INDIAN BANK,
CORPORATE OFFICE, ESTATE DEPARTMENT
No. 254 - 260, Avvai Shanmugam Salai,
Royapettah, Chennai - 600 014.
Ph: 044-28134401/ 4305/ 4304/ 4308, Fax: 044-2813 4021
Email: hoestate@indianbank.co.in

PRICE BID
(PART – II)

Tender document for Repair and Renovation (Civil, Plumbing, Roofing, Interior, Acoustic, HVAC, Electrical & Solar works) of Auditorium in IMAGE at M.R.C Nagar, Raja Annamalaipuram, Chennai - 600 028.

CONTRACTOR NAME

M/s._____

PROJECT MANAGEMENT CONSULTANT (PMC) / ARCHITECT:

M/s. Oscar & Ponni Architects No.2, Vivekananda Road, Srinivasa Nagar, Chetpet, Chennai – 600 31
Ph: 044 – 2836 1237, 2836 1962
Email : cgoscar@yahoo.com

This document contains Part- 1 (Technical Bid) From 01 to 92 pages

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PART-1
(REPAIR AND RENOVATION WORKS - CIVIL, PLUMBING, ROOFING, INTERIOR, ACOUSTIC, HVAC, ELECTRICAL & SOLAR WORKS)

PART-1 (REPAIR AND RENOVATION WORKS - CIVIL, PLUMBING, ROOFING, INTERIOR, ACOUSTIC, HVAC, ELECTRICAL & SOLAR WORKS)					
SL. NO	**DESCRIPTION**	**UNIT**	**QTY**	**RATE**	**AMOUNT**
1	**REPAIR AND RENOVATION WORKS FOR CIVIL , PLUMBING AND ROOFING**				
A	**PAINTING AND FINISHING WORKS**				
1	Applying one coat of acrylic **Emulsion paint** of Existing ceilings of approved quality **NIPPON** or Equivalent Brand make and including preparation of surfaces by thoroughly cleaning and watering fully to give an even shade as per manufacturer's specification and as directed and make as approved, The rate shall include necessary scaffolding required .The rate is inclusive of all materials , labour charges , loading, unloading, lead & lift ,hire and fuel charges for tools and plants and other incidental charges etc., complete all as per drawing and as directed by Engineer in-charge.				
	Ground Floor	Sft	27383		
	First Floor	Sft	2031		
	Mezzanine Floor	Sft	6168		
	Terrace Floor	Sft	QRO		

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2	Scrapping and Brooming of existing internal wall surface and two coats of applying **Nippon** Equivalent Brand wall putty super track and over two coats of applying interior emulsion paint of NIPPON brand to be approved by Architect including of colour and shade, after thoroughly brushing the surface to remove all dirt and remains of loose powdered materials, The rate shall include necessary scaffolding etc., as directed. super track interior emulsion paint and wall putty for internal walls in all heights of the building. The rate is inclusive of all materials and labour charges and loading, unloading, lead & lift ,hire and fuel charges for tools and plants and other incidental charges etc., complete all as per drawing and as directed by Engineer in-charge.	Sft	2000		
3	Painting to Existing walls **(Internal walls)**: Painting of Existing walls (Internal walls) with interior emulsion paint of **NIPPON** or Equivalent brand to be approved by Architect with suitable approved colour and shade making **one coats** in all to give an even shade after thoroughly brushing the surface to remove all dirt and remains of loose powdered materials The rate shall include necessary scaffolding etc., as directed. super track (interior emulsion paint) for internal walls in all heights of the building. The rate is inclusive of all materials , labour charges ,loading, unloading, lead & lift ,hire and fuel charges for tools and plants and other incidental charges etc., complete all as per drawing and as directed by Engineer in-charge.				
	Ground Floor	Sft	32979		
	First Floor	Sft	15123		
	Mezzanine Floor	Sft	12777		
	Terrace Floor	Sft	269		

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4	Painting to Existing walls (External walls) with **exterior plastic emulsion paint** of **NIPPON** or Equivalent brand to be approved by Architect of approved brand, making **one coat** in all to give an even shade after thoroughly brushing the surface to remove all dirt and remains of loose powdered materials The rate shall include necessary scaffolding etc., as directed..The rate is inclusive of all materials , labour charges ,loading, unloading, lead & lift ,hire and fuel charges for tools and plants and other incidental charges etc., complete all as per drawing and as directed by Engineer in-charge.				
	Ground Floor	Sft	10355		
	First Floor	Sft	11034		
	Mezzanine Floor	Sft	8615		
	Terrace Floor	Sft	4353		
5	Providing one coat of first quality Nippon or Equivalent brand synthetic **Enamel paint** on Existing **Steel works** as per specification and as directed. The rate shall includes necessary scaffoldings etc., as directed.The rate is inclusive of all materials , labour charges ,loading,unloading, lead & lift ,hire and fuel charges for tools and plants and other incidental charges etc., complete all as per drawing and as directed by Engineer in-charge.				
	Ground Floor	Sft	1794		
	First Floor	Sft	2550		
	Mezzanine Floor	Sft	2136		
	Terrace Floor	Sft	QRO		

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6	Providing one coat of first quality synthetic **Enamel paint (Nippon or equivalent)** over Existing **wood works** as per specification and as directed. The rate shall includes necessary scaffoldings etc., as directed. The rate is inclusive of all materials , labour charges , loading, unloading, lead & lift ,hire and fuel charges for tools and plants and other incidental charges etc., complete all as per drawing and as directed by Engineer in-charge.				
	Ground Floor	Sft	1960		
	First Floor	Sft	1379		
	Mezzanine Floor	Sft	1240		
	Terrace Floor	Sft	QRO		
7	Providing one coats of first quality of Melamine Polish (Sheenlac or Equivalent) over a coat of wood filler and Sanding sealer primer on Existing **wood works** (Stair Hand Rail) as per specification and as directed. The rate shall includes necessary scaffoldings etc., as directed. The rate is inclusive of all materials , labour charges, loading, unloading, lead & lift ,hire and fuel charges for tools and plants and other incidental charges etc., complete all as per drawing and as directed by Engineer in-charge.				
	Ground Floor	Sft	72		
	First Floor	Sft	86		
	Mezzanine Floor	Sft	57		
	Terrace Floor				
B	**Terrace water proofing**				

1	DISMATELING THE WEATHERING COURSE :- Dismantling existing terracotta tiles but without removing the cement mortar all complete including disposal of the debris after bringing the same to the ground level to a location outside the premises as per the instructions of the Engineer in charge and carting away the debris from the site. The rate to include all royalties and statutory approvals if necessary.				
	Terrace Floor	sft	5613		
2	Water Proofing: Terrace water proofing area shall be plastered with Roof rendering to the required slope with CM (1:3) 20 mm thick (average) plastering with coving using integral water roofing compounds pidilite (Dr.Fixit) brush coat or equivalent and rendering smooth over roof slabs. The rate is inclusive of all materials , labour charges ,leakage testing ,loading, unloading, lead & lift ,hire and fuel charges for tools and plants and other incidental charges etc., complete all as per drawing and as directed by Engineer in-charge.				
	Terrace Floor	Sft	5613		
3	Providing and laying for weathering course of Terracotta Kerala Tiles 9" x 9" x 17mm thick laying in cement mortar 1:4 and slope making material lifting and grouting joint filled with Red oxide and cement mixed powder with white cement and over epoxy and DU Coating etc complete all as per drawing and as directed by Engineer in-charge.				
	Terrace Floor	Sft	5613		

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C	**CIVIL WORKS - Toilet and Misc Work**				
1	**BRICK MASONRY WORK**				
	Providing and laying 3" thick brick masonry to kitchen platform & snack bar counter in CM 1:4 using best quality locally available chamber bricks also fixing of 2nos of 6mm rod at every 4th course of masonry. The cost includes required scaffolding , curing and soaking of bricks in water beds , etc complete.				
	Ground Floor	Sft	38		
	First Floor	Sft	19		
2	**PLASTERING WORKS**				
	Plastering: Plastering of walls with cement mortar (1:4) 12 mm thick for the internal faces of superstructure of brick masonry walls to kitchen platform & snack bar Plastering with cement mortar, , Rate shall include for scaffolding, formwork and curing etc. complete all as directed, and rate shall apply for work at all levels.				
	Ground Floor	Sft	62		
	First Floor	Sft	19		
3	**Plastering of AC Pedestal sides & top** at external area by Plastering with cement mortar by(1:5) 12 mm thick for the internal faces of superstructure of brick masonry walls, Plastering with cement mortar, Rate shall include for scaffolding, formwork and curing etc. complete all as directed, and shall apply for work at all levels.				
	Terrace Floor (AC Bed)	Sft	486		
D	**GRANITE & TILE**				

1	Supplying & fixing of High Polished Jet Black granite of approved colour of 20 mm thick for Urinal partitions. The rate including cost and conveyance of cement, sand, wall cutting, granite slab, labour charges for rounding the edges and polishing at all levels and all quarters etc., complete for above mentioned work in all toilets as per drawing and directed by the Engineering- charge.(Basic landing cost of granite of **Rs.160 / Sft** . Rate will be paid only to the visible area.				
	Ground Floor	Sft	40		
	First Floor	Sft	33		
	Mezzanine Floor	Sft	40		
2	Supplying fixing of High Polished Jet Black granite of approved colour of 16-18 mm thick for Kitchen platform, Snack bar Counter The rate including cost and conveyance of cement, sand, granite slab, Labour charges for rounding the edges and polishing at all levels etc., complete for above mentioned work in all toilets as per drawing and directed by the Engineering- charge. (Basic landing cost of granite of **Rs.180 / Sft**. Rate will be paid only to visible area.				
	Ground Floor	Sft	78		
	First Floor	Sft	25		
3	**Removing the existing ceramic floor tile and water proofing layer in toilet area** upto existing slab level **including carting away of debris**, including dead morter, with all leads and lifts of disposal of debris away from site area . Rate to include to all royalties, taking statutory approvals as necessary to carry out the works etc., complete				
	Ground Floor	sft	1508.00		
	First Floor	sft	3382.00		
	Mezzanine Floor	sft	1508.00		

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4	Providing and applying water proofing in using pidilite (Dr Fixit) Brush coat and over plastering in C.M 1:3 - RFX for one bag of cement 100 ml pidilite (Dr Fixit) for Toilet Sunken area.				
	First Floor	sft	391.00		
	Mezzanine Floor	sft	290.00		
	Terrace Floor	sft	QRO		
5	Supplying and laying of Cinder concrete 1:3:6 (1 cement : 3 M sand : 6 part 25mm nominal size Cinder) on the toilet sunken portion laid to fall and finished including rounding of junction etc., complete as directed by the Engineer in-charge/ Consultant.				
	First Floor	Cft	202		
	Mezzanine Floor	Cft	137		
6	**Plastering of Flooring over cinder Concrete of** cement mortar (1:4) 12 mm thick for the , Rate shall include for curing etc. complete all as directed, and shall apply for work at all levels.				
	First Floor	sft	202		
	Mezzanine Floor	sft	137		

7	Providing & Flooring **Anti skid tiles** size 300mm x300mm in toilets of 8 mm thick of Somany/ Kajaria /Johnson make by of 1st quality (Premium quality) of set over base coat of cement mortar (1:5), 12 mm thick over CC bed already laid or RCC roof slab, including neat cement slurry of honey like consistency spread @ 3.3.kgs per sqm & jointed neatly with white cement paste to full depth mixed with pigment of matching shade and skirting with non-skid ceramic tiles. (Basic landing cost of tiles of **Rs.50 / Sft** .During selection of tiles by client if any rate difference , the same will be paid by client). The rate is inclusive of all materials , labour charges ,loading, unloading, lead & lift upto desire level , and fuel charges for tools and plants and other incidental charges etc., complete all as per drawing and as directed by Engineer in-charge. Rate includes				
	Ground Floor	Sft	455		
	First Floor	Sft	714		
	Mezzanine Floor	Sft	455		

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8	**Providing & Dadoing** to internal walls with **Glazed wall tile** 7.30 to 8 mm thick of 12"x18"size of Somany/ Kajaria /Johnson make or equivalent brand approved by Architect with hacking of wall and set over base coat of CM (1:3) 12 mm thick with cement slurry with approved make water proofing compound of honey like consistency spread at the rate of 3.30 kgs per sqm and jointed with white cement paste mixed with pigment of matching shade to full depth.(Basic landing cost of tiles of **Rs.60 / Sft** .During selection of tiles by client if any rate difference , the same will be paid by client). The rate is inclusive of all materials , labour charges , loading, unloading, lead & lift upto desire level , and fuel charges for tools and plants and other incidental charges etc., **Also include the cost of taking out the existing dado** to expose the brick surface, carting away debris outside the premises, final cleaning by diluted acid. The rate shall be inclusive of taking out the existing plumbing/ sanitary fittings and fixtures and stacking the same all complete as directed by Bank's engineer. complete all as per drawing and as directed by Engineer in-charge.				
	Ground Floor	Sft	1140		
	First Floor	Sft	2702		
	Mezzanine Floor	Sft	1053		
	Second Floor	Sft	QRO		
E	**MISCELLANEOUS WORKS**				

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1	Providing & Laying M15 Grade using OPC Grade 53 Cement with 20mm nominal size machine crushed HBG metal for Bed concrete including shuttering for AC Pedestal complete for finished item of work as per approved drawings as directed by the Engineer-incharge. The rate is inclusive of all materials , labour charges , loading, unloading, hire and fuel charges for tools and plants and other incidental charges etc., complete all as per drawing and as directed by Engineer in-charge.	Cft	147		
2	Providing core cutting of 4"dia Hole making using hilti machine for copper tube and water running line for AC etc., complete all as per drawing and as directed by Engineer in-charge.	nos	96		
3	Providing Existing Gable wall top Dead Cement mortar chipping for sheet fixing and sheet below gap filling inside and outside of the wall in CM 1:4 etc., complete all as per drawing and as directed by Engineer in-charge.	Rft	450		
4	Providing stain less steel work of 1'- 6' width and 3" high and 24 guage thick fabricated sheet metal channel inserted in open terrace top flush with weathering course level for drain line etc., complete all as per drawing and as directed by Engineer in-charge.	Rft	80		
F	**SANITARYWARES & CP FITTINGS**				

1	**Supply, installation, testing & commissioning of** Half white or any pastel colour Glazed **wall Mounted European water closet** with heavy duty seat and cover supplied by same manufacturer with non corrosive hinges and bolts, washer, cutting grooves or make holes, grouting making good damaged surfaces with required materials , fixing the water closet with seat and cover to perfect level, testing and commissioning etc., complete all as per drawing and as directed by Engineer in-charge. MAKE:PARRYWARE CARDIFF C0264 Hush seat cover C8112 OR EQUIVALENT	Each	3		
2	Supply, installation, testing & commissioning of concealed cistern 9 liter flushing capacity with all accessories like valve ,dual cover plate flush pipe ,frame and supports ,rubber washer etc complete as required to finish the installation neatly to the satisfaction of engineer incharge. The rate should include necessary cutting chasing in the wall floor slab and finishing them back withCM1;4 etc., complete all as per drawing and as directed by Engineer in-charge. MAKE ;GEBRIT OR EQUIVALENT	Each	3		
3	Supply, installation, testing & commissioning of Half white or any pastel colour Glazed FLOOR MOUNTED European Water Closet with concealed S trap etc., complete all as per drawing and as directed by Engineer in-charge. MAKE :PARRYWARE (CARDIFF C0283 closet:C0722 Cistern:C2052 LID C8112 Hush Seat Cover) /ROCA/TOTO OR EQUIVALENT	Each	14		

4	Supply, installation, testing & commissioning of Half white or any pastel shade colour urinal with inbuilt spreader with concealed drain outlet supported on company supplied brackets, cutting grooves in the masonry restoring the same to original condition Glazed Urinal etc., complete all as per drawing and as directed by Engineer in-charge. Make : PARRYWARE (NOVO URINAL back inlet C846X or Equivalent) with GURU concealed urinal Flush valve	Each	21		
5	Supplying and fixing Jaquar auto closing concealed flush valve for urinal including cutting and plastering etc., complete all as per drawing and as directed by Engineer in-charge. JAQUAR(PRS-CHR-073) /PARRYWARE /ROCA OR EQUIVALENT	Each	21		
6	Supplying and fixing water closet squatting pan (Indian type WC pan)with 100 mm vitreous china P trap ,filling the sunken portion with brick jelly concrete .fixing the closet for level and line including cutting and making good the walls and floors wherever required etc., complete all as per drawing and as directed by Engineer in-charge. White Vitreous china Orissa pattern W.C pan of size 580x440mm with integral type foot rest	Each	1		
7	**Supply and fixing, equal approved make** White or any pastel colour glazed OVAL UNDER COUNTER WASH BASIN 606x365x195mm size with a pair of Cast Iron brackets, fixing to granite counter with required material like custom made GI brackets testing etc., complete all as per drawing and as directed by Engineer in-charge. K-2240 VINTAGE KOHLER MAKE OR EQUIVALENT MAKE	Each	14		

8	**Supply and fixing, approved make Reflection mirror** of specified model, fixing the mirror to wall dado with suitable Chromium plated detachable head screws /ornamental fiber frame work around the mirror etc., complete all as per drawing and as directed by Engineer in-charge. Sizes as below				
	Size :600x 300mm	Each	20		
	Size : 600x450 mm	Each	3		
9	Supplying and fixing black granite counter slab 25 mm thick for basin with 9inch fascia and 6 inch dado supported on a bracket .Rendering the basin and granite joint with white cement etc., complete all as per drawing and as directed by Engineer in-charge.	Sft	100		
10	Stainless steel kitchen sink with one and a half bowl and single drain board made of 18 gauge sheet,40mm CP waste coupling with heavy duty PVC bottle trap /P trap 925x450x200mm with support bracket etc., complete all as per drawing and as directed by Engineer in-charge.	Each	QRO		
G	**ACCESSORIES AND CHROMIUM PLATED BATHROOM FITTINGS**				
	Supply and fixing Following chromium plated bath room fittings of **make / approved make - Florentine** range, connecting to water pipe using Teflon tape over threaded portions, **Including supplying and fixing CP Nipples to connect the water supply pipe to CP fittings,** testing for leak proof, etc., complete all as per drawing and as directed by Engineer in-charge.				
1	Supply and fixing, Long Neck AVANT self closing pillar faucet with push button MAKE: ROCA (RT5A4279C00) /PARRYWARE/TOTO OR EQUIVALENT	Each	14		

2	Supply and fixing long body bib cock with aerator. MAKE :VIKING/PARRYWARE/ROCA OR EQUIVALENT	Each	5		
3	Supply and fixing, 15mm dia Rinsing spray with bracket and 1250mm.plastic tube (**Health Faucet**) long threads. **Make : GROHE (TRIGGER SPRAY SET 2555) /PARRYWARE/ROCA/TOTO OR EQUIVALENT**	Each	17		
4	Supply and fixing, 15mm dia **Angle valve stop cock** long inlet threads with wall flange. **Make : VIKING /PARRYWARE OR EQUIVALENT**	Each	55		
5	Supply and fixing, 32mm dia pvc heavy duty **Bottle trap** with extension piece & connecting Hose. **Make :PARRYWARE /ROCA/TOTO OR EQUIVALENT**	Each	14		
6	Supply and fixing, 32mm dia C.P brass **waste coupling**.**Make : VIKING /PARRYWARE/ROCA OR EQUIVALENT**	Each	14		
7	Supply and fixing, chromium plated **Double coat hook** with suitable brass screws etc. **Catalogue No : VIKING (OCULAR) /PARRYWARE/ ROCA OR EQUIVALENT**	Each	17		
8	Supply and fixing, **Concealed stop cock** 20 mm dia. **Make : VIKING /PARRYWARE/ROCA OR EQUIVALENT**	Each	QRO		
9	Supply and fixing, chromium plated **Towel rail** of 20mm dia and length as below with cp brackets fixing in position using suitable C.P. screws, peak wood plugs etc., complete. (For Shower) **Make : VIKING/PARRYWARE/ROCA OR EQUIVALENT**				
	Size : 600mm long	Each	2		
	Size : 300 mm long	Each	4		

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11	Supply and fixing, LOTION **dispenser** with 600ml liquid soap, fixing the same over wall dado using required fixing materials, etc., complete. **Make : VIKING (1135 WALL MOUNTED SS 304) /PARRYWARE/ROCA OR EQUIVALENT**	Each	6		
12	Supply and fixing, toilet **Paper Roll holder** with flap, fixing the same over wall dado using required fixing materials etc., complete. **Make : VIKING (ESCADA 1612 POLISHED C.P) /PARRYWARE/ROCA/TOTOOR EQUIVALENT**	Each	3		
13	Supply and fixing, **15mm size Braided hose pipe** with nuts, washers, etc., for connecting outlet of angle valve stop cock to pillarcock, heater etc VIKING HEAVY DUTY METTALIC BRAIDED HOSE	Each	55		
14	Supply and fixing, single lever Wall mixer with provision for overhead shower with 115mm long bend pipe on lower side and wall flange. **Make :GROHE (BAUCURVE WALL MIXER 23197000) /PARRYWARE/ROCA OR EQUIVALENT**	Each	2		
15	Supplying and fixing electric hand dryer 15 K w capacity with auto on off timer controlled BARDON TOUCHLESS HAND DRYER SATIN CHROME K-5486-SC OR EQUIVALENT	Each	4		
16	Over head shower 12mm round shape multiflow (ABS body chrome plated with gray face plate with rubit cleaning system	Each	3		
H	**SOIL, DOMESTIC WASTE AND VENT PIPE WORKS**				

1	Supplying and fixing, **ASTRAL / SUPREME / FINOLEX make,** SWR grade and type B class uPVC pipes with specials like bends, Tee, Y-junction with or without door, Vent cowl, providing and fixing cleaning / rodding eye with endcap wherever required, etc., cutting the pipes, laying or fixing to perfect plumb, with slopes where required, making joints using solvent cement solution or with ring seal couplers of size available pipe of 110mm and 75mm dia., providing 110 dia PVC make up piece with inlet connections, conducting water test for leak proof joints and the materials, Rate includes removing / connecting with the existing pipes etc., complete all as per drawing and as directed by Engineer in-charge.				
i)	**PIPES INSIDE TOILET AREAS**				
	Using 40mm dia pipe - **IS 4985 (6kg Class) For vent at ceiling**	Rft	75		
	Using 50mm dia pipe - IS 4985(10kg class) for wash basin **(Concealed in wall)**	Rft	45		
	Using 75mm dia pipe - (6kg class) for toilet waste pipe **(Buried in sunken portion)**	Rft	150		
	Using 110mm dia pipe - (6kg class) for toilet soil pipe **(Buried in sunken portion)**	Rft	150		
ii)	**PIPES IN SHAFT**				
	Using 75mm dia pipe - **IS 13592 (SWR - TYPE 'B' Class)** for toilet waste pipe	Rft	150		
	Using 110mm dia pipe - **IS 13592 (SWR - TYPE 'B' Class)** for toilet soil pipe	Rft	150		

2	Supplying and fixing, **ASTRAL / SUPREME / FINOLEX make,** 110mm dia PVC factory made Floor trap with water seal of 50mm and having multiple inlets and 75 dia outlet, fixing in position, laying cement concrete to 75mm all-round in 1:3:6 mix using brick jelly to full depth of trap / sump, supplying and fixing SS circular grating with square frame of suitable size over trap / sump at 4mm below Floor level testing to water tightness, including providing fiber glass mating at bottom, inlet and outlet , Rate includes removing / connecting with the existing pipes etc., complete all as per drawing and as directed by Engineer in-charge.	Each	35		
3	Supplying and fixing, **Pan connector** made out of PVC with 110 or 90 or 75mm dia outlet, fixing to pipe work with rubber ring and other necessary materials, testing, to water tightness etc., complete all as per drawing and as directed by Engineer in-charge.	Each	17		
4	Providing and laying concrete with 1:4:8 mix using 20mm size stone aggregate all around for buried soil and waste pipes including centering and shuttering and any masonry supports from slabs or firm ground, curing complete for the pipes including providing and removing temporary form work etc., complete all as per drawing and as directed by Engineer in-charge.				
	75mm nominal dia pipe 75mm thick all-round	Rft	75		
	110mm nominal dia pipe 75mm thick all-round	Rft	60		
5	Supplying and fixing, **"CHILLY" make,** Cockroach trap with CP Square Grating with frame including tile cutting, inside filling with FRP paste and finishing, etc.	Each	35		
6	**INTERNAL FILTERED WATER SUPPLY PIPEWORK - INTERNAL WATER DISTRIBUTION SYSTEM**				

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	Supplying and fixing, **ASTRAL / SUPREME / FINOLEX make CPVC pipes (sdr 13.5 grade)** and pipe specials like Coupler, reducer, elbow, tee and brass male/ female threaded pipe specials to connect bath room fittings, union, by pass bend with all type of Special flanges and special fittings to connect with de-similar materials like G.I or any other material, cutting the pipes, fixing the pipe specials using solvent cement solution supplied by the same manufacturer, making water tight joints, making holes and cutting grooves in walls restoring the damaged portions to their original condition using required materials, conducting hydraulic test to pipe work to a pressure of 7 Kg per Sq.cm, etc. complete and as directed by the site engineer. (Please note that the mentioned diameters are ID.) , Rate includes removing / connecting with the existing pipes etc., complete all as per drawing and as directed by Engineer in-charge.				
	I. PIPE CONCEALED IN WALL				
	Using 15mm dia (ID) pipe.	RFT	75		
	Using 20mm dia (ID) pipe.	RFT	225		
	Using 25mm dia (ID) pipe.	RFT	150		
	Using 32mm dia (ID) pipe.	RFT	45		
I	**RE ROOFING WORKS**				

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1	Dismantling/ Removal and stacking of old existing Asbestos roof sheet and Tarfelt into the Ground floor & disposal of same Debris outside the campus in a proper manner as directed by Engineer in Charge. Before removing the existing asbestos sheet ,the below steel truss shall be **temporarily provided with necessary safety net** for avoiding any expected falling into the auditorium floor or ceiling & **Tarpaulin to cover the entire roof portion temporarily** (until fixing of S.No:02) for avoiding rainwater leakage into the auditorium building	square feet	16140.00		

2	Providing and fixing of Trapezoidal(TR) profiled pre-fabricated PUF Sandwich Roofing panels comprising of 0.5 mm colour coated galvalume sheets on exterior and Interior sides , with 50 mm thick CFC/HCFC free Poly urethane Foam (PUF) (Zero ODP) as core insulation material and as given in the technical specification . Prefabricated Polyurethane Foam Sandwich Roofing Panels shall be manufactured from a **continuous manufacturing plant** and shall be comprising of Top sheet : Trapezoidal profiled sheets with 34.5mm crest height at 333 mm centers and made out of 0.5 mm TCT, 300MPa - yield stress, Galvalume Steel with 20 microns of Silicon Modified Polyester colour coating, Bottom sheet : Plain sheets with slight ribs and made out of 0.5 mm TCT, 300MPa - yield stress, Galvalume Steel with Silicon Modified Polyester colour coating Core: The insulation core shall be Pentane blown, HCFC / CFC Free (Zero ODP) Polyurethane Foam having 40 ± 2 kg/cu.m density in 50 mm thick & Foam Thermal Conductivity of 0.023 W/m°K-maxPrefabricated Polyurethane Foam Sandwich Roofing Panels shall be supplied in 1 m width and in suitable lengths depending on site requirements.Prefabricated Polyurethane Foam Sandwich Roofing Panels shall be fixed on to the purlin / Girts with self drilling fasteners (SDST Screws) and with necessary overlap as per manufacturer's specification. Preffered make(s) of Pre Fabricated Sandwich panels : **Lloyds/ Jindal/ Bhuson/ Tata Bluescope**Sheet should have protective guard film of 25 microns minimum to avoid scratches during transportation and should be supplied in single length upto 12 metre or according to the length of the sheet required at site as desired by Engineer-in- Charge. The TR PUF panels shall be stored in the site as directed by the Engineer in charge. (Payment will be paid only on visibly completed area)	square feet	16140.00		

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3	Providing and fixing pre-painted Galvalume steel sheet roofing accessories 0.50 mm (+ 0.05 %) total coated thickness (TCT) coated 150 gms / sqm YS: 345 mpa steel grade, using self drilling / self tapping screws complete – Ridges Plain (500-600mm) of make of Lloyds/Jindal (JSW) / Bhushan steels/Tata Bluescope steels Ltd .The color shall be same as the color of the Roofing	feet	410.00		
4	Providing and fixing pre-painted Galvalume steel sheet roofing accessories 0.50 mm (+ 0.05 %) total coated thickness (TCT) coated 150 gms / sqm YS: 345 mpa steel grade, using self drilling / self tapping screws complete – Flashings (500-600mm) of make of Lloyds/Jindal (JSW) / Bhushan steels//Tata Bluescope steels Ltd .The color shall be same as the color of the Roofing	feet	656.00		
5	Chipping of Dead mortar and packing of the below & above roof sheet gap openings in the Gable End wall side and Eave sides for inserting and fixing the Pre fabricated sandwich panels (Sl.No:02) on to the RCC walls				
6	Painting with one coat of synthetic enamel paint (45 microns) with prior one coat of red oxide primer (30 microns) of approved brand and manufacture of required colour (Plinth area basis)over old steel truss before erection of TR Roofing panel as specified Sl. No.02	square feet	16140.00		
7	Providing and fixing pre-painted galvalume steel sheet roofing accessories 0.50 mm (+ 0.05 %) total coated thickness (TCT) coated 150 gms / sqm YS: 345 mpa steel grade, using self drilling / self tapping screws complete – TR Crimp sheet of make of Lloyds/ Jindal (JSW) / Bhushan steels Ltd / Tata blue scope	square feet	600.00		

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8	Providing & Fixing of Eave Gutter as per Technical Specification below To collect the rain water falling on the slope of the roofs shall be collected through 2.00 mm thick GI Gutter at the eaves. This includes the necessary arrangements for the fixing of downspouts with the screws/other fasteners	feet	300.00		
9	Providing & Fixing of Downspouts as per Technical Specification below 150 mm dia PVC (pipe) downspout provided of 4 Nos (2 Nos. each side of eaves of 5 m length) for the equal distribution (drain) of rain waters through the Down spouts. This includes the necessary arrangements for the fixing of downspouts with the screws/other fasteners	feet	65.00		
10	Providing and Fixing of GI L angle 50 mm x 75 mm x 1.6 mm along with the necessary fasteners / Welding	feet	820.00		
	Sub Total - Civil , plumbing and Roof area				
	GST				
	Total				

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PART-2
(REPAIR AND RENOVATION WORKS FOR INTERIOR AND ACOUSTICS)

PART-2 (REPAIR AND RENOVATION WORKS FOR INTERIOR AND ACOUSTICS)					
SL. NO	**DESCRIPTION**	**UNIT**	**QTY**	**RATE**	**AMOUNT**
2	**INTERIOR RENOVATION AND ACOUSTICS WORKS**				
2.1	**False Ceiling (Acoustical Treatment and Erection of New False Ceiling) - Acoustic Ceiling**				
2.1.1	**Perforated Ceiling with acoustic infill (Main Hall)**	Sqft	6,141		
	Supplying and Fixing of Acoustic reinforced Gypsum Ceiling with Capsule perforated Gypboard of 12.5mm thick with 1cm x 4.5cm long capsule perforation with an gap of 1.5cm plain surface, fixed to the underside of the suspended grid formed of GI perimeter channel of size 20mmx 27mmx 30mm (MF 6A) fixed along the wall by using wood screws and metal expansion rawl plugs. The underside of the Gypboard should have protective fleeze infused. The above Gypsum area after installed should be stacked with a single layer of 50mm compressed high density 48kg/m3 glass fiber boards wrapped in a protective fabric. The same should be secured to the frame work using stay wire / Nylon wire				

	The GI intermediate channel of size 45mmx 15mmx 0.90mm (MF7) shall be fixed to the suspended strap hanger / GI ceiling angle at intervals not more than 1220mm. The suspended GI ceiling angle / strap hanger is to be connected with GI soffit cleat of size 37mmx 27mmx 25mmx 1.6mm and it should be fixed on the support angle of the main Truss by using metal expansion fasteners (wt. Type) of 12.5mm dia to a length of 35mm with 6mm dia bolt / screw at top ends. The GI ceiling section of size 80mmx 26mmx 0.5mm (MF 5) is to be provided across the intermediate channel at intervals not more than 457mm centres at bottom and the same shall be fixed by GI connection clips 2.64mm dia at the intersection points				

	The ends of ceiling section (MF5) channel by adopting an overlap length of minimum 150mm, connected with intermediate channel shall be fixed to perimeter channel in insertion. The gypboard shall be fixed to the under side of the suspended grid by using 25mm long dry wall screws. The joints shall be finished with joint fiber tape by using jointing compound of India Gypboard Ltd., and applying over it 3 layers of the filler compound to provide a smooth and the surface shall be finished with one base coat. The rate shall include making cutouts for tube lights, spot lights, duct doors, for specified size, grills etc., for which no extra amount shall be paid separately. Rate shall include providing additional trimming around cutouts for light fittings and making design etc., and grills also for providing additional supports from ceiling where main / cross members are cut for light fittings etc. Rate shall include vertical as well as horizontal surfaces as per detailed drawing. Actual “seen” surface of horizontal and vertical will be measured and paid.				
	The above perforated Ceiling is divided into 5 segments of 12" wide and 1 segment of 16' wide. Ref ; The Ceiling drawing.				
2.1.2	**2'x4' Acoustic panels using the following material and the same should achieve 0.9 NRC.**	Sqft	2,120		

	4' wide niche to run from one side wall to the other in between the 6 segments of the perforated ceiling.				
	Between every segment of the above mentioned Perforated Ceiling, 2'x4' Long fiber pinewood board to be screwed on to the false ceiling framework on to the 4'wide Niche. High density synthPF, large- format, rigid wall panels of size 2'x4' to be stuct to be pinewood board using SR adhesive. This board must be core pigmented and to match the colour as per design provided by the architect.				
	(Refer - Attached Drawing				
	Specification - Wood Fiber Board				
	Finish - Naturals				
	Core - Woodfiber				
	Thickness- 20mm				
	Edge - Square				
	Density - 400kg/m3				
	Weight - 10Kg/m3				
	Fire (Class) - 1&P				
	NRC - 25mm E300* - 09, 40mm C50-0.95				
	Thermal (W/mk) - 0.07				
	Specification - High Density SynthPF				
	Rigid Board of 9mm thick				
	Core pigmented				
	Core- Polyfiber				

	Density - 180				
	Fire - Class A				
2.1.3	**Below Balcony Ceiling**	Sqft	1,280		
	Specification to follow 1A - Perforated Ceiling painted to finish.				
2.1.4	2x2 Grid based false ceiling with 0.09 NRC Acoustic Fiber glass 2'x2' Tile. (Stage False Ceiling)	Sqft	1,980		
	Providing and Fixing of the Acoustic fiber glass / Mineral Fibre Acoustical Suspended grid Ceiling System consisting of 600mmx 600mm (Micro look) Edge Tiles with Silhouette Exposed grid. The Tiles shall have Humidity Resistance (RH) of 99%, NRC 0.09, Light Reflectance > 90%, Thermal conductivity k = 0.052-0.057 w/m k, Colour white, Fire performance a2-s1.do in module size of 600 x 600 x 15mm with Bio Block coating on the face of the tile, suitable for green building application, with recycled content of 70-80%. The tile shall be laid on silhouette profile grid system with 15mm white flanges incorporating a 6mm central reveal in black colour. Silhouette, main runners & Cross tees to have mitered ends & "Birdsmouth" notches to provide mitered cruciform junctions. The T Sections have a Galvanizing of 120 grams per M2 & passed through 500 hrs of salt test.				

	Installation: To Comprise main runner spaced at 1200mm centres securely fixed to the structural soffit using Anutone suspension system (Specifications below) below at 1200mm maximum centre & not more than 15mm from spliced joints. The first/ last anutone suspension system at the end of each main runner should not be greater than 600mm from the adjacent wall. 1200mm long cross tees to be interlocked between main runners at 600mm centre to form 1200 x 600 mm module. Cut cross tees longer than 600mm require independent support. 600 x 600mm module to be formed by fitting 600mm long cross tees centrally between the 1200mm cross tees. The 1200mm cross tees to have central "birdsmouth" Notches to facilitate fitting of 600mm cross tees. Perimeter trim to be anutone wall angles, secured to walls at 450mm maximum centres.				
	(Refer - Attached Drawing)				
2.2	**Main Hall (Acoustical Treatment and New Wall Paneling)**				
	Veneer and Plywood Items				
2.2.1	**Main Hall Walls includes left side , right side and Press box projections - Melamine Polished finish Veneer Paneling**	Sqft	1,808		
	10' from Ground level to be installed with Sound reflective wall paneling comprising of 4mm Natural veneer , 9mm Marine grade 710 plywood of approved make and Polished to finish.				

	The Paneling consists of GI Stud and Strut sections with necessary supports fixed to the wall with 20mm wooden batten wherever required. Maintain cavity of 70mm to maximum of 1500mm from Wall, 9mm Plywood, 4mm Veneer, 2x25mm compressed high density 48kg/m3 Acoustic Wool Board secured with GI string tightly wrapped around. The surface of the veneer is to be melamine spray polished to finish. The Veneer paneling to be installed under the balcony walls too.				
2.2.2	Pelmet Area				
	Pelmet of size 1' high and 8" depth to run above the 10' height Veneer wall paneling from the Stage Proscenium to the rear wall on both sides and includes the rear wall too. The Pelmet should be filled with 24kg/m3 of fiberglass infill rolls.	Sqft	686		
	The Pelmet comprises of 4mm Natural veneer , 12/9mm Marine grade 710 plywood of approved make and Polished to finish.				
	The top and bottom will be 12mm plywood and the front will be 9mm Plywood.				
	(Refer - Attached Drawing)				
2.2.3	**Side walls Niche (Veneer Verticals)**	Sqft	196		
	The vertical edge of the niche which is recessed 6" should be fixed with 9mm plywood on the sides and finished with 4mm polished Veneer. provide a border of 3" around the sides of the niche and provision for cove lightiing on the inner sides and				

	the same to be finished with polished Veneer. This verticals will connect to the niche verticals on the ceiling (Item No 2D)				
2.2.4	**Ceiling Niche (Veneer Verticals)**				
	The vertical edge of the 12mm board which is recessed 8"on one side and 6" on the other should be fixed with 12mm Plywood and finished with 4mm polished Veneer with the exposed edges with flat polished surface. The sides should be connected to the verticals from the wall niche on both the sides. The rates for the same is not included. This item will be apart of the Plywood/ Veneer components ( )	Sqft	560		
2.2.5	**Provision for AC outlet Grills made of Veneer and Plywood**				
	To provide 1' of 12mm ply running from the stage to the rear of the side walls to support the air-conditioning grill. The 12mm ply should be finished with polished Veneer	Sqft	128		
2.2.6	**Rear and Side walls below Balcony**	Sqft	682		
	The entire sidewalls and rear walls below the Balcony to follow the Veneer Paneling as per specs mentioned above. Ref : 2A				
	(Refer - Attached Drawing No -)				
2.2.7	**Stage side walls and Rear walls**	Sqft	1,250		
	10' from Ground level to be installed with reflective wall paneling comprising of 4mm Natural Veneer, 9mm Marine grade 710 plywood of approved make.				

	The Paneling consists of GI Stud and Strut sections with necessary supports fixed to the wall with 20mm wooden batten wherever required. Maintain cavity of 90mm to maximum of 1500mm from Wall, 8mm Plywood, 4mm Veneer, 2x25mm compressed high density 48kg/m3 Acoustic Wool Board secured with GI string tightly wrapped around. The surface of the Veneer is to be melamine spray polished to finish.				
	Providing acoustic wall paneling Upto 10' height area of the side walls of the Stage.				
	(Refer - Attached Drawing No)				
2.2.8	**Stage Proscenium**	Sqft	2,210		
	Providing and erecting of proscenium as per design. The proscenium consists of GI Stud and Strut sections with necessary supports fixed to the wall, upto 12mm Plywood, 4mm Veneer, 25mm compressed high density 48kg/m3 Acoustic Wool Board and all necessary supports to fix the Audio / Video Components.				
	(Refer - Attached Drawing No -)				
2.2.9	**Stage Fascia**	Sqft	230		
	The Stage Fascia of 2'6" height to be clad with of 4mm Natural veneer , 9mm Marine grade 710 plywood of approved make. SS 1'4" pipe to be provided as safety barricade with an height of 8" Pedestal to be placed at the interval of every 8' on the stage edge. The paneling will cover the vertical wall of the stage fascia and extend				

	horizontally for 1' on the stage surface. the horizontal extension should be 60mm above the stage surface level.				
	The Paneling consists of GI Stud and Strut sections with necessary supports fixed to the wall with 20mm wooden batten wherever required. Maintain cavity of 70mm to maximum of 1500mm from Wall, 8mm Plywood, 4mm Veneer, 25mm compressed high density 48kg/m3 Acoustic Wool Board secured with GI string tightly wrapped around. The surface of the Veneer is to be melamine spray polished to finish.				
	(Refer - Attached Drawing)				
2.2.10	**Balcony Fascia**	Sqft	640		
	The Balcony Fascia of 8' height to be clad with of 4mm Natural Veneer , 9 /12 mm Marine grade 710 plywood of approved make. The paneling will cover the vertical wall of the Balcony fascia and extend horizontally and drop till the flooring of the balcony.				
	The Paneling consists of GI Stud and Strut sections with necessary supports fixed to the wall with 20mm wooden batten wherever required. Maintain cavity of 70mm to maximum of 1500mm from Wall, 8mm Plywood, 4mm Veneer, 25mm compressed high density 48kg/m3 Acoustic Wool Board secured with GI string tightly wrapped around. The surface of the Veneer is to be melamine spray polished to finish.				
	(Refer - Attached Drawing No -)				

2.3	**4' wide side wall niche running from pelmet to the false ceiling vertically**	Sqft	742		
	Side walls Niche (to be inline with the recessed niche in the ceiling the same should achieve 0.9 NRC.				
	(Specification - Refer Point No 1B)				
2.4	**The space above the Pelmet to be cladded with the Capsule Perforated 12mm board paneling for sound absorption . The Perforated panel should smoothened and painted as per design**				
2.4.1	Supplying and Fixing of Acoustic Gypsum Ceiling with Capsule perforated Gypboard of 12.5mm thick with 1cm x 4.5cm long capsule perforation with an gap of 1.5cm plain surface, fixed on to the stud and strut framework on the walls. 7 segments on each wall space to be installed with Capsule perforated 12mm Board from the top level of the pelmet up to the top level of the Acoustic ceiling. 6Nos of 4' wide niche vertical space should be provided . The perforation is to run vertical this is for absorption and to be placed above 10' height area of the side walls up to the Ceiling of the main hall.	Sqft	2,345		
	(Refer - Attached Drawing)				
2.4.2	**Rear wall Above Balcony**	Sqft	720		
	The entire rear wall above Balcony to be paneled using the Capsule perforated 12 mm Board and finished seamless. Ref : 2C				
	(Refer - Attached Drawing)				

2.4.3	**Capsule Perforated Wall Paneling**	Sqft	2,230		
	Providing Acoustic wall paneling of 12mm Perforated gypsum board with 1cm x 4.5 cm long bullet perforation with a gap of 1.5 cm plain surface. The perforation is to run vertical this is for absorption and to be placed above 10' height area of the side walls up to the Ceiling of the main hall.				
	The Paneling consists of GI Stud and Strut sections with necessary supports fixed to the wall with cavity of 90mm to 1500mm from Wall with painted finish Composite Board				
	The Paneling consists of GI Stud and Strut sections with necessary supports fixed to the wall with cavity of 150mm from the Wall. The cavity to be filled with 50mm 48kg/M3 density glasswool				
	(Refer - Attached Drawing)				
2.5	**Stage Flooring**	Sqft	2,871		

	Supplying, fitting and fixing 8 mm thick Laminated wooden Flooring Work conforming to EN13329:2006 with plank size not less than 1200mmX 190 mm (with unilin/tongue-groove locking arrangement) having 0.2mm thk top abrasive layer over a decorative layer followed by a High-density fibreboard (HDF) having density > 940 kg/m3 substrate core over a resin saturated backing layer and installing through unilin or tongue- groove system (having locking strength not less than 1000 kg/m) over a 2 mm thk underlayer polyurethene foam on polythene sheet 250 micron, over a smooth, flat, hard subfloor free from moisture (< 8%), grease etc. complete in all respect with requisite accessories like end profile, transition profile, reducer 'T' profile etc. wherever required and preparation of base including all other incidental works as per direction & satisfaction of Engineer incharge. Cost of Laminate Floor Accessories only (Skirting, End edge, Tmoulding, Reducer) shall have to be added separately, wherever required. (Note: This work should not be executed without specific permission of Superintending Engineer). In Ground Floor: Category: High Footfall ; Class- 23;Abrasion resistance:-AC4 Thk on Swelling:- < 15% ;Impact resistance:- IC 2.				
2.6	**Extension of Balcony parapet with Toughened glass**	Rft	79		

	Balcony parapet which is currently at 2'.6" High structure should be extended by 1'6" of 12mm toughened Glass using rimless SS cover plate fitting with fasteners to be grouted to parapet . The same should run from one end of the Balcony to the other. Each Toughened Glass will be 1'6" high and 4' long . There should be half an inch gap between every Glass panel.				
	(Refer - Attached Drawing)				
	Dismantling Work of existing wall paneling, false ceiling, stage flooring and other acoustic material which are to be replaced with the new materials. The cost of the dismantling and carting away from the site should be included in the above quoted rates.				
2.7	**Dismantling ,Servicing and Refixing of the existing motorized drop screen**	Unit Rate	1		
	Front vertical curtain: - Curtain dismantle and fixing ,curtain washing small patch stitching , General service				
	Middle horizontal curtain : curtain dismantle and fixing ,curtain washing ,Small patch stitching, General service				
	Jallar curtain :3nos Curtain dismantle and fixing , Curtain washing ,Small patch stitching, General service				
2.8	**Dismantling and Refixing of the existing seats**	Unit Rate	1		
2.9	**Scaffolding for the main hall upto the ceiling level (per month) -** Total area is 16000 sqft.	Month	4		

	Bombay type scaffolding covering the entire floor area with a 4' x6' pattern upto the height of 26' with provision to checkerd plate or plywood				
	Cost should include height modification as per the requirement of the contractors and accordance with the progress of the work				
2.10'	**Supply and Erection of new false ceiling. (Grid based false ceiling) in Dining Area and Corridor area**	Unit Rate	1		
	Providing and fixing of suspended False Ceiling system consisting of 600 x 600mm Tegular Vinyl laminated tile of 16mm. The White Tiles shall have Humidity Resistance (RH) of 95% , Light Reflectance upto 90% colour white. The tile shall be laid on approved profile grid system with 24mm wide flanges, Main runners & Exposed Cross tees to have mitered cruciform junctions. The T sections have a Galvanizing of 120 grams per m2 & passed through 500hrs of salt test.				
	Sub Total - INTERIOR RENOVATION AND ACOUSTICS WORKS				
	GST				
	Total				

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PART-3 (HVAC Works)

PART-3 (HVAC Works)								
				Rate		Amount		Total Amount (Supply + Labour)
S.N	Description	unit	Qty	Supply	Labour	Supply	Labour	
3.1	**EQUIPMENT-ALL INVERTER 100 % VRF**							
3.1.1	Supply of Modular type Variable Refrigerant Flow Outdoor units comprising of Hermetically sealed 100 % ALL INVERTER Variable Speed Scroll compressors capable of delivering the below mentioned capacities at 43 degree ambient without deration. The unit shall comprise of high efficiency, low noise condenser fan with guard and IP 55 motor, heat exchanger and coated fins for increased durability. The casing shall be powder coated and the unit shall be provided with liquid line strainer, catch all drier, thermostats etc. suitable for interconnecting with AHU indoor units. The ODU & IDU shall be integrated with wiring system. The unit shall be factory wired and tested before dispatch. The operating refrigerant shall be R-410A only. (Vendors to select ODU capacity inline with the technical specifications)							
3.1.1.1	**82 HP - Auditorium**	Nos	2.00					

3.1.1.2	**16 HP Module - Balcony**	Nos	2.00					
3.1.1.2	**18 HP Module - Stage**	Nos	2.00					
3.1.2	**AHU KIT :** Accessories including Electronic Expansion Valve Kit, Catch All Drier with ball valve for drier removal, Control Panel & Wired Remote Controller							
3.1.2.1	for Capacity 30.0 TR AHU	Nos	4.00					
3.1.2.2	for Capacity 12.0 TR CSU	Nos	2.00					
3.1.2.3	for Capacity 14.0 TR CSU	Nos	2.00					

3.1.3	**FLOOR MOUNTED VERTICAL AIR HANDLING UNITS :** Supply of Factory assembled Double Skin Vertical AHU With 25 mm-45 kg/cum PUF Insulated detachable panels, aluminium profiles, panel external skin with 0.6 mm pre-plasticized sheet, panel internal skin with 0.6 mm galvanized sheet, AMCA tested DIDW FAN with **IEC-2 rating motor** , drive arrangement , vibration isolators out of heavy duty rubberized mounts, prefilters with 3 ply HDPE 50 mm thick filters having an efficiency of 90% 10 Mic, 6 row / 12 FPI deep DX inner grooved copper cooling coil with copper header and Aluminium fins, condensate coil trough with SS-304-20G insulated with 9 mm closed cell elastomeric foam, Limit Switch, Inspection sight glass, Emergency Light, Guard for Inspection Door, outlet damper of aerofoil blades & PVC gears, and flexible fire retardant canvass complete with galvanized hardware. Each ODU will be linked to independent cooling coil connectivity with independent distributor,							
3.1.3.1	30.0 TR - 12000 cfm - 50 mm TSP	Nos	4.00					

3.1.4	**CEILING SUSPENDED AIR HANDLING UNITS :** Supply of Factory assembled Double Skin, 25 mm thick PUF insulated panel, with Thermal Break Profile Air handling Unit (AHU) draw thru type with Aluminium Profile, **Ceiling Suspended Air handling Unit (CSU)** , comprising of Pre filter section, 6 row deep **DX-coil,** SS insulated drain tray, DIDW Forward curved centrifugal fans with Belt driven for comfort applications with suitable motor, motor shall be of Eff 1 rating, Chilled Water Inlet & Outlet piping connections. Double skin rexin flexible connection for fan outlet.The Blower Static Pressure - 40 mm wc.							
3.1.4.1	12TR with 4800 CFM	Nos	2.00					
3.1.4.2	14TR with 5500 CFM	Nos	2.00					
3.1.5	Supply of REFNET joints	Nos	10.00					
3.2	**BILL OF QUANTITY-VRF SYSTEM (LOW-SIDE WORKS) ANCILLARY WORKS**							
3.2.1	**VRF LOW SIDE WORKS**							
	Lifting and placing at 3rd Floor Terrace , Installation , Testing, Commissioning and Handing over the VRF outdoor units.							
3.2.1.1	82 HP - Auditorium (60TR AHU-VRF ODU'S)	Nos	2.00					

3.2.1.2	16 HP Module - Balcony (12TR CSU-VRF ODU)	Nos	2.00					
3.2.1.3	18 HP Module - Stage (14TR CSU-VRF ODU)	Nos	2.00					
3.2.2	Lifting and placing at 3rd Floor, Installation , Testing, Commissioning and Handing over the Air Handling Units.							
3.2.2.1	Floor Mounted AHU Capacity 30.0 TR - 12000 cfm (Auditorium)	Nos	4.00					
3.2.3	Inland transportation to site, Lifting and Respective floors, Installation , Testing, Commissioning and Handing over of the Air Handling IDU							
3.2.3.1	Ceiling Suspended AHU Capacity 12TR with 4800 CFM (Balcony)	Nos	2.00					
3.2.3.2	Ceiling Suspended AHU Capacity 14TR with 5500 CFM (Stage)	Nos	2.00					

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3.2.4	**REFRIGERANT PIPING :** Supply, Installation and Testing of Refrigerant piping, fittings and Y Branch with suitable thick tubular nitrile rubber insulation and finished with ***poly shield coating*** (This includes the pressure testing and Refrigerant Gas charging) between indoor & outdoor units as per specifications . All piping inside the room shall be properly supported with hanger and all external piping shall run in covered cable tray. . (Incase any changes in the layout after approval, then the following unit rates shall be applicable.)							
3.2.4.1	1/4" (6.35 mm) with 13 mm thick insulation	Rmt	0					
3.2.4.2	3/8" (9.52 mm) with 13 mm thick insulation	Rmt	0					
3.2.4.3	1/2" (12.7 mm) with 13 mm thick insulation	Rmt	90					
3.2.4.4	5/8" (15.88 mm) with 13 mm thick insulation	Rmt	20					
3.2.4.5	3/4" (19.08 mm) with 13 mm thick insulation	Rmt	30					
3.2.4.6	7/8" (22.22 mm) with 19 mm thick insulation	Rmt	5					
3.2.4.7	1 1/8" (28.58 mm) with 19 mm tick insulation	Rmt	115					

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3.2.4.8	1 3/8" (35 mm) with 19 mm thick insulation	Rmt	30					
3.2.4.9	1 5/8" (41.27 mm) with 19 mm thick insulation	Rmt	5					
3.2.4.10	1 3/4" (44.45 mm) with 19 mm thick insulation	Rmt	0					
3.2.5	Supply and installation of communication cable carried out with 2 core x 1.5 sqmm shielded cable including PVC conduit, between indoor unit to outdoor unit (The size & make of the cable will be acceptable as per the OEM recommendations)	Rmt	185.00					
3.2.6	**CABLE / PIPE TRAYS :** Supply & Installation of Approved make 2 mm thick pre-galvanized sheet steel perforated cable tray along with top cover. The cable tray shall include necessary supports and other accessories. Cables shall be clamped to the cable trays in both horizontal runs and vertical runs by suitable prefabricated clamps. Cable trays shall be suitably supported at an interval of not more than one meter. Trays shall be bolted to the support steel members. Supports shall be derived from building structure by anchor fasteners.							

3.2.6.1	450 mm wide x 75 mm height	Rmt	30.00					
3.2.6.2	300 mm wide x 75 mm height	Rmt	40.00					
3.2.6.3	250 mm wide x 75 mm height	Rmt	10.00					
3.2.6.4	150 mm wide x 75 mm height	Rmt	20.00					
3.2.7	**DRAIN PIPING :** Supply, Installation and Testing of UPVC heavy class drain piping insulated out of 9 mm thick Class O closed cell elastomeric nitrile rubber material of with supports, consumables, fittings, pipe sleeves, U trap & leak arresting of following sizes.							
3.2.7.1	25mm	Rmt	0.00					
3.2.7.2	32mm	Rmt	80.00					
3.2.7.3	40mm	Rmt	60.00					
3.2.7.4	50mm	Rmt	0.00					
3.2.8	**CONDENSATE REMOVAL PUMP :** Supply , Installation, Testing and Commissioning of Condensate Drain pump:							
3.2.8.1	CSU / Ductable - IDU	Nos	0.00					

3.2.9	**WALL MOUNTED ELECTRICAL PANEL - AHU :** Supply, Installation, Testing & Commissioning of Electrical panel (wall mounted) with metering device, digital volt meter, digital ammeter ,suitable for AHU motor with incomer of MCCB and out going feeders for AHU motor and Bypass DOL /Star Delta starter, transformer for field instruments, fire damper limit switches and potential free contacts as required.							
3.2.9.1	For 30 TR - AHU	Nos	4.00					
3.2.9.2	For 12 TR - AHU	Nos	2.00					
3.2.9.3	For 14 TR - AHU	Nos	2.00					
3.2.10	**POWER CABLING :** Supply, Installation, Testing & Commissioning of Power Cabling between the AHU panel and AHU motor with Copper conductor PVC armoured FRLS including lugs, crimping and terminations identifying labels duly clamped. Ratings as below :							
3.2.10.1	4 Core x 25 Sq.MM	Rmt	30.00					
3.2.10.2	4 Core x 16 Sq.MM	Rmt	20.00					
3.2.10.3	4 Core x 10 Sq.MM	Rmt	0.00					

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3.2.10.4	4 Core x 6 Sq.MM	Rmt	40.00					
3.2.10.5	4 Core x 4 Sq.MM	Rmt	20.00					
3.2.10.6	4 Core x 2.5 Sq.MM	Rmt	0.00					
3.2.10.7	3 Core x 2.5 Sq.MM	Rmt	0.00					
3.2.10.8	3 Core x 1.5 Sq.MM	Rmt	0.00					
3.2.11	Supply and making end termination of cables including providing single compression type cable gland, sockets, crimping lugs, insulation tape including gland earthing with adequate copper clamps and adequate bare copper wire connection etc.	Lot	1.00					
3.2.12	Supply, Installation and Testing of earthing out of :							
3.2.12.1	25 MM X 3 MM Copper Flat	Rmt	200.00					
3.2.12.2	8 SWG Copper Wire	Rmt	200.00					
3.2.13	**FABRICATED STEEL WORK :** Supply, Fabrication , Cutting, Welding , Erection at site and painting of M. S. Angle structural steel work for outdoor unit.	Kg	750.00					

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3.3	**BILL OF QUANTITY-VRF SYSTEM (LOW-SIDE WORKS)**							
3.3.1	**GSS FACTORY FABRICATED RECTANGULAR DUCTING :** Supply, Installation, Testing & Commissioning of Factory Fabricated Rectangular Galvanised Steel Sheet Ducting made of Lock-forming quality GSS Class VIII ; complying with IS: 277 and having 120 GSM coating classification with 4-bolt TDC joint, GI full threaded rods and GI slotted channel support /hangers with bolts, nuts neoprene fire retardant gaskets and sealed with RTV / silicon sealant, elbows, turning vanes, slip on flanges, in accordance with the approved shop drawings and specifications , sizes and quantities as below :							
3.3.1.1	24 G - 0.60 mm	Sqm	650.00					
3.3.1.2	22 G - 0.80 mm	Sqm	260.00					
3.3.1.3	20 G - 1.00 mm	Sqm	195.00					
3.3.1.4	18 G - 1.20 mm	Sqm	195.00					

3.3.2	Supply, installation, testing and commissioning of factory fabricated **AHU SUPPLY PLENUM** 25-mm thick PUF 40kg/cum +/- 2 filled double skin Supply air plenum with extruded Al. profiles. The thickness of outer & inner skin GI sheet shall be 0.8 mm. The plenum shall be fabricated only after GFC drawing approval, as per site conditions and assembled at site.	sq.m	0.00					
3.3.3	**FLEXIBLE DUCT CONNECTOR**: Supply and installation of Flexible Duct Connection factory made with Fire Retardant both sides PVC coated Double Polyester Fabric ready to fit Flexible Duct Connectors.							
3.3.3.1	30.0 TR - 12000 cfm AHU - VRF	Nos	4.00					
3.3.3.2	12.0 TR - 4800 cfm AHU - VRF	Nos	2.00					
3.3.3.3	10.0 TR - 4000 cfm AHU - VRF	Nos	2.00					

3.3.4	**LINEAR FIXED BAR GRILLE :** Supply, Installation, Testing and Balancing of Linear fixed Bar Grille of Extruded aluminium construction, frame with frontal face flange of 16 mm and inner blades of 0,15,30,45 deg deflections 5 mm nominal thickness, blade pitch 12.5 mm, removable core type. The vertical tubed core should be fixed with black bush. The exact construction like one way deflection angle etc and colour coding can be decided at the appropriate time.	Sqm	30.00					
3.3.5	Supply & fixing of Extruded Aluminium powder coated Supply air Jet Nozzle with Damper							
3.3.5.1	with Dia-400mm.	Nos	12.00					
3.3.6	**SUPPLY AIR DIFFUSERS:** Supply & fixing of Extruded Aluminium powder coated **Supply air Standard Square diffuser** of size 595mmx595 mm with volume control dapmer,including necessary GI Screw, Bolt, nut & supports.							
3.3.6.1	375mmX375mm	Nos	16.00					
3.3.7	**RUTURN AIR DIFFUSERS:** Supply & fixing of Extruded Aluminium powder coated **Return air Standard Square diffuser** of size 595mmx595 mm with out volume control dapmer,including necessary GI Screw, Bolt, nut & supports.							

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3.3.7.1	375mmX375mm	Nos	16.00					
3.3.8	**FRESH/ EXHAUST AIR LOUVERS WITH BIRD SCREEN** : Supply, Installation, Testing and Balancing of Air Louvers manufactured out of frame and horizontal blade assembly with high quality powder coated extruded aluminium profiles with 30 mm flange width. The blade pitch to be 40 mm set at an angle of 45 deg. Blades to be fixed rigidly to the main frame by rivets and the structure to provide 45 % effective pressure area. Include bird screen.	Sqm	4.00					
3.3.9	**COLLAR DAMPER :** Supply, Installation,Testing and Balancing of Opposed Blade GI Black painted Collar Dampers,with pressed form blades & frames,22G frame & 26G blade	Sqm	15.00					

3.3.10	**LOW LEAKAGE VOLUME CONTROL / DUCT DAMPERS:** Supply, installation, testing and balancing of Factory fabricated Aerofoil-blade Aluminium dampers with compressible jamb seals and extruded-vinyl blade edge seals, in opposed-blade arrangement with steel operating rods rotating in nylon bearings mounted in a single extruded aluminium frame, and with hard PVC/Nylon gear arrangement for common linkage between blades. Frames and blades to be constructed from high quality extruded aluminium sections. Frame with flat frontal face to suit flanged connections with the ducts. Frames to be screw fixed and sealed to eliminate casing leaks. Blades to be pivoted on PVC bushes and operated through PVC gear system to be fully enclosed within the damper frame.	Sqm	15.00					

3.3.11	**FIRE AND SMOKE DAMPERS :** Supply, Installation,Testing and Commissioning of fire and smoke damper tested and approved for 120 minutes rated as per UL-555 S- 1995 and CBRI. Construction out of factory - made, 1.6 mm thick 800 mm long ,1 50 mm wide GSS sleeves and inner V grooved flat type multi blade assembly. Frames to be welded and inner blades to be connected to the frame by means of chrome plated spindle rods and bronze self lubricated bushes. All blades to be connected by a suitable flat link arrangement. The dampers are also to be provided with SS concealed jam seal (compression type) on the sides. The damper operation is by spring return actuator. It shall be complete with control panel, sensor and inter-locking/ wiring / connection for tripping of the AHU fan motor	Sqm	24.00					

3.3.12	**FIRE DAMPER ACTUATOR :** Supply, Installation, Testing and Commissioning of UL Listed Smoke rated Fire damper spring return type on/off actuator, 2-position operation, 24VAC/230VAC power supply, necessary control cabling (15m) to the nearest Fire Alarm module with mounting accessories. The minimum torque rating for the actuator shall be 10 NM.	Nos	12.00					
3.3.13	**ACTUATORS CABLING:**							
3.3.13.1	Supply, laying & termination of 3C x 2.5Sq.mm Power wiring between Actuator to AHU Starter panel with necessary supports & clamps.	Rmt	60.00					
3.3.13.2	Supply, laying & termination of 3C x 1.5Sqmm power cabling between 230V single phase power socket to Actuator with necessary supports & clamps.	Rmt	60.00					
3.3.13.3	Supply & fixing of 16G M.S.Conduit for cable laid between actuator to AHU panel	Rmt	60.00					

3.3.14	**BACK DRAUGHT DAMPERS** : Supply, Installation, Testing and Balancing of back draught dampers with GSS frames and blades. Frames to be in channel frame for sleeve. Blades to be connected by means of rods and bushes with the frame. All blades to be connected by a proper link arrangements to avoid noise.	Sqm	4.00					
3.3.15	**ACOUSTIC INSULATION OF DUCTS :**Supply and Application of Acoustic insulation for the initial portion of supply air ducting. Material of construction shall be elastomeric nitrile rubber material with open cell structure, without any fibre material . The density of the same shall be within 30 Kg/m3.The material should have a thermal conductivity not exceeding 0.041W/mK. The Thickness of the material shall be **15 mm**.	Sqm	300.00					
3.3.16	**ACOUSTIC INSULATION OF AHU ROOM :** Supply and Application of Acoustic insulation for AHU room using RECRONFIBRE FILL Polyester fiber insulation mat of 50 mm thick and covered with one layer of RP tissue & 24 g Aluminium perforated panels as per the application methodology. given in specs.	Sqm	50.00					

3.3.17	**THERMAL INSULATION OF HVAC DUCTS - 13 mm Thick :** Supply and Application of thermal insulation on GSS ducts complete with Closed Cell closed polyolefin foam with minimum density of 30 Kg/m3 with thermal conductivity-K value not exceeding 0.036 W/m Deg K at 0 Deg C, confirming to Class 'O' fire safety as per BS 476 Parts 6 & 7 , inner side stuck to the outer facia of the GSS ducts with manufacturer recommended Synthetic adhesive bonding.	Sqm	1100.00					
3.3.18	**UNDER DECK INSULATION :** Supply and Application of insulation for underdeck portion of the exposed roof. Material of construction shall be using 19mm thick Radiant Barrier - Reflective Insulation.	Sqm	0.00					

3.3.19	**Sound Attenuators:** Sound Attenuators of Dissipative type to be provided on the supply air duct entering the AHU Room. Sound Attenuators shall consist of outer casing with 22G GI Sheets , sound absorbing material and internal baffles, splitters and supports as explained in the technical specifications. Sound absorbing material shall be high density fibre glass held in place with at least 5% compression to prevent voids due to settling. Absorption material density shall be minimum 48 kg/cum. Fibreglass faced with minimum 26 g perforated galvanised sheet metal of minimum 40% open area. Combustion ratings shall be as explained in the tender specifications							
3.3.19.1	Supply Air Attenuators (area calculation : ((W+H)x2)xL)	sq.m	12.00					
3.3.19.2	Return Air Attenuators (area calculation : ((W+H)x2)xL)	sq.m	0.00					
3.3.20	**OTHER EXPENSES RELATED TO EXECUTE THE HVAC WORKS :** Like Scoff holding, civil works etc	Lot	1.00					
3.4	**Comprehensive maintenance contract**							

	Comprehensive maintenance contract for all above mentioned VRV /VRF air-conditioning plant comprising of outdoor unit, indoor unit, AHU, CSU and other associated auxiliaries including repair/replacement of refrigerant line refrigerant y joints, and refinishing of refrigerant as and when required to upkeep the plant in good working condition after post warrantee for the period of 1 year.							
	Scope of work:							
	The scope of works shall be involving for attending any no. of breakdowns and 4 Nos. of preventive maintenance services at every quarter per year for all the equipment's connected with the plant. The complaints shall be attended within 24 hours.							
3.4.1	First Year	Lot	1					
3.4.2	Second Year	Lot	1					
3.4.3	Third Year	Lot	1					

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3.5	**Buyback of Existing AHUs and Ducting**							
3.5.1	60TR AHU (Bangalore Vijay Weather Makers) having 12.5HP, 9.3 Kw & 1455 rpm induction motor, ABB make	Nos	2.00					
3.5.2	Existing Ducting of various gauges (approx)	Sqm	800.00					
	Sub Total - HVAC							
	GST							
	Total							

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PART-4
(ELECTRICAL & FIRE ALARMS WORKS)

PART-4 (ELECTRICAL & FIRE ALARMS WORKS)								
Sr No	Description	Qty	Unit	Rate Supply (Rs)	Supply Amount (Rs)	Rate Installation	Installation Amount (Rs)	Total Amount (Supply + Installation) Rs
4	Lighting wiring and light fixtures and exhaust fans for main auditorium and stage							
4.1.1	Light point wring with 3R 1.5 Sqmm multi strand copper FRLSH wire drawn in FRLS PVC conduits 1.8mm thick to be clamped in the cable tray/ on the wall/ steel structures etc to interconnect 9 light points or 2 nos exhaust fans or 2 nos flood lights in one circuit to be controlled by 1 no 10A SP MCB in the LDB for lighting circuits and PDB for exhaust fan circuits The light points are to be looped as per the drawing (16 Circuits)	1200	Mt					
4.1.2	Same item no 1.1, but for feeding LED strip (4 circuits)	100	Mt					
4.1.3	Supply and fixing of down lighters 15W LED on the false ceiling about 12 Mt high from the floor (Main Auditorium and stage) Panasonic PDLM09153 or equivalent	54	No					
4.1.4	Supply and fixing of down lighters 25W LED on the false ceiling about 12 Mt high from the floor (Main Auditorium	90	No					

	and stage)Panasonic PDLM 9253 or equivalent							
4.1.5	Supply and fixing of LED strip light in the ceiling cove 5 Watts per metre	550	Mt					
4.1.6	Driver for connecting the LED strip light	110	No					
4.1.7	Supply and fixing of 450mm dia heavy duty exhaust fans above the false ceiling in the auditorium after dismantling the existing ones and handing over to the client	12	No					
4.1.8	Supply and installation of 90W flood lights above the false ceiling area of the auditorium for maintenance purpose	4	No					
4.1.9	Retrofitting of the existing 2 x36 W concealed tube light fixture with 2 x 18 W LED tubes including internal rewiring as required	40	No					
4.1.10.	Supply and replacement of 2 x 11W CFL resist mounted fixtures in corridors with 24W LED 280 x 280mm 1800 lumens glay free resist mounted light fittings (Wipro - D812465 or equivalent brand) (Old fitting to be handed over to the client)	40	No					
4.2	Power sockets in the stage, press rooms etc							
4.2.1	Supply and installation of 16A modular type switched sockets after removing the existing ones and termination with existing wiring. The GI boxes shall be new9 One socket in one circuit)	15	No					

4.3	MCB Distribution boards in stage							
4.3.1	LDB-LEFT,RIGHT-FF and LDB-LEFT,RIGHT-SF Supply and installation of 4-way TPN phase segregated 7-segment MCB DB with double door conforming to IP-42 and fitted with following. The DB shall be complete with 100A copper bus bars, neutral and earth links and completely wired. The DB shall be manufacturers factory built. The existing wiring for DB incomer to be used and re-terminated 1 no 32A 4P MCB, 10 ka C curve as incomer 3 nos 32A DP RCBO, 30 ma, 10 Ka for phase control 12 nos 6/10A SP MCB, 10 k, C curve (4 nos per phase) as outgoing feeders. The existing 4P MCB with box and SPN MCB DBs shall be removed	4	No					
4.3.2	PDB-LEFT, RIGHT-FF, PDB-LEFT,RIGHT-SF							

	Supply and installation of 4-way TPN phase segregated 7-segment MCB DB with double door conforming to IP-42 and fitted with following. The DB shall be complete with 100A copper bus bars, neutral and earth links and completely wired. The DB shall be manufacturers factory built. The existing wiring to the incomer to be reused with re-termination 1 no 63A 4P MCB, 10 ka C curve as incomer 3 nos 63A DP RCBO, 100 ma, 10 Ka for phase control 11 nos 16/20A SP MCB, 10 Ka as outgoing feeders. The existing 4P MCB with box and SPN MCB DBs shall be removed	4	No					
4.4	Electrical switch boards							
4.4.1	AC panel-1&2- auditoium (In the AHU room on left and right side 0f stage in second floor) SITC of floor mounting free standing cubicle type switch board fabricated out of 16 SWG CRCA for main body and 14 SWG for gland plates and powder coated to Siemens grey shade after undergoing 7-tank treatment. Bus bar chamber consisting of TP and N bus bars rated 400 A made of electrolytic quality aluminium supported on SMC supports. The fault level shall be 36 Ka for one second. The current density to be	2	No					

	taken as 0.8A/mm2 1 no 250A TPN AL bus, 36 ka MCCB with built in thermal overload and magnetic short circuit releases and front operating handle with door interlock LED type RYB indication lamps with MCB protection 1 no microprocessor based multi function meter 3 nos resin cast copper wound CTs of ratio 250/5A class-1, 10 Va 4 nos 63A and 7 nos 32A TP, 36 Ka as outgoing feeders. All MCCBs shall have thermal over load and magnetic short circuit releases and front operating handle with door interlock Earth bus shall be 25x6mm alumnium							
4.5	Supply and laying of 1.1 KV grade aluminium/copper armoured power cables to be laid in cable shafts, cable trays, clamped on wall with GI clamps etc							
4.5.1	3.5x150 Sqmm aluminium Armored XLPE from basement AC panel to AC panel-1 and 2- auditorium	100	Mt					
4.5.2	4x16 Sqmm copper along with 2R 10 SWG copper wire from AC panel-1 and 2 to AHU-1, ODU-1,2,3,6,7,8,9.	100	Mt					
4.5.3	4x10 Sqmm copper Armored XLPE along with 2R 10 SWG copper wire from A/C panel-1&2 to to AHU-1,2,3,4	100	Mt					

4.5.4	4x4 Sqmm copper Armored XLPE along with 2R 10 SWG copper wire from A/C panel- 1&2 to and CSU-1,2,3,4	100	Mt					
4.6	Termination of power cables using single compression brass glands and aluminium/ copper crimping sockets including earthing of cable glands with 14 SWG copper wire and connecting same to the earth grid							
4.6.1	4x16 Sqmm copper	24	No					
4.6.2	4x10 Sqmm CU	16	No					
4.6.3	3.5x150 Sqmm aluminium	4	No					
4.6.4	4x4 Sqmm copper	16	No					
4.6.5	4x6 Sqmm copper	8	No					
4.7	Earthing							
4.7.1	DESTIC of 100mm dia cast iron pipe 3 Mts long including accessories as per the standard earth drawing, filling the same with alternate layers of charcoal, salt and river sand and making brick work masonry chamber 600x600x150mm, cement plastering both inside and outside. The chamber will have a cast iom cover of 10mm thick with cast iron frame	2	No					
4.7.2	Supply and installation of 25x3mm copper strip for earthing of AC panel- auditorium	100	Mt					

4.7.3	Supply and fixing of IP-44, 32A 5-pin polycarbonate socket with interlocked switch and surface mounting box (Legrand 056614 and 052944 or equivalent) to be located in both sides of stage for tapping temporary supply during various functions	2	No					
4.8	Overhead cable tray Supply and installation of overhead hot dip galvanized perforated cable tray including fixing hardware (To be laid along the length of the auditorium and across the stage at about 12 Mt height . The same to be suitable supported from existing truss members using suitable clamps)							
8.1	450mm wide 50mm high	100	Mt					
8.2	150mm wide 50mm wide	200	Mt					
4.9	Supply and installation of 1 KVA inverter with 1 Hour battery back-up as per technical specifications (To be placed in the stage near the LDB)	1	No					
4.10.	Supply and installation of IP-67 polycarbonate boxes fixed with following MCBs to be fixed on wall for controlling ODU s							
4.10.1	63A 4P, 10 Ka MCB	6	No					
4.10.2	32A 4P MCB, 10 Ka	8	No					
4.11	Supply and fixing of 3-pin metal clad socket for controlling ceiling mounted IDUs in the dining hall	12	No					

4.12	Fire alarm system							
4.12.1	Supply and fixing of analogue addressable beam detector consisting of transmitter and receiver- 50 Mt range (to be fixed below the false ceiling in the main auditorium)	2	No					
4.12.2	Supply and fixing of 4-zone conventional fire alarm panel with hooter (To be located at the main entrance of auditorium in the ground floor)	1	No					
4.12.3	Supply and fixing of photoelectric smoke detector above the false ceiling in the auditorium (Space between the auditorium roof and false ceiling)	88	No					
4.12.4	Supply and fixing of response indicator (On the false ceiling of the auditorium)	88	No					
4.12.5	Supply and fixing of 2 x1.5 Sqmm copper FRLS cable to interconnect beam detectors and fire alarm panel (to be rum through cable tray in the auditorium with proper clamping)	500	Mt					
	Sub Total - ELECTRICALS							
	GST							
	Total							

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PART-5
(SITC of 55kWp Roof Top Solar PV System)

PART-5 (SITC of 55kWp Roof Top Solar PV System)								
Sr No	Description	Qty	Unit	Supply		Installation		Total
				Rate	Amount	Rate	Amount	Amount
				(Rs)	(Rs)	(Rs)	(Rs)	(Rs)
5.1	Design, engineering, supply, installation, testing and commissioning (DESITC) of 55 kWp Solar Photovoltaic System (330Wp x 168 nos) as per technical specifications, to be installed on the slanted roof top by using with suitable GI channels and runners screwed to the existing truss purlins. The same shall confirm to layout drawings	1	Job					
5.2	DESITC of 2nos of 25 KVA (minimum) solar inverter as per technical specifications, with output of 3phase, 415V AC 50 HZ	1	Job					
5.3	DESITC of Weather proof IP-65 array junction box as per technical specifications (min 4 nos), fully loaded with SPD, fuses, terminals etc	1	Job					

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PART-5 (SITC of 55kWp Roof Top Solar PV System)								
Sr No	Description	Qty	Unit	Supply		Installation		Total
				Rate (Rs)	Amount (Rs)	Rate (Rs)	Amount (Rs)	Amount (Rs)
5.4	DESITC of ACDB with all accessories control wiring and suitable rating MCCB (min 125A) etc to evacuate power, with 2 nos energy meters etc., with all necessary accessories. It shall be wall mounting as per technical specifications and safety mat shall be provided for operating personnel etc 125A TPN copper bus bars with short circuit of capacity of 36 KA for 1 second, PVC sleeved and colour coded and supported on SMC supports 2 nos Incomer feeders each fitted with 63A TP MCCB, 36 KA with built in thermal overload and magnetic short circuit releases and front operating handle with door interlock 1 no outgoing feeder fitted with 125A TP MCCB, 36 KA with built in thermal over load and magnetic short circuit releases and front operating handle with door interlock	1	No					

CONTRACTOR SIGNATURE AND SEAL

PART-5 (SITC of 55kWp Roof Top Solar PV System)								
Sr No	Description	Qty	Unit	Supply		Installation		Total
				Rate (Rs)	Amount (Rs)	Rate (Rs)	Amount (Rs)	Amount (Rs)
	3 nos LED type RYB indication lamps controlled by HRC fuses							
	3 nos copper wound resin cast CTs of ratio 125/5A class-1 15 VA							
	1 no electronic type KWH meter							
	1 no electronic type check KWH meter							
	1 set SPD of type 1+2 with suitable HRC fuse protection							
	The panel shall confirm to technical specifications given in the tender and the SLD							
5.5	**Earthing of solar panel structures / Inverters and / ACDB/ARJ/ Lightning arrestors**							

PART-5 (SITC of 55kWp Roof Top Solar PV System)								
Sr No	Description	Qty	Unit	Supply		Installation		Total
				Rate	Amount	Rate	Amount	Amount
				(Rs)	(Rs)	(Rs)	(Rs)	(Rs)
5.5.1	DESITC of 100 MM Dia cast iron pipe 3mts long including all the accessories as per standard earth drawing, filling the same with alternate layers of charcoal, salt & river sand and making of brick masonry chamber 600 x 600 x150 MM with cement plastering both inside and outside. The chamber shall have the cast iron cover of 10 mm thick with cast iron frame.	8	Nos					
5.5.2	DESITC of 25 x 3 MM GI Strip to be clamped on wall, cable tray to interconnect the solar panel frames and ARJ to the earth stations (The GI strip shall be painted with green paint as per electrical inspectorate norms)	100	Mts					
5.5.3	DESITC of 10 Sqmm multi-stranded Cu wire, FRLS insulated green coloured wire to be drawn in 20 MM Dia PVC conduit, 1.8MM thick to be clamped on wall, cable tray, buried in ground to interconnect the earth electrode with inverter neutral point (Inverter earthing)	100	Mt					

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PART-5 (SITC of 55kWp Roof Top Solar PV System)								
Sr No	Description	Qty	Unit	Supply		Installation		Total
				Rate	Amount	Rate	Amount	Amount
				(Rs)	(Rs)	(Rs)	(Rs)	(Rs)
5.5.4	DESTIC of 25x6mm GI tape from earth electrodes to AC DB (2 Runs) and 2 runs from earth station to earth electrodes (Module earthing)	100	Mt					
5.5.5	DESTIC of earth station to be fabricated out of 25x6mm GI strip 300mm long to be fixed on roof top	2	No					
5.6	DESITC of AC & DC cabling between panels and inverter with heat resistant insulated copper wires drawn in UPVC Conduit to be neatly clamped in GI perforated trays fixed to the roof for interconnection between solar modules, ARJ and inverter	1	Lot					
5.7	DESTIC of 25x3mm copper tape for interconnecting the lighting arrestors to the earth electrodes to be mounted on wall/ building structure etc with insulated base	100	Mt					

PART-5 (SITC of 55kWp Roof Top Solar PV System)								
Sr No	Description	Qty	Unit	Supply		Installation		Total
				Rate	Amount	Rate	Amount	Amount
				(Rs)	(Rs)	(Rs)	(Rs)	(Rs)
5.8	DESTIC of 3.5x120 SQMM aluminium armoured XLPE cable from AC DB to 400A TP MCCB fixed in the Main LT panel of the premises to be routed through cable tray, vertical shaft etc as required including terminations at both ends with single compression gland and aluminium sockets. The gland earthing with 14 SWG copper wire and connecting same to earth grid is included in the scope (Setting of 400A MCCB to be changed to suit the current in flow from ACDB)	70	Mt					
5.9	DESTIC of 4C 16 Sqmm copper PVC insulated unarmoured cable from inverters to ACDB including terminations at both ends	20	Mt					
5.1	SITC of PC for monitoring of solar generation including all accessories viz CAT cable, router, modem, Ethernet switch etc as per technical specification	1	Set					

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PART-5 (SITC of 55kWp Roof Top Solar PV System)								
Sr No	Description	Qty	Unit	Supply		Installation		Total
				Rate	Amount	Rate	Amount	Amount
				(Rs)	(Rs)	(Rs)	(Rs)	(Rs)
5.11	SITC of CAT 6, 4 core cable drawn in 20MM DIA FRPVC conduit 1.8 MM thick to be clamped on wall from inverters to Ethernet switch, modem and PC (AHU room on right wing at third floor level)	15	Mt					
5.12	DESI of 600mm wide 3Mt high 45 degree inclined step ladder fabricated out of GI sheets and channels to connect third floor terrace of the building to the slanted roof of the auditorium with proper supports at both ends. All the joints shall be bolted type only (1 no on northern and 1 no on southern side of the roof)	100	kg					
5.13	DESI of of " L" angles, pre galvanished of 60mm x 60mm x 6mm thick and projection length 1.05m of walk way as per drawing (Primary Steel) using TATA steel with necessary Anchor fastners / Welding , Frieght charges etc Complete.	250	kg					

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PART-5 (SITC of 55kWp Roof Top Solar PV System)								
Sr No	Description	Qty	Unit	Supply		Installation		Total
				Rate	Amount	Rate	Amount	Amount
				(Rs)	(Rs)	(Rs)	(Rs)	(Rs)
5.14	DESI of 16mm dia 30 Mt long Life Line Rope made of polypropylene and polyethylene blend twisted rope anchored at both ends on the roof top (east west direction) and with tension clamp and shock absorber fixed on one side and to support 500lbs (226.79 Kg)	1	Set					
5.15	DESI of MS sheet (puff plate press) 2mm thick over "L" angle cross section of walk way with necessary welding / Fastners as per Architectural drawing including Freight charges etc Complete.	950	SQFT					
5.16	DESI of Squqre bar of Vertical at every 6' -0' Centre to centre and Horizontal 25mm x 25mm bar 2 rows and top 32mm Circular bar fixng on top of Hand Rail including the necessary Freight Charges etc Complete.	2000	kg					
5.17	Providing painting of 2 coats of Nippon Paint and over one coat of Primer of L angle Section and MS steel plate and Hand Rail	Job	LS					

PART-5 (SITC of 55kWp Roof Top Solar PV System)								
Sr No	Description	Qty	Unit	Supply		Installation		Total
				Rate	Amount	Rate	Amount	Amount
				(Rs)	(Rs)	(Rs)	(Rs)	(Rs)
5.18	Supply & Installation of safety items like fire extinguishers, fire buckets and danger boards / signage / Identification stickers on modules / inverters / Array junction box etc., / first aid kit etc., and safety mat at the location of inverters / ACDB panel etc., Shock treatment chart both in Hindi & English, as required and which found necessary as per electrical inspectorate norms	1	Lot					
5.19	DESTIC of copper spike lightning terminal mounted on 3 Mt high GI pipe with anchoring to be mounted on the roof top with proper clamping arrangement (over the auditorium slanted roof) at the location of existing lightning arrestors. The existing lightning arrestors to be removed and handed over to the client	2	No					

PART-5 (SITC of 55kWp Roof Top Solar PV System)								
Sr No	Description	Qty	Unit	Supply		Installation		Total
				Rate	Amount	Rate	Amount	Amount
				(Rs)	(Rs)	(Rs)	(Rs)	(Rs)
5.2	Liasoning with Govt agencies (for project approval) and Preparation of as-built drawings, SLD etc., Laisoning with CEA / Government agencies (TEDA / MNRE) after, arranging inspection and getting approval and arrange for , subsidy etc. after completion of work	1	Job					
5.21	Liaison with TANGEDCO for installing Net-Metering (bidirectional meter) at point of supply. (Bi-directional Trivector meter will be supplied by TANGEDCO)	1	Job					
5.22	Operation & Maintenance (O&M) of Solar PV System							
	(To be considered for Tender evaluation purpose)							
5.22.1	O&M for the 1st year after DLP	1	Year					
5.22.2	O&M for the 2nd year after DLP	1	Year					
5.22.3	O&M for the 3rd year after DLP	1	Year					

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PART-5 (SITC of 55kWp Roof Top Solar PV System)								
Sr No	Description	Qty	Unit	Supply		Installation		Total
				Rate	Amount	Rate	Amount	Amount
				(Rs)	(Rs)	(Rs)	(Rs)	(Rs)
5.22.4	O&M for the 4th year after DLP	1	Year					
5.22.5	O&M for the 5th year after DLP	1	Year					
	Sub Total - SOLAR POWER GENARATION (Part-5)							
	GST							
	Total							

CONTRACTOR SIGNATURE AND SEAL

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Name of Work: Tender document for Repair and Renovation of Auditorium in IMAGE at M.R.C Nagar, Raja Annamalaipuram, Chennai - 600 028.

RENOVATION PROJECT SUMMARY SHEET

PART	Particulars		AMOUNT (Rs) – Excluding GST		GST (Rs)		Total Amount (Inclusive of GST)
1	REPAIR AND RENOVATION WORKS FOR CIVIL, PLUMBING AND ROOFING	A		B		C	
2	REPAIR AND RENOVATION WORKS FOR INTERIOR AND ACOUSTICS WORKS	D		E		F	
3	HVAC WORKS	G		H		I	
4	ELECTRICAL & FIRE ALARMS WORKS	J		K		L	
5	SITC OF 55kWp SOLAR PV SYSTEM AND WALKWAY FABRICATIONS WORKS	M		N		O	
6	Rebate for taking out the existing false ceilings, channels, wooden items, light fittings, cabling, DBs with accessories, exhaust fans, old ducting, AHUs & related accessories.	P		Q		R	
	GRAND TOTAL ((1 + 2+ 3 +4 +5) - 6) Rs	A +D +G +J +M (-) N		B +E +H +K +N (-)Q		C +F +I +L +O (-)R	

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