull down and re-execute the works at his own cost to the satisfaction of the Engineer-in- Charge. To prove that the materials used are as specified the contractor shall furnish the Engineer-in- Charge with original vouchers on demand.

a) SANITARY FIXTURES & FITTINGS

1 GENERAL REQUIREMENT

All fixtures and accessories shall be fixed in accordance with a set pattern matching the tiles or interior finish as per Engineer-in- Charge requirements. Wherever necessary, the fittings shall be centered to dimensions and pattern as called for. Fixing screws shall be half round head chromium plated (CP) brass screws, with CP brass washers unless otherwise specified. Fixtures shall be installed by skilled workman with appropriate tools according to the best trade practice.

All appliances, fittings and fixtures shall be fixed in a neat workmanlike manner true to level and to heights shown on the drawings and in accordance with the manufacturers' recommendations. Care shall be taken to fix all inlet and outlet pipes at correct positions. Faulty locations shall be made good and any damage to the finished floor, tiling, plaster, paint, insulation shall be made good by the contractor at his own cost. Fixtures shall be mounted rigid, plumb and true to alignment.

All materials shall be rustproof; materials in direct or indirect contact shall be compatible to prevent electrolytic or chemical (bimetallic) corrosion. Wall flanges, if any shall be provided on all walls, floors, columns etc. wherever supply and disposal pipes pierce through them. These wall caps shall be or chromium plated brass fittings and the receiving pipes and shall be large enough to cover the punctures properly.

Sanitary appliances, subject to the type of appliance and specific requirements, shall be fixed in accordance with the relevant standards and the following:

a. Contractor shall, during the entire period of installation and afterwards protect the appliances by providing suitable cover or any other protection so as to absolutely prevent any damage to the appliances until handing over (The original protective wrapping shall be left in position for as long as possible)

b. The appliances shall be placed in correct position or marked out in order that pipe work can be fixed or partially fixed first.

c. The appliance shall be fixed in a manner such that it will facilitate subsequent removal if necessary.

d. The appliance shall be securely fixed. Manufacturer's brackets and fixing methods shall be used wherever possible. Compatible rust-proofed fixings shall be used. Fixing shall be done in a manner that minimizes noise transmission.

e. Appliances shall not be bedded (e.g. WC pans, pedestal units) in thick strong mortar that could crack the unit (e.g. ceramic unit)

f. Pipe connections shall be made with demountable unions. Pipe work shall not be fixed in a manner that it supports or partially supports and appliance.

g. Appliances shall be fixed true to level firmly fixed to anchor or supports provided by the manufacturer and additional anchors or supports where necessary.

The contractor shall fix all plumbing fittings such as water faucets, shower fittings, mixing valves etc. in accordance with manufacturer's instructions and connect to piping system.

The contractor shall supply all fixing materials such as screws, raw plugs, unions, collars, compression fittings etc., as required.

Joints / gaps between all sanitary appliances / fixtures and the floor / walls shall be caulked with an approved mildew resistant sealant, having antifungal properties, of colour and shade to match that of the appliances / fixture and the floor / wall to the extent possible.

2. MOCKUP AND TRIAL ASSEMBLY

The installation of the sanitary fixtures and fittings shall be as per the all drawings approved by the Engineer-in- Charge. The contractor shall have to assemble at least one set of each type of sanitary fixtures and fittings in order to determine precisely the required supply and disposal connections. Relevant instructions from manufacturers shall be followed as applicable. This trial assembly shall be developed to determine the location of puncture holes, holding devices etc. which will be required for final installation of all sanitary fixtures and fittings. The above assembly shall be subject to final approval by the Engineer-in- Charge.

The fixtures in the trial assembly can be re-used for final installation without any additional payments for fixing or dismantling of the fixtures.

3. SUPPORTING AND FIXING DEVICES

The contractor shall provide all the necessary supporting and fixing devices to install the sanitary fixtures and fittings securely in position. The fixing devices shall be rigidly anchored into the building structure. The devices shall be rust resistant and shall be so fixed that they do not present an unsightly appearance in the final assembly. Where the location demands, the Engineer- In-Charge may instruct the contractor to provide chromium plated or other similarly finished fixing devices. In such circumstances the contractor shall arrange to supply the fixing devices and shall be installed complete with appropriate vibration isolating pads, washers and gaskets.

4. FINAL INSTALLATION

The contractor shall install all sanitary fixtures and fittings in their final position in accordance with approved trial assemblies and as shown on drawings. The installation shall be complete with all supply and waste connections. The connection between building and piping system and the sanitary fixtures shall be through proper unions and flanges to

facilitate removal/replacement of sanitary fixtures without disturbing the built in piping system. All unions and flanges shall match in appearance with other exposed fittings.

Fixtures shall be mounted rigid, plumb and to alignment. The outlets of water closet pans and similar appliances shall be examined to ensure that outlet ends are butting on the receiving pipes before making the joints. It shall be ensured that the receiving pipes are clear of obstruction. When fixtures are being mounted, attention shall be paid to the possibility of movement and settlement by other causes. Overflows shall be made to ensure that necessary anchoring devices have been provided for supporting water closets, wash basins, sinks and other appliances.

5. PROTECTION AGAINST DAMAGE

The contractor shall take every precaution to protect all sanitary fixtures against damage, misuse, cracking, staining, breakage and pilferage by providing proper wrapping and locking arrangement till the completion of the installation. At the time of handing over, the contractor shall clean, disinfect and polish all the fixtures and fittings.

6. MEASUREMENT

6.1 Rate for sanitary fixtures accessories, CP fittings shall etc. include all items, and operations stated in the respective specifications and bill of quantities and nothing extra is payable.

6.2 Rates for all items under specifications para above shall be inclusive of cutting holes and chases and making good the same, CP screws, nuts, bolts and any fixing arrangements required and recommended by manufacturers, testing and commissioning and making good to the satisfaction of the Engineer-in- Charge

7. TESTING

All appliances, fixtures and fittings shall be tested before and after installation. Water seals of all appliances shall be tested. The contractor shall block the ends of waste and ventilation pipes and shall conduct an air test.

COMMISSIONING & GUARANTEE (For Entire Plumbing, Sanitary Installations)

1. SCOPE OF WORK

On award of work, Contractor shall submit a detailed proposal giving methods of testing and gauging the performance of the equipment to be supplied and installed under this contract.

Contractor shall provide all tools, equipment, metering and testing devices required for the purpose.

All tests shall be made in the presence of the Engineer- In-Charge or his representative or any inspecting authority. At least three working days' notice in writing shall be given to the inspecting parties before preforming any test.

Water flow rates of all equipment and in pipe lines through valves shall be adjusted to design conditions. Complete results of adjustments shall be recorded and submitted.

Contractor shall ensure proper balancing of the hydraulic system and for the pipes /valves installed in his scope of work by regulating the flow rates in the pipe line by valve operation. The contractor shall also provide permanent Tee connection (with plug) in water supply lines for ease of installing pressure gauge, temperature gauge & rotameters. Contractor shall also supply all required pressure gauge, temperature gauge & rotameter for system commissioning and balancing. The balancing shall be to the satisfaction of Consultant / Engineer Incharge.

Three copies of all test results shall be submitted to the Engineer in A4 size sheet paper within two weeks after completion of the tests.

2. PRECOMMISSIONNIG

On completion of the installation of all pumps, piping, valves, pipe connections, insulation etc. the Contractor shall proceed as follows:

a. The water storage tanks and pipes shall first be filled with water and thoroughly flushed out. The storage tanks shall then be filled with water again and disinfecting chemical containing chlorine added gradually while tanks are being filled to ensure thorough mixing. Sufficient chemical shall be used to give water a dose of 50 parts of chlorine to one million parts of water.

If ordinary bleaching powder is used, the proportions will be 150 gm of power to 1000 litres of water. The power shall be mixed with water in the storage tank. If a proprietary brand of chemical is used, the proportions shall be specified by the manufacturer. When the storage tanks are full, the supply shall be stopped and all the taps on the distributing pipes are opened successively working progressively away from the storage tank. Each tap

shall be closed when the water discharged begins to smell of chlorine. The storage tank shall then be filled up with water from supply pipe and added with more disinfecting chemical in the recommended proportions. The storage tank and pipe shall then remain charged at least for three hours. Finally the tank and pipes shall be thoroughly flushed out before any water is used for domestic purpose.

The pipe work shall be thoroughly flushed before supply is restored.

b. After the pipe work has been tested and approved, but before it is coupled, it shall be sterilized with a solution of chloride of lime.

c. Prior to start-up and hydraulic testing, the Contractor shall clean the entire installation including all water tanks, fitments and pipe work and the like after installation and keep them in a new condition. All pumping systems shall be flushed and drained at least once through to get rid of contaminating materials.

All pipes shall be rodded to ensure clearance of debris, cleaning and flushing shall be carried out in sections as the installation becomes completed.

d. All strainers shall be inspected and cleaned out or replaced.

e. When the entire systems are reasonably clean, a pre-treatment chemical shall be introduced and circulated for at least 8 hours. Warning signs shall be provided at all outlets during pre-treatment. The pre-treatment chemical shall:

· Remove oil, grease and foreign residue from the pipework and fittings;

· Pre-condition the metal surfaces to resist reaction with water or air.

· Establish an initial protective film;

· After pre-treatment, the system shall be drained and refilled with fresh water and left until the system is put into operation.

· Details and procedures of the pre-treatment shall be submitted to the Engineer- In-Charge for approval.

f. Check all clamps, supports and hangers provided for the pipes.

g. Check all the equipment, piping and valves coming under cold water system and operate each and every valve on the system to see if the valves are functioning properly. Thereafter conduct & hydro test of the system as for (b) above.

h. Fill up pipes with water and apply hydrostatic pressure to the system as given in the relevant section of the specification. If any leakage is found, rectify the same and retest the pipes.

3. FINAL ACCEPTANCE TESTS

Following commissioning and inspection of the entire installation, and prior to issue of the Completion Certificate, the Contractor shall carry out final acceptance tests in accordance with a programme to be agreed with the Engineer- In-Charge.

Should the results of the acceptance tests show that plant, systems and/or equipment fail to perform to the efficiencies or other performance figures as given in this Specification, the Contractor shall adjust, modify and if necessary replace the equipment without further payment in order that the required performance is obtained.

Where acceptance tests are required by the relevant Authorities having jurisdiction, these tests shall be carried out by the Contractor prior to the issue of Completion Certificate to the acceptance of the Authorities.

4. REJECTION OF INSTALLATION / PLANT

Any item of plant or system or component which fails to comply with the requirements of this Specification in any respect whatsoever at any stage of manufacture, test, erection or on completion at site may be rejected by the Engineer in- Charge either in whole or in part as he considers necessary/appropriate. Adjustment and/or modification work as required by the Engineer- In-Charge so as to comply with the Authority's requirements and the intent of the Specification shall be carried out by the Contractor at his own expense and to the satisfaction of the Engineer-in- Charge.

After works have been accepted, the Contractor may be required to carry out assist in carrying out additional performance tests as reasonably required by the Engineer-in-Charge.

5. WARRANTY AND HANDOVER

The Contractor shall warrant that all plant, materials and equipment supplied and all workmanship performed by him to be free from defects of whatsoever nature before handover to the Engineer-in-Charge. All the Guarantee/Warranty certificates of all the items shall be in the name of Institute i.e., National Agri-Food Biotechnology Institute (NABI), Mohali.

6. HANDING OVER OF DOCUMENTS

All testing and commissioning shall be done by the Contractor to the entire satisfaction of the Engineer-in- Charge and all testing and commissioning documents shall be handed over to the Engineer-in-Charge.

NOTE: In case of any contradiction between the specifications, the contractor shall take the prior approval of the Engineer- In – Charge before executing the same at site.

LIST OF MAKES TO BE ADOPTED

S.No	Item	Make
1.	Cement	J K Lakshmi/ ACC/ Ultratech/ Ambuja
2.	Steel Reinforcement (TMT bars)	Tata/JSW Jindal/ Sail/Vizag
3.	Stainless Steel	Tata/Jindal/Apollo Tubes Ltd
4.	Wooden Panelling	Anutone/ Armstrong
5.	Wooden Flooring, Accessories	As per approved sample in our office
6.	Paint	Asian Paint/ Berger/ICI
7.	White Cement based putty	Birla White/JK Lakhsmi
8.	Soft Fibre Acoustic false ceiling	Anutone/ Armstrong
9.	Aluminium	Jindal, Hindalco (Indal)/ Gulf extrusion/ Alualpha
10.	Gypsum Board	Saint Gobain / India Gypsum/Gypsonite
11.	Glass	Saint Gobain/Modiguard/Sparkle Glass India

Note:- Any other material make not mentioned shall be ISI marked & got approved from Engg-in-charge

NAME OF WORK: - Provision of Acoustic treatment work at Laboratory Building, Main Campus, Sector-81, Mohali

ABSTRACT SHEET

S.NO	PARTICULARS	AMOUNT (In INR)
1	**ESTIMATED VALUE OF WORK (INCLUSIVE OF TAXES, LABOUR CESS ETC)**	**Rs 57,48,037/-**
2	**PERCENTAGE (% AGE) QUOTE PLUS/MINUS (+/ -) BY BIDDER ON ESTIMATED AMOUNT (IN FIGURES)**	
3	**PERCENTAGE (% AGE) QUOTE PLUS/MINUS (+/ -) BY BIDDER ON ESTIMATED AMOUNT (IN WORDS)**	
4	**NET AMOUNT AFTER UN-CONDITIONAL PERCENTAGE REBATE OR QUOTE ABOVE ESTIMATED VALUE ((IN FIGURES)**	
5	**NET AMOUNT AFTER UN-CONDITIONAL PERCENTAGE REBATE OR QUOTE ABOVE ESTIMATED VALUE ((IN WORDS)**	

Stamp & Signatures of bidder

B.O.Q FOR PROVISION OF ACOUSTIC TREATMENT WORK AT LABORATORY BUILDING, MAIN CAMPUS, SECTOR-81, MOHALI

S. No	Description of Item	Unit	QTY	Rate	Amount
1	Brick work with clay flyash F.P.S. (non modular) brick of class designation 7.5 in superstructure above plinth level up to floor five level in :				
	Cement mortar 1:4 (1 cement : 4 coarse sand)				
		cum	4.230	5487.5	23212.125
2	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to 5 th floor level : Minor dismantling for making construction joint with existing cement concrete/brickwork/coba etc shall be done within this cost.				
	1:2:4 (1 cement : 2 coarse sand (zone-III) : 4 graded stone aggregate 20 mm nominal size)				
		cum	2.8850	5481.95	15815.426
3	Centering and shuttering including strutting, propping etc. and removal of form for all heights :				
	Lintels, beams, plinth beams, girders, bressumers and cantilevers				
		sqm	19.150	342.9	6566.535
4	Providing and Fixing channelled wooden panelling of perforated panels of minimum thickness of 15mm , standard length & width of 2400 mm, 125 mm or as per site , made of a high density fibre board with minimum NRC value of 0.55, minimum density of 800 Kg/M3 density substrate with a laminated facing / wood veneer as per the approved shade/ species & finish and a melamine balancing layer on the reverse side. The boards shall have a perforation pattern perforation of 2mm & width of minimum 14mm of visible panel each. The panels shall provide a fire reaction of Class of 1 as per Part 7 of BS 476. The panels shall be "tongue-and-grooved or interlocking" with each other for intermediate fixing & suitable approved coloure powder coated aluminium beading/moulding at ends, top as per site requirement. The back of the perforated panel shall have sound absorbing non-woven acoustical fleece . The panels shall be mounted on aluminium splines/channels using clips-section of appropriate size as per recommendation by manufacturer & Engineer-in-Charge. 2mm thick pvc sheets shall be fixed on walls prior to fixing of panels. Suitable powder coated aluminium profiles shall be fixed at ends, of panelling and also at top where panelling is of mid height/sill levels etc .The approved sample of perforated panel is available at office and may be checked before quote by bidder. The rate should be inclusive of all taxes, wastage, labour , profit scaffolding etc.				
		sqm	509.24	5194.32	2645153.998

5	Providing and supplying of acoustic fabric panelling with square edges made of fibre glass substrate of minimum 25mm thickness wrapped on the front side with an acoustically transparent and classified for Fire reaction of minimum Class B-s1, d1 as per EN13501, fabric with approved combination of colour, size . The fabric panelling shall be having a minimum sound absorption level of 0.90 NRC to be affixed to wall using Wall panel impalers/aluminium section, studs, accessories as recommended by manufacturer along with 2mm thick pvc sheet on existing brick/rcc walls complete in all aspects including the cost of taxes, wastage, labour profits , scaffolding etc. **After award of work , contractor shall provide a sample of fabric acoustics showing colour combinations for approval of Institute before implementation at site**.	sqm	191.565	6294.48	1205802.497
6	Providing & Fixing of Soft Fibre Acoustical Suspended Ceiling System with Bevelled Tegular Edge Tiles 600 x 600 x20 mm with 15mm exposed Grid at all heights including cost of scaffolding etc. The tiles should have Humidity Resistance (RH) of 90%, NRC 0.9 - 1.0, Light Reflectance ≥85%, Colour White, Fire Performance Class 1 (BS 476 pt - 6 &7) , suitable for Green Building application, with Recycled content of 66% GW & 74% RW. The tile shall be laid on approved profile grid system with 15mm white flanges incorporating a 6mm central reveal in white/black colour and with a web height of 45mm and a load carrying capacity of minimum 15.68 Kgs/M2 with a minimum pull out strength of 100 kgs. Silhouette, Main Runners & Cross Tees to have mitred ends & notches to provide mitred cruciform junctions. The T Sections shall have a Galvanization of minimum 90 grams per M2 and to be installed with recommended suspension system along with fastners, hangers as recommended by manufacturer. **The sample of tile and grid is available at our office & can be seen by bidder before quote.** The rates should be inclusive of taxes, wastage, material, labour, profits, cutting for accomodation of lights, HVAC diffuser/grill, fire alarm detectors/speakers, fire fighting sprinkler, etc complete in all aspects. The Tile & Grid system used together should carry a 10 year warranty.				
		sqm	181.760	2917.75	530329.85

7	Providing and fixing false ceiling at all height including providing and fixing of frame work made of special sections, power pressed from M.S. sheets and galvanized with zinc coating of 120 gms/sqm (both side inclusive) as per IS : 277 and consisting of angle cleats of size 25 mm wide x 1.6 mm thick with flanges of 27 mm and 37mm, at 1200 mm centre to centre, one lange fixed to the ceiling with dash fastener 12.5 mm dia x 50mm long with 6mm dia bolts, other flange of cleat fixed to the angle hangers of 25x10x0.50 mm of required length with nuts & bolts of required size and other end of angle hanger fixed with intermediate G.I. channels 45x15x0.9 mm running at the spacing of 1200 mm centre to centre, to which the ceiling section 0.5 mm thick bottom wedge of 80 mm with tapered flanges of 26 mm each having lips of 10.5 mm, at 450 mm centre to centre, shall be fixed in a direction perpendicular to G.I. intermediate channel with connecting clips made out of 2.64 mm dia x 230 mm long G.I. wire at every junction, including fixing perimeter channels 0.5 mm thick 27 mm high having flanges of 20 mm and 30 mm long, the perimeter of ceiling fixed to wall/partition with the help of rawl plugs at 450 mm centre, with 25mm long dry wall screws @ 230 mm interval, including fixing of gypsum board to ceiling section and perimeter channel with the help of dry wall screws of size 3.5 x 25 mm at 230 mm c/c, including jointing and finishing to a flush finish of tapered and square edges of the board with recommended jointing compound , jointing tapes , finishing with jointing compound in 3 layers covering upto 150 mm on both sides of joint and two coats of primer suitable for board, all as per manufacturer's specification and also including the cost of making openings for light fittings, grills, diffusers, cutouts made with frame of perimeter channels suitably fixed, all complete as per drawings, specification and direction of the Engineer in Charge but excluding the cost of painting with : **12.5 mm thick tapered edge gypsum moisture resistant board**				
	12.5 mm thick tapered edge gypsum moisture resistant board				
		sqm	193.628	922.05	178534.697

8 (a)	Providing and fixing of interlocking wooden flooring consisting of one strip , 3mm top layer of hard wood veener, central layer of pine wood of 9 mm and 3 mm thick balancing layer of wood veneer at bottom. The surface is pre finished with several layers of UV hardened acrylic lacquer free from formaldehyde and solvents , free from inspects, wood worms etc . Before laying of wooden flooring , anti-termite treatment with Treatment at points of contact of wood work by chemical emulsion Chlorpyriphos/ Lindane (in oil or kerosene based solution) @ 0.5 litres per hole by drilling 6 mm dia holes at downward angle of 45 degree at 150 mm centre to centre and sealing the same. The cost should include cost of material,sub-floor foam , adhesive, screws/fastners etc to prevent moisture, wastage, labour, profits etc complete in all aspects excluding the cost of skirting etc which shall be paid separately. **The approved sample of wooden flooring is available in our office and may be seen by bidder before quote.**	sqm	43.115	8637.48	372404.736
b.	P/f of veneered skirting matching with above wooden flooring as per manufacturer of wooden flooring complete in all aspects.				
		rmtrs	210.00	1028.63	216012.95
c	Providing and fixing of wooden flooring profiles (end profile, Aluminium step nozing, T sections etc) complete in all aspects as per recommendation of wooden flooring manufacturer.	rmtrs	44.90	874.14	39248.88
9	Labour charges for fixing of existing 12mm toughened glass with existing wall/floor aluminium profile, SS pillars including cost of screws, silicon, grouting of pillar, carriage etc complete in all aspects.				
		sqm	2.70	727.3	1963.71
10	Providing and fixing stainless steel (Grade 304) railing made of Hollow tubes, channels, plates etc., including welding, grinding, buffing, polishing and making curvature (wherever required) and fitting the same with necessary stainless steel nuts and bolts complete, i/c fixing the railing with necessary accessories & stainless steel dash fasteners , stainless steel bolts etc., of required size, on the top of the floor or the side of waist slab with suitable arrangement as per approval of Engineer-incharge, (for payment purpose only weight of stainless steel members shall be considered excluding fixing accessories such as nuts, bolts, fasteners etc.)	Kg	545.0	472.4	257458.00

11	Providing and fixing partition upto ceiling height consisting of G.I. frame and required board, including providing and fixing of frame work made of special section power pressed/ roll form G.I. sheet with zinc coating of 120 gms/sqm(both side inclusive), consisting of floor and ceiling channel 50mm wide having equal flanges of 32 mm and 0.50 mm thick, fixed to the floor and ceiling at the spacing of 610 mm centre to centre with dash fastener of 12.5 mm dia meter 50 mm length or suitable anchor fastener or metal screws with nylon plugs and the studs 48 mm wide having one flange of 34 mm and other flange 36 mm and 0.50 mm thick fixed vertically within flanges of floor and ceiling channel and placed at a spacing of 610 mm centre to centre by 6 mm dia bolts and nuts including fixing of studs along both ends of partition fixed flush to wall with suitable anchor fastener or metal screws with nylon plugs at spacing of 450 mm centre to centre, and fixing of boards to both side of frame work by 25 mm long dry wall screws on studs, floor and ceiling channels at the spacing of 300 mm centre to centre. The boards are to be fixed to the frame work with joints staggered to avoid through cracks, M.S. fixing channel of 99 mm width (0.9 mm thick having two flanges of 9.5 mm each) to be provided at the horizontal joints of two boards, fixed to the studs using metal to metal flat head screws, including jointing and finishing to a flush finish with recommended jointing compound, jointing tape, angle beads at corners (25 mm x 25 mm x 0.5 mm), joint finisher and two coats of primer suitable for board as per manufacture's specification and direction of engineer in charge all complete.				
	75 mm overall thickness partition with 12.5 mm thick double skin fire rated board conforming to IS: 2095: part I				
		sqmtr	58.910	1309.65	77151.48
12	Providing and fixing aluminium work for doors, windows, ventilators and partitions with extruded built up standard tubular sections/ appropriate Z sections and other sections of approved make conforming to IS: 733 and IS: 1285, fixing with dash fasteners of required dia and size, including necessary filling up the gaps at junctions, i.e. at top, bottom and sides with required EPDM rubber/ neoprene gasket etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snap beading for glazing / paneling, C.P. brass / stainless steel screws, all complete as per the directions of Engineer-in-charge including glazing plate, dash fastners etc				
	For shutters of doors, windows & ventilators including cost of providing and fixing hinges/ pivots and making provision for fixing of fittings wherever required including the cost of EPDM rubber / neoprene gasket, fabric/wool beading for noise control as required .(Fitings such as tower bolt, floor spring/door closer etc, etc to be paid separately).				
	Powder coated aluminium (minimum thickness of powder coating 50 micron)	Kg	92.00	444.9	40930.80

13	Providing and fixing ISI marked flush door shutters conforming to IS : 2202 (Part I) decorative type, core of block board construction with frame of 1st class hard wood and well matched teak 3 ply veneering with vertical grains or cross bands and face veneers on both faces of shutters.				
	35 mm thick including ISI marked Stainless Steel butt hinges with necessary screws	sqmtr	10.00	2488.95	24889.50
14	Providing and fixing double action hydraulic floor spring of approved brand and manufacture conforming to IS : 6315, having brand logo embossed on the body / plate with double spring mechanism and door weight upto 125 kg, for doors, including cost of cutting floors,embedding in floors as required and making good the same matching to the existing floor finishing and cover plates with brass pivot and single piece M.S. sheet outer box with slide plate etc. complete as per the direction of Engineer-in-charge.	each	4.0	2054.4	8217.60
	With stainless steel cover plate minimum 1.25 mm thickness				
15	Providing and fixing aluminium tower bolts, ISI marked, powder coated (coating not less than 50 micron) required colour or shade, with necessary screws etc. complete :				
a	150x10 mm	each	8.0	64.3	514.40
b	100x10 mm	each	4.0	49.2	196.80
16	Providing and fixing bright finished brass 100 mm mortice latch and lock, ISI marked, with six levers and a pair of anodised (anodic coating not less than grade AC 10 as per IS : 1868) aluminium lever handles of approved quality with necessary screws etc. complete.	each	4.0	622.15	2488.60
17	Labour charges for fixing of existing round SS handle 300 mm length including fixing of any new screws, parts etc complete in all aspects.	each	8.0	100	800.00
18	Providing and fixing mirror of superior glass (of approved quality) and of required shape and size with plastic moulded frame of approved make and shade with 6 mm thick hard board backing :				
a	Rectangular shape 1500x450 mm	each	6.0	1323.1	7938.60
19	Wall painting with acrylic emulsion paint of approved brand and manufacture to give an even shade :				
	Two or more coats on new work	sqm	325.040	84.45	27449.63
20	Providing and fixing 18 mm thick gang saw cut, mirror polished, premoulded and prepolished, machine cut for kitchen platforms, vanity counters, window sills, facias, ramps in staggered form and similar locations of required size, approved shade, colour and texture laid over 20 mm thick base cement mortar 1:4 (1 cement : 4 coarse sand), joints treated with white cement, mixed with matching pigment, epoxy touch ups, including rubbing, curing, moulding and polishing to edges to give high gloss finish etc. complete at all levels				
	Granite of any colour and shade				
	Area of slab upto 0.50 sqm	sqm	2.40	3351.95	8044.68

	Sub- Total Amount				**5691125.64**
	Add 1% Labour cess				**56911.26**
	Total Estimated Cost includive of taxes, labour cess, profits etc				**5748037.00**

NOTE: - Payment shall be released item wise based on actual measurement examined at site by Engineer- In- Charge.

Signature/Stamp of Bidder