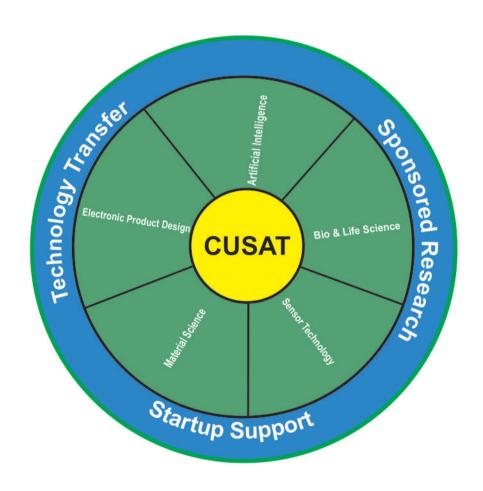




Proposal on

TRANSLATIONAL RESEARCH AND INCUBATION CENTRE



Submitted by

Cochin University of Science and Technology

Proposal for setting up a

TRANSLATIONAL RESEARCH & INCUBATION CENTRE

in CUSAT

Submitted by



Cochin University of Science and Technology CUSAT, Cochin 22

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1. Building plan & Estimate

1. Background

India has a wide network of government funded research institutions and universities who produce world class research in many frontier areas of importance to mankind. But in most of the cases, many potential benefits of these breakthroughs are likely to end on the page without a company willing to invest in bringing the invention to marketplace. There seems to be an ever increasing need for establishing avenues of engagement with industry, transfer knowledge and create value.

The Higher Education sector is undergoing drastic changes over the last one decade. Innovation has become the new buzzword in the field of higher education. Innovation thrives when faculty, students and industry professionals interact through various modes of engagement. Both industry and academia stand to benefit from such long-term cooperation. Companies will gain greater access to cutting-edge research and scientific talent. Universities will gain new directions and partners in research. It also provides valuable experience for students in working in real situations. Most importantly, society will benefit from a stream of advances — in life sciences, biomedical engineering, communications, environmental sciences, artificial intelligence, and more — that will vastly improve everyone's life. The fruits of research in the university will reach the society resulting in new jobs and new solutions to society's problems.

Translational research is aimed at converting results in basic research into results that directly benefit society. Scientific discoveries are moved from the laboratory into real-world practice, leading to improved human life. In the last decade, there has been an explosion in the number of engagement among companies and universities across the globe. How University of Oxford's world-class expertise in vaccinology and AstraZeneca's global development, manufacturing and distribution capabilities came together to develop a new coronavirus vaccine has become a popular case study of industry academia collaboration in the recent past. Similarly, Pfizer and University of California San Diego have created teams of university and industry scientists that combine the best academic thinking with the drug development expertise of industry to accelerate the development of new drugs for patients. A collaboration agreement between GlaxoSmithKline

(GSK) and the University of Cambridge puts academic scientists into the laboratories on the GSK campus. India's first university-based research park, IIT Madras Research Park epitomises what can be achieved by a confluence of bringing industry and academia together. Spread across 11.42 acres, the park provides over 1.2 million square feet of workspace. The Applied Science Park for Innovation Research and Entrepreneurship (ASPIRE) of IIT Mumbai and the Research & Innovation Park of IIT Delhi are other examples where premier academic institutions, Industry and Government collaborate with an intent of developing new technology and advancing Knowledge.

Cochin University of Science and Technology (CUSAT), the only Science and Technology University in the state of Kerala, can lead the effort of the Government of Kerala to accelerate translational research in the state. CUSAT has become a top ranked research university in India providing pioneering research in nine Faculties viz. Engineering, Environmental Studies, Humanities, Law, Marine Sciences, Medical Sciences and Technology, Science, Social Sciences and Technology. With 31 teaching departments and 26 centres of excellence in cutting edge technology domains, CUSAT pioneered the interdisciplinary academic and research programs in the state of Kerala through its flagship programs in the domain of Marine Sciences, Engineering Sciences, and Environmental Sciences. The core basic science and technology programs stood as a main pillar of support to these initiatives to achieve critical goals in these programs. CUSAT has research collaboration with many well-established premier research institutions in the country as well as Universities abroad. Over the course of 50 years, CUSAT has accumulated numerous research facilities and has won several funded projects. Departments have built a strong history of implementing funded projects and grants from agencies such as DST, DRDO, DBT, ICMR, MoES, KSCSTE etc. Research Infrastructure was created though infrastructure grants like DST - FIST, DST - PURSE, UGC-SAP, UGC-CAS etc. Recently, Govt. of Kerala has supported CUSAT though KIIFB by way of providing built – up space and modern equipment. It has 8000 students in the campus including 1200 PhD scholars and 2000 PG students. CUSAT has a well developed campus right on the side of the National Highway in Kochi, the commercial capital of Kerala. CUSAT has two vibrant Technology Business Incubators in the campus hosting 50+ startups in various domains such as Electronics, IT, Ship Technology and Marine science. A FABLAB sponsored by Kerala Startup Mission is also available in the TBI. To foster innovation, CUSAT has set up CUSATECH FOUNDATION, a company under section 8 (1) of the Companies Act, 2013. Winner of the prestigious Chancellor's Award for the best University in the State thrice, CUSAT is a world-ranking university consistently figuring in the Times Higher Education World Ranking and in QS World University Ranking. Computer science research at CUSAT which is a combination of several departments in computing, has been recognized in worldwide rankings. School of Engineering, CUSAT has obtained TEQUIP Phase 3 and most of its divisions have NBA accreditation.

This proposal outlines the details of CUSAT TRANSLATIONAL RESEARCH CENTRE which will serve as a base for technology businesses to set up and grow leveraging on the strengths of CUSAT and other academic institutions and research centres in the state.

2. CUSAT Translational Research Centre Details

The CUSAT Translational Research Centre will contribute to the promotion of state of the art research and development by offering a range of collaborative partnership models with industry fostering the growth of new ventures, and promoting economic development. The Centre will offer a collaborative environment between industry and academia through joint research projects, consulting, student internships etc. The proposed Research Centre is a win-win for all - to CUSAT community, to industry, to entrepreneurs, to other universities and research centres of Kerala and to the general public. The Centre will have avenues for our students and faculty to interact more closely with industry and bring to market technological breakthroughs through incubation. The Centre will also have supporting infrastructure such as utility services, restaurants, seminar halls and recreation facilities.

The Centre is proposed to be set up in phases. The phase 1 envisages setting up translational research facilities in five domains namely Bio and Life Sciences, Material Sciences, Sensor Technology, Electronic Product Design and AI & ML. The proposed 30000 sq ft building will also have common amenities including general measurement lab, Fablab, Wetlab, computing lab, Startup space, discussion rooms, conference rooms and cafeteria.

Under The phase II, another 40000 sq ft will be added to provide translational facilities in new domains like Agritech, Fintech, Transportation & Mobility, Medical Technology, Climatic Studies and will provide additional facilities for domains in Phase I. Phase II also proposes providing R & D space for companies planning to set up a unit inside the campus for joint research with CUSAT. The companies get facilities to work closely with the research departments of CUSAT on areas of interest to the firms. The advantages to the companies would be (a) Exclusive research space in a vibrant ecosystem (b) Access to state of the art facilities in the CUSAT campus (c) Access to high quality human resources including faculty and students (d) Access to the research output by the doctoral scholars and initiate technology transfer and commercialization process.

2.1 Objectives

The Translational Research Centre strives to advance the basic philosophy and goals of CUSAT to be a source of enlightenment to all the stakeholders.

VISION

To be a nodal centre for translating the fruits of academic research into products and services for the benefit of the society.

The objectives

- 1. To engage with Industry on through sponsored R & D for the development of new products and services.
- 2. To facilitate the protection and transfer of university created discoveries into new products and services.
- 3. To actively facilitate formation of university-connected start-up companies through an array of support resources and services.
- 4. To be the nodal centre for translating the research efforts of other universities and public institutions in Kerala.
- 5. To provide a base for technology businesses to set up their R & D centres and grow leveraging on the expertise of CUSAT and other academia across the globe.(phase 2)

2.2 Operating Models supported

The Centre will provide a range of options to the industry to work in collaboration with CUSAT. Some of them are listed below

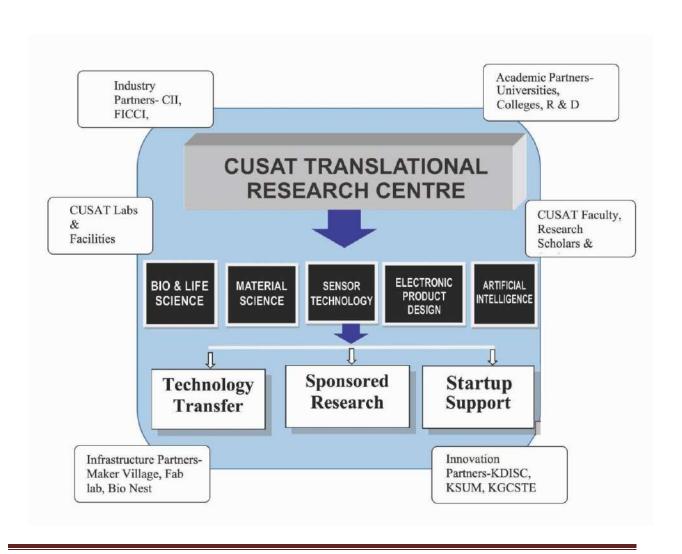
- 1. <u>Technology transfer:</u> A new or existing company takes up the technology developed by CUSAT for commercialization.
- 2. <u>Sponsored research:</u> A company wants to improve upon an existing technology or a new idea (product / process). It wants to work closely with the university through a customized sponsored research.
- 3. New start up assistance: A new start up is looking for assistance in setting up the firm. They need assistance including technical guidance, prototype development and business advisory support.

4. <u>Built up R & D space:</u> A new or existing company is looking for a built up rental space to set by its unit collaborating with CUSAT to utilize its state of the facilities and qualified manpower (Phase 2)

2.3 The Proposed Structure of the CUSAT translational research Centre

CUSAT translational research Centre is conceptualized as a separate and independent campus managed by a governing council headed by the Vice Chancellor of CUSAT. The governing council will consistent of eminent academicians, industrialists and representatives from facilitating government agencies. There will be Faculty in charge under whom a professional CEO and his team will be running the Centre.

The three major constituents of CUSAT translational research Centre would be (a) TECHNOLOGY TRANSFER (b) RESEARCH SUPPORT and (c) STARTUP SUPPORT



The **Technology Transfer Support unit** of the Centre will have the mandate of taking the technologies developed inside the university to the industry. It is the major interface between research facilities of CUSAT and industries outside. It will coordinate the translational efforts of the university through technology transfer, startups facilitation and sponsored research. This centre will work closely with the researchers of the university in order to understand the novel aspects and potential applications of their research. This will help to understand the uses and applications of the invention, likely markets, and companies active in the field that might be interested in licensing. If the invention is seen to be of core discovery with future implications or has tremendous use and commercial interest, centre will support patenting. Technology Transfer Support Centre will have the mandate to approach firms who may the potential candidates for technology transfer. It has the final responsibility of choosing the right partners and also of negotiating a technology transfer / license agreement. The centre is responsible for the future of the licensing relationship including monitoring the licensee's performance, receiving reports and royalty payments. Centre with the concerned research department may negotiate the entire lifecycle of sponsored research from proposal submission through award closeout.

The Startup Support Centre (TBI) will take the role accelerating the successful development of entrepreneurial companies through an array of support resources and services. University is an ideal space for new young startups to set up shops and grow. Technology Business Incubators will be functional in domains of expertise of CUSAT. When normal TBIs focus more providing physical space and business support to startups, CUSAT TBI hub will focus more on research and mentoring support in addition to office space. The focus will be on startups setup in the areas of our expertise like Marine science, Electronics, Polymer science, Bio technology, Ship Technology etc where traditional Incubators are at a disadvantage. They can make the best use of the faculty and research facilities in the campus. It will permit the startups to use CUSAT facilities for clinical and field trials and technology proving prototype development.

The Sponsored Research Support Centre will strive to provide R & D support for companies with a research focus. The companies can have their R&D requirement met through the centre. It permits the companies leverage on the expertise available in the campus. Companies working in the identified domains will work closely with the translational research centres on areas of interest to the firms. Through the research support centre, the companies can use facilities in the

departments on a need basis. The advantages to the companies would be (a) Technology Customization (b) Joint Product Development (c) Access to state of the art facilities in the CUSAT campus (d) Access to high quality human resources including faculty and students. The companies in the Centre an leverage the specialized expertise of the faculty; utilize their research facilities, while providing part time employment and experience to the students.

3. Focus Areas of CUSAT Translational Research Centre in Phase I

3.1 CENTRE FOR TRANSLATIONAL RESEARCH IN LIFE SCIENCES AND BIOTECHNOLOGY

The translational research in the domain 'Life Sciences and Biotechnology' at the Cochin University of Science and Technology will act as platform to transfer the novel products and processes developed by the Life Science Departments of the University to Industry and Society.

3.1.1. Aim of the Centre

- 1. To build and provide an infrastructure to the end users to translate the novel products and processes in life science and biotechnology to address specific problems pertaining to humans and the environment.
- 2. To transfer the innovative products and processes developed in the domain of life sciences and biotechnology to Industry and Society

3.2.1 Expected outcomes

In the first phase, it is envisaged to develop the infrastructure for scaling - up the production of 'translation - ready - products and processes' developed by the Departments in the domain of life sciences and biotechnology along with the translation of the products to industries. The specific outcomes are:

- 1. Large fermentation facility for mass production of probiotics required for aquaculture
- 2. Facility for packing and forwarding the products to aquaculture sector
- 3. Facility for the large-scale production of anti viral and anti-*Vibrio* formulations for aquatic animal health management.
- 4. Marine microalgal bio-mass production facility and transfer of microalgal paste for feed applications to aquaculture industry sector
- 5. Marine derived terrusinone analogues as UV quencher with improved photostability for use in sunscreen lotions
- 6. Cold active enzymes for industrial applications
- 7. Natural organic foliar formulations from shrimp shell wastes

3.2.2 Strength of the University in the Domain Area

Cochin University of Science and Technology has two Departments, two Schools and a National Centre with inter-disciplinary academic and research programmes covering all domains in Life Sciences; from Marine Biology to Human Genetics having—state of the art infrastructure distributed over two campuses separated by 15 Km, but well connected through road and metro rail. Having the strength of around 42 faculty members altogether in the domain, the labs of all these Department/Schools are reasonably well equipped having UGC -SAP, DST - FIST supports and generous funding from the Government of Kerala, and the Department of Biotechnology, Department of Science and Technology and Ministry of Earth Science. Precisely, the system has the highest level of capability to address most difficult problems in Life Science and to arrive at solutions. Two start-up companies in Life Sciences, M/s Microbzymes Pvt. Ltd. and M/s Oceanus Biopolymers are incubated at National Centre for Aquatic Animal Health of the University, under CUSATECH foundation.

The University has been translating several products to aquaculture industry and aquafarmers to support zero water exchange culture system with integrated disease management through bioremediation of detritus (Detrodigest), ammonia (Nitrifying Bacterial Consortia) and hydrogen sulphide (Photosynthetic Sulphur bacteria). As part of the recirculating aquaculture system, Nitrifying Bioreactor technology has been developed, patented and commercialized through Oriental Aquamarine Biotech India Private Ltd., Coimbatore. A gut probiotic preparation 'Entertrophotic' has been developed and are being provided to farmers on nominal cost for the management of gut microflora towards preventive health care. A marine yeast, Candida sp. MCCF 101 has been developed as feed additive for both finfish and shellfishes. A preparation of Pseudomonas aeruginosa (PS -1) is available for the management of Vibrio in culture systems. Four anti-viral plant preparations have been developed to protect shrimp from WSSV, IHHNV and MBV, besides having anti Vibrio properties. To speed up the composting of municipal solid waste, a microbial inoculum named Garbactum has been developed, and is being provided to both public and private sector enterprises. The National Centre for Aquatic Animal Health of the University is offering Animal Quarantine and Certification Services to various companies under the Animal Quarantine and Certification Services of Ministry of Agriculture and Farmers Welfare, Government of India. The High-Density Fish Culture under RAS mode Integrated with Vegetable

Cultivation developed by the Centre has been taken over by National Fisheries Development Board under their backyard RAS programme and earmarked subsidy to its takers and there are 100 units established in Kerala with the objective of nutritional security, women empowerment, and rural livelihood expansion. As part of a research project funded by Kerala Biotechnology Commission under industry linked biotechnology scheme, a 50L photobiotector for marine microalgal mass production has been developed for aquaculture application, which is now scaled upto 500L with the financial support of Department of Biotechnology.

As part of a DBT sponsored project a marine natural product, which is a dipyrrolo benzoquinone derivative (Terrusinone) with UV absorption properties as similar to avobenzone, a commercial UV protecting agent used in many cosmetics, has been isolated from marine derived fungus (*Aspergillus sp.*). It is envisaged to investigate the UV quenching potential of terrusinone for developing as a key ingredient in sunscreen lotions, and to explore the possible industrial applications. A microbial culture collection from the Polar Regions, established in the Department of Marine Biology, Microbiology and Biochemistry holds potential species producing several industrial enzymes, which needs to be scaled up further. In addition, two innovative natural foliar formations as market ready products could be developed by the School of Industrials Fisheries from the shrimp processing wastes for superior yield, nutritious vegetables and crops with less pest attacks and diseases.

Patents in the Domain

- 1. Bioreactors for nitrifying water in closed system hatcheries of penaeid and non-penaeid prawns Patent Application No.: 828/DEL/2000 dated 13.9.2000. Patent no. 241648.
- 2. Process of extracting anti white spot syndrome virus molecules from mangrove plants Patent application # 2607/DEL/2006 dated 5.12.2006. Patent no. 254984.

Technology Transfer

- 1. Nitrifying bioreactor technology for recirculating aquaculture systems developed by National Centre for Aquatic Animal Health e has been licensed to M/s Oriental Aquamarine Biotech India Pvt. Ltd., Coimbatore for commercialization.
- 2. High density GIFT culture under Recirculating Aquaculture System Mode integrated with vegetable cultivation- A technology package developed by the Centre for land based aquaculture in high density has been transferred to field level operations (100 units in Kerala to 56 beneficiaries, 32 units in Teleganga to 16 beneficiaries of SC/ST population, 2 demonstration units in NFDB and NIRD, Hyderabad)

Externally Funded Research Projects during the last 5 years

Sl.	Title of project	Funding	Sanction	PI/Co-PI/Co-I
No.		agency	ed	
			Budget	
			(Lakhs)	
1.	Marine Bio-resource and	Department of	301.22560	Coordinator: Prof. I.S.
	Biotechnology Network Cell and	Biotechnology		Bright Singh;
	Developmental Biology of Marine			PI: Dr. Valsamma Joseph
	Organisms: Cell and Developmental Biology of			Dr. Jayesh Puthumana
	selected Marine Organisms for			Co-PI: Prof. Rosamma
	Biomedical and Environmental			Philip
	Applications, Period: 2/9/2021			Collaborating Co-PIs
	1/9/2024			Dr. Jose Sebastian
				Department of
				Biological Sciences
				IISER Berhampur and
				Dr. Sunil K. George,
				Wafeforest Re
2.	Marine Bio-resource and		83.0416	Dr.Sajeevan T.P, NCAAH
	Biotechnology Network	Biotechnology		
	Integrated genomic and metabolomic			Dr.NarenderTadigoppul
	approach for the discovery of novel small molecules with anticancer			a, Centtal Drug research Institute Lucknow
	activity from marine microorganisms,			institute Lucknow
	Period:28/10/2021 27/10/2024			
3.	Establishment of Bioinformatics		74.992	Principal Investigator &
	Centre (BIC) for Marine Bio-resource	Biotechnology		Project CoordinatorDr.
	Conservation and Sustainable			Valsamma Joseph
	Utilization, Period: 22/2/2021 21/2/2026			Co -Principal
	21/2/2020			Investigators
				Dr. Sajeevan T.P.,
				Dr. Jayesh Puthumana,
				Dr. Rosamma Philip, Dr.
				M.V. Judy, Dr. Jereesh,
				A.S., Dr. Sanjeev C. Ghadi,
				, Goa University, Co -
				Investigator
				Shibin S.P., Mentors:
				Prof. Achuthsankar S.
				Nair Prof. I.S.Bright
				Singh,
4.		Performance Linked	372.43000	Dr.Valsamma Joseph,
	and Metabolomics Platform for	Encouragement for		Coordinator
	Augmented Production of Aquatic Bio-	Academic Studies and		

	Resources and Discovery of Novel Molecules of Biomedical Importance" Period:16/2/2022 to 15/2/2024.	Endeavour (PLEASE) Scheme of Higher Education Department, Government of Kerala		PI: Dr.Sajeevan T,.P, Dr.Jayesh Puthumana, Co-PI: Prof.I.S.Bright Singh,Dr.Manoj N, Dr.Sindu Mathai,Mr.Shibin S.P
5.	Innovative project on High-density fish culture under RAS mode integrated with vegetable culture, (Period. November 2018- Ongoing)	NFDB, Govt. of India	240.51	PI: Prof. I.S. Bright Singh; Co-PI: Dr. Jayesh Puthumana
6.	National Network programme in 'Molecular screening, cell culture based isolation and characterization of finfish and shellfish viruses and establishment of National Repository, Period: 11-07-2017 10-07-2021	Department of Biotechnology	118.663	National Coordinator: Prof. I.S. Bright Singh, PI: Dr. Sajeevan TP, Co-PI: Dr. Rosamma Philip, Co-PI: Dr. Valsamma Joseph
7.	Marine Synthetic biology: building national capacity and human resource, Period: 28-2-2017 27-2-2020	Department of Biotechnology	51.4	PI: Prof.I.S.Bright Singh, Co-PI: Dr.Valsamma Joseph, Co-I: Dr. Sajeevan T.P
8.	Development of induced pluripotent stem cells (iPSC) from <i>Daphnia pulex</i> and neural tissue engineering for identification of genetic and epigenetic factors responsible for differentiation and neural-degeneration., Period: 6-3-2017 5-3-2020	Department of Biotechnology, Government of India	70.20	PI: Dr. Jayesh Puthumana
9.	Development of CRISPR/Cas9 engineering platform for genome editing in <i>Danio rerio</i> and generation of <i>mstn</i> -knock-out lines, Period: 27-3-2019 26-3-2021	UGC, Govt. of India	10	PI: Dr. Jayesh Puthumana
10.	Optimization of Genome Editing for Loss-of-function study in <i>Danio rerio</i> -DRE/DRF cell line using RNA-guided Cas9 nuclease, Period: 14-11-2018 13-11-2020	UGC-SMNRE	3	PI: Dr. Jayesh Puthumana
11.	Bioprospecting for Neuroprotective compounds from an endosymbiotic fungi <i>Aspergillus</i> sp. MCCF102 isolated form a marine sponge as potential drug candidates against neurodegenerative disorders Period: 22-02-2019,-21-02-2022"	Department of Biotechnology	53.886	PI: Dr. Sajeevan TP
12.	Nutritional evaluation, segregation and production optimization of novel marine microalgae for establishment as live feeds in fish and shellfish culture	biotechnology, Government of India	70.912	.PI: Dr. Valsamma Joseph, Co-I: Dr. Sajeevan T.P.
13.	Microbiome of Glaciomarine system of Svalbard; diversity and its variability: Period: 14-3-2018 to 13-3-2021	National Centre for Polar and Ocean	40.843	Co-PI; Sajeevan T.P,

		Dogovanah Ministry of		
		Research, Ministry of		
		Earth Sciences.		
14.	Development of Shrimp anti-WSSV-	Science and	27.94550	PI: Dr. Jayesh
	IgY Antibody Therapeutics (WSSV-	Engineering Research		Puthumana
	IgY-T) from immunoglobulin Y (IgY)	Board, Department of		
	using WSSV Antigens and Synthetic	Science and Technology		
	Peptides and their Commercial	belefice and recimology		
	Applications in Aquaculture			
	Industries, Period: 19-11-2019 18-			
	11-2021.			
15.	Indo-US initiatives on innovative	UGC, Govt. of India		
	reforms in marine biotechnology			
	education and research and			
	development of sustainable aquaculture			
	production systems for inclusive			
	economic growth and sustainable			
	development. Period:19-11-2019		125.9	
	18-11-2021			Prof. IS Bright Singh
16.	Evaluating costs and benefits of prophylactic			
	health products and novel alternatives on			
	smallholder aquaculture farmers in Asia and			
	Africa (IMAQualate). Period 2016-2020		55.232	Prof. IS Bright Singh
17.		National Institute of		
	Development programme (AC & DP)	Agriculture Extension		
		Management (MANAGE), Hyderabad, sponsored by		
		National Fisheries	1800000	
		development Board,	1000000	
		Government of India		Prof. IS Bright Singh

Extension and Consultancy Services during the last five yearsNational Centre for Aquatic Animal Health, Consultant Faculty: Prof. IS Bright Singh, University Emeritus Professor

Name of consultancy project	Consulting/Sponsoring agency	Year	Revenue generated (INR in Lakhs)
High Density Fish Culture Under Recirculating Aquaculture System Model integrated with Vegetable Farming	National Fisheries Development Board	2017	89.11
Aquatic Animal Health Management	Aquaculture Industries and Farmers	2016-2017	13.75259
Aquatic Animal Quarantine Services under the Ministry of Fisheries, Animal Husbandry & Dairying as the recongozied Diagnostic Laboratory under Aquatic Animal Quarantine Services	Seafood Exporting Industries	2017	2.4648
High Density Fish Culture Under Recirculating Aquaculture System Model	National Fisheries Development Board	2018	93.8

integrated with Vegetable			
Farming			
Aquatic Animal Health Management, inclusive of RAS	Aquauclture Industries and Farmers	2017-2018	134.6872
Aquatic Animal Quarantine Services under the Ministry of Fisheries, Animal Husbandry & Dairying as the recongozied Diagnostic Laboratory under Aquatic Animal Quarantine Services	Seafood Exporting Industries	2018	2.1178
High Density Fish Culture Under Recirculating Aquaculture System Model integrated with Vegetable Farming	National Fisheries Development Board	2019	196.98
Aquatic Animal Health Management	Aquauclture Industries and Farmers	2018-2019	45.31537
Aquatic Animal Quarantine Services under the Ministry of Fisheries, Animal Husbandry & Dairying as the recongozied Diagnostic Laboratory under Aquatic Animal Quarantine Services	Seafood Exporting Industries	2020	2.96715
High Density Fish Culture Under Recirculating Aquaculture System Model integrated with Vegetable Farming (Rs. 4.96 lakhs per unit for 32 units has been given as subsidy in kind to farmers as per the instructions of NFDB)	National Fisheries Development Board	2020-2021	158.72
Aquatic Animal Health Management	Aquaculture Industries and Farmers	2019-2020	21.66141
Aquatic Animal Quarantine Services under the Ministry of Fisheries, Animal Husbandry & Dairying as the recongozied Diagnostic Laboratory under Aquatic Animal Quarantine Services	Seafood Exporting Industries	2021	0.97762

Publications:

There are around 280 publications by Faculty members in the domain of life sciences and biotechnology during the last five years.

Specific Proposal

Research has been under way under the domain Life Science and Biotechnology aimed at developing precise products and processes for aquatic animal health management. For the full-

fledged commercialization of these products an inter-phase is required for translational research as described below.

A. Expansion of the Production Unit of Aquaculture Medicines

Right now, five discrete products are generated in the NCAAH Aquaculture Medicine Production Unit which in no way are adequate in quantity to support the requirements of aquaculture systems in Kerala. This warrants expansion of the existing aquaculture medicine production unit for manufacturing 5 gut probiotics such as a) Detrodigest, 2. Enterotrophotic, 3. Ps - Series, 4. My -1 and 5. PSB to have production capacity for 100L per probiotic at a time. To attain the objective 100L fermentors (4 nos) along with accessories such as in situ sterilization unit and facility for autoclaving the bottles, filing, sealing, packing and transportation are required.

B. Production of Plant Derived Formulations in the Management of White Spot Syndrome Virus (WSSV), Infectious Hypodermal Haematopitic Necrosis Virus, Monodon Baculovirus, and Vibrio in Shrimp Culture

Recent research resulted in the development of four such formulations which can be applied against WSSV, IHHNV, MBV and Vibrio sp. As the next phase, technology for their commercial production has to be developed for making them available to the industry. Product Names: **a**) *Rm* Extract -1 (Anti - IHHNV and ant - *Vibrio*), 2. *St* - Extract -1 (Anti - IHHNV and Anti- *Vibrio*), 3. *Ns* - Extract -1 (Anti- WSSV and Anti- *Vibrio*), 4. *Cb* - Extract -1 (Anti- MBV).

C. Production of Marine Microalgae Paste to Suppport Nutrition in Aquaculture

Marine microalgae stand out as the promise to be used as single cell protein to cater to the nutritional requirements of the aquatic animals being cultured. As a significant research outcome, photo-bioreactors have been designed and fabricated and standardized for mass production of the algae which needs to have downstream process, packing and determination of shelf life to facilitate commercialization.

D; Development of Marine Derived Terrusinone Analogues as UV Quencher with Improved Photostability in Sunscreen Lotions through Green Chemistry Approach

The UV quenching potential of dipyrrolo benzoquinone (Terrusinone) isolated from the marine fungi can be developed as a key ingredient in sunscreen lotions.

E: Production of Cold Active Industrial Enzymes and Biosurfactant Using Molecular Approaches

The microbial strains producing cold active lipases and beta galactosidases and L-asparaginase available in the polar microbial culture collection are quite potent for further scale up / use in the industry.

F. Natural Organic Foliar Formulations from Shrimp Shell Wastes

I.CUSAT-ORGANIC VEG-1: A natural organic foliar formulation for vegetable crops developed from a chitosan derivative (chitosan, a natural biopolymer isolated from the shrimp shell wastes) and found successful through the repeated field trials at the research and farm facilities of Kerala Agricultural University, Trissur.

2. CUSAT-ORGANIC VEG-2: A second natural organic foliar formulation for leafy vegetables developed by utilizing the shrimp head silage and chitosan derivative components. This second product has also satisfied the requirements of Kerala Agricultural University protocols for commercialization.

List of equipment to be procured in the current phase

Sl. No	Name of the Equipment	Quantity	Cost R.s
1.	100L Fermenter and accessories	3	750000 x 3=
			2,25,000.0
2.	Autoclaving facility	2	173881.0
	178L and 95L with accessories		
3.	Laminar flow	5	76020x5= 380100.0
4.	Sealing Unit	1	25000.0
5.	Packing and forwarding Unit	2	70000.0
6.	Raw material drying and storage	1	500000.0
7.	Solvent extraction unit (100Kg biomass)	1	500000.0
8.	Solvent recovery unit	1	500000.0
9.	Powdering unit	1	1 00000.0
10.	Microalgae seed culture facility	1	2 00000.0

11.	Hot air oven	1	50000.0
12.	1000L photobioreactors	2	@1000000.0 Rs.
			2000000.0
13.	Continuous centrifugation	1	1000000.0
14.	Automatic packing machine	1	500000.0
15.	Storage facility: (Walk in cooler)	1	2500000.0
	High vacuum pump with Schlenk line	1	500000.0
16.	Laboratory fume hood	1	600000.00
17.	Dehydrating drier	1	100000.0
18.	Spectrophotometer	1	500000.0
	Grand Total		1,01,23,981.00

3.2 CENTRE FOR TRANSLATIONAL RESEARCH IN SENSOR TECHNOLOGY

3.2.1 Aim

This project proposes the establishment of an Translational Research Centre in SENSOR TECHNOLOGY' at Cochin University of Science and Technology (CUSAT), Kochi, Kerala, India. The vision for this centre has been framed through a collaborative process that involved faculty members, research associates, post-doctoral fellows and research scholars from various departments of CUSAT - Department of Applied Chemistry, Biotechnology, Photonics and Environmental Sciences. The initial aim of the Centre is to develop low-cost portable sensor devices for early detection of diseases including fatal infectious diseases, health conditions of human beings and monitoring hazardous environmental contaminants in India. In future, the centre aims to collaborate with different industries and state of art centres to further scale up and market sensors in the field of disease diagnosis, agriculture, environmental monitoring and defence technology.

This proposal provides the rationale for establishment of this Centre. The research group behind this proposal is actively involved in the fabrication of sensors and sensor devices. Recently, a prototype device "Dopameter" was invented under the guidance of Prof. K. Girish Kumar. Patent for this invention has already been filed and application is accepted. Our research group was also awarded with the PLEASE (Performance Linked Encouragement for Academic Studies and Endeavour) of Government of Kerala in which a quantum of money is earmarked for the purchase of various equipments for sensor fabrication. The goals set forth for the Centre for Sensor Systems and Technology will be achieved through research on sensor development based on various technologies like electrochemical, fluorescence, triboelectric, optical resonance etc.

3.2.2 Sustainability of the Centre

Sustainable income generation is essential for the existence of the Centre. This can beachieved through four ways:

- 1. Technology transfer
- 2. Analysis charges for the use of instruments in the centre by outsiders
- 3. Consultancy works
- 4. Combined interdisciplinary research proposals funded by various agencies

3.2.3 Expected Outcomes

The purpose of this proposal is the establishment of a centre of interdisciplinary naturededicated for the development of sensor devices with the following specific outcomes:

- Strengthen the existing sensor fabrication technologies
- Already extensive research on developing various types of sensors exist in various departments of the university. By having a centre exclusively for the development of sensors, research in this area spread across various approaches can be brought together to a common umbrella and can be intensified.
- Develop low-cost portable prototype sensor devices for clinical analysis, crop analysisand environmental monitoring. Thus academic research can be made socially useful
- Promote start-ups for sensor device fabrication
- Collaborate with different industries and state of art centres to further scale up and achieve industry 4.0 and market sensors in healthcare, agriculture and other challenges in human ecosystem. This will enable the commercialisation of the devices developed.
- International Collaborations with advanced centres and research organisations
 There exists research collaboration between the faculty members of this group
 withvarious foreign universities and national institutes. With the establishment of
 the centre, this collaboration can be strengthened and faculty/student exchange
 programmes can be mooted up.

3.2.4 List of projects executed by the faculty members of the group

Sl.No.	Amount/in	Name of the investigator	Funding	Duration
	Lakhs		Agency	
1	22.82	Dr. K. Girish Kumar	DRDO	2003-2007
2	5.30	Dr. K. Girish Kumar	DST- Indo- Polish S&T Programme	2006-2008

3	14.87	Dr. K. Girish Kumar	DRDO	2006-2009
4	12.50	Dr. K. Girish Kumar	KSCSTE	2010-2013
5	24.93	Dr. K. Girish Kumar	DRDO	2011-2014
6	7.00	Dr. K. Girish Kumar	UGC-One time research grant	2014
7	32.46	Dr. K. Girish Kumar	KSCSTE	2016-2019
8	12.36	Dr. K. Girish Kumar	DST- Indo- Polish S&T Programme	2017-2019
9	125.0	Dr. Usha K Aravind	UGC Under Obama-Singh 21st Century Knowledge Initiative	2012-2015
10	26.0	Dr. Usha K Aravind	KSCSTE	2014
11	32.0	Dr. Usha K Aravind	DST	2017-2020
12	25.0	Dr. Usha K Aravind (Co PI)	KSCSTE	2018-2021
13	Partnership programme (Budget maintained by Danish govt.)	Dr. Usha K Aravind Collaborator	Danish Research Council	2016-2017

3.2.5 Consultancy work

Department of Applied Chemistry undertakes the qualitative and quantitative Chemical analysis for various types of samples from academic as well as R & D institution, industries etc. using the following instrumental techniques

- FTIR analysis
- UV visible analysis

- GCMS analysis
- CV analysis
- LCMS analysis
- Fluorescence steady state and lifetime Analysis

3.2.6 List of equipment proposed

S.No:	Equipment	Approximate price (Rs)
1	Chemical vapour deposition equipment	40,00,000
2	Thermal vapour depositor	5,00,000
3	2 A booster	2,72,000
4	Upgradation of Electrochemical workstation	13,00,000
	Total	60,72,000

3.3 CENTRE FOR TRANSLATIONAL RESEARCH IN ELECTRONIC PRODUCT DESIGN

3.3.1 Aim of the Centre

Universities across the globe have played a major role in transferring technologies through commercialization and encouraging the formation of high quality university centric startups. The objective to set up a state-of-the-art Translational Research Centre (TLC) will be to lead the efforts to convert the fruits of academic research into products and services for the benefit of the society. It will try to accelerate the successful development of entrepreneurial companies through an array of business support resources and services (physical infrastructure, technology support, business management, financial assistance). This will include the following goals:

- To facilitate the protection and transfer of university created discoveries into new products and services
- To actively facilitate formation of university-connected start-up companies.
- To Provide a base for technology businesses to set up and grow leveraging on the expertise of CUSAT

TLC in Electronic Product Design will act as an interface between academic research and industry. There has been significant efforts done in the startup ecosystem of Kalamassery where CUSAT is located in EPD. Maker Village and its Fablab is renowned for enabling hardware related manufacturing at Kalamassery. The vast engineering college ecosystem can generate UG students who possess basic engineering skills in Electronics. But Electronic Product Design requires knowledge of a domain which is not available at UG level. CUSAT with its prowess in the field of Electronics, specifically in areas such as VLSI Chip design, RF communication, Robotics, etc. is the right host for advanced centre in translational research. There has been several projects done in underwater technology, antenna design, circuit design for funding agencies and private companies from individual faculty. These skill capabilities and infrastructure present at CUSAT can be shared using the TLC and will attract startups to collaborate with TLC on EPD at CUSAT.

3.3.2 Strength of the University in Electronic Product Design

The strength of CUSAT in the field of Electronic Product Design is focussed on three subareas

- ❖ Signal Processing: Department of Electronics has been collaborating with SONY Corporation on consulting basis on signal processing in underwater acoustics. Acoustic Sensor Network For Monitoring Marine Habitats using AI supporting boards from SONY is being executed right now. CUSAT hosts a UGC approved Centre for Ocean Electronics supported by MHRD. Under this centre several projects in the area of underwater research, defence etc. has been executed. There are facilities such as a transducer testing tank facility, acoustic microphone arrays, underwater imaging and audio equipment etc, which are not available to startups or even established companies. DRDO projects have been executed in the areas of naval research and patents have been filed in this area.
- **Communication:** Research into RF communication, microwave and antenna has been a strongpoint in Electronics for decades. A well established research and training laboratory in Microwave Electronics and Antennas has been set up in this Department with financial assistance from MHRD, UGC, DST (Govt. of India) and DoE (Govt. of India). The Laboratory is equipped with most modern and sophisticated equipment like Vector Network Analyzers, Agilent Network Analyser up to 67 GHz, Agilent Field Fox Network Analyser, Cascade Probe Station, Microwave Power Meter and different antenna and RCS standards. The laboratory is having a Microwave Anechoic Chamber for simulating free space environment for antenna and RCS measurements. The Chamber has instrumentation set-up attached to it with provision for fully automatic measurement based on Network Analyzer and Antenna Positioner. The Department has developed an indigenous software which is used for quick and precise antenna measurements and analysis. The major areas of research now being pursued are microstrip antennas and transmission lines, superconducting microwave transmission lines, integrated circuits and antennas, reduction of radar cross section, microwave non-destructive testing, leaky wave antennas, microwave horn antenna, material studies in microwave region etc. Highly specialized companies in this field who want to recruit from CUSAT and they will now get an option to house their lab at this TLC. Our RF and antenna testing facilities at department can also be made available to them.
- ❖ Hardware Design: The design of product, manufacturing of components and their final assembly is done in countries such as China, Taiwan, Korea, etc. MEITY has started India

Indigenous processor programme with Shakti processor (from IIT Madras & Incore semiconductor) and Vega processor (from CDAC). There are multiple industry trained faculty in CUSAT who possess this unique skill that is needed in industry. CUSAT has been participating in the Shakti processor program through Dept of Electronics and Dept of Computer Science. Faculty of CUSAT has been engaged in electronic product design for healthcare domain. "Portable Device for Preliminary Diagnosis of Preeclampsia" is a joint DST project by Electronics and Chemistry department.

3.3.3 Projects undertaken in this field in past 5 years

Sl	Name of Project	PI & Co-PI	Funding	Amount	Start
No.			Agency	in INR	year &
				Lakhs	Duration
1.	Development of	Dr. Supriya M.H.	NPOL-	19.99	2021
	Biomimetic		CARS		(1 year)
	Approaches for				
	Sonar Systems				
2.	Portable device for	Dr. Tripti S Warrier(PI),	DST	24.44	2021
	the Preliminary	Dr. Nalesh S (Co-Pi),			(1 year)
	Diagnosis of	Dr. Usha K (CoPI),			
	Preeclampsia	Dr. Leena R (CO-PI),			
		Dr. Kala Ramakrishnan			
		(CoPI),			
		Dr. Girish Kumar (CO-PI)			
3.	Development of	Dr. Supriya M H	NPOL	19.99	2021
	Biomimetic				(1 year)
	Approaches for				
	Sonar Systems				
4.	Intelligent Passive	Dr. Supriya M H	SONY	17.01	2021
	Acoustic Sensor		Corporati		(1 year)
	Network For		on		

	Monitoring Marine				
	Habitats				
5.	Machine Learning	Dr. Supriya M H (PI), Arun	Naval	48.79	2020
	Models for	A Balakrishnan (CoPI),	Research		(2 years)
	Underwater Image	Mithun Haridas T. P.	Board		
	Enhancement And	(CoPI)			
	content Analysis				
6.	RRMR-Reliable	Dr. Deepti Das Krishna	KSCSTE	2.1	2020
	Reconfigurable	(PI) & Dr. Babita R Jose			(1 year)
	Memristive Radio				
	Frequency Devices				
8.	Algorithm for Image	Dr. Supriya M.H (PI) &	Naval	30.6	2017
	Enhancement,	Arun A Balakrishnan	Research		(2 years)
	Object Detection and	(CoPI)	Board		
	Tracking				
9.	Optimization for	Dr. Bijoy Antony Jose	DST	17.12	2016
	Virtualized Mobile				(3 years)
	Computing				

3.3.4 Industry consulting taken in past five years

- 1) Sensing Solution University Joint Development, SONY Semiconductors Dr. Supriya M H 17.016 Lakhs From Aug 2021 for 1 year
- 2) Detection and classification of punch in Amateur Boxing using IoT sensors and Machine Learning. Bagmo Pvt. Ltd., Maker Village Mithun Haridas T.P from August 2020 Rs 10,000
- 3) Design of Human Machine Interface for Bharath Electronics project, Pumex Infotech Dr Bijoy A Jose from 2018-21. Rs 4,80,000
- 4) Machine Learning for Remote monitoring of ATMs, Vuelogix Technologies Dr Bijoy A Jose from 2020. Rs 30,000

3.3.5 Expected outcomes in Electronic Product Design

These are the expected outcomes in the field of Electronic Product Design.

- ❖ Increased student startups: As part of the student technology business incubator of CUSAT named CITTIC, there has been several student startups who have used guidance from faculty for building their product. While this has been a UG centric effort initially, there has been a shift towards PG and PhD scholars recently. A TLC would be ideal in promoting more core technology startups from student side.
- ❖ From Industry consulting into product development: Industry consulting has been provided as a service by CUSAT faculty in this area. A TLC will invite companies who require the infrastructure being provided at the university to create a unit here; thus utilizing our research scholars as manpower and creating products where CUSAT has shared intellectual property.
- ❖ Faculty startups: CUSAT is the first state university in Kerala to sanction a faculty startup policy. Faculty will now be able to convert their research output into products and TLC is the right centre for this incubation.

3.3.6 List of equipment to be procured in Electronic Product Design

Sl No.	Item	Amount
1	Cadence for Hardware Design (30 license, 15 systems)	Rs 30,00,000
2	Turtlebot Pi4 robot (2nos) and accessories	Rs 5,50,000
3	CST Design Suite (1 license)	Rs 20,00,000
4	Siemens NX academic Suite	Rs 10,00,000
5	Xilinx FPGA Prototyping boards	Rs 20,00,000
6	Electronic workbench	Rs 5,00,000
7	UPS power backup for lab	Rs 7,50,000
	Total	Rs 1,00,00,000

3.4 CENTRE FOR TRANSLATIONAL RESEARCH IN ARTIFICIAL INTELLIGENCE & MACHINE LEARNING

Artificial intelligence (AI) allows computers and machines to correctly interpret external data, to learn from such data, and to use those learning to achieve specific goals and tasks through flexible adaptation. One of the essential purposes of AI is to automate tasks that previously would have required human intelligence. Today, AI is being used across numerous industries, from finance to healthcare, and has resulted in a high demand for dedicated AI research translation, consulting, and expertise. AI is becoming the mainstay of most interdisciplinary research, and focusing on AI helps other focus areas as well.

3.4.1 Objectives

- To conduct educational and outreach activities aimed at promoting the AI methodology and culture in non-specific audiences.
- To create structured AI use cases, defining and highlighting real-world challenges potentially solvable by AI.
- To grow an ecosystem, facilitated by professional societies, industry, and government agencies, that will allow robust collaborations between practicing clinicians and AI researchers to advance foundational and translational research relevant to medical imaging.
- To establish methods to encourage data sharing for training and testing AI algorithms to promote generalizability to widespread clinical practice and mitigate unintended bias.
- To develop standards and common data elements for seamless integration of AI tools into existing clinical workflows.
- To establish tools for validation and performance monitoring of AI algorithms to facilitate regulatory approval.

3.4.2 Domain Expertise

The Department of Computer Science has an extensive expertise in the field of AI and ML. Several faculty members are doing active funded research in this area. Post-graduate level AI courses are offered and PhDs produced in this area. Some of the existing projects include AI Video consulting project with *Vuelogix Technologies Pvt. Ltd., Kochi* for monitoring ATMs of Banks in Kerala and *Chief Minister's Nava Kerala fellowship* for AI based detection of people during landslides.

The Artificial Intelligence & Computer Vision (AICV) Laboratory at the Department of Computer Science mainly focuses on designing and developing artificial intelligence algorithms

dedicated to computer vision. The AICV Lab aims to advance the knowledge frontiers, develop smarter computer vision technology, and improve the lives of people through cutting-edge research in artificial intelligence and computer aided image analysis. The recent research works undertaken in the AICV Lab have made significant contributions to the field of medicine, remote sensing, and surveillance.

In medicine, AI and ML techniques were successfully utilized for:

- Detection and segmentation of mitosis in breast histopathology images
- Classification of prostate cancer grade groups from MRI images
- Reducing Rician noise in MRI images
- Detecting malaria parasite from peripheral blood smear images
- Detection and delineation of cell nuclei
- Segmenting human intestinal parasites from microscopy images
- Automated grading of nuclear pleomorphism in breast cancer.

The research will assist doctors in diagnosing and finding the sources of diseases, to suggest various ways of treatment, and also to predict if the illness is life-threatening. This also has the potential to make health care much more accessible and more affordable to the common people. The AICV Lab has also undertaken research for speckle reduction and contrast enhancement of ultrasound Images, understanding semantics in change patterns of remote sensing images, and ship detection from SAR (Synthetic Aperture Radar) images. Other contributions include automatic image description generation, video classification and retrieval, and direction estimation of crowd flow in surveillance videos.

The *Cyber-Physical Systems Lab* at the Department of Computer Science is involved in a host of research activities and funded projects in the cross-cutting areas of Internet of Things (IoT), Edge Computing, Distributed Learning, Smart City Applications, Embedded Systems, Image processing, and Data Analysis. The research focuses on developing CPS-based models for the IoT applications and has utilized state-of-the-art modeling theory to establish a resilient and scalable architecture for Smart City-based IoT applications. The Lab has existing collaborations with the Kochi City Smart City Initiative (Smart City project of the Government of India). Smart transportation and waste management are some areas where this research can play an instrumental role.

3.4.3 Expected Outcomes

- Patents and publications in internationally reputed peer-reviewed journals.
- Production of high-tech AI-enabled products and services according to the demand of the market and for the benefit of the society.

- Association and collaboration with professional organizations around the globe with respect
 to the research work in the field of interest thereby uplifting the Centre to an autarky in
 Artificial Intelligence.
- Long-term partnerships with communities and community-based organizations that help guide the development of meaningful research projects.
- A technological base for research and education in the field of Machine Learning and Artificial Intelligence that provides consultations, specialized training, customized sponsored research, and networking opportunities for researchers and businesses.

3.4.4 List of Projects in past five years

Sl	Name of Project	PI & Co-PI	Funding	Amount	Start
No.			Agency	in INR	year &
				Lakhs	Duration
1.	Energy Efficient	Dr. Bijoy Antony Jose (PI)	DST	25	2018
	Cyber Security	& Dr. Jimson Mathew, IIT			(3 years)
	Implementations for	Patna (Co-PI)			
	Internet of Things				
2.	Design and	Dr Madhu S Nair	State	2.75	2 years
	development of		Plan		(2018-
	adaptive framework		Grant		19)
	for video				
	summarization				
3.	Collusion and Fake	Dr G Santhosh Kumar	SPARC	68.99	3 years
	News: Are social		Project		(2019-
	networks being		of		21)
	orchestrated in favor		MHRD		
	of fake news?				
4.	International	Dr G Santhosh Kumar and	The	Total	3 years
	partnerships for	Dr Madhu S Nair	Research	450	(2021-
	excellent education		Council	CUSAT	2024)
	and			40	

	research/Internationa		of		
	1 Network for		Norway		
	Image-based				
	Diagnosis				
5.	Human Behaviour	Dr Bijoy A Jose (Doctoral	DST,	37.3	4 years
	Analysis with	Advisor)	CII,		(2020-
	Artificial		Vuelogix		2024)
	Intelligence and		Technolo		2021)
	Machine Learning		gies		

3.4.5 List of Consultancy taken in this field

1) Software Consulting, Pumex Infotech Dr Bijoy A Jose For the year 2021-22. Rs 2,40,000

3.4.6 List of Equipment to be Procured

Sl. No.	Туре	Quantity	Approximate Price (Rupees)	
1.	High-end Server	1	Rs.20,00,000/-	
2.	High-end Workstation	10	Rs.60,00,000/-	
3.	Desktop PC	5	Rs.7,50,000/-	
4.	Printer and Scanner	2	Rs.50,000/-	
5.	Network Accessories	-	Rs.1,00,000/-	
6.	Accessories for Video Conferencing (Projector, Camera, Microphone, Adapters, etc.)	-	Rs.2,00,000/-	
7.	UPS	-	Rs.2,00,000/-	
8.	Air Conditioning System	-	Rs.3,50,000/-	
9.	Furniture	-	Rs.3,50,000/-	
	TOTAL			

3.5 CENTRE FOR TRANSLATIONAL RESEARCH IN MATERIAL SCIENCES

Specific Objective of the Centre: To develop wearable Triboelectric Nanogenerators for motion sensing, health monitoring and energy harvesting applications

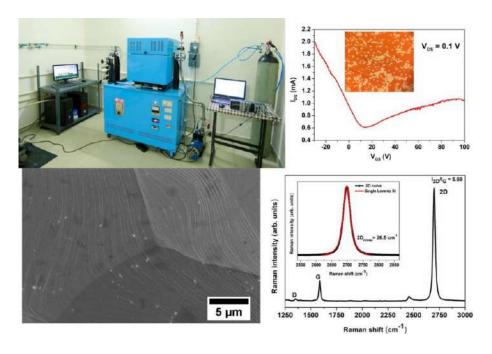
Triboelectric nanogenerators (TENGs) that utilize unused ambient energy to produce electrical energy have become an intensive research area in this decade. Since TENGs were reported in 2012 by Z. L. Wang and co-workers, the negatively treated triboelectricity was utilized in various electronic applications. The peculiarities of TENGs, such as lightweight, flexibility, diversity in materials used, biocompatibility, inexpensiveness, etc., make them significant in the era of energy crisis and IoT. The triboelectric effect portrays the contact electrification where charges are formed when two materials with different electron affinities are brought into contact through friction. Any relative motion (sliding, contact-separation, rotation) between the charged triboelectric materials will develop electric field across the electrodes attached to materials. The potential difference developed by the electrostatic induction drives electrons from one electrode to the other through the external load. The more significant the difference in electron affinities of two selected materials, the more charges will be transferred during the contact electrification. In the triboelectric series, the materials that can donate/lose electrons are designated as tribopositive materials and the materials that can accept/gain electrons are termed tribonegative materials. The polymer materials are highly employed in triboelectric nanogenerators owing to their high charge retaining ability.

Research on polymeric materials, namely polyurethane, natural rubber and nylon, for developing energy harvesting TENG is the thrust area included in the proposal. Research on durable and natural polymeric materials for device fabrication is highly recommended for the sustainable development of TENGs. Isoprene or natural rubber (NR) is one of the flexible and natural polymers with a wide range of applications. NR products such as gloves, carpets, mats, vehicle tyres, etc. are in direct contact with different mechanical energy sources. NR is tribonegative material in the triboelectric series. The utilization of NR for energy harvesting applications is of interest because Kerala is the nearly monopolistic contributor to the natural rubber production of India, with 90 % of the total production of 78 % of the area under cultivation in the country. Polyurethane (PU) is a lightweight synthetic polymer with various applications in our daily lives due to its excellent chemical inertness, adaptability to use in different climatical

conditions, etc. The PU form-based materials have been used to produce various toys and lightweight sandals. Nylon is an electrospinnable synthetic plastic with good environmental and chemical stability, high strength, and durability. It also found many applications in our day-to-day life. PU form and Nylon are tribopositive, and the TENG performances of these polymeric materials are in its exploring stage. Further, the bulk and surface modified polymeric systems with enhanced charge densities can deliver enhanced TENG output than the unmodified polymeric systems. For instance, the bulk modification of polymers via the incorporation of conducting fillers and dielectric fillers has found to have increased TENG output than the pristine material. The translation research in TENG aims to develop various products (toys, energy harvesting shoes, smart carpets, wearable TENG devices for health monitoring, etc.) using the above-mentioned bulk and surface modified polymeric materials. The polymeric materials used for these applications can be solution cast films, electrospun mats, forms or compounded sheets.

Specific Objective of the Centre: Graphene as a 2D Material

In the present technology development scenario, 2D materials are expected to have a sizeable impact in the future. They found significant applications in various fields due to their large surface area, tunable electronic or optical properties, transparency, mechanical strength, flexibility and one atom thickness. Even though extensive studies are made on thin-film synthesis, the difficulty in circumventing the challenges in 2D material synthesis is one step ahead due to their one atomic thickness. Better insight into the growth mechanism and control over the growth conditions are essential to regulate the synthesis outcome. Graphene has been the most exploited 2D material for the last decade, and struggles remain to be addressed. The reproducible synthesis of high-quality graphene at an industrial scale demands large area uniform growth conditions essential to control the number of layers deposited. Chemical vapour deposition (CVD) is graphene production's most accepted synthesis technique.



As part of a research study, we developed a thermal CVD system capable of producing graphene over a 2× 10 cm² area of copper foil using methane as the carbon source. We fabricated a graphene-based field-effect transistor having a hole mobility of ~2000 cm²V⁻¹s⁻¹ and electron mobility of ~450 cm²V⁻¹s⁻¹. The film was also used to modify the performance of the conventional SERS structure. Later, the electrochemical sensing of dopamine and uric acid in the presence of ascorbic acid was demonstrated using graphene modified glassy carbon electrode. The figure shows some reflections of the graphene-related experimental efforts carried out in our laboratory.

Opportunities for graphene are multidimensional, including flexible and transparent electronics and energy applications. As the continuation of our research study, we would like to explore more avenues in graphene's application. India semiconductor mission focuses on building a semiconductor ecosystem to catalyse India's expanding electronics manufacturing and innovation system and thereby position India on the semiconductor map of the world. Integration of graphene into semiconductor technology can solve many issues facing the industry. In advanced ICs, interconnects become more problematic with the progress in device scaling. The mechanical stability and heat dissipation are major concerns while introducing new variables. Graphene or graphene-metal hybrid structure can be a low-resistant interconnect to replace the conventional copper interconnects. In MOSFETs, replacing Si with 2D materials counter the short channel

effects associated with gate length scaling. The stacked structure of graphene and other 2D materials can offer high mobility with less leakage problems.

Graphene offers openings in energy storage and energy conversion. Developing countries make efforts to exploit renewable energy sources, and smart electric grids are essential to store and distribute energy effectively. Graphene permits a more robust electrical system by incorporating graphene into circuit breakers which are safety components of electrical grids. In domestic and industrial applications, low voltage circuit breakers and their failure due to the lack of lubrication are common. Graphene solves this issue through its self-lubricating property. Graphene is an alternative to electrodes in solar cells as a durable, transparent, and conducting material. Exploiting graphene as an interfacial and active layer to improve the overall performance of photovoltaic devices is also important.

Graphene's role in biosensing is highly appreciated by its use in a digital new generation biosensor enabling remote detection of SARS-CoV-2. The transfer of graphene from the growth substrate to flexible materials can provide advanced sensing platforms. By exploiting the potential of graphene, the industry can adopt new findings related to graphene and thereby realise the unlocking of the next generation of graphene for the wellness of humanity.

3.5.1 Expected Outcomes

- NR and PU-based TENG will be implemented to produce various toys and kids' shoes.
 The energy harvesting abilities of the materials incorporated in the products help to power up the LEDs attached to the toys/kids' shoes without the support of an external battery.
- Energy harvesting and motion-sensing TENG integrated door mats can be developed for security purposes. By scavenging the mechanical energy on footstep, the motion-sensing can be done by the carpet and convert the mechanical energy to an electrical signal for ringing up the alarm. The proposed smart carpets vastly enrich the application of the TENG in security systems, especially for women's safety. TENG—integrated, flexible smart mat can also function as an energy harvester. These self-powered carpets can be used as energy harvesting platforms in places such as educational institutions, malls, and shopping centers,

where many human movements are expected. Here too, the fabricated TENGs modules are integrated in series and parallel combinations to make a carpet. Each TENG unit will generate electricity in particular amounts, depending on the footstep's pressure. Such large area integration of such carpets can deliver large power output on the order of Watt. The so—harvested electric charges from the wasted mechanical energy are stored in a number of charge-storing capacitors/supercapacitors to light up low-power LED lamps and be used for charging portable devices like power banks and mobile phones etc. during power failure. Thus, electricity is ultimately generated from human movements.

- TENGs are getting much attention in nowadays due to its ability in low frequency, irregular biomechanical energy harvesting. The harvesting shoes, socks etc can be developed for adults to self-powered sensors including, step counters, motion detectors, speed sensors, position detectors, etc. The artificial intelligence and internet of things are in close connection with tactile and impact sensors. TENG can be integrated with shoes so that each human footprint will leads to electricity production. The flexible polymers can be incorporated in socks for human gait analysis as well as energy harvest. The high compatibility of TENG with microcontrollers and wireless connectors assure its usage in sports gadgets, health care monitoring, security applications, baby care etc. Thus, biomechanical energy harvesting and IoT based self-powered sensing based on the biocompatible, high-sensitive, compactible TENG shoes and socks are one of the expected outcome of this research.
- Nylon based wearable TENG devices can be developed for pulse monitoring, respiratory monitoring, sleep monitoring applications (Biomedical applications). A wearable respiration rate and sleep monitoring device made of nylon can be developed. The gadget includes a wireless transmission chip for transmitting and displaying signals based on respiratory and sleep modes on a mobile device. The portable and comfortable TENG sensor in a belt can be attached to the abdomen and chest of a person for respiration rate monitoring. The movements of the stomach or chest during respiration can lead to a change in TENG response in contact separation mode, and these can be correlated with the nature of respiration. Further, the proposed TENGs can be attached to the bedsheet for sleep monitoring. Sleep monitoring can be done by the whole body movements of the person as

the body movements can make a significant change in the signals due to variation in TENG responses.

3.5.2 Strength of CUSAT in this Domain

Projects (Submitted in the proposed research area)

S.No	Title	Cost in	Duration	Faculty	Agency	Status
		Lakh		in Charge		
1.	Wearable wireless		3 years	Dr. Honey	DST-	Under
	triboelectric			John	SERB	evaluation
	nanogenerator			(PI)	(Special	
	sensor for				call)	
	respiratory rate and					
	sleep monitoring					
2.	Triboelectric sensor		3 years	Dr. Saji	DRDO	
	for the detection of			KJ (PI)		
	underwater acoustic					
	waves					
3	Integrated Energy		3 years	Dr. Saji	KSCSTE	Submitted
	Harvesting and			KJ (PI)		
	Storage System					
	based on					
	Triboelectric					
	Nanogenerator and					
	Supercapacitor					

Patents

 Honey John, Divya Jose, Jelmy E J, Vijoy K V. M K Jayaraj, Antony Sharon, Reduced Graphene Oxide- Conducting Polymer – Process for preparation Thereof, And Energy Harvester, Indian patent IN 397451, granted in the name of CUSAT on 24th May 2022

- Honey John, Divya Jose, Jelmy E J, Rani Joseph, Conducting Polymer- Dopant Polydimethoxysiloxane Composites and Process For Preparation Thereof, filed with Indian patent application No. 201941047844; dated 22 November, 2019 (Under examination)
- Honey John, Divya Jose, Vijoy K J, Jelmy E.J., Saji K J, Manoj N, Nanohybrids of conducting polymer-graphene oxide based PDMS composites for smart devices. Filed with Indian patent application No.202041006974 dated February 18, 2020.

Facilities already available

S.	Generic Name of	Model, Make and year	Remarks including
No.	Equipment		available with
			of Equipment and
			current usage of
			equipment
1.	Electrometer	Keithley 6517 B	Useful for TENG
			output measurements
2.	Spin coater	Holmarc	Useful for sample
			preparation
3.	Dip Coater	Holmarc	Useful for sample
			preparation
4.	Atomic Force Microscopy	Keysight Technologies	Useful for
		5500 AFM	morphology analysis
5.	Vertical contact	Holmarc	Useful for TENG
	separation mode TENG		output measurements
	set up		
6.	Oscilloscope	KEYSIGHT	Useful for TENG
		DSOX3054T	measurements
7.	Source meter	KEITHLEY	Useful for TENG
		2450	measurements
8.	Glovebox	Key-sight (2016)	Useful for the project

9. Digital thickness monitor		
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3.5.3 List of Equipment to be Procured

Sl No	Description	Cost (Rs)
1	Planetary ball milling	34, 86,000.00
2	Screen printing	5,25,000.00
3	Large scale electrospinning unit	30,09,000.00
4	Translational stage	6,00,000.00
5	High resolution mixed signal oscilloscope	26,24,000.00
6	High impedance dual channel source meter	21,62,000.00
7	Force Sensor	6,00,000.00
	TOTAL	1,30,06,000.

4.0 Startups in CUSAT in the Focus Areas of Translational Research Centre

4.1 Infusory Future Tech Lab-TutAR App

Infusory is focused on setting up immersive means of education through the augmented reality app

TutAR - Next Reality Classroom.

Online learning is going to be indispensable even after the pandemic. Even in online learning, live

instructor-led learning is the way forward. TutAR is a digital interactive platform for conducting

online sessions in a new way. Here the teacher can bring, 5000+ 3D visualisations available in our

library, right next to them on the screen and place them anywhere using our in house developed

On-Screen AR Technology.

The best part of TutAR is it works for both Online and Offline classes. At Offline classes, Teachers

can present the 3D models for better content delivery in the smart classrooms and for any online

classes, they can use any existing Smart Phones, Laptops, Desktops, iPads etc.NO additional

gadgets are required.

TutAR was released in August 2020 and, they have had a good journey so far in the last 12 months

with more than 5K teachers, 5000+ 3D models, and 150+ licenses, who are using our platform

services. Today 1.5 million students learn from our customers, the teachers.

Website: www.tutar.app

4.2 Caliczbee Solutions Pvt Ltd-Pillsbee App

They Re-engineering the B2B pharma sector by offering business intelligence and market insights

to pharma stakeholders. PillsbeeisanAlpoweredB2BPharmaplatform integrated with ERP, which

provides business intelligence and market insights to Pharma stakeholders.

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Services

- 1.ComprehensivePharmamarketplaceplatform –A multi-channel-commerce platform which integrates technology driven features with industry specific services.
- 2.Marketinsightsandbusinessoptimisation solutions —Field-ready sales plans and analytical insights to drive sales volume and value, under an easy to interact interface.
- 3. Financial and enterprise solutions for Pharma businesses Efficient working capital management through embedded financing and SaaS solutions for Pharma operations .
- 4.Elevated supply chain visibility for improved responsiveness-Enhances manufacturing and supply chain efficiency by enabling data-driven decision.

4.3 SEAMOTO ELECTRIC ENGINES PRIVATE LIMITED [SEEL]

SEAMOTO ELECTRIC ENGINES PRIVATE LIMITED [SEEL] is a Registered Start-up in India and an OEM Manufacturer of Marine Electric Propulsion engines for boats are here after 2 years of prototyping, rigorous testing and validation is ready to bring the product in the market. The dream of developing a fully non-polluting and silent engine as a MAKE IN INDIA product was a long-time dream of the Directors of SEEL which has now come true.



They are now herewith a perfect cost-effective solution to solve all the bottle necks of conventional engines like every day fuel price hike, range anxiety, non-availability of fuel, engine noise and vibration. Sure that this will be a real blessing for people in remote villages where fuel filling stations are rare. They need not carry fuel from far away.

SEAMOTO is fully running on re-chargeable Lithium Ion battery power ranging from 48Vdc to 96Vdc and up to 20HP propulsion power. The marine safety standards has been met at each step of manufacturing and we have used the best quality Indian raw materials to develop this unique and sturdy product. Our mission is to save the Earth by developing non-polluting next generation green engines.

4.4 Aerobits Biotech

Aerobits Biotech is a company intending to make products which enables its users to enhance their living standards and provides a better living condition. People suffering from diseases like parkinsons where their hands are unstable or it keeps shivering. Without the help of others they cannot have food. Every such attempt to have food by themselves, it will result in spilling food from their spoon. It affects their dignity and freedom; also most of the time there might not be people around to help them.



'THE PARKINSON'S SPOON WITH ADAPTIVE PATTERN LEARNING' is a smart spoon capable of tracking all random motions, vibrations or tremors of hand and automatically correct those unwanted motions and make sure that no food spills out. Although have competitors like Google having similar products (Liftware), they are able to cut down its price by almost 80% without compromising its quality. It also has some exclusive features, design and technology.

It has a unique mechanism to adapt to the tremors of patients and provide the best stabilization. Also the innovative direct shaft arrangement with gear reduction mechanism arrangement helps in reducing the overall size and cost of the product.

4.5 AI Aerial Dynamics

For a long time now, India has been depending on foreign countries to procure raw materials for machinery. Following these ideologies, AI Aerial Dynamics is manufacturing indigenous UAVs (Unmanned Aerial Vehicles). The dronetech startup is offering its products at a better cost to consumers. Founded by college friends Vishnu V Nath, M Rubin Ray, Denny Poulose, and Sujai KJ, AI Aerial Dynamics was incubated at CITTIC CUSAT in March 2017. Rubin Ray, 31, is an MTech graduate CUSAT, and focuses on Machine Learning System Architect. He previously worked with Tata Elxsi. Vishnu, 31, holds a PhD in Aerial Robotics from CTU, Gujarat. Sujai, 32, is currently pursuing MBA and is the CEO of the startup. Denny, 29, on the other hand, is the Director at AI Aerial Dynamics. The startup currently has a team of eight employees.



The founding team initially invested Rs 8 lakh to start the company, and it later received Rs 10 lakh from NIDHI - Promotion and Accelerator of Young and Aspiring technology entrepreneur (PRAYAS). They also selected for Rs 2 lakhs from RUSA fund.

AI Aerial Dynamics has autonomous UAVs from two kilograms to 100 kilograms payloads, and also has sensors, video, data link, and ground control stations. The drones start from Rs 4 lakh. Besides product sales, AI Aerial Dynamics also generates revenue from customising designs, services, and spare parts sales. Pandemic heroes While there were initial delays in the procurement of components and payments, during the beginning of the COVID-19 pandemic, AI Aerial Dynamics soon started helping the Kerala government fight the virus. It helped the government design an UAV capable of spraying sanitisers. The startup further deployed its drones to track people strolling outside their houses during the lockdown. It has also helped in the thermal scanning of crowds. Garud, a UAV developed by the startup, is fitted with thermal scanners to read the temperature of people in a crowd. It has the capacity to carry a load of up to 60 kgs, and was used in Kerala to spray disinfectants, carry medical samples, and emergency deliveries with minimal human touch points.

AI Aerial Dynamics targets the defence sector, government entities, and agricultural sector. It is currently working on a project with Defence Research and Development Organisation (DRDO), under the Ministry of Defence, Naval Physical, and Oceanographic Laboratory (NPOL). According to Vishnu, the drontech startup has recorded up to 15 percent growth in its production. The startup has so far sold three units, and its annual average revenue stands at Rs 35 lakh. The startup is looking forward to getting its products certified by the Indian government.

4.5 Delgado Coating and Technology Solutions Pvt Ltd

They manufacture and market specialized scientific equipment namely **Advanced Spray Coating machine** used for coating thin films of compound semiconductors, metal oxides, nanoparticles, polymers, organic materials etc. The proto-type of this particular machine has been developed under the DST SERB fast track project implemented at Dept. of Physics, CUSAT. The Start-up has obtained Seed fund from Maker Village, Kerala Technology Innovation Zone, Kalamassery

(Rs. 5 lakhs) and Kerala Start-up Mission, Techno-park, Thiruvananthapuram (Rs. 12 lakhs). They are in Production stage and currently have four Confirmed orders for the Advanced Spray Coater from various University and Research Institutions namely DEBEL, DRDO Laboratory, Ministry of Defence, C V Raman Nagar, Bengaluru, Govt. College for Women's, Thiruvananthapuram, M G University, Kottayam and Cochin University of Science and Technology, Kochi.

The another product is an **efficient and comfortable respirator** compared with the existing surgical/N-95 respirator. Conventional respirators made using micrometer sized polyproplyne fibers are inefficient, which has risked the life's of medicos and other health workers who are in close contact with the patients. Figure 1 compares a human hair (micro meter sized) with the nano fiber. The work proposes to include nano fiber layers replacing few layers of polypropylene. The introduction of nano fiber layers will not only enhances the efficiency of the respirator, but also the breathability as it can reduce the number of layers of the polypropylene used, making the respirator much comfortable to the user.



The innovative aspect of the proposed work is the introduction of nano fiber layers, which could efficiently filter particles of even few nanometers in dimension. The nano fiber layer will be developed using electro spinning technique The current proposal aims to develop efficient

respirators, which could be made available at reasonable prices to both health workers and common man. Thus the product has a huge market size covering the society as a whole. Figure 2 shows the schematic sketch of the proposed respirator.

4.6 OmicsGen LifeSciences Pvt Ltd

A start up initiated in 2017 by a Post Graduate in Biotechnology from CUSAT, leads the way in providing superior and reliable quality results. Their vision is to exploit the untapped potential of genomics, proteomics and metabolomics, proceeds with a mission to lead an efficient life science industry by networking ideas and discoveries among scientific community to find new potential and applications, translating new discoveries into products to maximise its impact across all challenging sectors. They present a health problem that our population is unaware but a serious threat, and introducing a simple affordable and effective solution for it. Health care associated infections are a major challenge and has reported mortality, morbidity and economic loss. A large number of people are working in health care and transmission of infections is a threat and these mobile phones are major source for it. There are 650 million mobile phone users in India and have become an indispensable part of us for instant communication and social access. It has health risk of transmitting microbes from hand to hand. These devices have constant contact with us hence optimum living conditions are maintained on it, makes it an open breeding space. Kids use it and are effected. Health workers contribute more to the exchange of microbes if they use it at work places. Hence we are introducing an economically feasible wipe which can completely remove all the microbes that are transmitted by its exchange. How its being solved (approach)- A hand holding object studied SmartLyse is a patent filed, Trademark registered formulation which can remove the microbes of gadget surface by lysis of the existing organism and inhibition of adherence and growth of new microbes for a time period.



SmartLyse can remove the microbes of gadget surface by lysis of the existing organism and inhibition to the adherence and growth of new microbes for a time period. They did a study in a population of about 200 individuals, The result confirmed the presence of thousands of bacteria and fungus that had a proportion of harmful ones. They are introducing the formulation as an economically feasible wipe and sanitiser which can completely remove all the microbes that are transmitted between people. To meet the above challenges of infection the OmicsGen's invention provides a solution that can lyse all the microbial dwellers. The method disclosed in the present invention makes use of a proprietary mix of lysis solution which comprises salts that establish ionic strength in buffer solution, salts that regulate acidity and osmolarity of lysate, compounds that destabilises the integrity of cell wall of microbes by lysing the protein and lipid components, ionic detergents that solubilise cell membranes and a very small % of alcohol for cleaning the surface. SmartLyse solution is eco-friendly and has no harmful agents in it. All the components are FDA approved. It is a combination of inorganic compounds that can lyse the cell wall of these organisms and thereby kill them. This solution for sanitation is an extension of same product. Hence we introduced the same with some modifications as SmartLyse Surface Sanitiser and Air freshener disinfectant. This is economically very feasible and we recommend to use on daily basis.

4.7 ChemSensoRR

Although there have been major advances in the field of biosensors, only a few have undergone successful miniaturization and commercialization while others are still in nascent stages. One such success story is that of the glucometer used in monitoring glucose level by diabetic patients.

Dr. Shalini Menon (Founder of ChemSensoRR, incubated at CITTIC CUSAT) & team are focussing on the development of portable (Point-of-Care) & user-friendly devices for the detection of medically relevant compounds in the fight against various diseases. The mission of the team is to launch the devices in 3 phases -

- **Phase I** Sensor devices for neurological disorders.
- Phase II Sensor devices for morbid diseases.
- Phase III Sensor devices for emerging and re-emerging infectious diseases.

Chronic conditions such as neurological disorders, infections, diabetes, heart related ailments, fertility issues etc. are prelavant for a significant part of the population. Repeated hospital/clinic visits to continously monitor these conditions is a laborious and expensive activity, since conventional analysis performed in typical laboratories are time consuming and require trained professionals to carry out the process. In contrast, POC testing systems are simple, easy to use and can deliver real-time diagnostics to the patient without specialized training. These devices will



significantly reduce the cost of analysis, save time and also give access to people in remote regions better healthcare diagnostics, without the need for niche facilities or capable professionals.

Ist Sensor Device to be launched by team ChemSensoRR - Device for the detection of neurotransmitter hormone Dopamine

As per a report published by World Health Organization (WHO) on 21st January 2020, neurological disorders affect hundreds of millions of individuals worldwide. Per year more than 6 million people suffer from stroke;

more than 80 percent of such fatalities arise in low- and middle-income nations. Worldwide more

than 50 million individuals suffer from epilepsy. It is reported that there are 47.5 million individuals with dementia worldwide and 7.7 million new patients each year - Alzheimer's disease is the most prevalent form of dementia and will lead to 60-70 per cent of cases. Migraine rate is over 10 per cent worldwide. All the above-mentioned disorders are directly or indirectly connected to the abnormal levels of dopamine in human body.

We have attempted to develop a portable electrochemical reader for the effective monitoring of dopamine and its related diseases. The sensor is based on integration of a chemically modified screen-printed electrode with a miniaturized electrochemical analyser. The platform, once developed is expected to offer an easy, cost-effective and user-friendly approach in early diagnosis of various neurological disorders, which may require continuous monitoring.

The target customers for the proposed device are people of all age groups suffering from neurological disorders (and/or early detection), who would benefit from a portable, user-friendly device to monitor concentration of dopamine in physiological fluids, while at the comforts of their home.

As of now, no other players are currently in the market with a similar product for the detection and determination of dopamine.

5. Strategic advantage of CUSAT

CUSAT has all the credentials to manage the proposed Translational Research Centre. CUSAT Campus, unlike the usual IT or innovation centres, is not just providing a physical space to the companies but an array of technology and intellectual support services. The advantages of choosing CUSAT is briefly summarized below.

5.1 Research Advantage

In the area of Faculty of Technology, departments have focused on PG Teaching and Doctoral research over the past 50 years. Due to the research focus, departments have gotten project grants in the field of Defence, Ship building, Biotechnology, etc. Past history of projects are vital in getting additional grants for the institution. Proximity to NPOL and Cochin Shipyard has helped Department of Electronics, Department of Ship Technology to execute joint projects for advancement of Technology. Department of Computer Applications has excelled in cybersecurity and forensic science. Cyberdome of Kerala Police runs joint activities and training by utilizing the resources at this department. Data Science and Machine Learning is a focus area for Department of Computer Science and its graduates are sought after in industry during placement. Department of Instrumentation offers UG &PG programmes with state of the art labs in their area of Research. School of photonics in CUSAT has grown into a centre for excellence in research relating to lasers, fibre optics, etc. Department of Polymer Science and Rubber Technology is a pioneer in their field and has won laurels for their work on nano materials & battery technology. All these departments in Faculty of Technology are focused primarily on research and has an excellent history of conducting funded projects.

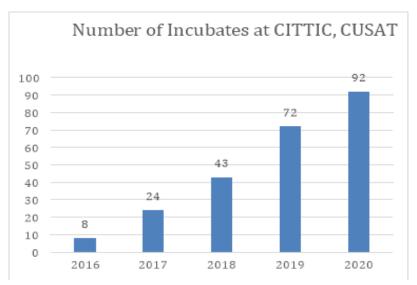
Departments under the Marine Sciences and Environmental science focus on Identification and beneficiation of new species from hitherto less explored marine environment, Monitoring of Marine environment, identification of causes that lead to environmental damage and development of remedial measures, Studies on new weather patterns and changes to marine environment because of global warming and Development of new breeds, new farming methods and integration of modern technology for sustainable fish farming

Physical sciences departments develop new materials for energy applications and has grown into developing expertise in solar photovoltaic, super capacitors etc. They have established research

collaboration with well – known laboratories within and outside the country including industrial partners.

5.2 Innovation Advantage

CUSAT is the first state university in Kerala to establish a 8000 sq ft Technology Business Incubators (TBI) in the campus. The first TBI named *CITTIC* was set up in 2016 with a grant of Rs.1 Crore from the Government of Kerala. A new 3000 sq ft TBI named *RISE* set up with financial support from RUSA for hardware and biotech startups was opened in Dec 2021. A bio incubator with necessary equipment and facilities is operational in the new space exclusively for startups working in the field of biotechnology and marine sciences. Work is in progress for the construction of another 10000 sq ft. to be added as TBI / Industry R&D space. There are 50 startups operating from CUSAT TBIs. A FABLAB sponsored by Kerala Startup Mission is available in the TBI to provide the incubates easy access to digital fabrication technologies CUSAT has incubated 93 startup companies in the last five years providing employment support for over 300 youngsters.



To foster innovation, entrepreneurship and skill development, CUSAT has set up CUSATECH FOUNDATION, a company under section 8 (1) of the Companies Act, 2013. CUSAT has come out with a startup fund with the objective of helping our students and researchers to convert their innovative ideas into full-fledged ventures. This fund, set up with financial support from RUSA, is supporting over 40 companies under various domains like Electronic hardware, Bio

Technology, marine Science, Polymer and Software applications. A note on the pioneering companies in the campus is given in annexure.

5.3 Infrastructure Advantage

CUSAT boasts of strong physical and intellectual research infrastructure. It has a very vibrant research and academic Community in the campus: 500 teachers, 8000+ students including 1200 PhD scholars and 2000 PG students and a strong Alumni base. There are 125 running projects funded by national and state agencies executed by Faculty with research scholars. CUSAT possesses state of the art laboratories supported by agencies like UGC SAP,DST, DBT and DRDO. 90% of departments have recognitions/ funding through research projects, UGC SAP and DST FIST, TEQIP, DST PURSE. It has all facilities including recreational facilities, canteens, banks, playgrounds etc. to make the life easier for the companies.

STIC is an instrumentation and testing facility established In CUSAT in collaboration with KSCSTE, Govt of Kerala. It also houses the advanced analytical and instrumentation facility DST-SAIF with the financial support from DST, Government of India. C-SIS is a centre for educating school students about importance of science in everyday life with hands-on experiments and interesting lab sessions. An interuniversity centre for Nanomaterials and Devices was established with the help of Government of Kerala where joint research activities in the domain of Nanotechnology in nurtured. Support for filing patents, educating faculty and students in innovation practices and protection of intellectual property is being done by our Interuniversity centre for IPR studies.

5.4 Location Advantage

Located in the city of Kochi, CUSAT has huge geographical advantage. It is strategically located in the middle of the state, in close proximity to the International Airport and Railway station. It is a well-developed campus right on the side of the National Highway. Kochi is the commercial capital of Kerala, being home to the best of Industries in the state. Ernakulam is the largest contributor to the state's gross domestic product and has the highest share of industrial units in the state. It has the right mix of public and private enterprises. Most of the IT giants in India have made their presence in Infopark Kochi. Cochin is home to companies in domains such as Electronics, Marine products, Food processing, Polymer and Pharmaceuticals, CUSAT has

already entered into MOUs with many of the leading local companies for collaborative endeavours and is in talk with respected industry bodies like CII Kerala for Research and Academic Collaborations. Cochin has excellent academic infrastructure with a collection of engineering colleges, law colleges, medical college, polytechnics, and industrial training institutes. The Innovation system in Cochin is the best in Kerala with facilitating players like Infopark, KINFRA Park, Integrated Startup Complex of Kerala Startup Mission, Super Fablab of Maker Village and BioNest.

6.0 Budget for CUSAT Translational Research Centre

The CUSAT Translation Research Park will be set up with the funding support from State Government. It is proposed as an independent Innovation Space inside the CUSAT campus in 1 acre land with a total built-up space of 70,000 square feet to be developed in phases. This proposal is for phase I which will contain 30,000 square feet of built-up space, out of which, 5,000 sq ft will be earmarked for Common Amenities and Labs, 5,000 sq ft for Office space, 5,000 sq ft for startup space and 3,000 sq ft for each of the five identified domains. The objective is to make the centre financially self-sustaining in 3 years. The multiple revenue streams identified include Rent from Startups incubated in Startup Hub, Sponsored Research for Companies, Research Grants from Agencies, Revenue from the training and consulting Initiatives , Technology Transfer Fees , Sale of shares of incubated companies, CSR funds / Grants.

Table 1: Capital Cost for CUSAT Translati	onal Research Co	entre- Phase 1
Item	Amount in Rs	Total in Rs
Building (Details in Table 5)		
Civil works including water supply and	₹ 10,55,36,342.00	
sanitary	X 10,55,50,542.00	
Internal Electrification	₹ 1,26,64,361.04	
External Service connecting	₹ 52,76,817.10	
Fire fighting wet riser	₹ 35,22,736.00	
Fire alarm system manual	₹ 11,00,855.00	
GST	₹ 2,30,58,200.01	
Total Building cost		₹ 15,11,59,311.15
Common Amenities		
Fablab	₹ 20,00,000.00	
General Measurement Lab	₹ 20,00,000.00	
Wetlab	₹ 10,00,000.00	
Common Computer lab	₹ 20,00,000.00	
Total Common Amenities		₹ 70,00,000.00
Furnishing including furniture		₹ 1,50,00,000.00
Equipment		
Equipment for Life & Bio Centre(Table 6a)	₹ 1,01,23,981.00	
Equipment for Sensor Centre(Table 6b)	₹ 60,72,000.00	
Equipment for Electronic Centre(Table 6c)	₹ 1,00,00,000.00	
Equipment for AI & ML Centre(Table 6d)	₹ 1,00,00,000.00	
Equipment for Materials Centre (Table 6e)	₹ 1,30,06,000.00	
Total for the Domain specific Equipment		₹ 4,92,01,981.00
Miscellaneous		₹ 20,00,000.00
GRAND TOTAL		₹ 22,43,61,292.15

Table 2:Recurring Cost (From the year of commencement of operations)

	Rs. Lakhs
Particulars	
Manpower cost	84
Utility and maintenance	40
Activities and Events	20
Seed fund for startups	30
Administrative expenses including travel	15
Miscellaneous and Contingencies	6
TOTAL	195

Table 3: Internal Revenue on self-sustaining mode (Fourth year onwards)

Particulars	Rs. Lakhs
Training and Consulting fees	10
Rent from Startups incubated in Startup Hub	20
Sponsored Research for Companies	40
Technology Transfer Fees for Patented Technologies of CUSAT	30
Royalty fees	15
Research Grants from Agencies	30
Sale of shares of incubated companies	10
CSR funds / Grants	30
Miscellaneous	10
TOTAL	195

Table 4: Fund projection

Particulars	Rs. Cr
Capital Cost	22.43
Recurring Cost for first 3 years (1.95 x3)	5.8
Less: Internal generation first 3 years (taken at 50% of the projected revenue per year in self-sustaining mode)	2.9
Funding by CUSAT / other agencies for the first three years	2.9
Support sought from Govt. of Kerala	22.43

	Table 5: Details of Building estimate				
Sl. No	Details of work	% of total amount	Amount		
1	Civil works including water supply and sanitary		₹ 10,55,36,342.00		
2	Internal electrification	12.5% of total amount	₹ 1,26,64,361.04		
3	External service connection	5% of total amount	₹ 52,76,817.10		
4	Fire Fighting wet riser	4403.42 sqm @RS 800 per sqm	₹ 35,22,736.00		
5	Fire alarm system manual	4403.42 sqm @RS 250 per sqm	₹ 11,00,855.00		
			₹ 2,25,64,769.14		
	Total (A+B)		₹ 12,81,01,111.14		
	18%GST		₹ 2,30,58,200.01		
	Grand total		₹ 15,11,59,311.15		

Table 6	Table 6a: Estimates for the cost of equipment in LIFE SCIENCES AND			
BIOTE	BIOTECHNOLOGY			
Sl. No	Name of the Equipment	Quantity	Cost R.s	
1.	100L Fermenter and accessories	3	750000 x 3=	
			2,25,000.0	
2.	Autoclaving facility	2	173881.0	
	178L and 95L with accessories			
3.	Laminar flow	5	76020x5= 380100.0	
4.	Sealing Unit	1	25000.0	
5.	Packing and forwarding Unit	2	70000.0	
6.	Raw material drying and storage	1	500000.0	
7.	Solvent extraction unit (100Kg biomass)	1	500000.0	

8.	Solvent recovery unit	1	500000.0
9.	Powdering unit	1	1 00000.0
10.	Microalgae seed culture facility	1	2 00000.0
11.	Hot air oven	1	50000.0
12.	1000L photobioreactors	2	@1000000.0 Rs.
			2000000.0
13.	Continuous centrifugation	1	1000000.0
14.	Automatic packing machine	1	500000.0
15.	Storage facility: (Walk in cooler)	1	2500000.0
	High vacuum pump with Schlenk line	1	500000.0
16.	Laboratory fume hood	1	600000.00
17.	Dehydrating drier	1	100000.0
18.	Spectrophotometer	1	500000.0
	Grand Total		1,01,23,981.00

Table 6b: Estimates for the cost of equipment in SENSOR TECHNOLOGY			
S.No:	Equipment	Approximate price (Rs)	
1	Chemical vapour deposition equipment	40,00,000	
2	Thermal vapour depositor	5,00,000	
3	2 A booster	2,72,000	
4	Upgradation of Electrochemical workstation	13,00,000	
5	Total	60,72,000	

Table 6c: Estimates for the cost of equipment in ELECTRONIC PRODUCT DESIGN		
Sl No.	Item	Amount
1	Cadence for Hardware Design (30 license, 15 systems)	Rs 30,00,000
2	Turtlebot Pi4 robot (2nos) and accessories	Rs 5,50,000
3	CST Design Suite (1 license)	Rs 20,00,000
4	Siemens NX academic Suite	Rs 10,00,000
5	Xilinx FPGA Prototyping boards	Rs 20,00,000
6	Electronic workbench	Rs 5,00,000
7	UPS power backup for lab	Rs 7,50,000
	Total	Rs 1,00,00,000

Sl. No.	Туре	Quantity	Approximate Price (Rupees)
1.	High-end Server	1	Rs.20,00,000/-
2.	High-end Workstation	10	Rs.60,00,000/-
3.	Desktop PC	5	Rs.7,50,000/-
4.	Printer and Scanner	2	Rs.50,000/-
5.	Network Accessories	-	Rs.1,00,000/-
6.	Accessories for Video Conferencing (Projector, Camera, Microphone, Adapters, etc.)	-	Rs.2,00,000/-
7.	UPS	-	Rs.2,00,000/-
8.	Air Conditioning System	-	Rs.3,50,000/-
9.	Furniture	-	Rs.3,50,000/-
TOTAL			Rs.1,00,00,000/-

Table 6e: Estimates for the cost of equipment in MATERIAL SCIENCES		
Sl No	Description	Cost (Rs)
1	Planetary ball milling	34, 86,000.00
2	Screen printing	5,25,000.00
3	Large scale electrospinning unit	30,09,000.00
4	Translational stage	6,00,000.00
5	High resolution mixed signal oscilloscope	26,24,000.00
6	High impedance dual channel source meter	21,62,000.00
7	Force Sensor	6,00,000.00
	TOTAL	1,30,06,000.00

ANNEXURE



COCHIN UNIVERSITY OF SCIENCE AND TECHNOLOGY

CONSTRUCTION OF TRANSLATIONAL RESEARCH CENTRE AT CUSAT THRIKKAKARA CAMPUS



ESTIMATE REPORT

ENGINEERING DEPARTMENT CUSAT,THRIKKAKARA

REPORT

This detailed estimate Amounting to Rs. 15,11,59,311.00/- includes 18% of GST for the work of "Construction of translational research centre at CUSAT Thrikkakara Campus"

Design and Scope

The proposed construction is a three storied RCC framed structure having plinth area 4224.75sqm and floor height 3.60meter with foundation for G+6 floors. Following provisions have been made in the estimate.

- 1. RCC framed structure with floor height 3.60meter
- 2. Internal water supply and sanitary installations.
- 3. Internal Electrification.
- 4. External Service connection.
- 5. Fire Fighting and Fire Alarm System.
- 6. Retaining and compound wall.
- 7. RCC underground sump for 1 lakh Litre Capacity and Pump room.

Cost : Rs. 15,11,59,311.00/- including 18%

Rate : DSOR - 2018 with Cost Index 35.59%

Method : By contract after call of tenders

Time : 2 years

Land : Available

The details of facilities included

Floor	Plinth	Facilities	
	Area	Rooms	Area
Ground Floor	1380.15 m2	Director room	66.15 m2 (711.77 Sqft)
		Staff Room	67.5m2 (726.30 sqft)
		Discussion Room	2 nos x 67.5 m2 = 135 m2
			(1452.60 Sqft)
		Fab Lab	67.5m2 (726.30 sqft)
		Wet Lab	67.5m2 (726.30 sqft)
		Common Computing Facility	67.5m2 (726.30 sqft)
		General Measurement Lab	67.5m2 (726.30 sqft)
		Seminar Hall	136.80 m2 (1471.97sqft)
		Fire control room	32.15m2 (345.93SqFt)
		Staff room	32.15m2 (345.93SqFt)
		Electrical room	33.00m2 (355.08sqft)
		Toile Ladies	33.66m2 (362.18sqft.)
		Ladies Rest Room	33.00m2 (355.08sqft)
		Gents Rest Room	21.32m2 (229.40sqft)
		Toilet Gents	35.25m2 (379.29sqft.)
First Floor	1422.30 m2	Centre for translation research in Bio and Life Science	276.30m2 (2972.99sqft)
		Centre for translation research in Material Sciences	274.50m2 (2953.62 sqft)
		Common start-up room	273.60m2 (2943.94sqft)
		Store /Janitor	32.15m2 (345.93SqFt)
		Staff Room	32.15m2 (345.93SqFt)
		Toile Ladies	33.66m2 (362.18sqft.)
		Ladies Rest Room	33.00m2 (355.08sqft)
		Gents Rest Room	21.32m2 (229.40sqft)
		Toilet Gents	35.25m2 (379.29sqft.)
Second Floor	1422.30 m2	Centre for translation Sensor Technology	276.30m2 (2972.99sqft)
		Centre for translation research in Electronic Product Design	274.50m2 (2953.62 sqft)
		Centre for translation research in Artificial Inteligence and Machine Learning	273.60m2 (2943.94sqft)
		Store /Janitor	32.15m2 (345.93SqFt)
		Staff Room	32.15m2 (345.93SqFt)
		Toile Ladies	33.66m2 (362.18sqft.)
		Ladies Rest Room	33.00m2 (355.08sqft)
		Gents Rest Room	21.32m2 (229.40sqft)
		Toilet Gents	35.25m2 (379.29sqft.)
Total	4224.75 m2		

Technical Specifications of the building

SL	General Specification	Estimate is based on DSR 2018 enhanced
No	1	with a cost index of 35.59
1	Type of Structure	RCC Framed structure M25 design mix with
		Solid Block masonry wall
2	Type of stories	Ground + 2
3	Area of extension	Ground Floor = 1380.15 m2
		First floor area = 1422.30m2
		Second floor area = 1422.30m2
		Total area $= 4224.75m2$
4	Foundation	Single and Combined Footing in RCC M25
		Grade Design Mix concrete for G+6 Floors
5	Basement	Plinth beams in M25 Grade design mix RCC
6	Super structure	Solid block Masonry work of size
	_	30x20x15cm in CM 1:6
7	Joinery	Doors considered with Second Class
		teakwood, Windows, Ventilators considered
		with powder coated aluminium with glazing
8	Doors - Toilet	FRP door shutters and frames
9	Flooring/Skirting	Vitrified floor tiles for Common areas like
		Discussion rooms, research centres and
		passages. Toilets are considered with ceramic
	antiskid floor tile.	
10	Roofing	RCC Flat roof
11	Finishing	Finishing the walls with Acrylic smooth
		Exterior paint and Acrylic emulsion paint for
4.5		internal walls
12	Water supply and Sanitary	As per Norms
	Installation	

	ABSTRACT OF COST			
	Name of work: Construction of Translational Research Centre			
Sl. No	Details of work	% of total amount	Amount	
	Appendix A - Civil			
	works including		₹ 10,55,36,342.00	
	watersupply and		10,55,50,542.00	
	sanitary			
	Appendix B			
1	Internal electrification	12.5% of total amount	₹ 1,26,64,361.04	
2	External service conne	5% of total amount	₹ 52,76,817.10	
3	Fire Fighting wet riser	4403.42 sqm @RS 800	₹ 35,22,736.00	
4	Fire alarm system mar	4403.42 sqm @RS 250	₹ 11,00,855.00	
			₹ 2,25,64,769.14	
	Total (A+B)		₹ 12,81,01,111.14	
	18%GST		₹ 2,30,58,200.01	
	Grand total		₹ 15,11,59,311.15	

CONSTRUCTION OF TRANSLATIONAL RESEARCH CENTRE AT CUSAT THRIKKAKARA CAMPUS

ABSTRACT ESTIMATE

PRICE EST NO:2022/11144

Construction of translational research centre at CUSAT Thrikkakara Campus

Abstract Estimate

(Dsor year: 2018,Cost Index Applied for this estimate is 35.59%)

1 civil works			
1	2.8.1 Earth work in excavation by mechanical means (Hydraulic excavator) /manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan), including dressing of sides at ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplexcavated soil as directed, within a lead of 50 m.All kinds of soil		
	Net Total Quantity	3251.601 cum	
	Say 3251.601 cum @ Rs 296.94 / cum	Rs 965530.40	
2	4.1.8 Providing and laying in position cement concrete of specified grade establishment of shuttering - All work up to plinth level:1:4:8 (1 cement : 4 coarse sa nominal size)	•	
	Net Total Quantity	184.145 cum	
	Say 184.145 cum @ Rs 6814.89 / cum	Rs 1254927.92	
Providing and laying in position machine batched and machine mixed design mix M-25 grade ceme concrete for reinforced cement concrete work, using cement content as per approved design m including pumping of concrete to site of laying but excluding the cost of centering, shuttering, finishing and reinforcement, including admixtures in recommended proportions as per IS: 9103 to accelerate retard setting of concrete, improve workability without impairing strength and durability as per direction Engineer - in-charge. Note:- Cement content considered in this item is @ 330 kg/ cum. Excess or leadered used as per design mix is payable or recoverable separately. All work upto plinth level			
	Providing and laying in position machine batched and machine mixed concrete for reinforced cement concrete work, using cement contincluding pumping of concrete to site of laying but excluding the cost and reinforcement, including admixtures in recommended proportion retard setting of concrete, improve workability without impairing strength Engineer - in-charge. Note:- Cement content considered in this item cement used as per design mix is payable or recoverable separately	tent as per approved design mixet of centering, shuttering, finishing ons as per IS: 9103 to accelerate of the and durability as per direction of is @ 330 kg/ cum. Excess or lest	
	Providing and laying in position machine batched and machine mixed concrete for reinforced cement concrete work, using cement contincluding pumping of concrete to site of laying but excluding the cost and reinforcement, including admixtures in recommended proportion retard setting of concrete, improve workability without impairing strength Engineer - in-charge. Note:- Cement content considered in this item.	tent as per approved design mixet of centering, shuttering, finishing ons as per IS: 9103 to accelerate of the and durability as per direction of is @ 330 kg/ cum. Excess or lest	
	Providing and laying in position machine batched and machine mixed concrete for reinforced cement concrete work, using cement contincluding pumping of concrete to site of laying but excluding the cost and reinforcement, including admixtures in recommended proportion retard setting of concrete, improve workability without impairing strength Engineer - in-charge. Note:- Cement content considered in this item cement used as per design mix is payable or recoverable separately	tent as per approved design mixet of centering, shuttering, finishing ons as per IS: 9103 to accelerate of the and durability as per direction of is @ 330 kg/ cum. Excess or less y.All work upto plinth level	
4	Providing and laying in position machine batched and machine mixed concrete for reinforced cement concrete work, using cement contincluding pumping of concrete to site of laying but excluding the cost and reinforcement, including admixtures in recommended proportion retard setting of concrete, improve workability without impairing strength Engineer - in-charge. Note:- Cement content considered in this item cement used as per design mix is payable or recoverable separately. Net Total Quantity	tent as per approved design mixes of centering, shuttering, finishing ons as per IS: 9103 to accelerate of the and durability as per direction of is @ 330 kg/ cum. Excess or less y.All work upto plinth level 868.175 cum Rs 8172600.09 ed design mix M-25 grade cement as per approved design mixes of centering, shuttering, finishing ons as per IS: 9103 to accelerate of the and durability as per direction of is @ 330 kg/ cum. Excess or less	
	Providing and laying in position machine batched and machine mixed concrete for reinforced cement concrete work, using cement contincluding pumping of concrete to site of laying but excluding the cost and reinforcement, including admixtures in recommended proportion retard setting of concrete, improve workability without impairing strength Engineer - in-charge. Note: Cement content considered in this item cement used as per design mix is payable or recoverable separately. Net Total Quantity Say 868.175 cum @ Rs 9413.54 / cum 5.33.2 Providing and laying in position machine batched and machine mixed concrete for reinforced cement concrete work, using cement contincluding pumping of concrete to site of laying but excluding the cost and reinforcement, including admixtures in recommended proportion retard setting of concrete, improve workability without impairing strength Engineer - in-charge. Note:- Cement content considered in this item cement used as per design mix is payable or recoverable separately. As a concrete work is payable or recoverable separately. As a concrete work is payable or recoverable separately. As a concrete work is payable or recoverable separately. As a concrete work is payable or recoverable separately. As a concrete work is payable or recoverable separately. As a concrete work is payable or recoverable separately. As a concrete work is payable or recoverable separately. As a concrete work is payable or recoverable separately. As a concrete work is payable or recoverable separately. As a concrete work is payable or recoverable separately. As a concrete work is payable or recoverable separately. As a concrete work is payable or recoverable separately. As a concrete work is payable or recoverable separately. As a concrete work is payable or recoverable separately. As a concrete work is payable or recoverable work is payable or payable o	tent as per approved design mixes of centering, shuttering, finishing ons as per IS: 9103 to accelerate oth and durability as per direction of is @ 330 kg/ cum. Excess or less y.All work upto plinth level 868.175 cum Rs 8172600.09 ed design mix M-25 grade cement tent as per approved design mixes of centering, shuttering, finishing ons as per IS: 9103 to accelerate of the and durability as per direction of is @ 330 kg/ cum. Excess or less	

PRICE EST NO:2022/11144

5	Providing and laying water proofing treatment in sunken portion of WCs, bathroom etc., by applying cement slurry mixed with water proofing cement compound consisting of applying: a) First layer of slurry of cement @ 0.488 kg/sqm mixed with water proofing cement compound @ 0.253 kg/sqm. This layer will be allowed to air cure for 4 hours. b) Second layer of slurry of cement @ 0.242 kg /sqm mixed with water proofing cement compound @ 0.126 kg/ sqm. This layer will be allowed to air cure for 4 hours followed with water curing for 48 hours. The rate includes preparation of surface, treatment and sealing of all joints, corners, junctions of pipes and masonry with polymer mixed slurry.			
	Net Total Quantity	267.873 sqm		
	Say 267.873 sqm @ Rs 548.05 / sqm	Rs 146807.80		
6	50.6.1.4 Solid block masonry using pre cast solid blocks (Factory made) of size 30x20x20cm or nearest available size confirming to IS 2185 part I of 1979 for foundation and plinth with thickness 20cm and above in: CN 1:6 (1 cement: 6 coarse sand) etc complete			
	Net Total Quantity	121.653 cum		
	Say 121.653 cum @ Rs 5950.30 / cum	Rs 723871.85		
/	7 2.25 Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundation etc. in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift up to 1.5 m.			
	Net Total Quantity	575.108 cum		
	Other Say 575.108 cum @ Rs 258.57 / cum	NS Rs 148705.68		
8	od71454/2022_2023 Providing and applying Antitermite treatment by injecting chemical emulsion Imidacloprid emulsial concentrate .075% for pre-constructional treatment and creating a chemical barrier as per IS 6313 (P II) 2001 for wall trenches, foundation, top surface of plinth filling, foundation of wall and floor, along the external perimeter of the building, etc. complete conforming to manufacturers specification and directed by the Engineer-in-Charge. (Plinth area only to be measured for the payment)			
	Net Total Quantity	1278.012 per sqm		
	Say 1278.012 per sqm @ Rs 139.38 / per sqm	Rs 178129.31		
9	13.7.1 12 mm cement plaster finished with a floating coat of neat cement of m			
	Net Total Quantity	434.136 sqm		
	Say 434.136 sqm @ Rs 401.21 / sqm	Rs 174179.70		
10	5.9.3 Centering and shuttering including strutting, etc. and removal of form for:Suspended floors, roofs landings, balconies and access platform			
	Net Total Quantity	5540.770 sqm		
	Say 5540.770 sqm @ Rs 815.78 / sqm	Rs 4520049.35		
		I.		

	5.9.1 Centering and shuttering including strutting, etc. and removal of form columns, etc for mass concrete	for:Foundations, footings, bases
	Net Total Quantity	1013.041 sqm
	Say 1013.041 sqm @ Rs 335.31 / sqm	Rs 339682.78
12	5.9.5 Centering and shuttering including strutting, etc. and removal of form girders bressumers and cantilevers	n for:Lintels, beams, plinth beam
	Net Total Quantity	4814.389 sqm
	Say 4814.389 sqm @ Rs 649.82 / sqm	Rs 3128486.26
13	5.9.6 Centering and shuttering including strutting, etc. and removal of Abutments, Posts and Struts	form for:Columns, Pillars, Pier
	Net Total Quantity	1574.402 sqm
	Say 1574.402 sqm @ Rs 863.64 / sqm	Rs 1359716.54
14	5.9.7 Centering and shuttering including strutting, etc. and removal of for except spiral - staircases)	m for:Stairs, (excluding landing
	Net Total Quantity	73.500 sqm
	Say 73.500 sqm @ Rs 732.52 / sqm	Rs 53840.22
15	5.22.6 Steel reinforcement for R.C.C work including straightening, cutting binding all complete upto plinth levelThermo - Mechanically Treate	
	Net Total Quantity	307894.468 kilogram
	Say 307894.468 kilogram @ Rs 98.30 / kilogram	Rs 30266026.20
16	5.1.3	
	Providing and laying in position specified grade of reinforced ceme centering, shuttering, finishing and reinforcement - All work up to plint sand: 4 graded stone aggregate 20 mm nominal size)	•
	centering, shuttering, finishing and reinforcement - All work up to pline	-
	centering, shuttering, finishing and reinforcement - All work up to plint sand : 4 graded stone aggregate 20 mm nominal size)	th level:1:2:4 (1 cement : 2 coal
17	centering, shuttering, finishing and reinforcement - All work up to plint sand : 4 graded stone aggregate 20 mm nominal size) Net Total Quantity	th level:1:2:4 (1 cement : 2 coar 56.412 cum Rs 484492.77 e 30x20x20cm or nearest availal
	centering, shuttering, finishing and reinforcement - All work up to plint sand : 4 graded stone aggregate 20 mm nominal size) Net Total Quantity Say 56.412 cum @ Rs 8588.47 / cum 50.6.1.5 Solid block masonry using pre cast solid blocks (Factory made) of siz size confirming to IS 2185 Part I of 1979 for super structure up to fine same confirming to IS 2185 Part I of 1979 for super structure up to fine same case and confirming to IS 2185 Part I of 1979 for super structure up to fine same case and confirming to IS 2185 Part I of 1979 for super structure up to fine same case and confirming to IS 2185 Part I of 1979 for super structure up to fine same case and confirming to IS 2185 Part I of 1979 for super structure up to fine same case and confirming to IS 2185 Part I of 1979 for super structure up to fine same case and confirming to IS 2185 Part I of 1979 for super structure up to fine same case and confirming to IS 2185 Part I of 1979 for super structure up to fine same case and confirming to IS 2185 Part I of 1979 for super structure up to fine same case and confirming to IS 2185 Part I of 1979 for super structure up to fine same case and confirming to IS 2185 Part I of 1979 for super structure up to fine same case and confirming to IS 2185 Part I of 1979 for super structure up to fine same case and confirming to IS 2185 Part I of 1979 for super structure up to fine same case and confirming to IS 2185 Part I of 1979 for super structure up to fine same case and confirming to IS 2185 Part I of 1979 for super structure up to fine same case and confirming to IS 2185 Part I of 1979 for super structure up to fine same case and confirming to IS 2185 Part I of 1979 for super structure up to fine same case and confirming to IS 2185 Part I of 1979 for super structure up to fine same case and confirming to IS 2185 Part I of 1979 for super structure up to IS 2185 Part I of 1979 for super structure up to IS 2185 Part I of 1979 for super structure up to IS 2185 Part I of 1979 for super structure up to IS 2185 Part I of 1	th level:1:2:4 (1 cement : 2 coar 56.412 cum Rs 484492.77 e 30x20x20cm or nearest availal

18	Providing and fixing stainless steel (Grade 304) railing made of Hincluding welding, grinding, buffing, polishing and making curvature same with necessary stainless steel nuts and bolts complete, i/c accessories & stainless steel dash fasteners, stainless steel bolts etc floor or the side of waist slab with suitable arrangement as per appayment purpose only weight of stainless steel members shall accessories such as nuts, bolts, fasteners etc.)	(wherever required) and fitting the string the railing with necessary so, of required size on the top of the proval of Engineer-in-charge, (for
	Net Total Quantity	416.673 kg
	Say 416.673 kg @ Rs 677.34 / kg	Rs 282229.29
19	9.1.1 Providing wood work in frames of doors, windows, clerestory windows and fixed in position with hold fast lugs or with dash fasteners of requash fastener shall be paid for separately). Second class teak wood	<u> </u>
	Net Total Quantity	1.020 cum
	Say 1.020 cum @ Rs 153237.78 / cum	Rs 156302.54
20	9.5.1.2 Providing and fixing panelled or panelled and glazed shutters for clerestory windows, including ISI marked M.S. pressed butt hinges to necessery screws, excluding panelling which will be paid for separate Engineer - in-charge. Providing and fixing panelled or panelled and glackerstory windows fixing with butt hinges of required size with necessary windows fixing with butt hinges of required size with necessary windows shallbe paid separately) Second class teak working the provided statement of the paid separately.	oright finished of required size with ely, all complete as per direction of zed shutters for doors, windowsand essaryscrews, excluding panelling neer-in-charge. (Note:- Butt hinges
	Net Total Quantity	27.091 sqm
	Say 27.091 sqm @ Rs 3848.93 / sqm	Rs 104271.36
21	9.7.1 Providing and fixing panelling or panelling and glazing in panelled of doors, windows and clerestory windows (Area of opening for panelled grooves or rebates to be measured), Panelling for panelled or panelled mm thick:Second class teak wood	el inserts excluding portion inside
	Net Total Quantity	63.210 sqm
	Say 63.210 sqm @ Rs 3463.31 / sqm	Rs 218915.83
22	9.53 Providing 40x5 mm flat iron hold fast 40 cm long including fixing to fra and wooden plugs and embeddings in cement concrete block 30x1 coarse sand: 6 graded stone aggregate 20 mm nominal size)	
	Net Total Quantity	480.000 each
	Say 480.000 each @ Rs 210.98 / each	Rs 101270.40

23	9.63.1	
	Providing and fixing ISI marked oxidised M.S. tower bolt black finish, (etc. complete:250x10 mm	(Barrel type) with necessary screws
	Net Total Quantity	210.000 no
	Say 210.000 no @ Rs 87.25 / no	Rs 18322.50
24	9.63.4 Providing and fixing ISI marked oxidised M.S. tower bolt black finish, (etc. complete:100x10 mm	(Barrel type) with necessary screw
	Net Total Quantity	210.000 no
	Say 210.000 no @ Rs 45.56 / no	Rs 9567.60
25	9.65.2 Providing and fixing ISI marked oxidised M S door latches confetc.250x20x6 mm	forming to IS: 5930 with screw
	Net Total Quantity	91.000 no
	Say 91.000 no @ Rs 80.47 / no	Rs 7322.77
26	9.66.1 Providing and fixing ISI marked oxidised M.S. handles conforming to etc. complete:125 mm	o IS : 4992 with necessary screw
	Net Total Quantity	210.000 no
	Say 210.000 no @ Rs 41.02 / no	Rs 8614.20
		ing
27	9.70.1 Providing and fixing IS: 12817 marked stainless steel butt hinge complete:125x64x1.90 mm	T T
27	Providing and fixing IS: 12817 marked stainless steel butt hinge	T T
27	Providing and fixing IS: 12817 marked stainless steel butt hinge complete:125x64x1.90 mm	s with stainless steel screws et
27	Providing and fixing IS: 12817 marked stainless steel butt hinge complete:125x64x1.90 mm Net Total Quantity	s with stainless steel screws et 480.000 no Rs 47769.60 s of cross- section 90 mm x 45 mm thickness. The laminated shall be chopped mat. Door frame laminated that the three legs. The frame shall be
	Providing and fixing IS: 12817 marked stainless steel butt hinge complete:125x64x1.90 mm Net Total Quantity Say 480.000 no @ Rs 99.52 / no 9.121 Providing and fixing Fiber Glass Reinforced plastic (FRP) Door Frame having single rebate of 32 mm x 15 mm to receive shutter of 30 mm moulded with fire resistant grade unsaturated polyester resin and c shall be 2 mm thick and shall be filled with suitable wooden block in all	s with stainless steel screws etc. 480.000 no Rs 47769.60 s of cross- section 90 mm x 45 mm thickness. The laminated shall be hopped mat. Door frame laminated the little three legs. The frame shall be

29	9.122.1 Providing and fixing to existing door frames.30 mm thick Glas Fibre Reinforced Plastic (FRP) panel door shutter of required colour and approved brand and manufacture, made with fire - retardant grunsaturated polyester resin, moulded to 3 mm thick FRP laminate for forming hollow rails and styles, wooden frame and suitable blocks of seasoned wood inside at required places for fixing of fittings, monolithically with 5 mm thick FRP laminate for panels conforming to IS: 14856, including fixin frames.	
	Net Total Quantity	40.320 sqm
	Say 40.320 sqm @ Rs 4078.68 / sqm	Rs 164452.38
30	21.1.1.2 Providing and fixing aluminium work for doors, windows, ventilators a standard tubular sections/ appropriate Z sections and other sections of 733 and IS: 1285, fixing with dash fasteners of required dia and size gaps at junctions, i.e. at top, bottom and sides with required EP Aluminium sections shall be smooth, rust free, straight, mitred ar required including cleat angle, Aluminnium snap beading for glazing /p screws, all complete as per architectural drawings and the direction paneling and dash fasteners to be paid for separately):For fixed (minimum thickness of powder coating 50 micron)	of approved make conforming to IS: e, including necessary filling up the DM rubber/ neoprene gasket etc. and jointed mechanically wherever baneling, C.P. brass/ stainless steel has of Engineer-in-charge.(Glazing,
	Net Total Quantity	1899.002 kg
	Say 1899.002 kg @ Rs 537.07 / kg	Rs 1019897.00
31	21.1.2.2 Cher Engineering Organisation For shutters of doors, windows & ventilators including providing and provision for fixing of fittings wherever required including the cost of required (Fittings shall be paid for separately)Powder coated aluminic coating 50 micron)	of EPDM rubber/ neoprene gasket
	Net Total Quantity	1899.002 kg
	Say 1899.002 kg @ Rs 643.10 / kg	Rs 1221248.19
32	21.3.1 Providing and fixing glazing in aluminium door, window, ventilator shurther / neoprene gasket etc. complete as per the architectural drawing in -Charge. (Cost of aluminium snap beading shall be paid in basic mm thickness	ngs and the directions of Engineer -
	Net Total Quantity	379.802 sqm
	Say 379.802 sqm @ Rs 1176.65 / sqm	Rs 446894.02
33	21.11.3 Providing and fixing stainless steel (SS 304 grade) adjustable friction with necessary stainless steel screws etc. to the side hung windows	, , , , , ,
	Charge complete.355 x 19 mm	
	Charge complete.355 x 19 mm Net Total Quantity	545.000 no

	Say 545.000 no @ Rs 337.28 / no	Rs 183817.60	
34	9.100.1 Providing and fixing aluminium handles, ISI marked, anodised (anodic as per IS: 1868) transparent or dyed to required colour or shacomplete:125 mm	•	
	Net Total Quantity	545.000 no	
	Say 545.000 no @ Rs 70.17 / no	Rs 38242.65	
35	9.101.1 Providing and fixing aluminium hanging floor door stopper, ISI marked than grade AC 10 as per IS: 1868) transparent or dyed to required screws etc. complete.Single rubber stopper	`	
	Net Total Quantity	61.000 no	
	Say 61.000 no @ Rs 39.93 / no	Rs 2435.73	
36	od71457/2022_2023 Providing and fixing M.S. Grills of required pattern in frames of wind round bars etc. including priming coat with approved steel primer all coby welding (MR 2020)	omplete. br>Fixed to steel window	
	Net Total Quantity	7095.605 kg	
	Say 7095.605 kg @ Rs 184.54 / kg	Rs 1309422.95	
37	13.1.1 12 mm cement plaster of mix:1:4 (1 cement: 4 fine sand) anisation	ons	
	Net Total Quantity	15825.811 sqm	
	Say 15825.811 sqm @ Rs 314.09 / sqm	Rs 4970728.98	
38	od71458/2022_2023 Providing and laying vitrified matt finished floor tiles 1st quality doub different sizes (thickness to be specified by the manufacturer) with wa conforming to IS: 15622, of approved make, in all colours and sha mortar 1:4(1 cement: 4 coarse sand), including grouting the joints with equal interval and matching pigments etc. complete as per the direction of Tile 800 x 800 mm.	ter absorption less than 0.08% and ades, laid on 20 mm thick cemen n epoxy joint filler with spacer bar in	
	Net Total Quantity	4176.108 sqm	
	Say 4176.108 sqm @ Rs 1486.76 / sqm	Rs 6208870.33	
39	od71459/2022_2023 Providing and laying vitrified floor tiles 1st quality double charged Kaj (thickness to be specified by the manufacturer) with water absorption IS: 15622, of approved make, in all colours and shades, laid on cement: 4 coarse sand), including grouting the joints with epoxy j interval and matching pigments etc for skirting, risers and threads direction from the Engineer in charge. Size of Tile 800 x 800 mm.	less than 0.08% and conforming to 20 mm thick cement mortar 1:4(oint filler with spacer bar in equa	

	Net Total Quantity	295.048 sqm
	Say 295.048 sqm @ Rs 2073.45 / sqm	Rs 611767.28
40	od71460/2022_2023	
	Providing and laying antiskid Ceramic glazed floor tiles of size 300x30 the manufacturer), of 1st quality conforming to IS: 15622, of approve Ivory, Grey, Fume Red Brown, laid on 20 mm thick cement mortar 1:4 3mm thick spacers including pointing the joints with approved quality coated filler of desired shade (.10 kg of hardner and .2 kg of resin per finishing	ed make, in colours such as Whi (1 Cement : 4 Coarse sand),usi epoxy grout mix of .7kg of organ
	Net Total Quantity	246.363 sqm
	Say 246.363 sqm @ Rs 1091.04 / sqm	Rs 268791.89
41	11.37A	1
	specified by the manufacturer) of approved make in allcolours, shad black of any size as approvedby Engineer-in-Charge in skirting, rise thickbed of cement Mortar 1:3 (1 cement: 3 coarse sand) and jointing sqm including pointing in white cement mixed with pigment of matching	rs of steps and dados over 12 m with grey cementslurry @ 3.3kg p
	Net Total Quantity	430.203 sqm
	Say 430.203 sqm @ Rs 1092.18 / sqm	Rs 469859.11
42	Say 430.203 sqm @ Rs 1092.18 / sqm 13.43.1 Applying one coat of water thinnable cement primer of approved surface:Water thinnable cement primer	
42	13.43.1 Applying one coat of water thinnable cement primer of approved	
42	13.43.1 Applying one coat of water thinnable cement primer of approved surface:Water thinnable cement primer	I brand and manufacture on w
	13.43.1 Applying one coat of water thinnable cement primer of approved surface:Water thinnable cement primer Net Total Quantity	t brand and manufacture on with 15905.911 sqm Rs 1123593.55 ne additives of required shade:N
	13.43.1 Applying one coat of water thinnable cement primer of approved surface:Water thinnable cement primer Net Total Quantity Say 15905.911 sqm @ Rs 70.64 / sqm 13.47.1 Finishing walls with Premium Acrylic Smooth exterior paint with Silicon work (Two or more coats applied @ 1.43 ltr/ 10 sqm over and include the same statement of the same stateme	t brand and manufacture on with 15905.911 sqm Rs 1123593.55 ne additives of required shade:N
	13.43.1 Applying one coat of water thinnable cement primer of approved surface:Water thinnable cement primer Net Total Quantity Say 15905.911 sqm @ Rs 70.64 / sqm 13.47.1 Finishing walls with Premium Acrylic Smooth exterior paint with Silicon work (Two or more coats applied @ 1.43 ltr/ 10 sqm over and includapplied @ 2.20 kg/ 10 sqm)	I brand and manufacture on with 15905.911 sqm Rs 1123593.55 The additives of required shade:Note the priming coat of exterior priming priming coat of exterior priming shade:
43	13.43.1 Applying one coat of water thinnable cement primer of approved surface:Water thinnable cement primer Net Total Quantity Say 15905.911 sqm @ Rs 70.64 / sqm 13.47.1 Finishing walls with Premium Acrylic Smooth exterior paint with Silicon work (Two or more coats applied @ 1.43 ltr/ 10 sqm over and includapplied @ 2.20 kg/ 10 sqm) Net Total Quantity	t brand and manufacture on with 15905.911 sqm Rs 1123593.55 The additives of required shade:Note that the square of exterior prints are squared square of exterior prints are square of the square of exterior prints are square of exterior prints ar
43	13.43.1 Applying one coat of water thinnable cement primer of approved surface:Water thinnable cement primer Net Total Quantity Say 15905.911 sqm @ Rs 70.64 / sqm 13.47.1 Finishing walls with Premium Acrylic Smooth exterior paint with Silicon work (Two or more coats applied @ 1.43 ltr/ 10 sqm over and includapplied @ 2.20 kg/ 10 sqm) Net Total Quantity Say 3710.724 sqm @ Rs 189.69 / sqm 13.50.1 Applying priming coat:With ready mixed pink or Grey primer of approximations.	t brand and manufacture on with 15905.911 sqm Rs 1123593.55 The additives of required shade:Note that the state of the s
43	13.43.1 Applying one coat of water thinnable cement primer of approved surface:Water thinnable cement primer Net Total Quantity Say 15905.911 sqm @ Rs 70.64 / sqm 13.47.1 Finishing walls with Premium Acrylic Smooth exterior paint with Silicon work (Two or more coats applied @ 1.43 ltr/ 10 sqm over and includa applied @ 2.20 kg/ 10 sqm) Net Total Quantity Say 3710.724 sqm @ Rs 189.69 / sqm 13.50.1 Applying priming coat:With ready mixed pink or Grey primer of approve (hard and soft wood)	The additives of required shade:Noting priming coat of exterior priming and manufacture on wood were and were and were and were and
43	13.43.1 Applying one coat of water thinnable cement primer of approved surface:Water thinnable cement primer Net Total Quantity Say 15905.911 sqm @ Rs 70.64 / sqm 13.47.1 Finishing walls with Premium Acrylic Smooth exterior paint with Silicon work (Two or more coats applied @ 1.43 ltr/ 10 sqm over and includapplied @ 2.20 kg/ 10 sqm) Net Total Quantity Say 3710.724 sqm @ Rs 189.69 / sqm 13.50.1 Applying priming coat:With ready mixed pink or Grey primer of approve (hard and soft wood) Net Total Quantity Say 202.537 sqm @ Rs 67.18 / sqm	Rs 1123593.55 The additives of required shade:Noting priming coat of exterior priming and manufacture on wood we shade and manufact
43	13.43.1 Applying one coat of water thinnable cement primer of approved surface:Water thinnable cement primer Net Total Quantity Say 15905.911 sqm @ Rs 70.64 / sqm 13.47.1 Finishing walls with Premium Acrylic Smooth exterior paint with Silicon work (Two or more coats applied @ 1.43 ltr/ 10 sqm over and includapplied @ 2.20 kg/ 10 sqm) Net Total Quantity Say 3710.724 sqm @ Rs 189.69 / sqm 13.50.1 Applying priming coat:With ready mixed pink or Grey primer of approve (hard and soft wood) Net Total Quantity	Rs 1123593.55 The additives of required shade: Note that the state of

	Say 12195.187 sqm @ Rs 151.39 / sqm	Rs 1846229.36
46	13.61.1 Painting with synthetic enamel paint of approved brand and manufactories more coats on new work	cture to give an even shade:Two
	Net Total Quantity	582.339 sqm
	Say 582.339 sqm @ Rs 143.05 / sqm	Rs 83303.59
	2 Sanitory and water supply arrangements	
1	17.2.1 Providing and fixing white vitreous china pedestal type water closet (land lid, 10 litre low level white P.V.C. flushing cistern, including fludevice (handle lever), conforming to IS: 7231, with all fittings and fixtumaking good the walls and floors wherever required:W.C. pan with and lid	ush pipe, with manually controures complete, including cutting
	Net Total Quantity	42.000 each
	Say 42.000 each @ Rs 6192.67 / each	Rs 260092.14
	Providing and fixing white vitreous china flat back or wall corner 430x260x350 mm and 340x410x265 mm sizes respectively with autoflush pipe and C.P. brass spreaders with brass unions and G.I. clan	matic flushing cistern with stand
	fittings and brackets, cutting and making good the walls and floors was with 5 litre white P.V.C. automatic flushing cistern Net Total Quantity	wherever required:One urinal bands 9.000 each
	with 5 litre white P.V.C. automatic flushing cistern Other Engineering Organisation	ns
3	with 5 litre white P.V.C. automatic flushing cistern Net Total Quantity	9.000 each Rs 52780.86 pillar taps, 32 mm C.P. brass wa utting and making good the w
3	with 5 litre white P.V.C. automatic flushing cistern Net Total Quantity Say 9.000 each @ Rs 5864.54 / each 17.7.3 Providing and fixing wash basin with C.I. brackets, 15 mm C.P. brass of standard pattern, including painting of fittings and brackets, cu wherever require:White Vitreous China Wash basin size 550x400 m	9.000 each Rs 52780.86 pillar taps, 32 mm C.P. brass wa utting and making good the w
3	with 5 litre white P.V.C. automatic flushing cistern Net Total Quantity Say 9.000 each @ Rs 5864.54 / each 17.7.3 Providing and fixing wash basin with C.I. brackets, 15 mm C.P. brass of standard pattern, including painting of fittings and brackets, cu wherever require:White Vitreous China Wash basin size 550x400 m pillar taps	9.000 each Rs 52780.86 pillar taps, 32 mm C.P. brass was utting and making good the warm with a pair of 15 mm C.P. br
3	with 5 litre white P.V.C. automatic flushing cistern Net Total Quantity Say 9.000 each @ Rs 5864.54 / each 17.7.3 Providing and fixing wash basin with C.I. brackets, 15 mm C.P. brass of standard pattern, including painting of fittings and brackets, converge to the c	9.000 each Rs 52780.86 pillar taps, 32 mm C.P. brass was utting and making good the warm with a pair of 15 mm C.P. brass and the matter of 15 mm C.P. brass and the matter of 15 mm C.P. brass creating and control of 15 mm C.P. brass screating and the matter of 15 mm C.P. brass screating and the matter of 15 mm C.P. brass screating and the matter of 15 mm C.P. brass screating and the matter of 15 mm C.P. brass screating and the matter of 15 mm C.P. brass screating and the matter of 15 mm C.P. brass screating and the matter of 15 mm C.P. brass was until the 15 mm
	with 5 litre white P.V.C. automatic flushing cistern Net Total Quantity Say 9.000 each @ Rs 5864.54 / each 17.7.3 Providing and fixing wash basin with C.I. brackets, 15 mm C.P. brass of standard pattern, including painting of fittings and brackets, converge wherever require: White Vitreous China Wash basin size 550x400 m pillar taps Net Total Quantity Say 30.000 each @ Rs 3351.04 / each 17.73.2 Providing and fixing PTMT towel rail complete with brackets fixed to wow with concealed fitting arrangement of approved quality and colour600	9.000 each Rs 52780.86 pillar taps, 32 mm C.P. brass was utting and making good the warm with a pair of 15 mm C.P. brass was a series of the
	with 5 litre white P.V.C. automatic flushing cistern Net Total Quantity Say 9.000 each @ Rs 5864.54 / each 17.7.3 Providing and fixing wash basin with C.I. brackets, 15 mm C.P. brass of standard pattern, including painting of fittings and brackets, cu wherever require: White Vitreous China Wash basin size 550x400 m pillar taps Net Total Quantity Say 30.000 each @ Rs 3351.04 / each 17.73.2 Providing and fixing PTMT towel rail complete with brackets fixed to w with concealed fitting arrangement of approved quality and colour600 of 645 mm, width 78 mm and effective height of 88 mm, weighting not	9.000 each Rs 52780.86 pillar taps, 32 mm C.P. brass was utting and making good the warm with a pair of 15 mm C.P. brass of the warm with a pair of 15 mm C.P. brass of the warm with a pair of 15 mm C.P. brass of the warm long towel rail with total lend to less than 190 gms

	Not Total Overtity	42,000 ==
	Net Total Quantity	42.000 no
	Say 42.000 no @ Rs 1280.77 / no	Rs 53792.34
6	50.17.1.1 Supplying and fixing Stainless steel soap dish including cost of complete as per the direction of site Engineer-in-charge.	materials and labour charges et
	Net Total Quantity	42.000 no
	Say 42.000 no @ Rs 67.02 / no	Rs 2814.84
7	18.51.1 Providing and fixing C.P. brass long body bib cock of approved qual weighing not less than 690 gms.15 mm nominal bore	ity conforming to IS standards ar
	Net Total Quantity	42.000 each
	Say 42.000 each @ Rs 650.15 / each	Rs 27306.30
8	18.52.1 Providing and fixing C.P brass stop cock (concealed) of standa conforming to IS: 893115 mm nominal bore	rd design and of approved mal
	Net Total Quantity	126.000 each
	Say 126.000 each @ Rs 713.61 / each	Rs 89914.86
	3 Internal drainage and water supply	
	EO 40 0 C 2	
1	50.18.8.6.2 Providing and fixing PVC pipes, fittings including fixing the pipe will includes jointing of pipes & fittings with one step PVC solvent cemer per direction of Engineer-in-Charge. Concealed work, including cutting etc. 50 mm pipe 6 kgf/cm2	nt and testing of joints complete
1	Providing and fixing PVC pipes, fittings including fixing the pipe will include jointing of pipes & fittings with one step PVC solvent cemer per direction of Engineer-in-Charge. Concealed work, including cutting	nt and testing of joints complete
1	Providing and fixing PVC pipes, fittings including fixing the pipe will includes jointing of pipes & fittings with one step PVC solvent cemer per direction of Engineer-in-Charge. Concealed work, including cutting etc. 50 mm pipe 6 kgf/cm2	at and testing of joints complete and chases and making good the w
2	Providing and fixing PVC pipes, fittings including fixing the pipe with includes jointing of pipes & fittings with one step PVC solvent cemer per direction of Engineer-in-Charge. Concealed work, including cutting etc. 50 mm pipe 6 kgf/cm2 Net Total Quantity	t and testing of joints complete and testing of joints complete and testing good the way to the state of the state of joints and testing of joints complete as part and testin
	Providing and fixing PVC pipes, fittings including fixing the pipe will includes jointing of pipes & fittings with one step PVC solvent cemer per direction of Engineer-in-Charge. Concealed work, including cutting etc. 50 mm pipe 6 kgf/cm2 Net Total Quantity Say 75.000 metre @ Rs 438.93 / metre 50.18.8.7.1 Providing and fixing PVC pipes, fittings including fixing the pipe will includes jointing of pipes with one step PVC solvent cement and direction of Engineer-in-Charge. Concealed work including cutting charges.	t and testing of joints complete and testing of joints complete and testing good the way to the state of the state of joints and testing of joints complete as part and testin
	Providing and fixing PVC pipes, fittings including fixing the pipe will includes jointing of pipes & fittings with one step PVC solvent cemer per direction of Engineer-in-Charge. Concealed work, including cutting etc. 50 mm pipe 6 kgf/cm2 Net Total Quantity Say 75.000 metre @ Rs 438.93 / metre 50.18.8.7.1 Providing and fixing PVC pipes, fittings including fixing the pipe will includes jointing of pipes with one step PVC solvent cement and direction of Engineer-in-Charge. Concealed work including cutting charges mm pipe 6 Kgf/cm2	75.000 metre Rs 32919.75 th clamps at 1.00 m spacing. The testing of joints complete as places and making good the wall e
	Providing and fixing PVC pipes, fittings including fixing the pipe will includes jointing of pipes & fittings with one step PVC solvent cemer per direction of Engineer-in-Charge. Concealed work, including cutting etc. 50 mm pipe 6 kgf/cm2 Net Total Quantity Say 75.000 metre @ Rs 438.93 / metre 50.18.8.7.1 Providing and fixing PVC pipes, fittings including fixing the pipe will includes jointing of pipes with one step PVC solvent cement and direction of Engineer-in-Charge. Concealed work including cutting charges may be a fitting of pipes. Net Total Quantity	75.000 metre Rs 32919.75 th clamps at 1.00 m spacing. The testing of joints complete as pases and making good the wall expenses and making g
2	Providing and fixing PVC pipes, fittings including fixing the pipe with includes jointing of pipes & fittings with one step PVC solvent cemer per direction of Engineer-in-Charge. Concealed work, including cutting etc. 50 mm pipe 6 kgf/cm2 Net Total Quantity Say 75.000 metre @ Rs 438.93 / metre 50.18.8.7.1 Providing and fixing PVC pipes, fittings including fixing the pipe with includes jointing of pipes with one step PVC solvent cement and direction of Engineer-in-Charge. Concealed work including cutting charges are made in pipe 6 kgf/cm2 Net Total Quantity Say 295.202 metre @ Rs 609.45 / metre 50.18.9.17.2 Providing and fixing PVC pipes including fixing the pipe with clantincludes jointing of pipes with one step PVC solvent cement and	75.000 metre Rs 32919.75 th clamps at 1.00 m spacing. The testing of joints complete as places and making good the wall expenses and making

4	50.18.9.7.1 Providing and fixing PVC pipes includings of pipes with one step PVC & testing of joints complete as per direction of Engineer in Charge. 63	•
	Net Total Quantity	60.000 metre
	Say 60.000 metre @ Rs 346.95 / metre	Rs 20817.00
5	50.18.9.20.1 Providing and fixing PVC moulded fittings/ accessories for Rigid PVC solvent cement - 63 mm dia Elbow	pipes, including jointing with PVC
	Net Total Quantity	20.000 no
	Say 20.000 no @ Rs 72.95 / no	Rs 1459.00
6	50.18.9.20.2 Providing and fixing PVC moulded fittings/ accessories for Rigid PVC solvent cement -63 dia 45 degree Elbow	pipes, including jointing with PVC
	Net Total Quantity	20.000 no
	Say 20.000 no @ Rs 64.20 / no	Rs 1284.00
7	50.18.9.20.3 Providing and fixing PVC moulded fittings /accessories for Rigid PVC solvent cement - 63 mm dia Door Elbow	pipes, including jointing with PVC
	Net Total Quantity	12.000 no
	Other Fn Say 12.000 no @ Rs 80.50 / no	Rs 966.00
8	50.18.9.20.4 Providing and fixing PVC moulded fittings/ accessories for Rigid PVC solvent cement - 63 mm dia Bend	pipes, including jointing with PVC
	Net Total Quantity	30.000 no
	Say 30.000 no @ Rs 79.30 / no	Rs 2379.00
9	50.18.9.20.5 Providing and fixing PVC moulded fittings/accessories for Rigid PVC solvent cement - 63x63x63 mm dia Tee	C pipes including jointing with PVC
	Net Total Quantity	12.000 no
	Say 12.000 no @ Rs 86.10 / no	Rs 1033.20
10	50.18.9.20.6 Providing and fixing PVC moulded fittings/ accessories for Rigid PVC solvent cement -63x63x63 mm dia Door Tee	pipes, including jointing with PVC
	Net Total Quantity	5.000 no

	50.18.9.20.7 Providing and fixing PVC moulded fittings/ accessories for Rigid PVC	pipes, including jointing with P
	solvent cement - 63 mm dia vent cowl Net Total Quantity	8.000 no
	·	
	Say 8.000 no @ Rs 76.40 / no	Rs 611.20
12	50.18.9.19.1 Providing and fixing PVC pipes including fixing the pipe with clamp includes jointing of pipes with one step PVC solvent cement and direction of Engineer-in-Charge 110 mm dia 6 Kgf/cm2 - External	testing of joints complete as
	Net Total Quantity	371.202 metre
	Say 371.202 metre @ Rs 381.75 / metre	Rs 141706.36
13	50.18.9.19.2 Providing and fixing PVC pipes including fixing the pipe with clan includes jointing of pipes with one step PVC solvent cement and direction of Engineer-in-Charge 110 m dia 4 Kgf/cm2 - External v	testing of joints complete as
	Net Total Quantity	50.000 metre
	Say 50.000 metre @ Rs 331.70 / metre	Rs 16585.00
14	50.18.8.9.1	
14	50.18.8.9.1 Providing and fixing PVC pipes, fittings including fixing the pipe wit includes jointing of pipes with one step PVC solvent cement and direction of Engineer-in-Charge. Concealed work, including cutting charge. 110 mm pipe 6kgf/cm2	testing of joints complete as ased and making good the wall
14	Providing and fixing PVC pipes, fittings including fixing the pipe with includes jointing of pipes with one step PVC solvent cement and direction of Engineer-in-Charge. Concealed work, including cutting charge 110 mm pipe 6kgf/cm2 Net Total Quantity	testing of joints complete as ased and making good the wall
15	Providing and fixing PVC pipes, fittings including fixing the pipe with includes jointing of pipes with one step PVC solvent cement and direction of Engineer-in-Charge. Concealed work, including cutting charge in the pipe 6kgf/cm2	testing of joints complete as ased and making good the wall 12.000 metre Rs 8674.80
	Providing and fixing PVC pipes, fittings including fixing the pipe with includes jointing of pipes with one step PVC solvent cement and direction of Engineer-in-Charge. Concealed work, including cutting charge 110 mm pipe 6kgf/cm2 Net Total Quantity Say 12.000 metre @ Rs 722.90 / metre 50.18.9.22.2 Providing and fixing PVC moulded fittings / accessories for Rigid PVC	testing of joints complete as ased and making good the wall 12.000 metre Rs 8674.80
	Providing and fixing PVC pipes, fittings including fixing the pipe with includes jointing of pipes with one step PVC solvent cement and direction of Engineer-in-Charge. Concealed work, including cutting charge 110 mm pipe 6kgf/cm2 Net Total Quantity Say 12:000 metre @ Rs 722:90 / metre 50.18.9.22.2 Providing and fixing PVC moulded fittings / accessories for Rigid PVC solvent cement - 110 mm dia 45 degree Elbow	testing of joints complete as ased and making good the wall 12.000 metre Rs 8674.80 C pipes, including jointing with P
	Providing and fixing PVC pipes, fittings including fixing the pipe with includes jointing of pipes with one step PVC solvent cement and direction of Engineer-in-Charge. Concealed work, including cutting charges and pipe 6kgf/cm2 Net Total Quantity Say 12.000 metre @ Rs 722.90 / metre 50.18.9.22.2 Providing and fixing PVC moulded fittings / accessories for Rigid PVC solvent cement - 110 mm dia 45 degree Elbow Net Total Quantity	testing of joints complete as ased and making good the wall 12.000 metre Rs 8674.80 C pipes, including jointing with F 24.000 no Rs 2527.92
15	Providing and fixing PVC pipes, fittings including fixing the pipe with includes jointing of pipes with one step PVC solvent cement and direction of Engineer-in-Charge. Concealed work, including cutting charges and pipe 6kgf/cm2 Net Total Quantity Say 12.000 metre @ Rs 722.90 / metre 50.18.9.22.2 Providing and fixing PVC moulded fittings / accessories for Rigid PVC solvent cement - 110 mm dia 45 degree Elbow Net Total Quantity Say 24.000 no @ Rs 105.33 / no 50.18.9.22.3 Providing and fixing PVC moulded fittings/ accessories for Rigid PVC	testing of joints complete as ased and making good the wall 12.000 metre Rs 8674.80 C pipes, including jointing with F 24.000 no Rs 2527.92
15	Providing and fixing PVC pipes, fittings including fixing the pipe with includes jointing of pipes with one step PVC solvent cement and direction of Engineer-in-Charge. Concealed work, including cutting charges and pipe 6kgf/cm2 Net Total Quantity Say 12:000 metre @ Rs 722:90 / metre 50.18.9.22.2 Providing and fixing PVC moulded fittings / accessories for Rigid PVC solvent cement - 110 mm dia 45 degree Elbow Net Total Quantity Say 24.000 no @ Rs 105.33 / no 50.18.9.22.3 Providing and fixing PVC moulded fittings/ accessories for Rigid PVC solvent cement-110 mm dia Door Elbow	testing of joints complete as ased and making good the wall 12.000 metre Rs 8674.80 24.000 no Rs 2527.92 2 pipes, including jointing with P
15	Providing and fixing PVC pipes, fittings including fixing the pipe with includes jointing of pipes with one step PVC solvent cement and direction of Engineer-in-Charge. Concealed work, including cutting charges and pipe 6kgf/cm2 Net Total Quantity Say 12:000 metre @ Rs 722:90 / metre 50:18:9:22:2 Providing and fixing PVC moulded fittings / accessories for Rigid PVC solvent cement - 110 mm dia 45 degree Elbow Net Total Quantity Say 24:000 no @ Rs 105:33 / no 50:18:9:22:3 Providing and fixing PVC moulded fittings/ accessories for Rigid PVC solvent cement-110 mm dia Door Elbow Net Total Quantity	testing of joints complete as ased and making good the wall 12.000 metre Rs 8674.80 24.000 no Rs 2527.92 2 pipes, including jointing with F 12.000 no Rs 1584.36

	Say 50.000 no @ Rs 161.08 / no	Rs 8054.00
18	50.18.9.22.5 Providing and fixing PVC moulded fittings/ accessories for Rigid PVC solvent cement 110x110x110 mm dia Tee	C pipes including jointing with P\
	Net Total Quantity	10.000 no
	Say 10.000 no @ Rs 174.79 / no	Rs 1747.90
19	50.18.9.22.6 Providing and fixing PVC moulded fittings/accessories for Rigid PVC solvent cement - 110x110x110 mm dia Door tee	pipes, including jointing with P
	Net Total Quantity	5.000 no
	Say 5.000 no @ Rs 187.59 / no	Rs 937.95
20	50.18.9.22.7 Providing and fixing PVC moulded fittings/ accessories for Rigid PVC solvent cement - 110x110x75 mm dia Door Tee	C pipes, including jointing with P
	Net Total Quantity	5.000 no
	Say 5.000 no @ Rs 180.64 / no	Rs 903.20
21	50.18.9.22.8 Providing and fixing PVC moulded fittings /accessories for Rigid PVC solvent cement -110 mm dia Vent cowl	C pipes, including jointing with P
	Other Engineering Net Total Quantity	4.000 no
	Say 4.000 no @ Rs 123.88 / no	Rs 495.52
22	50.18.9.5.2 Providing and fixing PVC pipes includings jointing of pipes with one s refilling & testing of joints compete as per direction of Engineer in Cha	•
	Net Total Quantity	20.000 metre
	Say 20.000 metre @ Rs 234.39 / metre	Rs 4687.80
23	50.18.8.3.1 Providing and fixing PVC pipes, fittings including fixing the pipe will include jointing of pipes & fittings with one step PVC solvent cemer per direction of Engineer-in-Charge. Concealed work, including cutting etc. 25 mm pipe 12 kgf/cm2	nt and testing of joints complete
	Net Total Quantity	50.000 metre
	Say 50.000 metre @ Rs 440.43 / metre	Rs 22021.50
24	50.18.8.4.1 Providing and fixing PVC pipes, fittings including fixing the pipe wire includes jointing of pipes & fittings with one step PVC solvent cemer per direction of Engineer-in-Charge. Concealed work, including cutting etc. 32 mm pipe 10Kgf/cm2	nt and testing of joints complete

	Not Total Quantity	41.535 metre
	Net Total Quantity	
	Say 41.535 metre @ Rs 446.48 / metre	Rs 18544.55
25	50.18.9.8.1 Providing and fixing PVC pipes includings jointing of pipes with one strefilling & testing of joints complete as per direction of Engineer in Characteristics.	•
	Net Total Quantity	10.000 metre
	Say 10.000 metre @ Rs 360.40 / metre	Rs 3604.00
26	od71455/2022_2023 Suppling and fixing 110 steel gratings	
	Net Total Quantity	36.000 each
	Say 36.000 each @ Rs 259.71 / each	Rs 9349.56
28	with 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate concrete 1:4:8 mix (1 cement : 4 coarse sand : 8 graded stone aggregate plastering 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse neat cement and making channels in cement concrete 1:2:4 (1 ceme aggregate 20 mm nominal size) finished with a floating coat of neat design:Inside size 90x80 cm and 45 cm deep including C.I. cover we internal dimensions, total weight of cover and frame to be not less that weight of frame 15 kg):With common burnt clay F.P.S. (non modular) Net Total Quantity Say 5.000 each @ Rs 12836.64 / each od71456/2022_2023 Supplying approved make PVC gully trap of size 160 x 110mm and C.	egate 40 mm nominal size,) inside sand) finished with floating coat of ht: 2 coarse sand: 4 graded stone cement complete as per standard ith frame (light duty) 455x610 mm an 38 kg (weigh of cover 23 kg and bricks of class designation 7.5 1000 each Rs 64183.20
Supplying approved make PVC gully trap of size 160 x 110mm and CI grating 150mmx150mm size and light duty C.I cover with frames 300mmx300mm size(inside) the weight of cover to be not less than4.5kg and frame to be not less than2.7kg (CI MH cover and frame as per IS:1726) single sealed of size conveying to size the above mentioned items and constructing 30cmx30cm internal size gully trap chamber and depth upto 60cm,115 thk brick wall in CM 1:6 on a foundation of PCC 1:4:8.100mm thic plastering inside with CM 1:3,12mm thk with a neat cement flushing coat and conveying to site,cleaning installing and testing approved make PVC gully trap with 160mm outlet(Fabricated),surrounding with CO 1:1.5:3, 150x150mmm,top with CI grating above the PVC gulley trap and light duty CI cover and frame over the chamber including cost of all materials, etc complete as per approved drawing and as directed by Engineer-in- Charge.		
	Net Total Quantity	36.000 each
	Say 36.000 each @ Rs 3020.69 / each	Rs 108744.84
29	18.18.3 Providing and fixing ball valve (brass) of approved quality, High o complete:25 mm nominal bore	
	Net Total Quantity	5.000 each

	Say 5.000 each @ Rs 463.79 / each	Rs 2318.95
30	18.19.2.2 Providing and fixing gun metal non-return valve of approved qual boreVertical	ity (screwed end):32 mm nomi
	Net Total Quantity	5.000 each
	Say 5.000 each @ Rs 834.15 / each	Rs 4170.75
31	18.48 Providing and placing on terrace (at all floor levels) polyethylene water storage tank :ISI 12701 ma with cover and suitable locking arrangement and making necessary holes for inlet, outlet and over pipes but without fittings and the base support for tank.	
	Net Total Quantity	12000.000 Litre
	Say 12000.000 Litre @ Rs 10.37 / Litre	Rs 124440.00
	4 septic tank	
1	2.2.1 Earth work in rough excavation, banking excavated earth in laye breaking clods, watering, rolling each layer with 1/2 tonne roller or we every 3rd and top-most layer with power roller of minimum 8 tonnes a roads, flood banks, marginal banks and guide banks or filling up greated lift up to 1.5 m:All kinds of soil	ooden or steel rammers, and rol and dressing up in embankments
	Net Total Quantity	96.000 cum
	0.1 E : 0 : .:	
	Other Say 96.000 cum @ Rs 879.03 / cum	ns Rs 84386.88
2	4.1.8 Providing and laying in position cement concrete of specified grade shuttering - All work up to plinth level:1:4:8 (1 cement : 4 coarse sa nominal size)	excluding the cost of centering
2	4.1.8 Providing and laying in position cement concrete of specified grade of shuttering - All work up to plinth level:1:4:8 (1 cement : 4 coarse satisfies)	excluding the cost of centering
2	4.1.8 Providing and laying in position cement concrete of specified grade of shuttering - All work up to plinth level:1:4:8 (1 cement : 4 coarse sa nominal size)	excluding the cost of centering and : 8 graded stone aggregate
3	4.1.8 Providing and laying in position cement concrete of specified grade of shuttering - All work up to plinth level:1:4:8 (1 cement : 4 coarse satinominal size) Net Total Quantity	excluding the cost of centering and: 8 graded stone aggregate 3.000 cum Rs 20444.67
	4.1.8 Providing and laying in position cement concrete of specified grade of shuttering - All work up to plinth level:1:4:8 (1 cement : 4 coarse satisfied) Net Total Quantity Say 3.000 cum @ Rs 6814.89 / cum 5.1.2 Providing and laying in position specified grade of reinforced cemer centering, shuttering, finishing and reinforcement - All work up to plinth	excluding the cost of centering and: 8 graded stone aggregate 3.000 cum Rs 20444.67
	4.1.8 Providing and laying in position cement concrete of specified grade of shuttering - All work up to plinth level:1:4:8 (1 cement : 4 coarse satisfied size) Net Total Quantity Say 3.000 cum @ Rs 6814.89 / cum 5.1.2 Providing and laying in position specified grade of reinforced cemer centering, shuttering, finishing and reinforcement - All work up to plinth sand :3 graded stone aggregate 20 mm nominal size	excluding the cost of centering and: 8 graded stone aggregate 3.000 cum Rs 20444.67 ent concrete, excluding the cost of level:1:1:5:3 (1 cement 1.5 coat
	4.1.8 Providing and laying in position cement concrete of specified grade of shuttering - All work up to plinth level:1:4:8 (1 cement : 4 coarse satinominal size) Net Total Quantity Say 3.000 cum @ Rs 6814.89 / cum 5.1.2 Providing and laying in position specified grade of reinforced cemer centering, shuttering, finishing and reinforcement - All work up to plinth sand :3 graded stone aggregate 20 mm nominal size Net Total Quantity	and: 8 graded stone aggregate 3.000 cum Rs 20444.67 ent concrete, excluding the cost of level:1:1:5:3 (1 cement 1.5 coat 6.000 cum Rs 54510.84 ettached pilasters, buttresses, plinted struts etc. up tot floor five level:

	Say 10.000 cum @ Rs 10954.04 / cum	Rs 109540.40
5	5.22.6 Steel reinforcement for R.C.C work including straightening, cutting binding all complete upto plinth levelThermo - Mechanically Treate	
	Net Total Quantity	2100.000 kilogram
	Say 2100.000 kilogram @ Rs 98.30 / kilogram	Rs 206430.00
6	13.3.1 20 mm cement plaster of mix:1:4 (1 cement : 4 fine sand)	
	Net Total Quantity	87.000 sqm
	Say 87.000 sqm @ Rs 429.96 / sqm	Rs 37406.52
7	6.23 Honey-comb brick work 10/11.4 cm thick with common burnt clay bric structure above plinth level upto floor V level with cement mortar 1:4 (-
	Net Total Quantity	10.000 sqm
	Say 10.000 sqm @ Rs 699.37 / sqm	Rs 6993.70
8	19.19.1.1	
	Providing and fixing in position Pre-cast R.C.C. manhole cover a approved quality.L D - 2.5Rectangular shape 600x450 mm interest	
	approved quality.L D - 2.5Rectangular shape 600x450 mm interest	2.000 each
	approved quality.L D - 2.5Rectangular shape 600x450 mm interesting to the control of the control	2.000 each Rs 2893.08
1	approved quality.L D - 2.5Rectangular shape 600x450 mm internation. Net Total Quantity Other Say 2.000 each @ Rs 1446.54 / each 0	2.000 each Rs 2893.08 ALL eaking clods, watering, rolling each every 3rd and top-most layer with start for roads, flood banks, marginal
1	APPENDIX B RETAINING AND COMPOUND W 2.3.1 Banking excavated earth in layers not exceeding 20 cm in depth, bre layer with 1/2 tonne roller, or wooden or steel rammers, and rolling power roller of minimum 8 tonnes and dressing up, in embankment	2.000 each Rs 2893.08 ALL eaking clods, watering, rolling each every 3rd and top-most layer with start for roads, flood banks, marginal
1	approved quality.L D - 2.5Rectangular shape 600x450 mm internal Net Total Quantity Other Say 2.000 each @ Rs 1446.54 / each C 5 APPENDIX B RETAINING AND COMPOUND W 2.3.1 Banking excavated earth in layers not exceeding 20 cm in depth, bre layer with 1/2 tonne roller, or wooden or steel rammers, and rolling power roller of minimum 8 tonnes and dressing up, in embankment banks, and guide banks etc., lead up to 50 m and lift up to 1.5 m :/	2.000 each Rs 2893.08 ALL eaking clods, watering, rolling each every 3rd and top-most layer with sets for roads, flood banks, marginal All kinds of soil
1 2	approved quality.L D - 2.5Rectangular shape 600x450 mm internation. Net Total Quantity Other Say 2.000 each @ Rs 1446.54 / each 0 5 APPENDIX B RETAINING AND COMPOUND W 2.3.1 Banking excavated earth in layers not exceeding 20 cm in depth, bre layer with 1/2 tonne roller, or wooden or steel rammers, and rolling power roller of minimum 8 tonnes and dressing up, in embankment banks, and guide banks etc., lead up to 50 m and lift up to 1.5 m : Net Total Quantity	2.000 each Rs 2893.08 ALL Eaking clods, watering, rolling each every 3rd and top-most layer with sof roads, flood banks, marginal All kinds of soil 10.000 cum Rs 5538.90 tor) /manual means in foundation in including dressing of sides and
	Appendix B RETAINING AND COMPOUND W 2.3.1 Banking excavated earth in layers not exceeding 20 cm in depth, bre layer with 1/2 tonne roller, or wooden or steel rammers, and rolling power roller of minimum 8 tonnes and dressing up, in embankment banks, and guide banks etc., lead up to 50 m and lift up to 1.5 m : Net Total Quantity Say 10.000 cum @ Rs 553.89 / cum 2.8.1 Earth work in excavation by mechanical means (Hydraulic excavation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan ramming of bottoms, lift up to 1.5 m, including getting out the excavation of the exceeding 1.5 m, including getting out the excavation of the exceeding 1.5 m, including getting out the excavation of the exceeding 1.5 m, including getting out the excavation of the exceeding 1.5 m, including getting out the excavation of the exceeding 1.5 m, including getting out the excavation of the exceeding 1.5 m, including getting out the excavation of the exceeding 1.5 m, including getting out the excavation of the exceeding 1.5 m, including getting out the excavation of the exceeding 1.5 m, including getting out the excavation of the exceeding 1.5 m, including getting out the excavation of the exceeding 1.5 m, including getting out the excavation of the exceeding 1.5 m, including getting out the excavation of the exceeding 1.5 m, including getting out the excavation of the exceeding 1.5 m, including getting out the excavation of the exceeding 1.5 m, including getting out the exceeding 1.5 m, including getting 1.5 m, including 1.5 m, i	2.000 each Rs 2893.08 ALL Eaking clods, watering, rolling each every 3rd and top-most layer with sof roads, flood banks, marginal All kinds of soil 10.000 cum Rs 5538.90 tor) /manual means in foundation in), including dressing of sides and

3	2.25		
	Filling available excavated earth (excluding rock) in trenches, plinth, s	ides of foundation etc. in layers i	
	exceeding 20 cm in depth, consolidating each deposited layer by ram	ming and watering, lead up to 50	
	and lift up to 1.5 m.	T	
	Net Total Quantity	72.000 cum	
	Say 72.000 cum @ Rs 258.57 / cum	Rs 18617.04	
4	2.28.1		
	Surface dressing of the ground including removing vegetation and in-equalities not exceeding 15 c		
	deep and disposal of rubbish, lead up to 50 m and lift up to 1.5 m.	All kinds of soil	
	Net Total Quantity	100.000 sqm	
	Say 100.000 sqm @ Rs 28.68 / sqm	Rs 2868.00	
5	4.1.3		
	Providing and laying in position cement concrete of specified grade e	excluding the cost of centering a	
	shuttering - All work up to plinth level:1:2:4 (cement : 2 coarse sand	: 4 graded stone aggregate 20 i	
	nominal size)		
	Net Total Quantity	9.000 cum	
	Say 9.000 cum @ Rs 7990.86 / cum	Rs 71917.74	
6	4.1.10		
Ü	Providing and laying in position cement concrete of specified grade	excluding the cost of centering	
	shuttering - All work up to plinth level:1:5:10 (1 cement : 5 coarse sa		
	mm nominal size) Other Engineering Organisation	ns	
	Net Total Quantity	29.000 cum	
	Say 29.000 cum @ Rs 6497.88 / cum	Rs 188438.52	
7	5.9.1		
'	Centering and shuttering including strutting, etc. and removal of form	for:Foundations, footings, bases	
	columns, etc for mass concrete		
	Net Total Quantity	156.000 sqm	
	Say 156.000 sqm @ Rs 335.31 / sqm	Rs 52308.36	
8	5.9.2	1	
O	Centering and shuttering including strutting, etc. and removal of form	for:Walls (any thickness) include	
	attached pilasters, butteresses, plinth and string courses etc.	Torritano (arry amonatoso) moras	
	Net Total Quantity	700.000 sqm	
	Say 700.000 sqm @ Rs 717.20 / sqm	Rs 502040.00	
	· · · · · · · · · · · · · · · · · · ·	113 302040.00	
9	5.9.5	n familiatala kaanna aliatk kaa	
	Centering and shuttering including strutting, etc. and removal of forr girders bressumers and cantilevers	ii ior:Linteis, beams, plinth bea	
	giruora pressumera anu cantilevera		
	Not Total Quantity	27 000 sam	
	Net Total Quantity Say 27.000 sqm @ Rs 649.82 / sqm	27.000 sqm Rs 17545.14	

10	5.9.6 Centering and shuttering including strutting, etc. and removal of Abutments, Posts and Struts	form for:Columns, Pillars, Pie
	Net Total Quantity	50.000 sqm
	Say 50.000 sqm @ Rs 863.64 / sqm	Rs 43182.00
11	5.22.6 Steel reinforcement for R.C.C work including straightening, cutting binding all complete upto plinth levelThermo - Mechanically Treate	
	Net Total Quantity	15600.000 kilogram
	Say 15600.000 kilogram @ Rs 98.30 / kilogram	Rs 1533480.00
12	5.23 Smooth finishing of the exposed surface of RCC work with 6mm thick sand).	cement mortar 1:3 (cement : 3 f
	Net Total Quantity	20.000 sqm
	Say 20.000 sqm @ Rs 267.59 / sqm	Rs 5351.80
	concrete for reinforced cement concrete work, using cement con- including pumping of concrete to site of laying but excluding the cos- and reinforcement, including admixtures in recommended proportion retard setting of concrete, improve workability without impairing streng Engineer - in-charge. Note:- Cement content considered in this item cement used as per design mix is payable or recoverable separately	st of centering, shuttering, finish ons as per IS: 9103 to accelerate the standard durability as per direction is @ 330 kg/ cum. Excess or leave.
	Net Total Quantity	156.000 cum
	Say 156.000 cum @ Rs 9413.54 / cum	Rs 1468512.24
14	5.33.2 Providing and laying in position machine batched and machine mix concrete for reinforced cement concrete work, using cement con including pumping of concrete to site of laying but excluding the cost and reinforcement, including admixtures in recommended proportion retard setting of concrete, improve workability without impairing streng Engineer - in-charge. Note:- Cement content considered in this item cement used as per design mix is payable or recoverable separately. A V level	tent as per approved design nest of centering, shuttering, finish ons as per IS: 9103 to accelerate the and durability as per direction is @ 330 kg/ cum. Excess or less
	Net Total Quantity	55.000 cum
	Say 55.000 cum @ Rs 11065.64 / cum	Rs 608610.20
15	5.35 Add for using extra cement in the items of design mix over and ab	pove the specified cement cont

	Net Total Quantity	60.000 quintal
	·	
	Say 60.000 quintal @ Rs 792.52 / quintal	Rs 47551.20
16	5.22A.6 Steel reinforcement for R.C.C work including straightening, cutting	hending placing in position a
	binding all complete above plinth level. Thermo - Mechanically Treat	• • • •
	Net Total Quantity	5500.000 kg
	Say 5500.000 kg @ Rs 98.30 / kg	Rs 540650.00
17	6.34.2 Brick work with non modular fly ash lime bricks (FALG Bricks) conform 10 average compressive strength in super structure above plinth I mortar 1:6 (1 cement : 6 coarse sand)	-
	Net Total Quantity	58.440 cum
	Say 58.440 cum @ Rs 8570.03 / cum	Rs 500832.55
18	7.1.1 Random rubble masonry with hard stone in foundation and plinth is concrete 1:6:12 (1 cement : 6 coarse sand : 12 graded stone aggregated level with:Cement mortar 1:6 (1 cement : 6 coarse sand)	
	Net Total Quantity	2.000 cum
	Say 2.000 cum @ Rs 7204.78 / cum	Rs 14409.56
19	10.25.2	p sections/framed work, includ proved steel primer using structu
	Net Total Quantity	2680.000 kg
	Say 2680.000 kg @ Rs 154.17 / kg	Rs 413175.60
20	13.1.2 12 mm cement plaster of mix:1:6 (1 cement : 6 fine sand).	
	Net Total Quantity	255.000 sqm
	Say 255.000 sqm @ Rs 299.25 / sqm	Rs 76308.75
21	13.2.2	110 7 0000110
<u>4 l</u>	15.z.z 15 mm cement plaster on the rough side of single or half brick wall of r	mix:1:6 (1 cement : 6 fine sand)
	Net Total Quantity	255.000 sqm
	Say 255.000 sqm @ Rs 344.67 / sqm	Rs 87890.85
22	13.52.1 Finishing with Epoxy paint (two or more coats) at all location manufacturer's specifications including appropriate priming coat, prepasteel work	

	Net Total Quantity	550.000 sqm
	Say 550.000 sqm @ Rs 223.32 / sqm	Rs 122826.00
23	13.48A.1 Finishing walls with 100% Premium acrylic emulsion paint having resistance as per IS 15489:2004, Alkali & fungalresistance, dirt reshade (Company DepotTinted) with silicon additives. New work (Two 10 sqm. Over and including priming coat of exterior primer applied @	sistance exterior paint of require or more coats applied @ 1.43 litr
	Net Total Quantity	175.000 sqm
	Say 175.000 sqm @ Rs 172.13 / sqm	Rs 30122.75
24	od78676/2022_2023 Providing and laying factory made chamfered edge Cement Concrete lawns, drive ways or light traffic parking etc, of required strength, table vibratory method using PU mould, laid in bed of 6mm metal, compacting and bryproper embedding/laying of bedding layer brythrough vibratory compaction by using plate vibratory per required size and pattern, finishing etc. complete all as per direct mm thick C.C. paver block of M-30 grade with approved color design	>thickness & size/ shape, made pattern over 50mm thick compact inter locking paver blocks into to, and br>cutting of paver blocks tion of Engineer-in-Charge.
	Net Total Quantity	100.000 sqm
	Say 100.000 sqm @ Rs 1058.07 / sqm	Rs 105807.00
	Say 100.000 sqm @ Rs 1058.07 / sqm 6 Appendix C	Rs 105807.00
1		nS vator)/manual means over are n) including disposal of excavat
1	2.6.1 Other Engineering Organisation Earth work in excavation by mechanical means (Hydraulic excavation government) (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plate earth, lead up to 50 m and lift up to 1.5 m, disposed earth to be level	nS vator)/manual means over are n) including disposal of excavat
1	2.6.1 Other Engineering Organisation Earth work in excavation by mechanical means (Hydraulic excavated (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plate earth, lead up to 50 m and lift up to 1.5 m, disposed earth to be level soil	vator)/manual means over are n) including disposal of excavat led and neatly dressed.All kinds
2	2.6.1 Other Engineering Organisation Earth work in excavation by mechanical means (Hydraulic excar (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on pla earth, lead up to 50 m and lift up to 1.5 m, disposed earth to be level soil Net Total Quantity	vator)/manual means over are n) including disposal of excavate led and neatly dressed.All kinds 180.000 cum Rs 38525.40 ides of foundation etc. in layers
	2.6.1 Other Engineering Organisation Earth work in excavation by mechanical means (Hydraulic excar (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plate earth, lead up to 50 m and lift up to 1.5 m, disposed earth to be level soil Net Total Quantity Say 180.000 cum @ Rs 214.03 / cum 2.25 Filling available excavated earth (excluding rock) in trenches, plinth, sexceeding 20 cm in depth, consolidating each deposited layer by rame	vator)/manual means over are n) including disposal of excavate led and neatly dressed.All kinds 180.000 cum Rs 38525.40 ides of foundation etc. in layers
	2.6.1 Other Engineering Organisation Earth work in excavation by mechanical means (Hydraulic excar (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on platearth, lead up to 50 m and lift up to 1.5 m, disposed earth to be level soil Net Total Quantity Say 180.000 cum @ Rs 214.03 / cum 2.25 Filling available excavated earth (excluding rock) in trenches, plinth, sexceeding 20 cm in depth, consolidating each deposited layer by rame and lift up to 1.5 m.	vator)/manual means over are n) including disposal of excavate led and neatly dressed.All kinds 180.000 cum Rs 38525.40 ides of foundation etc. in layers in ming and watering, lead up to 50
	2.6.1 Other Engineering Organisation Earth work in excavation by mechanical means (Hydraulic excar (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plate earth, lead up to 50 m and lift up to 1.5 m, disposed earth to be level soil Net Total Quantity Say 180.000 cum @ Rs 214.03 / cum 2.25 Filling available excavated earth (excluding rock) in trenches, plinth, sexceeding 20 cm in depth, consolidating each deposited layer by rame and lift up to 1.5 m. Net Total Quantity	vator)/manual means over are n) including disposal of excavate led and neatly dressed.All kinds 180.000 cum Rs 38525.40 ides of foundation etc. in layers aming and watering, lead up to 50 30.000 cum Rs 7757.10
2	2.6.1 Other Engineering Organisation Earth work in excavation by mechanical means (Hydraulic excar (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plat earth, lead up to 50 m and lift up to 1.5 m, disposed earth to be level soil Net Total Quantity Say 180.000 cum @ Rs 214.03 / cum 2.25 Filling available excavated earth (excluding rock) in trenches, plinth, s exceeding 20 cm in depth, consolidating each deposited layer by rame and lift up to 1.5 m. Net Total Quantity Say 30.000 cum @ Rs 258.57 / cum 2.26.1 Extra for every additional lift 1.5 m or part there of in excavation	vator)/manual means over are n) including disposal of excavate led and neatly dressed.All kinds 180.000 cum Rs 38525.40 ides of foundation etc. in layers a ming and watering, lead up to 50 30.000 cum Rs 7757.10

4	4.1.10 Providing and laying in position cement concrete of specified grade eshuttering - All work up to plinth level:1:5:10 (1 cement : 5 coarse samm nominal size)	•
	Net Total Quantity	9.000 cum
	Say 9.000 cum @ Rs 6497.88 / cum	Rs 58480.92
5	5.9.1 Centering and shuttering including strutting, etc. and removal of form columns, etc for mass concrete	for:Foundations, footings, bases of
	Net Total Quantity	13.000 sqm
	Say 13.000 sqm @ Rs 335.31 / sqm	Rs 4359.03
6	5.9.2 Centering and shuttering including strutting, etc. and removal of form attached pilasters, butteresses, plinth and string courses etc.	for:Walls (any thickness) includir
	Net Total Quantity	200.000 sqm
	Say 200.000 sqm @ Rs 717.20 / sqm	Rs 143440.00
7	5.9.3 Centering and shuttering including strutting, etc. and removal of landings, balconies and access platform	form for:Suspended floors, roo
	Net Total Quantity	37.000 sqm
	Say 37.000 sqm @ Rs 815.78 / sqm	Rs 30183.86
8	5.9.5 Centering and shuttering including strutting, etc. and removal of forr girders bressumers and cantilevers	m for:Lintels, beams, plinth bean
	Net Total Quantity	25.000 sqm
	Say 25.000 sqm @ Rs 649.82 / sqm	Rs 16245.50
9	5.22.6 Steel reinforcement for R.C.C work including straightening, cutting binding all complete upto plinth levelThermo - Mechanically Treate	• • • •
	Net Total Quantity	5000.000 kilogram
	Say 5000.000 kilogram @ Rs 98.30 / kilogram	Rs 491500.00
10	5.33.1 Providing and laying in position machine batched and machine mixed concrete for reinforced cement concrete work, using cement concincluding pumping of concrete to site of laying but excluding the cost and reinforcement, including admixtures in recommended proportion retard setting of concrete, improve workability without impairing strength Engineer - in-charge. Note:- Cement content considered in this item cement used as per design mix is payable or recoverable separately.	tent as per approved design met of centering, shuttering, finishing ons as per IS: 9103 to accelerate the and durability as per direction is @ 330 kg/ cum. Excess or le

	Net Total Quantity	50.000 cum
	Say 50.000 cum @ Rs 9413.54 / cum	Rs 470677.00
11	5.35 Add for using extra cement in the items of design mix over and abotherein	ove the specified cement conte
	Net Total Quantity	15.000 quintal
	Say 15.000 quintal @ Rs 792.52 / quintal	Rs 11887.80
12	5.22A.6 Steel reinforcement for R.C.C work including straightening, cutting binding all complete above plinth level. Thermo - Mechanically Treat	<u> </u>
	Net Total Quantity	150.000 kg
	Say 150.000 kg @ Rs 98.30 / kg	Rs 14745.00
13	6.27.1 Brick work with common burnt clay modular bricks of class design including making horizontal and vertical grooves 10 mm wide 12mm of (1 cement : 6 coarse sand). From ground level upto plinth level	·
	Net Total Quantity	3.000 cum
	Say 3.000 cum @ Rs 6284.61 / cum	Rs 18853.83
14	6.34.2	
	Brick work with non modular fly ash lime bricks (FALG Bricks) conform 10 average compressive strength in super structure above plinth I mortar 1:6 (1 cement : 6 coarse sand)	evel up to floor V level in:Cem
	10 average compressive strength in super structure above plinth I mortar 1:6 (1 cement : 6 coarse sand) Net Total Quantity	evel up to floor V level in:Cem 3.200 cum
15	10 average compressive strength in super structure above plinth I mortar 1:6 (1 cement : 6 coarse sand)	3.200 cum Rs 27424.10 ised (anodic coating not less the
15	10 average compressive strength in super structure above plinth I mortar 1:6 (1 cement : 6 coarse sand) Net Total Quantity Say 3.200 cum @ Rs 8570.03 / cum 9.96.1 Providing and fixing aluminium sliding door bolts, ISI marked anod grade AC 10 as per IS : 1868), transparent or dyed to required colour	3.200 cum Rs 27424.10 ised (anodic coating not less the
15	10 average compressive strength in super structure above plinth I mortar 1:6 (1 cement : 6 coarse sand) Net Total Quantity Say 3.200 cum @ Rs 8570.03 / cum 9.96.1 Providing and fixing aluminium sliding door bolts, ISI marked anod grade AC 10 as per IS : 1868), transparent or dyed to required colour complete:300x16 mm	3.200 cum Rs 27424.10 ised (anodic coating not less the or shade, with nuts and screws of the street of the stre
15	10 average compressive strength in super structure above plinth I mortar 1:6 (1 cement : 6 coarse sand) Net Total Quantity Say 3.200 cum @ Rs 8570.03 / cum 9.96.1 Providing and fixing aluminium sliding door bolts, ISI marked anod grade AC 10 as per IS : 1868), transparent or dyed to required colour complete:300x16 mm Net Total Quantity	3.200 cum Rs 27424.10 ised (anodic coating not less the or shade, with nuts and screws are screws and screws are screws as a screw and screws are screws as a screw and screws are screw as a screw and screws are screw as a screw and screws are screw as a screw and screw as a screw and screw are screw as a
	10 average compressive strength in super structure above plinth I mortar 1:6 (1 cement : 6 coarse sand) Net Total Quantity Say 3.200 cum @ Rs 8570.03 / cum 9.96.1 Providing and fixing aluminium sliding door bolts, ISI marked anod grade AC 10 as per IS : 1868), transparent or dyed to required colour complete:300x16 mm Net Total Quantity Say 1.000 no @ Rs 302.70 / no 9.97.1 Providing and fixing aluminium tower bolts, ISI marked, anodised(and 10 as per : 1868), transparent or dyed to required colour or	3.200 cum Rs 27424.10 ised (anodic coating not less thor shade, with nuts and screws of the shade) 1.000 no Rs 302.70 adic coating not less than grade
	10 average compressive strength in super structure above plinth I mortar 1:6 (1 cement : 6 coarse sand) Net Total Quantity Say 3.200 cum @ Rs 8570.03 / cum 9.96.1 Providing and fixing aluminium sliding door bolts, ISI marked anod grade AC 10 as per IS : 1868), transparent or dyed to required colour complete:300x16 mm Net Total Quantity Say 1.000 no @ Rs 302.70 / no 9.97.1 Providing and fixing aluminium tower bolts, ISI marked, anodised(and 10 as per : 1868), transparent or dyed to required colour or complete:300x10 mm	3.200 cum Rs 27424.10 ised (anodic coating not less thor shade, with nuts and screws of the shade, with nuts and screws of the shade, with necessary screening shade, with necessary screening not less than grade shade s

	Net Total Quantity	4.000 no
	Say 4.000 no @ Rs 88.27 / no	Rs 353.08
18	9.100.1 Providing and fixing aluminium handles, ISI marked, anodised (anodic as per IS: 1868) transparent or dyed to required colour or sha complete:125 mm	•
	Net Total Quantity	1.000 no
	Say 1.000 no @ Rs 70.17 / no	Rs 70.17
19	9.101.1 Providing and fixing aluminium hanging floor door stopper, ISI marked than grade AC 10 as per IS: 1868) transparent or dyed to required screws etc. complete.Single rubber stopper	,
	Net Total Quantity	1.000 no
	Say 1.000 no @ Rs 39.93 / no	Rs 39.93
20	10.16.1 Steel work in built up tubular (round, square or rectangular hollow cutting, hoisting, fixing position and applying a priming coat of approx	The state of the s
	and bolted with special shaped washers etc. complete.Hot finished w	velded type tubes
		velded type tubes 135.000 kg
21	and bolted with special shaped washers etc. complete. Hot finished w	135.000 kg Rs 22789.35
21	and bolted with special shaped washers etc. complete.Hot finished washers etc. complet	135.000 kg Rs 22789.35
21	and bolted with special shaped washers etc. complete.Hot finished washers etc. complet	135.000 kg Rs 22789.35 NS washer plates complete.
21	and bolted with special shaped washers etc. complete.Hot finished washers etc. complet	Rs 22789.35 Washer plates complete. 20.000 kg Rs 1972.80 be specified by the manufactur f approved make, in all colours a sand), including grouting the joi
	and bolted with special shaped washers etc. complete.Hot finished washers etc. complet	Rs 22789.35 Washer plates complete. 20.000 kg Rs 1972.80 be specified by the manufactur f approved make, in all colours a sand), including grouting the joi
	And bolted with special shaped washers etc. complete. Hot finished washers etc. etc. Hot finished washers etc. Hot finished washers etc. etc. etc. etc. etc. etc. etc. etc.	Rs 22789.35 Washer plates complete. 20.000 kg Rs 1972.80 be specified by the manufacture fapproved make, in all colours a sand), including grouting the joi 600 x 600 mm.
	Net Total Quantity Say 135.000 kg @ Rs 168.81 / kg 10.19 Providing and fixing mild steel round holding down bolts with nuts and Net Total Quantity Say 20.000 kg @ Rs 98.64 / kg 11.41.2 Providing and laying vitrified floor tiles in different sizes (thickness to with water absorption less than 0.08% and conforming to IS: 15622, or shades, laid on 20 mm thick cement mortar 1:4(1 cement: 4 coarse with white cement and matching pigments etc., complete. Size of Tile Net Total Quantity	Rs 22789.35 Washer plates complete. 20.000 kg Rs 1972.80 be specified by the manufacture approved make, in all colours as and), including grouting the join 600 x 600 mm. 8.000 sqm Rs 14130.08 ecified by manufacturer), with was add make, in all colours & shade cement: 3 coarse sand), including discounting the point for the second
22	And bolted with special shaped washers etc. complete. Hot finished we not rotal Quantity Say 135.000 kg @ Rs 168.81 / kg 10.19 Providing and fixing mild steel round holding down bolts with nuts and Net Total Quantity Say 20.000 kg @ Rs 98.64 / kg 11.41.2 Providing and laying vitrified floor tiles in different sizes (thickness to with water absorption less than 0.08% and conforming to IS: 15622, or shades, laid on 20 mm thick cement mortar 1:4(1 cement: 4 coarse with white cement and matching pigments etc., complete. Size of Tile Net Total Quantity Say 8.000 sqm @ Rs 1766.26 / sqm 11.46.2 Providing and laying Vitrified tiles indifferent sizes (thickness to be specified absorption less than 0.08 % and conforming to I.S. 15622, of approve skirting, riser of steps, over 12 mm thick bed of cement mortar 1:3 (1)	Rs 22789.35 Washer plates complete. 20.000 kg Rs 1972.80 be specified by the manufacture approved make, in all colours as and), including grouting the join 600 x 600 mm. 8.000 sqm Rs 14130.08 ecified by manufacturer), with was add make, in all colours & shade cement: 3 coarse sand), including discounting the point for the second

24	Providing and fixing precoated galvanised iron profile sheets (size, approved by Engineer-in-charge) 0.50 mm (+0.05%), total coated thic per sqm as per IS: 277, in 240 mpa steel grade, 5-7 microns epoxy p polyester top coat 15-18 microns. Sheet should have protective gua avoid scratches during transportation and should be supplied in single by Engineer-in-charge. The sheet shall be fixed using self drilling/self with EPDM seal, complete upto any pitch in horizontal/ vertical or cur purlins, rafters and trusses and including cutting to size and shape with	ckness with zinc coating 120 grams rimer on both side of the sheet and ard film of 25 microns minimum to length upto 12 metre or as desired tapping screws of size (5.5x55mm) ved surfaces, excluding the cost of
	Net Total Quantity	15.000 sqm
	Say 15.000 sqm @ Rs 738.69 / sqm	Rs 11080.35
25	12.51.1 Providing and fixing precoated galvanised steel sheet roofing accordance thickness, zinc coating 120 grams per sqm as per IS:mm(+0 coating 120 grams per sqm as per IS: 277, in 240 mpa steel grade, side of the sheet and polyester top coat 15-18 microns using complete:Ridges plain (500-600 mm)	.05%) total coated thickness, Zinc 5-7 microns epoxy primer on both
	Net Total Quantity	8.000 metre
	Say 8.000 metre @ Rs 490.02 / metre	Rs 3920.16
26	13.1.2 12 mm cement plaster of mix:1:6 (1 cement : 6 fine sand).	
	Other Engineering Net Total Quantity	36.000 sqm
	Say 36.000 sqm @ Rs 299.25 / sqm	Rs 10773.00
27	13.2.2 15 mm cement plaster on the rough side of single or half brick wall of r	mix:1:6 (1 cement : 6 fine sand)
	Net Total Quantity	31.000 sqm
	Say 31.000 sqm @ Rs 344.67 / sqm	Rs 10684.77
28	13.9.1 Cement plaster 1:3 (1 cement : 3 coarse sand) finished with a flocement plaster	ating coat of neat cement.12 mm
	Net Total Quantity	152.000 sqm
	Say 152.000 sqm @ Rs 412.13 / sqm	Rs 62643.76
29	13.42 Distempering with 1st quality acrylic distemper (ready mixed) of a shade and colour complete, as per manufacturer'sspecification.	pprovedmanufacturer, of required
	Net Total Quantity	36.000 sqm
	Say 36.000 sqm @ Rs 102.57 / sqm	Rs 3692.52

	13.61.1 Painting with synthetic enamel paint of approved brand and manufactoric more coats on new work	ture to give an even shade:Two
	Net Total Quantity	10.000 sqm
	Say 10.000 sqm @ Rs 143.05 / sqm	Rs 1430.50
31	13.48A.1 Finishing walls with 100% Premium acrylic emulsion paint having resistance as per IS 15489:2004, Alkali & fungalresistance, dirt resistance (Company DepotTinted) with silicon additives. New work (Two 10 sqm. Over and including priming coat of exterior primer applied @	sistance exterior paint of requir or more coats applied @ 1.43 lit
	Net Total Quantity	22750.000 sqm
	Say 22750.000 sqm @ Rs 172.13 / sqm	Rs 3915957.50
	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, ha water supply, including all CPVC plain & brass threaded fittings inclu 1.00 m spacing. This includes jointing of pipes & fittings with one step of joints complete as per direction of Engineer -in-Charge. Internal wor outer dia pipes	ding fixing the pipe with clamps CPVC solvent cement and test
	Net Total Quantity	10.000 metre
		10:000 1110110
	Say 10.000 metre @ Rs 763.44 / metre	Rs 7634.40
33	Say 10.000 metre @ Rs 763.44 / metre 18.9.5 Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, ha water supply including all CPVC plain & brass threaded fittings. This with one step CPVC solvent cement, trenching, refilling & testing of Engineer- in-Charge. External work40 mm nominal outer dia pipes	Rs 7634.40 INS ving thermal stability for hot & continuous jointing of pipes & fitting the continuous process and the continuous process are continuous process.
33	18.9.5 Other Engineering Organisation Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, has water supply including all CPVC plain & brass threaded fittings. This with one step CPVC solvent cement, trenching, refilling & testing of	Rs 7634.40 INS ving thermal stability for hot & continuous jointing of pipes & fitting the continuous process and the continuous process are continuous process.
33	18.9.5 Other Engineering Organisation Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, has water supply including all CPVC plain & brass threaded fittings. This with one step CPVC solvent cement, trenching, refilling & testing of Engineer- in-Charge. External work40 mm nominal outer dia pipes	Rs 7634.40 NS ving thermal stability for hot & concludes jointing of pipes & fitting joints complete as per direction
33	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, ha water supply including all CPVC plain & brass threaded fittings. This with one step CPVC solvent cement, trenching, refilling & testing of Engineer- in-Charge. External work40 mm nominal outer dia pipes Net Total Quantity	Rs 7634.40 NS ving thermal stability for hot & concludes jointing of pipes & fitting joints complete as per direction 20.000 metre Rs 12637.00
	18.9.5 Other Engineering Organisation Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, has water supply including all CPVC plain & brass threaded fittings. This with one step CPVC solvent cement, trenching, refilling & testing of Engineer- in-Charge. External work40 mm nominal outer dia pipes Net Total Quantity Say 20.000 metre @ Rs 631.85 / metre 18.17.3 Providing and fixing gun metal gate valve with C.I. wheel of approximations.	Rs 7634.40 NS ving thermal stability for hot & concludes jointing of pipes & fitting joints complete as per direction 20.000 metre Rs 12637.00
	18.9.5 Other Engineering Organisation Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, has water supply including all CPVC plain & brass threaded fittings. This with one step CPVC solvent cement, trenching, refilling & testing of Engineer- in-Charge. External work40 mm nominal outer dia pipes Net Total Quantity Say 20.000 metre @ Rs 631.85 / metre 18.17.3 Providing and fixing gun metal gate valve with C.I. wheel of approximation provided in the context of the co	Rs 7634.40 NS ving thermal stability for hot & concludes jointing of pipes & fitting joints complete as per direction 20.000 metre Rs 12637.00 ved quality (screwed end):40 reconcepts to the concepts to
	18.9.5 Other Engineering Organisation Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, has water supply including all CPVC plain & brass threaded fittings. This with one step CPVC solvent cement, trenching, refilling & testing of Engineer- in-Charge. External work40 mm nominal outer dia pipes Net Total Quantity Say 20.000 metre @ Rs 631.85 / metre 18.17.3 Providing and fixing gun metal gate valve with C.I. wheel of approximation nominal bore Net Total Quantity	Rs 7634.40 NS ving thermal stability for hot & control of pipes & fitting includes jointing of pipes & fitting ioints complete as per direction 20.000 metre Rs 12637.00 ved quality (screwed end):40 metre includes jointing of pipes & fitting ioints complete as per direction includes jointing of pipes & fitting ioints complete as per direction includes jointing of pipes & fitting ioints complete as per direction includes jointing of pipes & fitting ioints complete as per direction includes jointing of pipes & fitting ioints complete as per direction includes jointing of pipes & fitting ioints complete as per direction includes jointing of pipes & fitting ioints complete as per direction includes jointing of pipes & fitting ioints complete as per direction includes jointing of pipes & fitting ioints complete as per direction includes joints includes joints includes joints includes joints included
34	18.9.5 Other Engineering Organisation Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, has water supply including all CPVC plain & brass threaded fittings. This with one step CPVC solvent cement, trenching, refilling & testing of Engineer- in-Charge. External work40 mm nominal outer dia pipes Net Total Quantity Say 20.000 metre @ Rs 631.85 / metre 18.17.3 Providing and fixing gun metal gate valve with C.I. wheel of approximation nominal bore Net Total Quantity Say 1.000 each @ Rs 798.56 / each 18.19.3.1 Providing and fixing gun metal non-return valve of approved quality	Rs 7634.40 NS ving thermal stability for hot & concludes jointing of pipes & fitting joints complete as per direction 20.000 metre Rs 12637.00 ved quality (screwed end):40 metres 1.000 each Rs 798.56

36	21.1.1.2 Providing and fixing aluminium work for doors, windows, ventilators a standard tubular sections/ appropriate Z sections and other sections of 733 and IS: 1285, fixing with dash fasteners of required dia and size gaps at junctions, i.e. at top, bottom and sides with required EP Aluminium sections shall be smooth, rust free, straight, mitred ar required including cleat angle, Aluminnium snap beading for glazing /p screws, all complete as per architectural drawings and the direction paneling and dash fasteners to be paid for separately):For fixed (minimum thickness of powder coating 50 micron)	of approved make conforming to IS: a, including necessary filling up the DM rubber/ neoprene gasket etc. and jointed mechanically wherever baneling, C.P. brass/ stainless steel has of Engineer-in-charge.(Glazing,
	Net Total Quantity	35.000 kg
	Say 35.000 kg @ Rs 537.07 / kg	Rs 18797.45
37	21.1.2.2 For shutters of doors, windows & ventilators including providing and fixing hinges / pivots and male provision for fixing of fittings wherever required including the cost of EPDM rubber/ neoprene gas required (Fittings shall be paid for separately)Powder coated aluminium (minimum thickness of pow coating 50 micron)	
	Net Total Quantity	25.000 kg
	Say 25.000 kg @ Rs 643.10 / kg	Rs 16077.50
38	21.2.1 Providing and fixing 12 mm thick prelaminated particle board flat preparticle board conforming to IS: 12823 Grade I Type II, in panelling shutters and partition frames with C.P. brass / stainless steel screws drawings and directions of Engineer - in- Charge.Pre-laminated particle on one side and balancing lamination on other side	fixed in aluminum doors, windows etc. complete as per architectural
	Net Total Quantity	1.200 sqm
	Say 1.200 sqm @ Rs 1174.41 / sqm	Rs 1409.29
39	21.3.2 Providing and fixing glazing in aluminium door, window, ventilator shurther / neoprene gasket etc. complete as per the architectural drawing in -Charge. (Cost of aluminium snap beading shall be paid in basic in mm thickness	ngs and the directions of Engineer -
	Net Total Quantity	3.000 sqm
	Say 3.000 sqm @ Rs 1526.00 / sqm	Rs 4578.00
40	21.8.1 nullUpto 5 mm depth and 5 mm width	
	Net Total Quantity	15.000 metre
	Say 15.000 metre @ Rs 93.56 / metre	Rs 1403.40

41	19.18.1	
71	Supplying and fixing C.I with out frame for manholes:455 x 610 mm red	ctangular C.I cover (light duty) the
	weight of the cover to be no less than 23 kg	
	Net Total Quantity	2.000 each
	Say 2.000 each @ Rs 1561.12 / each	Rs 3122.24
	Provision for GST payments (in %) @	18.0%
	Amount reserved for GST payments	18996541.54
	Total	124532883.54
	Lumpsum for round off	0.00
		TOTAL Rs 124532883.54
	(Carlo)	Rounded Total Rs 12,45,32,884
	Rupees Twelve Crore Forty Five Lakh Thirty Two Thousand E	ight Hundred and Eighty Four Only

(Cost Index Applied for this estimate is 35.59%)

Other Engineering Organisations
PRICE

CONSTRUCTION OF TRANSLATIONAL RESEARCH CENTRE AT CUSAT THRIKKAKARA CAMPUS

DETAILED ESTIMATE

Construction of translational research centre at CUSAT Thrikkakara Campus

Detailed Estimate

(Dsor year: 2018,Cost Index Applied for this estimate is 35.59%)

SI No	Description							
			1 civil	works				
1	2.8.1 Earth work in excavati trenches or drains (not ramming of bottoms, life excavated soil as directions).	exceeding ft up to 1.5	g 1.5 m in w 5 m, includir	vidth or 10 s	sqm on plan) ut the excav), including	g dressing o	f sides a
				footing				
	for indipendant footing	48	4.700	5.200	2.000		2346.241	
	Double footin	11	8.000	4.200	2.000		739.200	
	Combined footing	2	6.700	6.200	2.000		166.160	
		6	X 2	To N	Tota	l Quantity	3251.601	cum
		B	112	To	otal Deducted	d Quantity	0.000 cum	1
		(6)	L/G		Net Tota	I Quantity	3251.601	cum
	75		Sovia	054 004	m @ Do 206	0.4.7	D= 005	
2	4.1.8 Providing and laying in shuttering - All work up nominal size)		ement concr		fied grade e	xcluding th	e cost of ce	_
2	Providing and laying in		ement concr evel:1:4:8 (ete of speci	fied grade e 4 coarse sar	xcluding th	e cost of ce	ntering a
2	Providing and laying in shuttering - All work up		ement concr evel:1:4:8 (ete of speci	fied grade e 4 coarse sar	xcluding th	e cost of ce	ntering a
2	Providing and laying in shuttering - All work up nominal size)	to plinth I	ement concr evel:1:4:8 (ete of speci 1 cement : 4	fied grade e 4 coarse sar elling	xcluding th	e cost of ce ed stone ag	ntering a
2	Providing and laying in shuttering - All work up nominal size) entrance lobby Gents rest room and	to plinth I	ement concrevel:1:4:8 (for b	ete of speci 1 cement : 4 asement lev 5.200	fied grade e 4 coarse sar elling 0.075	xcluding th	e cost of ce ed stone ag 3.354	ntering a
2	Providing and laying in shuttering - All work up nominal size) entrance lobby Gents rest room and passage	to plinth I 1	ement concrevel:1:4:8 (for b 8.600 7.510	ete of speci 1 cement : 4 asement lev 5.200 4.100	fied grade e 4 coarse sar elling 0.075	xcluding th	e cost of ce ed stone ag 3.354 2.310	ntering a
2	Providing and laying in shuttering - All work up nominal size) entrance lobby Gents rest room and passage Gents toilet room	to plinth I 1 1	ement concrevel:1:4:8 (for b 8.600 7.510 4.700	ete of speci 1 cement : 4 asement lev 5.200 4.100 7.000	fied grade e.4 coarse sar elling 0.075 0.075	xcluding th	2.468	ntering a
2	Providing and laying in shuttering - All work up nominal size) entrance lobby Gents rest room and passage Gents toilet room store	1 1 1 1	for b 8.600 7.510 4.700 2.800	ete of speci 1 cement : 4 asement lev 5.200 4.100 7.000 2.100	fied grade e. 4 coarse sar elling 0.075 0.075 0.075	xcluding th	2.468 0.441	ntering a
2	Providing and laying in shuttering - All work up nominal size) entrance lobby Gents rest room and passage Gents toilet room store store	1 1 1 1 1	ement concrevel:1:4:8 (for b 8.600 7.510 4.700 2.800 2.000	ete of speci 1 cement : 4 asement lev 5.200 4.100 7.000 2.100	fied grade e. 4 coarse sar elling 0.075 0.075 0.075 0.075	xcluding th	2.310 2.468 0.315	ntering a
2	Providing and laying in shuttering - All work up nominal size) entrance lobby Gents rest room and passage Gents toilet room store store lab	1 1 1 1 1 1	ement concrevel:1:4:8 (for b 8.600 7.510 4.700 2.800 2.000 9.000	ete of speci 1 cement : 4 asement lev 5.200 4.100 7.000 2.100 2.100 15.200	fied grade e 4 coarse sar elling 0.075 0.075 0.075 0.075	xcluding th	2.310 2.468 0.441 0.315	ntering a
2	Providing and laying in shuttering - All work up nominal size) entrance lobby Gents rest room and passage Gents toilet room store store lab Seminar hall	1 1 1 1 1 1 1 1	ement concrevel:1:4:8 (for b 8.600 7.510 4.700 2.800 2.000 9.000 11.000	ete of speci 1 cement : 4 asement lev 5.200 4.100 7.000 2.100 2.100 15.200 22.900	fied grade e 4 coarse sar elling 0.075 0.075 0.075 0.075 0.075	xcluding th	2.310 2.468 0.441 0.315 10.260 18.893	ntering a
2	Providing and laying in shuttering - All work up nominal size) entrance lobby Gents rest room and passage Gents toilet room store store lab Seminar hall Research lab	1 1 1 1 1 1 1 3	ement concrevel:1:4:8 (for b 8.600 7.510 4.700 2.800 2.000 9.000 11.000 9.000	ete of speci 1 cement : 4 asement lev 5.200 4.100 7.000 2.100 2.100 15.200 22.900 7.500	fied grade e 4 coarse sar elling 0.075 0.075 0.075 0.075 0.075 0.075	xcluding th	3.354 2.310 2.468 0.441 0.315 10.260 18.893 15.188	ntering a

	Stair cabin	1	9.200	5.400	0.075		3.726					
		1	2.300	4.100	0.075		0.708					
	Staff room	2	5.450	5.900	0.075		4.824					
	Ladies rest room	1	4.400	7.500	0.075		2.475					
	Toilet Ladies	1	7.600	4.400	0.075		2.508					
	Staff toilet, cooler, H toilet etc	1	7.600	4.400	0.075		2.508					
	Common passage	1	63.850	3.000	0.075		14.367					
				footing								
	for indipendant footing	48	3.500	3.500	0.100		58.801					
	Double footin	11	7.000	3.100	0.100		23.870					
	Combined footing	2	5.400	5.200	0.100		5.617					
		1	Ser 9		Tota	al Quantity	184.145 c	um				
		[]		To	otal Deducte	d Quantity	0.000 cum	1				
					Net Tota	al Quantity	184.145 c	um				
			Say 184.145 cum @ Rs 6814.89 / cum Rs 1254927.92									
3	5.33.1 Providing and laying in		machine bato	ched and m	@ Rs 6814	ed design m	Rs 125	4927.92 ade ceme				
3	Providing and laying in concrete for reinforced including pumping of coand reinforcement, including setting of concret Engineer - in-charge. N	d cement oncrete to uding adr e, improve lote:- Cem	machine bate concrete wo site of laying mixtures in re workability went content	ched and m rk, using c but exclude ecommend without impa	achine mixed ement conting the costed proportion airing strengting in this item	ed design ment as per tof centerirons as per the the and duration is @ 330 k	Rs 125 nix M-25 gra approved ong, shutterings: 9103 to bility as per g/ cum. Except	4927.92 ade ceme design mi ag, finishir accelerat direction eess or les				
3	Providing and laying in concrete for reinforced including pumping of coand reinforcement, including setting of concret	d cement oncrete to uding adr e, improve lote:- Cem	machine bate concrete wo site of laying mixtures in re workability tent content s payable or	ched and mork, using of the commend without important considered recoverables.	achine mixed achine mixed ement control ding the cost ed proportion airing strengting in this item e separately	ed design ment as per tof centerirons as per the the and duration is @ 330 k	Rs 125 nix M-25 gra approved ong, shutterings: 9103 to bility as per g/ cum. Except	4927.92 ade ceme design mi ag, finishir accelerat direction eess or les				
3	Providing and laying in concrete for reinforced including pumping of coand reinforcement, including setting of concret Engineer - in-charge. N	d cement oncrete to luding adr e, improve lote:- Cem sign mix is	machine bate concrete wo site of laying nixtures in re workability went content is payable or Co	ched and m rk, using of g but exclude ecommend without impo considered recoverable lumn Pedes	achine mixed achine mixed ement control ding the cost ed proportion airing strengting in this item the separately estal	ed design ment as per tof centerirons as per the the and duration is @ 330 k	Rs 125 nix M-25 gra approved on approved on the second of	4927.92 ade ceme design mi ag, finishir accelerat direction eess or les				
3	Providing and laying in concrete for reinforced including pumping of coand reinforcement, including setting of concret Engineer - in-charge. N	d cement oncrete to uding adr e, improve lote:- Cem	machine batc concrete wo site of laying nixtures in re workability tent content is payable or Co	ched and m rk, using of g but exclude ecommend without impa considered recoverable lumn Pedes 0.500	achine mixed achine mixed ement control ding the costairing streng in this item as separately stal	ed design ment as per tof centerirons as per the the and duration is @ 330 k	Rs 125 nix M-25 gra approved ong, shutterings: 9103 to bility as per g/ cum. Except	4927.92 ade ceme design mi ag, finishir accelerat direction eess or les				
3	Providing and laying in concrete for reinforced including pumping of coand reinforcement, including setting of concret Engineer - in-charge. No cement used as per design of the concret in the company of the concret in the company of the concret in the concrete in the co	d cement oncrete to luding adr e, improve lote:- Cem sign mix is	machine batc concrete wo site of laying nixtures in re workability tent content is payable or Co	ched and m rk, using of g but exclude ecommend without impo considered recoverable lumn Pedes 0.500 plinth beam	achine mixed ement conting the costairing streng in this item to separately stal	ed design ment as per tof centerirons as per the the and duration is @ 330 k	Rs 125 nix M-25 gra approved of ng, shutterin S: 9103 to bility as per g/ cum. Exc oto plinth le	4927.92 ade ceme design mi ag, finishir accelerat direction eess or les				
3	Providing and laying in concrete for reinforced including pumping of coand reinforcement, including setting of concret Engineer - in-charge. N	d cement oncrete to luding adr e, improve lote:- Cem sign mix is	machine batc concrete wo site of laying nixtures in re workability tent content is payable or Co	ched and m rk, using of g but exclude ecommend without impa considered recoverable lumn Pedes 0.500	achine mixed achine mixed ement control ding the costairing streng in this item as separately stal	ed design ment as per tof centerirons as per the the and duration is @ 330 k	Rs 125 nix M-25 gra approved on approved on the second of	4927.92 ade ceme design mi ag, finishir accelerat direction eess or les				
3	Providing and laying in concrete for reinforced including pumping of coand reinforcement, including setting of concret Engineer - in-charge. No cement used as per deserved.	d cement oncrete to uding adr e, improve lote:- Cem sign mix is	machine batconcrete wo site of laying mixtures in reworkability when the content is payable or \$\$ 0.800\$	ched and mork, using of the properties of the pr	achine mixed ement conting the costairing streng in this item to separately stal 1.100	ed design ment as per tof centerirons as per the the and duration is @ 330 k	Rs 125 nix M-25 gra approved of ng, shutterin S: 9103 to bility as per g/ cum. Exc oto plinth le 34.321	4927.92 ade ceme design mi ag, finishir accelerat direction eess or les				
3	Providing and laying in concrete for reinforced including pumping of coand reinforcement, including setting of concret Engineer - in-charge. No cement used as per deserved. Vertical PB A1-A7 A9 -A18	d cement oncrete to uding adr e, improve lote:- Cem sign mix is 78	machine batconcrete wo site of laying mixtures in reworkability when the content is payable or Co 0.800	ched and mork, using of the policy of the po	achine mixed ement conting the cost ed proportion airing streng in this item to separately stal 1.100	ed design ment as per tof centerirons as per the the and duration is @ 330 k	Rs 125 nix M-25 gra approved of ng, shutterin S: 9103 to bility as per g/ cum. Exc oto plinth le 34.321 4.248 6.993	4927.92 ade ceme design mi ag, finishir accelerat direction eess or les				
3	Providing and laying in concrete for reinforced including pumping of coand reinforcement, including setting of concret Engineer - in-charge. No cement used as per deserved. Vertical PB A1-A7 A9 -A18 B1 to B3	d cement concrete to uding adress improve to te:- Cement is sign mix is 1	machine batconcrete wo site of laying mixtures in reworkability when the content is payable or Co 0.800 23.600 38.850 8.100	ched and mork, using of the policy of the po	achine mixed ement conting the cost ed proportion airing streng in this item e separately stal 1.100 0.600 0.600 0.600	ed design ment as per tof centerirons as per the the and duration is @ 330 k	Rs 125 nix M-25 gra approved of ng, shutterin S: 9103 to bility as per g/ cum. Exc oto plinth le 34.321 4.248 6.993 1.458	4927.92 ade ceme design mi ag, finishir accelerat direction eess or les				
3	Providing and laying in concrete for reinforced including pumping of coand reinforcement, including setting of concret Engineer - in-charge. No cement used as per deserved. Vertical PB A1-A7 A9 -A18 B1 to B3 B9 to B14	d cement process to comment to co	nachine batconcrete wo site of laying nixtures in reworkability vent content is payable or Co 0.800 23.600 38.850 8.100 23.500	ched and mork, using of the policy but exclude ecommend without improposition of the policy of the p	achine mixed ement conting the cost ed proportion airing streng in this item as separately stal 1.100 0.600 0.600 0.600 0.600 0.600	ed design ment as per tof centerirons as per the the and duration is @ 330 k	Rs 125 nix M-25 gra approved on approved	4927.92 ade ceme design mi ag, finishir accelerat direction eess or les				
3	Providing and laying in concrete for reinforced including pumping of coand reinforcement, including setting of concret Engineer - in-charge. No cement used as per deserved. Vertical PB A1-A7 A9 -A18 B1 to B3 B9 to B14 C1 to C18, D1 to D18	d cement process to compare the compare to compare the	nachine batconcrete wo site of laying nixtures in reworkability vent content is payable or Co 0.800 23.600 8.100 23.500 69.350	ched and mork, using of the policy but exclude ecommend without improposition of the policy of the p	achine mixed ement conting the cost ed proportion airing streng in this item e separately stal 1.100 0.600 0.600 0.600 0.600 0.600 0.600	ed design ment as per tof centerirons as per the the and duration is @ 330 k	Rs 125 nix M-25 gra approved on approved	4927.92 ade ceme design mi ag, finishir accelerat direction eess or les				

Horizhontal PB in Short span A1 t0 F1,A3 to F3	2						
	2	21.800	0.300	0.600		7.848	
B2 to C2	1	5.650	0.300	0.600		1.017	
A4 to D4	1	12.700	0.300	0.600		2.286	
A5-G5,A6-G6,A7- G7,A9-G9,A11- G11,A13-G13	6	23.800	0.300	0.600		25.704	
C8 TO G8	1	14.850	0.300	0.600		2.673	
D12 TO G12	1	11.400	0.300	0.600		2.052	
LIFT	1	5.300	0.300	0.600		0.954	
	2	1.900	0.300	0.600		0.684	
a14-f14,A15 TO F15,A16 TO F16,A17 TO F17,A18 TO F18	5	21.800	0.300	0.600		19.620	
	101	L Ca	footing		2		
for indipendant footing	48	3.500	4.000	0.600		403.201	
	48	2.000	1.500	0.600		86.400	
Double footin	ther En	g17.000 ¹¹	ng.000g	an ₁ sat10	ns	138.600	
	11	5.000	1.100	0.600		36.300	
Combined footing	2	5.500	5.000	0.600		33.000	
	2	3.500	3.500	0.600		14.700	
				Tota	I Quantity	868.175 c	um
			To	otal Deducted	d Quantity	0.000 cum	ı
				Net Tota	I Quantity	868.175 c	um
		Say 8	68.175 cum	@ Rs 9413	.54 / cum	Rs 817	2600.09
5.33.2 Providing and laying in concrete for reinforced including pumping of coand reinforcement, incretard setting of concrete Engineer - in-charge. No cement used as per design V level	d cement of concrete to solution admitted te, improve Note:- Ceme	concrete wo site of laying sixtures in r workability ent content	ork, using or g but exclude ecommend without impa considered	ement cont ding the cost ed proportio airing streng in this item	ent as per t of centering th as per the th and dura is @ 330 k	approved ong, shuttering IS: 9103 to bility as per g/ cum. Exc	design mix. g, finishing accelerate direction of ess or less
		(COLUMN G	2			

columns	3*78	0.200	0.600	3.600	101.088
stair columns	12	0.200	0.800	3.600	6.913
		S	tair case G	2	
Ms & FS flight	2*2*3	3.600	1.250	0.120	6.480
	2*1*3	1.400	1.250	0.120	1.260
landing slab	2*2*3	2.000	2.000	0.120	5.760
step	2*4*25	2.000	.5*.15*.3	0.120	1.080
		S	unshade G	2	
Long wall direction	2*3	69.350	0.600	0.100	24.966
Short wall direction	2*3	23.000	0.600	0.100	8.280
Cutting portion	2*3	8.950	0.600	0.100	3.222
	1*3	11.100	0.600	0.100	1.998
	1*3	9.100	0.600	0.100	1.639
	10	11/1/11	beam G 2	121	
Vertical PB A1-A7	1*3	23.600	0.200	0.600	8.496
A9 -A18	1*3	38.850	0.200	0.600	13.986
B1 to B3	1*3	8.100	0.200	0.600	2.916
B9 to B14	thex3Er	23.5001	ngo.200g	ano.600ions	16.920
C1 to C18, D1 to D18	2*3	69.350	0.200	0.600	49.932
F1 to F3	1*3	8.100	0.200	0.600	2.916
G5 to G13	1*3	30.800	0.200	0.600	11.088
F13 to F18	1*3	23.550	0.200	0.600	8.478
E16 to E18	1*3	8.050	0.200	0.600	2.899
Horizhontal PB in Short span A1 t0 F1,A3 to F3		21.800	0.200	0.600	15.697
B2 to C2	1*3	5.650	0.200	0.600	2.035
A4 to D4	1*3	12.700	0.200	0.600	4.572
A5-G5,A6-G6,A7- G7,A9-G9,A11- G11,A13-G13	6*3	23.800	0.200	0.600	51.409
C8 TO G8	1*3	14.850	0.200	0.600	5.346
D12 TO G12	1*3	11.400	0.200	0.600	4.104
LIFT	1*3	5.300	0.200	0.600	1.908

	2*3	1.900	0.200	0.600	1.368
a 1 4 - f 1 4 , A 1 5 T O F 15, A 16 T O F 16, A 17 T O F 17, A 18 T O F 18	5*3	21.800	0.200	0.600	39.240
			SLAB G+2		
SLAB G+2	1*3	69.660	23.800	0.130	646.585
STAIRCABIN SLAB	1	9.200	23.800	0.130	28.465
	1	9.200	7.230	0.130	8.648
		Slat	Deduction	G 2	
slab deductions	3*1	2.000	23.350	0.130	-18.213
	3*1	9.200	7.400	0.130	-26.551
Stair portion	3*1	5.000	5.300	0.130	-10.335
Cuting portion	3*1	11.200	7.400	0.130	-32.323
	3*1	8.100	2.000	0.130	-6.318
Fire stair	3*1	5.600	5.200	0.130	-11.356
cOLUMN	78	0.200	0.600	0.130	-1.216
			INTELS G +	-2	
Vertical PB A1-A7	1*3	23.600	0.200	0.150	2.124
A9 -A18	ther Er	38.850	ng Org 0.200	anisations 0.150	3.497
B1 to B3	1*3	8.100	0.200	0.150	0.729
B9 to B14	2*3	23.500	0.200	0.150	4.230
C1 to C18, D1 to D18	2*3	69.350	0.200	0.150	12.483
F1 to F3	1*3	8.100	0.200	0.150	0.729
G5 to G13	1*3	30.800	0.200	0.150	2.772
F13 to F18	1*3	23.550	0.200	0.150	2.120
E16 to E18	1*3	8.050	0.200	0.150	0.725
Horizhontal PB in Short span A1 t0 F1,A3 to F3	2*3	21.800	0.200	0.150	3.925
B2 to C2	1*3	5.650	0.200	0.150	0.509
A4 to D4	1*3	12.700	0.200	0.150	1.143
A5-G5,A6-G6,A7- G7,A9-G9,A11- G11,A13-G13	6*3	23.800	0.200	0.150	12.853
C8 TO G8	1*3	14.850	0.200	0.150	1.337

D12 TO G12	1*3	11.400	0.200	0.150		1.026	
LIFT	1*3	5.300	0.200	0.150		0.477	
	2*3	1.900	0.200	0.150		0.342	
a14-f14,A15 TO F15,A16 TO F16,A17 TO F17,A18 TO F18	5*3	21.800	0.200	0.150		9.810	
				Tota	al Quantity	1150.525	cum
			To	tal Deducte	d Quantity	-106.312	cum
				Net Tota	al Quantity	1044.213	cum
		Say 104	4.213 cum	@ Rs 11065	5.64 / cum	Rs 115	54885.14
cement slurry mixed wi of cement @ 0.488 kg/ be allowed to air cure for proofing cement composite with water curing for 4 joints, corners, junction	sqm mixed or 4 hours. ound @ 0.1	with water p b) Second la 26 kg/ sqm. he rate inclu	roofing cem ayer of slurr This layer udes prepa	nent compounent compounent will be allow ration of su	und @ 0.253 @ 0.242 kg ved to air cu rface, treati	kg/sqm. The square for 4 hou	nis layer d with wa urs follow
Gents Toilet	2	7.000	4.700	96		65.800	
toilet wall	the ² Er	(7.0+4.7)* gingeri	ng Org	an 0.450 ic	ns	21.060	
Staff room toilet	2	2.000	2.100	7 T	7	8.400	
Wall	2*2	(2.000+2.1		0.450		7.380	
Staff room toilet	2	4.400	2.900			25.520	
	2	(4.400+2.9)*2		0.450		13.141	
Cooler	2	1.500	2.500			7.500	
	2	(1.500+2.5)*2		0.450		7.200	
H toilet	2	2.700	2.500			13.500	
	2	(2.700+2.5 0)*2		0.450		9.361	
	2	4.400	7.650			67.321	
	2	(4.400+7.6 5)*2		0.450		21.690	
				Tota	al Quantity	267.873 s	am

				To	otal Deducted Quant	tity 0.000 sqm			
					Net Total Quant	tity 267.873 sqm			
			Say	267.873 sq	m @ Rs 548.05 / sq	m Rs 146807.80			
6	50.6.1.4 Solid block masonry using pre cast solid blocks (Factory made) of size 30x20x20cm or nearest availal size confirming to IS 2185 part I of 1979 for foundation and plinth with thickness 20cm and above in: 0.1:6 (1 cement: 6 coarse sand) etc complete								
			1	plinth beam	1				
	Vertical PB A1-A7	1	23.600	0.300	0.600	4.248			
	A9 -A18	1	38.850	0.300	0.600	6.993			
	B1 to B3	1	8.100	0.300	0.600	1.458			
	B9 to B14	2	23.500	0.300	0.600	8.460			
	C1 to C18, D1 to D18	2	69.350	0.300	0.600	24.966			
	F1 to F3	1	8.100	0.300	0.600	1.458			
	G5 to G13	1	30.800	0.300	0.600	5.544			
	F13 to F18	1	23.550	0.300	0.600	4.239			
	E16 to E18	1	8.050	0.300	0.600	1.449			
	Horizhontal PB in Short span A1 t0 F1,A3 to F3	the? E	ng 21.800 ri	ng ^{0.300} g	an0.600ions	7.848			
	B2 to C2	D ₁	5.650	0.300	0.600	1.017			
	A4 to D4	1	12.700	0.300	0.600	2.286			
	A5-G5,A6-G6,A7- G7,A9-G9,A11- G11,A13-G13	6	23.800	0.300	0.600	25.704			
	C8 TO G8	1	14.850	0.300	0.600	2.673			
	D12 TO G12	1	11.400	0.300	0.600	2.052			
	LIFT	1	5.300	0.300	0.600	0.954			
		2	1.900	0.300	0.600	0.684			
	a14-f14,A15 TO F15,A16 TO F16,A17 TO F17,A18 TO F18	5	21.800	0.300	0.600	19.620			
	,		1	l	Total Quant	tity 121.653 cum			
				To	otal Deducted Quant	-			
				•	Net Total Quant				
			Say 1	21 653 000	n @ Rs 5950.30 / cu				

7	2.25 Filling available excavat exceeding 20 cm in dep and lift up to 1.5 m.			•	•			-
			for	basement fi	lling			
	entrance lobby	1	8.600	5.200	0.450		20.124	
	Gents rest room and passage	1	7.510	4.100	0.450		13.856	
	Gents toilet room	1	4.700	7.000	0.450		14.805	
	store	1	2.800	2.100	0.450		2.646	
	store	1	2.000	2.100	0.450		1.891	
	lab	1	9.000	15.200	0.450		61.560	
	Seminar hall	1	11.000	22.900	0.450		113.355	
	Research lab	3	9.000	7.500	0.450		91.125	
	Class room	1	9.000	7.500	0.450		30.375	
	Staff room and passage	1	11.000	7.300	0.450	2	36.135	
	Staff toilet	1	2.700	2.100	0.450		2.552	
	Stair cabin	thet E	9.200	5.400	0.450	S	22.356	
		1 -	2.300	4.100	0.450		4.244	
	Staff room	2	5.450	5.900	0.450		28.940	
	Ladies rest room	1	4.400	7.500	0.450		14.850	
	Toilet Ladies	1	7.600	4.400	0.450		15.048	
	Staff toilet, cooler, H toilet etc	1	7.600	4.400	0.450		15.048	
	Common passage	1	63.850	3.000	0.450		86.198	
					Total (Quantity	575.108 c	um
				To	otal Deducted (Quantity	0.000 cum	1
					Net Total (Quantity	575.108 c	um
			Say	575.108 cu	m @ Rs 258.5	7 / cum	Rs 148	3705.68
8	od71454/2022_2023 Providing and applying concentrate .075% for pll) 2001 for wall trenche external perimeter of the directed by the Engine	ore-constr es, founda he buildir	uctional treat ition, top surf ng, etc. com	ment and care of plints plete confo	reating a chement of the filling, found of the filling to man	nical barr ation of v ufacturer	ier as per IS vall and floo rs specificat	6313 (Part r, along the ion and as

			for	basement fi	lling			
	entrance lobby	1	8.600	5.200			44.720	
	Gents rest room and passage	1	7.510	4.100			30.791	
	Gents toilet room	1	4.700	7.000			32.900	
	store	1	2.800	2.100			5.880	
	store	1	2.000	2.100			4.200	
	lab	1	9.000	15.200			136.800	
	Seminar hall	1	11.000	22.900			251.900	
	Research lab	3	9.000	7.500			202.500	
	Class room	1	9.000	7.500			67.500	
	Staff room and passage	1	11.000	7.300			80.300	
	Staff toilet	1	2.700	2.100	1 6 1		5.671	
	Stair cabin	1	9.200	5.400	Th	\	49.680	
		1	2.300	4.100		2	9.430	
	Staff room	2	5.450	5.900	55		64.310	
	Ladies rest room	1	4.400	7.500	•		33.000	
	Toilet Ladies	tner Ei	7.600	4.400	amsauo	IIS	33.440	
	Staff toilet, cooler, H toilet etc		7.600	4.400			33.440	
	Common passage	1	63.850	3.000			191.550	
					Tota	al Quantity	1278.012	per sqm
				To	otal Deducte	d Quantity	0.000 per	sqm
					Net Tota	al Quantity	1278.012	per sqm
		5	Say 1278.012	2 per sqm @	Rs 139.38	/ per sqm	Rs 178	3129.31
9	13.7.1 12 mm cement plaster f	inished wit	:h a floating c	coat of neat	cement of m	ix:1:3 (1 ce	ement : 3 fin	e sand)
			Τe	errace floor	top			
	Terrace floor	1	18.250	23.450			427.963	
			de	duction for s	slab			
	deduction for cutting	2	3.950	9.050			-71.495	
		1	2.650	5.350			-14.177	
		1	1.500	1.000			-1.500	

		S	unshade to	p		T	1	
w3 bottom	2*4*3	1.500	0.600			21.600		
ventilator bottom	4*1*3	1.000	0.600			7.200		
KW2 bottom	4*1*3	3.400	0.600			24.480		
W2 bottom	4*1*3	1.000	0.600			7.200		
W2A bottom	4*1*3	1.500	0.600			10.800		
Stair room window bottom	1*3	2.650	0.600			4.770		
			Staircabin					
Staircabin slab top	2	9.200	7.230	0.130		17.295		
		100	:D	Tota	l Quantity	521.308 s	qm	
		C. S. W	To	otal Deducted	d Quantity	-87.172 so	mp	
	1	Ser 9		Net Tota	l Quantity	434.136 s	qm	
	.21 / sqm	Rs 174	4179.70					
landings, balconies and access platform SLAB G 2								
			SLAB G 2					
SLAB G+2	ther ₃ En	69.660		anisatio	ns	4973.724		
SLAB G+2	ther ₃ En	69.660 (69.660+2 3.8)*2		anisatio	ns	4973.724 560.760		
SLAB G+2 STAIRCABIN SLAB		(69.660+2		anisatio T	ns			
	1*3	(69.660+2 3.8)*2	23.8009	anisatio	ns	560.760		
	1*3	(69.660+2 3.8)*2 9.200 9.200	23.800	E	ns	560.760 218.960		
	1*3	(69.660+2 3.8)*2 9.200 9.200	23.800g 23.800 7.230	E	ns	560.760 218.960		
STAIRCABIN SLAB	1 1	(69,660+2 3.8)*2 9.200 9.200	23.800 23.800 7.230 Deduction	E	ns	560.760 218.960 66.516		
STAIRCABIN SLAB	1 1 3*1	(69.660+2 3.8)*2 9.200 9.200 Slab 2.000	23.800 23.800 7.230 Deduction 23.350	E	ns	560.760 218.960 66.516 -140.100		
STAIRCABIN SLAB slab deductions	1*3 1 1 3*1 3*1	(69.660+2 3.8)*2 9.200 9.200 Slab 2.000 9.200	23.800 23.800 7.230 Deduction 23.350 7.400	E	ns	560.760 218.960 66.516 -140.100 -204.240		
STAIRCABIN SLAB slab deductions Stair portion	1*3 1 1 3*1 3*1 3*1	(69.660+2 3.8)*2 9.200 9.200 Slab 2.000 9.200 5.000	23.800 7.230 Deduction 23.350 7.400 5.300	E	ns	560.760 218.960 66.516 -140.100 -204.240 -79.500		
STAIRCABIN SLAB slab deductions Stair portion	1*3 1 1 3*1 3*1 3*1	(69.660+2 3.8)*2 9.200 9.200 Slab 2.000 9.200 5.000 11.200	23.800 7.230 Deduction 23.350 7.400 5.300 7.400	E	ns	560.760 218.960 66.516 -140.100 -204.240 -79.500 -248.640		
STAIRCABIN SLAB slab deductions Stair portion Cuting portion	1*3 1 1 3*1 3*1 3*1 3*1 3*1	(69.660+2 3.8)*2 9.200 9.200 Slab 2.000 9.200 5.000 11.200 8.100 5.600	23.800 7.230 Deduction 23.350 7.400 5.300 7.400 2.000	G 2		560.760 218.960 66.516 -140.100 -204.240 -79.500 -248.640 -48.599		
STAIRCABIN SLAB slab deductions Stair portion Cuting portion	1*3 1 1 3*1 3*1 3*1 3*1 3*1	(69.660+2 3.8)*2 9.200 9.200 Slab 2.000 9.200 5.000 11.200 8.100 5.600	23.800 7.230 Deduction 23.350 7.400 5.300 7.400 2.000 5.200	G 2	ns	560.760 218.960 66.516 -140.100 -204.240 -79.500 -248.640 -48.599		
STAIRCABIN SLAB slab deductions Stair portion Cuting portion Fire stair	1*3 1 1 3*1 3*1 3*1 3*1 3*1 3*1	(69.660+2 3.8)*2 9.200 9.200 Slab 2.000 9.200 5.000 11.200 8.100 5.600	23.800 7.230 Deduction 23.350 7.400 5.300 7.400 2.000 5.200 tair case G	G 2		560.760 218.960 66.516 -140.100 -204.240 -79.500 -248.640 -48.599 -87.359		

	Short wall direction	2*3	23.000	0.600+.12			99.360	
	Cutting portion	2*3	8.950	0.600+.12			38.664	
		1*3	11.100	0.600+.12			23.976	
		1*3	9.100	0.600+.12			19.656	
					Tota	al Quantity	6349.208	sqm
				То	tal Deducte	d Quantity	-808.438	sqm
					Net Tota	al Quantity	5540.770	sqm
			Say :	5540.770 sqr	m @ Rs 815	5.78 / sqm	Rs 452	0049.35
11	5.9.1 Centering and shutterin columns, etc for mass of	_	g strutting, e	etc. and remo	oval of form	for:Foundat	ions, footing	ıs, base
			C	olumn Pedes	stal			
		78	(0.800+0.5 0)*2	5	1.100		223.080	
		B	412	footing	1-3			
	for indipendant footing	48	(3.5+4)*2		0.600	2	432.000	
		48	(2+1.5)		0.600		100.801	
	Double footin	ther E	(6.800+3)*		0.600. anisatic	ns	129.360	
		11	(5.000+1.5)*2		0.600		85.800	
	Combined footing	2 -	(5.5+5)*2		0.600	_	25.200	
		2	(3.5+3.5)*		0.600		16.800	
					Tota	al Quantity	1013.041	sqm
				То	tal Deducte	d Quantity	0.000 sqm	1
					Net Tota	al Quantity	1013.041	sqm
			Say	1013.041 sqr	m @ Rs 335	5.31 / sqm	Rs 339	682.78
12	5.9.5 Centering and shuttering girders bressumers and	_	-	etc. and rem	noval of forr	n for:Lintels	s, beams, pl	inth bea
				plinth beam				
	Vertical PB A1-A7	1	23.600	0.300+.6+.			35.401	
				0.300+.6+.				

				1		1	1	
B1 to E	33	1	8.100	0.300+.6+. 6			12.150	
B9 to E	314	2	23.500	0.300+.6+. 6			70.500	
C1 to 0	C18, D1 to D18	2	69.350	0.300+.6+. 6			208.050	
F1 to F	-3	1	8.100	0.300+.6+. 6			12.150	
G5 to 0	G13	1	30.800	0.300+.6+. 6			46.200	
F13 to	F18	1	23.550	0.300+.6+. 6			35.325	
E16 to	E18	1	8.050	0.300+.6+. 6			12.076	
Short	hontal PB in span A1 t0 3 to F3	400 11 600 11	21.800	0.300+.6+. 6			65.401	
B2 to (C2	1	5.650	0.300+.6+. 6			8.476	
A4 to [04	ther En	12.700 21neeri	0.300+.6+. ng 6)rg	anisatio	ns	19.050	
G 7 , A	5,A6-G6,A7- .9-G9,A11- A13-G13		23.800	0.300+.6+.	E		214.201	
С8 ТО	G8	1	14.850	0.300+.6+. 6			22.275	
D12 T0	O G12	1	11.400	0.300+.6+. 6			17.100	
LIFT		1	5.300	0.300+.6+. 6			7.950	
		2	1.900	0.300+.6+. 6			5.700	
F15,A	f14,A15 TO 16 TO F16,A17 7,A18 TO F18	5	21.800	0.300+.6+. 6			163.500	
				beam G 2				
Vertica	al PB A1-A7	1*3	23.600	0.200+.6+. 6			99.120	

	İ		1	1	1		
A9 -A18	1*3	38.850	0.200+.6+. 6			163.171	
B1 to B3	1*3	8.100	0.200+.6+. 6			34.020	
B9 to B14	2*3	23.500	0.200+.6+. 6			197.400	
C1 to C18, D1 to D18	2*3	69.350	0.200+.6+. 6			582.540	
F1 to F3	1*3	8.100	0.200+.6+. 6			34.020	
G5 to G13	1*3	30.800	0.200+.6+. 6	0.600		77.616	
F13 to F18	1*3	23.550	0.200+.6+. 6			98.910	
E16 to E18	1*3	8.050	0.200+.6+. 6			33.810	
Horizhontal PB in Short span A1 t0 F1,A3 to F3		21.800	0.200+.6+. 6			183.120	
B2 to C2	1*3 ther En	.5.650 gineeri	0.200+.6+. ng 6)rg	anisatio	ns	23.730	
A4 to D4	1*3	12.700	0.200+.6+.		7	53.340	
A5-G5,A6-G6,A7- G7,A9-G9,A11- G11,A13-G13	6*3	23.800	0.200+.6+.			599.760	
C8 TO G8	1*3	14.850	0.200+.6+. 6			62.370	
D12 TO G12	1*3	11.400	0.200+.6+. 6			47.880	
LIFT	1*3	5.300	0.200+.6+. 6			22.260	
	2*3	1.900	0.200+.6+. 6			15.960	
a14-f14,A15 TO F15,A16 TO F16,A17 TO F17,A18 TO F18	5*3	21.800	0.200+.6+.			457.800	
 			LINTELS G	2			

Vertical PB A1-A7	1*3	23.600	0.200+.15 +.15		35.401
A9 -A18	1*3	38.850	0.200+.15 +.15		58.276
B1 to B3	1*3	8.100	0.200+.15 +.15		12.150
B9 to B14	2*3	23.500	0.200+.15 +.15		70.500
C1 to C18, D1 to D18	2*3	69.350	0.200+.15 +.15		208.050
F1 to F3	1*3	8.100	0.200+.15 +.15		12.150
G5 to G13	1*3	30.800	0.200+.15 +.15		46.200
F13 to F18	1*3	23.550	0.200+.15 +.15		35.325
E16 to E18	1*3	8.050	0.200+.15 +.15		12.076
Horizhontal PB in Short span A1 t0 F1,A3 to F3	2*3 ther Er	21.800 gineeri	0.200+.15 +.15 ng Orga	anisation	65.401
B2 to C2	1*3	5.650	0.200+.15 +.15	T	8.476
A4 to D4	1*3	12.700	0.200+.15 +.15		19.050
A5-G5,A6-G6,A7- G7,A9-G9,A11- G11,A13-G13	6*3	23.800	0.200+.15 +.15		214.201
C8 TO G8	1*3	14.850	0.200+.15 +.15		22.275
D12 TO G12	1*3	11.400	0.200+.15 +.15		17.100
LIFT	1*3	5.300	0.200+.15 +.15		7.950
	2*3	1.900	0.200+.15 +.15		5.700
a14-f14,A15 TO F15,A16 TO F16,A17 TO F17,A18 TO F18	5*3	21.800	0.200+.15 +.15		163.500

					Tota	al Quantity	4814.389	sqm
				To	tal Deducte	d Quantity	0.000 sqm	1
					Net Tota	al Quantity	4814.389	sqm
			Say 4	814.389 sqı	m @ Rs 649).82 / sqm	Rs 312	8486.26
13	5.9.6 Centering and shutter Abutments, Posts and	•	ng strutting	, etc. and	removal of	form for:C	olumns, Pil	lars, Piers,
			С	OLUMN G	2		ı	
	columns	3*78	(0.200+.6) *2		4.000		1497.601	
	stair columns	12	(0.200+.6) *2	£	4.000		76.801	
			5.0		Tota	al Quantity	1574.402	sqm
		1	35 3	Тс	tal Deducte	d Quantity	0.000 sqm	1
		$l k \rightarrow$	AND		Net Tota	al Quantity	1574.402	sqm
		155	Say 1	574.402 sqr	m @ Rs 863	3.64 / sqm	Rs 135	9716.54
14	5.9.7 Centering and shutteri except spiral - staircas	ses)	g strutting, o	1.20			s, (excluding	g landings)
	Ms & FS flight	2*2*3	3.600	1.250			54.000	
		2*1*3	1.400	1.250			10.500	
	step	2*4*25	2.000	.5*.15*.3			9.000	
					Tota	al Quantity	73.500 sq	m
				To	otal Deducte	d Quantity	0.000 sqm	า
					Net Tota	al Quantity	73.500 sq	m
			Say	/ 73.500 sqr	m @ Rs 732	2.52 / sqm	Rs 53	840.22
15	5.22.6 Steel reinforcement fo binding all complete u		_		•			
	Total RCC steel quantity	1	1912.388			161.0	307894.46 8	
					Tota	al Quantity	307894.46	8 kilogram
				To	tal Deducte	d Quantity	0.000 kilo	gram
					Net Tota	al Quantity	307894.46	8 kilogram
		Say	/ 307894.468	8 kilogram @	@ Rs 98.30	/ kilogram	Rs 3026	66026.20

16	5.1.3 Providing and laying ir centering, shuttering, fi	•					•	
	sand: 4 graded stone	_			ik up to piinti	1 10 001. 1 . 2 .	+ (1 ocinion	it . 2 00are
	Gents Toilet	2	7.000	4.700	0.300		19.740	
	Staff room toilet	2	2.000	2.100	0.300		2.520	
	Staff room toilet	2	4.400	2.900	0.300		7.656	
	Cooler	2	1.500	2.500	0.300		2.250	
	H toilet	2	2.700	2.500	0.300		4.050	
		2	4.400	7.650	0.300		20.196	
			B	B.	Total	Quantity	56.412 cu	m
			1/10	To	otal Deducted	Quantity	0.000 cum	า
		1	63 W	8 8	Net Total	Quantity	56.412 cu	m
		61	Say	56.412 cum	n @ Rs 8588.	47 / cum	Rs 484	1492.77
17	50.6.1.5 Solid block masonry us size confirming to IS 2	I The Parameter						
17	Solid block masonry us	185 Part I	of 1979 for s coarse sand	super struc	cture up to flo lete WALLS	oor two lev		
17	Solid block masonry us size confirming to IS 2	185 Part I	of 1979 for s coarse sand	super struct) etc comp	cture up to flo lete WALLS			
17	Solid block masonry us size confirming to IS 2 above in: CM 1:6 (1 c	185 Part I ement : 6	of 1979 for coarse sand	super struction () etc comp	eture up to flo	oor two lev	vel thickness	
17	Solid block masonry us size confirming to IS 2 above in: CM 1:6 (1 c	185 Part I ement : 6	of 1979 for coarse sand GROUN 15.600	super structure super structure structure structure super stru	ture up to flo lete WALLS 3.600	oor two lev	rel thickness	
17	Solid block masonry us size confirming to IS 2 above in: CM 1:6 (1 c	185 Part I sement : 6 ther Er	of 1979 for coarse sand GROUN 15.600 7.805	super struction (structure) etc composition (structure) et	WALLS 3.600 3.600	oor two lev	11.233 5.620	
17	Solid block masonry us size confirming to IS 2 above in: CM 1:6 (1 c	185 Part I ement : 6 ther En	of 1979 for coarse sand GROUN 15.600 7.805 8.000	super structure (structure) etc composition (structure) et	WALLS 3.600 3.600	oor two lev	11.233 5.620 5.761	
17	Solid block masonry us size confirming to IS 2 above in: CM 1:6 (1 cm A3 - A7 B1 TO B3 A9-A11 A14-A18 ,E14-E18 C1-C18,D1-D18 AND	185 Part I rement : 6 ther End 1 1 1	of 1979 for coarse sand GROUN 15.600 7.805 8.000 15.700	super structure	WALLS 3.600 3.600 3.600 3.600	oor two lev	11.233 5.620 5.761 22.608	
17	Solid block masonry us size confirming to IS 2 above in: CM 1:6 (1 cm A3 - A7 B1 TO B3 A9-A11 A14-A18 ,E14-E18 C1-C18,D1-D18 AND F1-F18	185 Part I sement : 6 ther En 1 2 3	of 1979 for coarse sand GROUN 15.600 7.805 8.000 15.700 69.6550	0.200 0.200 0.200 0.200	3.600 3.600 3.600 3.600	oor two lev	11.233 5.620 5.761 22.608 150.455	
17	Solid block masonry us size confirming to IS 2 above in: CM 1:6 (1 cm A3 - A7 B1 TO B3 A9-A11 A14-A18 ,E14-E18 C1-C18,D1-D18 AND F1-F18 1A-1F.18A-18F GENTS TOILET	185 Part I sement : 6 ther En 1 2 3	of 1979 for coarse sand GROUN 15.600 7.805 8.000 15.700 69.6550 21.800	0.200 0.200 0.200 0.200 0.200	3.600 3.600 3.600 3.600 3.600	oor two lev	11.233 5.620 5.761 22.608 150.455 31.393	
17	Solid block masonry us size confirming to IS 2 above in: CM 1:6 (1 cm A3 - A7 B1 TO B3 A9-A11 A14-A18 ,E14-E18 C1-C18,D1-D18 AND F1-F18 1A-1F.18A-18F GENTS TOILET PARTITION REST ROOM	185 Part I ement : 6 ther En 1 2 3 2	of 1979 for coarse sand GROUN 15.600 7.805 8.000 15.700 69.6550 21.800 7.000	0.200 0.200 0.200 0.200 0.200 0.200	3.600 3.600 3.600 3.600 3.600 3.600	oor two lev	11.233 5.620 5.761 22.608 150.455 31.393 5.041	
17	Solid block masonry us size confirming to IS 2 above in: CM 1:6 (1 cm) A3 - A7 B1 TO B3 A9-A11 A14-A18,E14-E18 C1-C18,D1-D18 AND F1-F18 1A-1F.18A-18F GENTS TOILET PARTITION REST ROOM PARTION INTERNAL	185 Part I ement: 6 ther Ell 1 2 3 2 1	of 1979 for coarse sand GROUN 15.600 7.805 8.000 15.700 69.6550 21.800 7.000	0.200 0.200 0.200 0.200 0.200 0.200 0.200	3.600 3.600 3.600 3.600 3.600 3.600 3.600	oor two lev	11.233 5.620 5.761 22.608 150.455 31.393 5.041	

STAFF TOILET PSRTION	1	2.900	0.200	3.600	2.088
	1	1.800	0.200	3.600	1.297
b/W JENITORS	1	1.800	0.200	3.600	1.297
	1	1.800	0.200	3.600	1.297
		dec	luction for w	valls	
W4	24	2.000	0.200	1.350	-12.960
W3	26	1.500	0.200	1.350	-10.530
V	12	0.600	0.200	0.450	-0.648
D1	11	1.200	0.200	2.100	-5.544
D2	3	1.000	0.200	2.100	-1.260
DT	12	0.800	0.200	1.500	-2.880
	1	FIRS	T FLOOR W	/ALLS	
1A TO A7	1	23.405	0.200	3.600	16.852
C1 TO C18,D1-D18	2	69.355	0.200	3.600	99.872
G1 TO G3	1	8.105	0.200	3.600	5.836
G5-G13	1	30.750	0.200	3.600	22.140
F13-F18	thet Er	23.300	0.200	3.600	16.776
A1-F1,A3-F3	2	23.300	0.200	3.600	33.552
INTERNAL PARTION14	13	9.000	0.200	3.600	84.241
TOILET PARTION	9	1.800	0.200	3.600	11.665
	1	7.650	0.200	3.600	5.509
	1	7.000	0.200	3.600	5.041
gENTS REST ROOM PARTITION	1	4.100	0.200	3.600	2.952
LADIES REST ROOM PARTION	1	7.500	0.200	3.600	5.400
JENITORS	3	5.450	0.200	3.600	11.773
		DE	DUCTION	FF	
fIRST FLOOR DEDUCTION w3	51	1.500	0.200	1.500	-22.950
v	13	0.600	0.200	0.600	-0.936
d1	7	1.200	0.200	2.100	-3.528

 D2	4	1.000	0.200	2.100	-1.680
DT	15	0.800	0.200	2.100	-5.040
		SECON	ND FLOOR	WALLS	
1A TO A7	1	23.405	0.200	3.600	16.852
 C1 TO C18,D1-D18	2	69.355	0.200	3.600	99.872
 G1 TO G3	1	8.105	0.200	3.600	5.836
G5-G13	1	30.750	0.200	3.600	22.140
F13-F18	1	23.300	0.200	3.600	16.776
A1-F1,A3-F3	2	23.300	0.200	3.600	33.552
 INTERNAL PARTION14	13	9.000	0.200	3.600	84.241
 TOILET PARTION	9	1.800	0.200	3.600	11.665
	1	7.650	0.200	3.600	5.509
	1	7.000	0.200	3.600	5.041
 gENTS REST ROOM PARTITION	1	4.100	0.200	3.600	2.952
LADIES REST ROOM PARTION	1	7.500	0.200	3.600	5.400
JENITORS	theg En	gi <u>5.45</u> 011	ng.200g	ani _{s600} ions	11.773
	D 1	DE	CUCTION	SF	
fIRST FLOOR DEDUCTION w3	51	1.500	0.200	1.500	-22.950
V	13	0.600	0.200	0.600	-0.936
 d1	7	1.200	0.200	2.100	-3.528
 D2	4	1.000	0.200	2.100	-1.680
 DT	15	0.800	0.200	2.100	-5.040
		tERRACE	AND STAI	RECABIN	
 fIRESTAIRE	2	9.400	0.200	3.600	13.537
	2	5.555	0.200	3.600	8.000
MAINSTARE	2	9.300	0.200	3.600	13.393
	2	5.850	0.200	3.600	8.424
 PARAPET	2	69.655	0.100	1.100	15.325
	2	21.800	0.100	1.100	4.797
	3	9.200	0.100	1.100	3.036

		3	11.200	0.100	1.100		3.696	
			S	TAIRCABIN	١			
	WINDOWS	9	1.500	0.200	1.500		-4.050	
					Tota	al Quantity	1055.270	cum
				To	tal Deducte	d Quantity	-106.140	cum
					Net Tota	al Quantity	949.130 c	um
			Say 9	49.130 cum	@ Rs 6644	.12 / cum	Rs 630	6133.62
	Providing and fixing st including welding, grind same with necessary accessories & stainless floor or the side of wa payment purpose onlaccessories such as	ding, buffin stainless s steel dash ist slab wit y weight o	g, polishing steel nuts a n fasteners, s h suitable a of stainless	and making nd bolts co stainless ste rrangemen steel men	g curvature omplete, i/c eel bolts etc t as per ap	(wherever r fixing the ., of require proval of E	equired) an railing with d size on th ngineer-in-c	d fitting the necessale top of the charge, (f
			13/116	nd rail for st	tair	1		
	50 mm SS pipe, 1.65 mm thick(inclined portion)	3*2*2*2	3.700			2.01	178.488	
		3*2*2*2	3.700			2.01	178.488	
	Vertical	ther Er 3*4*2	1.100	ng Orga	anisatio	NS 2.01	53.064	
		3	1.100			2.01	6.633	
					Tota	al Quantity	416.673 k	g
				To	otal Deducte	d Quantity	0.000 kg	
					Net Tota	al Quantity	416.673 k	g
			5	Say 416.673	8 kg @ Rs 6	77.34 / kg	Rs 282	2229.29
19	9.1.1 Providing wood work in and fixed in position with dash fastener shall be	th hold fast	lugs or with	dash faste	ners of requ			_
				GF				1
	D1	11	1.200+2.1 +2.1	0.100	0.050		0.298	
	D2	3	1.000+2.1 +2.1	0.100	0.050		0.079	

d1	7	1.200+2.1 +2.1	0.100	0.050		0.190	
D2	4	1.000+2.1 +2.1	0.100	0.050		0.105	
			SF				
d1	7	1.200+2.1 +2.1	0.100	0.050		0.190	
D2	4	1.000+2.1 +2.1	0.100	0.050		0.105	
	T.		Terrace				
	2	1.000+2.1 +2.1	0.100	0.050		0.053	
		-1		Tota	al Quantity	1.020 cum	1
	1	S. F. I	To	tal Deducte	d Quantity	0.000 cum	1
	61		21/1	Net Tota	al Quantity	1.020 cum	1
) A	Say 1	.020 cum @	Rs 153237	7.78 / cum	Rs 156	302.54
clerestory windows, in necessery screws, exc Engineer - in-charge.P clerestory windows fix which will be paid for sand necessary screws	cluding pandroviding and ing with business in the control of the c	elling which of the fixing panel of the fixing panel of all complete	will be paid lled or pane required siz as perdirec	for separate lled and glaz ze with nece tion of Engir	ely, all comp zed shutters essaryscrev neer-in-cha	olete as per for doors, w vs, excludin rge. (Note:-	direction of vindowsand g panelling
,	· ·		, GF				
D1	11	1.200		2.100	0.3	8.316	
D2	3	1.000		2.100	0.3	1.891	
	•		FF				
d1	7	1.200		2.100	0.3	5.292	
D2	4	1.000		2.100	0.3	2.520	
	_		FF				
d1	7	1.200		2.100	0.3	5.292	
D2	4	1.000		2.100	0.3	2.520	
	T	Т	Terrace	T		T	
	2	1.000		2.100	0.3	1.260	
		1.000		2.100	0.0	1.200	

				Тс	tal Deducted	d Quantity	0.000 sqm	ı		
					Net Tota	I Quantity	27.091 sqr	m		
			Say	27.091 sqm	@ Rs 3848	.93 / sqm	Rs 104	271.36		
21	9.7.1 Providing and fixing doors, windows an grooves or rebates mm thick:Second cl	nd clerestory w to be measure	vindows (Ar d), Panelling	ea of openi	ng for pane	l inserts ex	cluding por	tion ins		
			1	GF						
	D1	11	1.200		2.100	0.7	19.404			
	D2	3	1.000	26.	2.100	0.7	4.410			
			1/68	FF						
	d1	7	1.200		2.100	0.7	12.348			
	D2	4	1.000	E. W	2.100	0.7	5.880			
		(ks		SF	4-21					
	d1	7	1.200		2.100	0.7	12.348			
	D2	4	1.000		2.100	0.7	5.880			
			A CONTRACTOR	Terrace	7.5					
		Othe? Er	o 1.000 ri	ng Orga	an 2:100 io	ns 0.7	2.940			
		DI			Tota	l Quantity	63.210 sqr	m		
		P	K	To	tal Deducted	l Quantity	0.000 sqm	ı		
					Net Tota	I Quantity	63.210 sqr	m		
			Say	63.210 sqm	@ Rs 3463	.31 / sqm	Rs 218	915.83		
22	9.53 Providing 40x5 mm flat iron hold fast 40 cm long including fixing to frame with 10 mm diameter bolts, not and wooden plugs and embeddings in cement concrete block 30x10x15 cm 1:3:6 mix (1 cement : coarse sand : 6 graded stone aggregate 20 mm nominal size) GF									
	D1	11*2*3					66.000			
	D2	3*2*3					18.000			
	DT	12*2*3					72.000			
				FF						
	d1	7*2*3					42.000			
	D2	4*2*3					24.000			
							1			

		SF		,
d1	7*2*3			42.000
D2	4*2*3			24.000
DT	15*2*3			90.000
		Terrace		
	2*2*3			12.000
			Total Quantity	480.000 each
		-	Total Deducted Quantity	0.000 each
			Net Total Quantity	480.000 each
		Say 480.000 ea	ch @ Rs 210.98 / each	Rs 101270.40
etc. complete:2	250x10 mm	GF		
D1	11*2*2	Negy		44.000
D2	3*2			6.000
DT	12*2			24.000
		FF		
d1	Other Engir	neering Org	ganisations	28.000
u i				
D2	4*2			8.000
				8.000 30.000
D2	4*2	SF		
D2	4*2	SF		
D2 DT	4*2 15*2	SF		30.000
D2 DT d1	4*2 15*2 7*2*2	SF		28.000
D2 DT d1 D2	4*2 15*2 7*2*2 4*2	SF		30.000 28.000 8.000
D2 DT d1 D2	4*2 15*2 7*2*2 4*2			30.000 28.000 8.000
D2 DT d1 D2	4*2 15*2 7*2*2 4*2 15*2		Total Quantity	30.000 28.000 8.000 30.000
D2 DT d1 D2	4*2 15*2 7*2*2 4*2 15*2	Terrace		30.000 28.000 8.000 30.000
D2 DT d1 D2	4*2 15*2 7*2*2 4*2 15*2	Terrace	Total Quantity	30.000 28.000 8.000 30.000 4.000 210.000 no

			GF		
	D1	11*2*2			44.000
	D2	3*2			6.000
	DT	12*2			24.000
			FF	·	
	d1	7*2*2			28.000
	D2	4*2			8.000
	DT	15*2			30.000
			SF		
	d1	7*2*2	(a) (b)		28.000
	D2	4*2	//dis/_		8.000
	DT	15*2			30.000
		(QX	Terrace	1.3	
		2*2	NUKAYA 1	21	4.000
		1811		Total Quantity	210.000 no
		4000	Total D	Deducted Quantity	0.000 no
			TOTAL BPLY	Not Total Occupits	210,000, 20
			District March	Net Total Quantity	210.000 no
		Other Engir	neerisay 210.000 no		Rs 9567.60
25	9.65.2 Providing and etc.250x20x6	fixing ISI marked oxid	neeri Say 210.000 no	@ Rs 45.56 / no	Rs 9567.60
25	Providing and	fixing ISI marked oxid	neeri Say 210.000 no	@ Rs 45.56 / no	Rs 9567.60
25	Providing and	fixing ISI marked oxid	lised M S door latche	@ Rs 45.56 / no	Rs 9567.60
25	Providing and etc.250x20x6	fixing ISI marked oxid	lised M S door latche	@ Rs 45.56 / no	Rs 9567.60 S: 5930 with scre
25	Providing and etc.250x20x6	fixing ISI marked oxid	lised M S door latche	@ Rs 45.56 / no	Rs 9567.60 S: 5930 with screen
25	Providing and etc.250x20x6 D1 D2	fixing ISI marked oxid	lised M S door latche	@ Rs 45.56 / no	Rs 9567.60 S: 5930 with screen
25	Providing and etc.250x20x6 D1 D2	fixing ISI marked oxid	dised M S door latche	@ Rs 45.56 / no	Rs 9567.60 S: 5930 with screen
25	Providing and etc.250x20x6 D1 D2 DT	fixing ISI marked oxidemm 11*2 3 12	dised M S door latche	@ Rs 45.56 / no	Rs 9567.60 S: 5930 with screen 22.000 3.000 12.000
25	Providing and etc.250x20x6 D1 D2 DT	fixing ISI marked oxidemm 11*2 3 12	dised M S door latche	@ Rs 45.56 / no	Rs 9567.60 S: 5930 with screen 22.000 3.000 12.000
25	Providing and etc.250x20x6 D1 D2 DT d1 D2	fixing ISI marked oxidemm 11*2 3 12 7 4	dised M S door latche	@ Rs 45.56 / no	Rs 9567.60 S: 5930 with screen 22.000 3.000 12.000 7.000 4.000
25	Providing and etc.250x20x6 D1 D2 DT d1 D2	fixing ISI marked oxidemm 11*2 3 12 7 4	GF FF	@ Rs 45.56 / no	Rs 9567.60 S: 5930 with screen 22.000 3.000 12.000 7.000 4.000
25	Providing and etc.250x20x6 D1 D2 DT d1 D2 DT	fixing ISI marked oxidemm 11*2 3 12 7 4 15	GF FF	@ Rs 45.56 / no	Rs 9567.60 S: 5930 with screen 22.000 3.000 12.000 7.000 4.000 15.000

				Terrace					
		2						2.000	
						Tota	al Quantity	91.000 no)
				Т	otal De	educte	d Quantity	0.000 no	
					N	et Tota	al Quantity	91.000 no)
				Say 91.0	00 no	@ Rs 8	30.47 / no	Rs 73	322.77
26	9.66.1 Providing and fi etc. complete:1.	ixing ISI marked ox 25 mm	idised M.:	S. handles	conforr	ming to) IS : 4992	with necess	sary scre
				GF	_				
	D1	11*2*2	12	183				44.000	
	D2	3*2	1					6.000	
	DT	12*2	31	6 3				24.000	
		l L i	YVE	FF		k)			
	d1	7*2*2	Dill	PIL		Th.	}	28.000	
	D2	4*2	XC.	(ES)	The second			8.000	
	DT	15*2			905			30.000	
			No.	SF					
	d1	Other Engarder	gineer	ing Org	ganis	atio	ns _	28.000	
	D2	4*2				L		8.000	
	DT	15*2						30.000	
				Terrace					
		2*2						4.000	
				•		Tota	al Quantity	210.000 n	10
				Т	otal De	educte	d Quantity	0.000 no	
					N	et Tota	al Quantity	210.000 n	10
				Say 210.0	00 no	@ Rs 4	11.02 / no	Rs 86	614.20
27	9.70.1 Providing and f	fixing IS : 12817 m 64x1.90 mm	arked sta	ainless stee	el butt	hinge	s with stair	nless steel	screws
				GF					
	D1	11*2*3						66.000	
	D2	3*2*3						18.000	

	Г	,	-F			
d1	7*2*3				42.000	
D2	4*2*3				24.000	
DT	15*2*3				90.000	
	·		SF			
d1	7*2*3				42.000	
D2	4*2*3				24.000	
DT	15*2*3				90.000	
	·	Te	rrace		•	
	2*2*3	- No. 100			12.000	
	·	J/6884		Total Quantity	480.000 r	no
		5 1 111	Total Dec	lucted Quantity	0.000 no	
	(1)	ST 375.	Net	Total Quantity	480.000 r	าด
	1.6.3	Sav	480.000 no @	Rs 99.52 / no	Rs 47	7769.60
moulded with fi	ebate of 32 mm x rire resistant grade hick and shall be fiver glass from all si	unsaturated pol lled with suitable	vester resin a wooden block	mm thickness. nd chopped ma in all the three l	The lamina t. Door frar egs. The fra	ited shall me lamina ame shall
moulded with fi	ire resistant grade hick and shall be fi	unsaturated pol lled with suitable des. M.S. stay sh	shutter of 30 yester resin a wooden block	mm thickness. nd chopped ma in all the three l	The lamina t. Door frar egs. The fra	ited shall me lamina ame shall
moulded with fi	ire resistant grade hick and shall be fi er glass from all si	unsaturated pol lled with suitable des. M.S. stay sh	shutter of 30 yester resin a wooden block all be provide	mm thickness. nd chopped ma in all the three l	The lamina t. Door frances egs. The frances o steady the	ited shall me lamina ame shall
moulded with fi	ire resistant grade hick and shall be fi er glass from all si	unsaturated pol lled with suitable des. M.S. stay sh	shutter of 30 yester resin a wooden block all be provided	mm thickness. nd chopped ma in all the three l	The lamina t. Door frances egs. The frances o steady the	ited shall me lamina ame shall
moulded with fi shall be 2 mm t covered with fib	ire resistant grade hick and shall be fi er glass from all si	unsaturated pol lled with suitable des. M.S. stay sh .8+2.1+2.1	shutter of 30 yester resin a wooden block all be provided	mm thickness. nd chopped ma in all the three l	The lamina t. Door frances. The frances of steady the	ited shall me lamina ame shall
moulded with fi shall be 2 mm t covered with fib	ire resistant grade hick and shall be fi er glass from all si	unsaturated pol lled with suitable des. M.S. stay sh .8+2.1+2.1	shutter of 30 yester resin a wooden block all be provided GF	mm thickness. nd chopped ma in all the three l	The lamina t. Door frances. The frances of steady the	ited shall me lamina ame shall
moulded with fi shall be 2 mm t covered with fib	ire resistant grade hick and shall be fi her glass from all si 12	unsaturated pol lled with suitable des. M.S. stay sh .8+2.1+2.1	shutter of 30 yester resin a wooden block all be provided GF	mm thickness. nd chopped ma in all the three l	The lamina t. Door frances. The frances of steady the 60.000	ted shall me lamina ame shall e frame.
moulded with fi shall be 2 mm t covered with fib	ire resistant grade hick and shall be fi her glass from all si 12	unsaturated pol lled with suitable des. M.S. stay sh .8+2.1+2.1	shutter of 30 yester resin a wooden block all be provide	mm thickness. nd chopped ma in all the three I d at the bottom t	The lamina t. Door frar egs. The fra o steady the 60.000 75.000	ne lamina ame shall e frame.
moulded with fi shall be 2 mm t covered with fib	ire resistant grade hick and shall be fi her glass from all si 12	unsaturated pol lled with suitable des. M.S. stay sh .8+2.1+2.1	shutter of 30 yester resin a wooden block all be provide GF Total Dec	mm thickness. nd chopped ma in all the three I d at the bottom t Total Quantity	The lamina t. Door frar egs. The fra o steady the 60.000 75.000 210.000 r	me lamina ame shall e frame.
moulded with fi shall be 2 mm t covered with fib	ire resistant grade hick and shall be fi her glass from all si 12	unsaturated polled with suitable des. M.S. stay shows a second stay of the suitable des. M.S. stay shows a second stay of the suitable des. M.S. stay shows a second stay of the suitable des. M.S. stay shows a second stay of the suitable des. M.S. stay shows a second stay of the suitable des. M.S. stay shows a second stay of the suitable des. M.S. stay shows a second stay of the suitable des. M.S. stay shows a second stay of the suitable des. M.S. stay shows a second stay of the suitable des. M.S. stay shows a second stay of the suitable des. M.S. stay shows a second stay of the suitable des. M.S. stay shows a second stay of the suitable des. M.S. stay shows a second stay of the suitable des. M.S. stay shows a second stay of the suitable des. M.S. stay shows a second stay of the suitable des. M.S. stay shows a second stay of the suitable des. M.S. stay shows a second stay of the suitable des. M.S. stay shows a second stay of the suitable des. M.S.	shutter of 30 yester resin a wooden block all be provide GF Total Dec Net	mm thickness. Ind chopped material the three leads at the bottom to the desired desir	The lamina t. Door frar egs. The fra o steady the 60.000 75.000 210.000 r 0.000 me	ne lamina ame shall e frame.

			GF				
DT	12	0.800	1.200			11.520	
		0.000	FF	1		111020	
DT	15	0.800	1.200			14.400	
			SF			I	
DT	15	0.800	1.200			14.400	
				Tot	al Quantity	40.320 sq	ım
			To	otal Deducte	<u> </u>	0.000 sqn	
		Name of	040		al Quantity	40.320 sq	
		Sav	40 320 sam	n @ Rs 4078			4452.38
Treguired including		minniiim ena	an heading f	or alazina /	nanelina C I	P hrace/ eta	inlace (
screws, all compl paneling and das (minimum thickno	lete as per archi sh fasteners to	tectural dra be paid for	wings and separately	the directio	•	eer-in-charg	ge.(Gla
screws, all compl	lete as per archi sh fasteners to	tectural dra be paid for	wings and separately micron)	the directio	ns of Engin	eer-in-charg	ge.(Gla
screws, all compl paneling and das (minimum thickno	lete as per archi sh fasteners to ess of powder of	tectural dra be paid for coating 50 r	wings and separately micron)	the directio):For fixed	ns of Engine portionPow	eer-in-charç der coated	ge.(Gla
screws, all compl paneling and das (minimum thicknown) w3	lete as per archi sh fasteners to ess of powder of	tectural dra be paid for coating 50 r	wings and separately micron)	the directio):For fixed 1.500	ns of Engine portionPow	eer-in-chargeder coated	ge.(Gla
screws, all compl paneling and das (minimum thicknown) w3	lete as per archi sh fasteners to ess of powder of	tectural dra be paid for coating 50 r	wings and separately micron)	the directio):For fixed 1.500	ns of Engine portionPow	eer-in-chargeder coated	ge.(Gla
screws, all compl paneling and das (minimum thicknown) w3	lete as per archish fasteners to ess of powder of 51	tectural dra be paid for coating 50 r 1.500 0.600	wings and separately micron)	the directio):For fixed 1.500 0.600	5.0	eer-in-chargeder coated 573.750 23.400	ge.(Gla
screws, all compl paneling and das (minimum thicknow) w3 v	lete as per archish fasteners to ess of powder of 13	tectural dra be paid for coating 50 r 1.500 0.600	wings and separately micron)	1.500 0.600 0.600	5.0 5.0	573.750 23.400	ge.(Gla
screws, all compl paneling and das (minimum thicknow) w3 v	lete as per archish fasteners to ess of powder of 13	tectural dra be paid for coating 50 r 1.500 0.600	wings and separately micron) FF SF	1.500 0.600 0.600	5.0 5.0	573.750 23.400	ge.(Gla
screws, all compl paneling and das (minimum thicknow) w3 v	lete as per archish fasteners to ess of powder of 51 13	tectural dra be paid for coating 50 r 1.500 0.600	wings and separately micron) FF SF	1.500 0.600 0.600	5.0 5.0 5.0 5.0	573.750 23.400 23.400	ge.(Gla
screws, all compl paneling and das (minimum thicknow) w3 v	lete as per archish fasteners to ess of powder of 51 13	tectural dra be paid for coating 50 r 1.500 0.600	wings and separately micron) FF SF	1.500 0.600 0.600	5.0 5.0 5.0 5.0	573.750 23.400 23.400	ge.(Gla
screws, all complements paneling and das (minimum thickness) w3 v w3 v WINDOWS	lete as per archish fasteners to ess of powder of 51 13 51 13	1.500 0.600 1.500	wings and separately micron) FF SF	1.500 0.600 1.500 0.600	5.0 5.0 5.0 5.0	573.750 23.400 573.750 23.400	ge.(Gla
screws, all complements paneling and das (minimum thickness) w3 v w3 v WINDOWS	lete as per archish fasteners to ess of powder of 51 13 51 13 9	1.500 0.600 1.500 2.000	wings and separately micron) FF SF	1.500 0.600 1.500 1.500 1.500	5.0 5.0 5.0 5.0 5.0	573.750 23.400 573.750 23.400 324.001	ge.(Gla
screws, all complements paneling and das (minimum thickness) w3 v w3 v WINDOWS W4 W3	lete as per archish fasteners to ess of powder of 51 13 51 13 9	1.500 0.600 1.500 2.000 1.500	wings and separately micron) FF SF	1.500 0.600 1.500 0.600 1.500 0.600 1.350 0.450	5.0 5.0 5.0 5.0 5.0	573.750 23.400 573.750 23.400 101.250 324.001 263.250	ge.(Gla:
screws, all complements paneling and das (minimum thickness) w3 v w3 v WINDOWS W4 W3	lete as per archish fasteners to ess of powder of 51 13 51 13 9	1.500 0.600 1.500 2.000 1.500	separately micron) FF SF STAIRCABII	1.500 0.600 1.500 0.600 1.500 0.600 1.350 0.450	5.0 5.0 5.0 5.0 5.0 5.0 4.0 5.0	573.750 23.400 573.750 23.400 101.250 324.001 263.250 16.201	ge.(Gla

			S	ay 1899.002	kg @ Rs 50	37.07 / kg	Rs 101	9897.00		
31	21.1.2.2 For shutters of doors, windows & ventilators including providing and fixing hinges / pivots and makin provision for fixing of fittings wherever required including the cost of EPDM rubber/ neoprene gask required (Fittings shall be paid for separately)Powder coated aluminium (minimum thickness of powder coating 50 micron)									
			T	Г						
	w3	51	1.500		1.500	5.0	573.750			
	v	13	0.600		0.600	5.0	23.400			
				SF				İ		
	w3	51	1.500	60.	1.500	5.0	573.750			
	v	13	0.600		0.600	5.0	23.400			
			60	STAIRCABIN	N .					
	WINDOWS	9	1.500	K B	1.500	5.0	101.250			
			14/2/10	GF	1-21					
	W4	24	2.000		1.350	5.0	324.001			
	W3	26	1.500		1.350	5.0	263.250			
	V	12	0.600	1100	0.450	5.0	16.201			
		Other E	ngineeri	ng Orga	anisation	al Quantity	1899.002	kg		
				To	tal Deducte	d Quantity	0.000 kg			
			K		Net Tota	al Quantity	1899.002	kg		
			S	ay 1899.002	kg @ Rs 64	13.10 / kg	Rs 122	1248.19		
32	21.3.1 Providing and fixin rubber / neoprene in -Charge. (Cost mm thickness	gasket etc. com	nplete as per	the archited	ctural drawin	gs and the	directions of	f Enginee		
			T	FF			T			
	w3	51	1.500		1.500		114.750			
	v	13	0.600		0.600		4.680			
				SF						
	w3	51	1.500		1.500		114.750			
	v	13	0.600		0.600		4.680			
				STAIRCABI	١					
			1		I		1			

				GF				
	W4	24	2.000		1.350		64.801	
	W3	26	1.500		1.350		52.651	
	V	12	0.600		0.450		3.240	
		1		1	Tota	al Quantity	379.802 s	qm
				To	otal Deducte	d Quantity	0.000 sqm	า
					Net Tota	al Quantity	379.802 s	qm
			Say 3	379.802 sqm	@ Rs 1176	6.65 / sqm	Rs 446	6894.02
33	21.11.3 Providing and fixing with necessary sta Charge complete.3	inless steel scr	,	the side hu				
		-	43.4	FF			T	
	w3	51*3	Y	S4/X			153.000	
	V	13*1					13.000	
		104		SF			1	
	w3	51*3			00		153.000	
	V	13					13.000	
		Other En	igineen	STAIRCABI	amsauo	ns	1	
	WINDOWS	9*3				1	27.000	
		+		GF				
	W4	24*4					96.000	
	W3	26*3					78.000	
	V	12					12.000	
						al Quantity	545.000 n	0
				Тс	otal Deducte		0.000 no	
				20 545,000		al Quantity	545.000 n	
34	9.100.1 Providing and fixing as per IS: 1868) complete:125 mm	transparent o	ndles, ISI ma		ised (anodic	coating no	t less than g	
			T	FF	Γ	Γ	T	Γ
	w3	51*3					153.000	
	v	13*1					13.000	

			 	SF			,	
	w3	51*3					153.000	
	v	13					13.000	
			S	TAIRCAB	IN			
	WINDOWS	9*3					27.000	
				GF				
	W4	24*4					96.000	
	W3	26*3					78.000	
	V	12					12.000	
			100	65.		Total Quantity	545.000 n	0
			J/66	Ţ	otal Ded	ucted Quantity	0.000 no	
		-6		430	Net	Total Quantity	545.000 n	0
				Say 545.0	00 no @	Rs 70.17 / no	Rs 38	242.65
	screws etc. compl	ete.Single rubber	stopper	GF	to requi			
	screws etc. compl		VP and	GF			T	
	screws etc. compl	ete.Single rubber	VP and	GF	anisa	tions	22.000	
			VP and	GF ng Org		tions	22.000	
	D1	Other*2Eng	VP and	GF		tions	3.000	
	D1	Other-Eng	VP and	GF ng Org		tions	3.000	
	D1 D2	Other*2Eng	VP and	gF ng Org FF		tions	3.000	
	D1 D2 d1 D2	Oth41*2Eng 3 7*2 4	VP and	GF ng Org		tions	3.000 14.000 4.000	
	D1 D2 d1 D2 d1	Othq1*2Eng 3 7*2 4	VP and	gF ng Org FF		tions	3.000 14.000 4.000	
	D1 D2 d1 D2	Oth41*2Eng 3 7*2 4	VP and	gF ng Org FF	ganisa		3.000 14.000 4.000 14.000 4.000	
	D1 D2 d1 D2 d1	Othq1*2Eng 3 7*2 4	VP and	GF ng Org FF	anisa	Total Quantity	3.000 14.000 4.000 14.000 4.000 61.000 no	
	D1 D2 d1 D2 d1	Othq1*2Eng 3 7*2 4	VP and	GF ng Org FF	anisa	Total Quantity ucted Quantity	3.000 14.000 4.000 14.000 4.000 61.000 no 0.000 no	
	D1 D2 d1 D2 d1	Othq1*2Eng 3 7*2 4	VP and	GF ng Org FF	otal Ded	Total Quantity ucted Quantity Total Quantity	3.000 14.000 4.000 14.000 4.000 61.000 no 61.000 no	
	D1 D2 d1 D2 d1 D2	7*2 4	VP and	GF ng Org FF	otal Ded	Total Quantity ucted Quantity	3.000 14.000 4.000 14.000 4.000 61.000 no 61.000 no	
36	D1 D2 d1 D2 d1	Other*2Eng 7*2 4 7*2 4 23 ng M.S. Grills of reluding priming coal	gineerir	GF ng Org FF SF T Say 61.0	Total Dedinate Net 00 no @	Total Quantity ucted Quantity Total Quantity Rs 39.93 / no	3.000 14.000 4.000 4.000 61.000 no 61.000 no Rs 24	135.73

	w3	51	1.500		1.500	15.0	1721.250	
	V	13	0.600		0.600	15.0	70.200	
	Grill door	2	7.400		2.100	15.0	466.201	
			1	SF	Γ		ı	T
	w3	51	1.500		1.500	15.0	1721.250	
	v	13	0.600		0.600	15.0	70.200	
	Grill door	2	7.400		2.100	15.0	466.201	
			S	STAIRCABI	N			
	WINDOWS	9	1.500		1.500	15.0	303.750	
			100	GF				
	W4	24	2.000	_/@	1.350	15.0	972.001	
	W3	26	1.500		1.350	15.0	789.751	
	V	12	0.600	K K	0.450	15.0	48.600	
	Grill door	2	7.400		2.100	15.0	466.201	
		151			Tota	al Quantity	7095.605	kg
				To	tal Deducte	d Quantity	0.000 kg	
			4 / P / P	To		d Quantity	0.000 kg 7095.605	kg
	0	ther Er	ngineersi	H # PE//	Net Tota	al Quantity	7095.605	kg 9422.95
37	13.1.1	ther Er	ngineeıs	H # PE//	Net Tota	al Quantity	7095.605	
37			D 1	ay 7095.605	Net Tota	al Quantity	7095.605	
37	13.1.1		1 cement : 4	ay 7095.605	Net Tota	al Quantity	7095.605	
37	13.1.1		1 cement : 4	ay 7095.605	Net Tota	al Quantity	7095.605	
37	13.1.1 12 mm cement plaster of	of mix:1:4 (1 cement : 4 Ins (4.10+5.20	ay 7095.605	Net Tota	al Quantity	7095.605 Rs 130	
37	13.1.1 12 mm cement plaster of Gents rest room	of mix:1:4 (1 cement : 4 Ins (4.10+5.20)*2 (4.4+2.1)*	ay 7095.605	Net Total	al Quantity	7095.605 Rs 130	
37	13.1.1 12 mm cement plaster of the company of the c	of mix:1:4 (1 1	1 cement : 4 Ins (4.10+5.20)*2 (4.4+2.1)* 2	ay 7095.605	Net Tota kg @ Rs 10 GF 3.600	al Quantity	7095.605 Rs 130 66.961 46.801	
37	13.1.1 12 mm cement plaster of the company of the c	of mix:1:4 (1 1	1 cement : 4 [ns] (4.10+5.20)*2 (4.4+2.1)* 2 (4.70+7)*2	ay 7095.605	Net Tota kg @ Rs 10 3.600 3.600	al Quantity	7095.605 Rs 130 66.961 46.801 84.240	
37	13.1.1 12 mm cement plaster of the company of the c	of mix:1:4 (1 1 1 4	1 cement : 4 Ins (4.10+5.20)*2 (4.4+2.1)* 2 (4.70+7)*2 5+5.6+5.6	ay 7095.605	Net Tota kg @ Rs 18 3.600 3.600 3.600	al Quantity	7095.605 Rs 130 66.961 46.801 84.240 233.280	
37	13.1.1 12 mm cement plaster of the staircase Store GF FF SF	1 1 1 4 3	1 cement : 4 Ins (4.10+5.20)*2 (4.4+2.1)* 2 (4.70+7)*2 5+5.6+5.6 (2.8+2)*2	ay 7095.605	Net Tota kg @ Rs 18 3.600 3.600 3.600 3.600	al Quantity	7095.605 Rs 130 66.961 46.801 84.240 233.280 103.680	
37	13.1.1 12 mm cement plaster of the staircase Store GF FF SF Lifts GF to Terrace	1 1 1 4 3 4*2	1 cement : 4 Ins (4.10+5.20)*2 (4.4+2.1)* 2 (4.70+7)*2 5+5.6+5.6 (2.8+2)*2 (2.1+2)*2	ay 7095.605	Net Total kg @ Rs 18 3.600 3.600 3.600 3.600 3.600	al Quantity	7095.605 Rs 130 66.961 46.801 84.240 233.280 103.680 236.160	
37	13.1.1 12 mm cement plaster of the company of the c	of mix:1:4 (1 1 1 4 3 4*2 1*2	1 cement : 4 [ns] (4.10+5.20)*2 (4.4+2.1)* 2 (4.70+7)*2 5+5.6+5.6 (2.8+2)*2 (2.1+2)*2 (9+15.2)*2	ay 7095.605	Net Total	al Quantity	7095.605 Rs 130 66.961 46.801 84.240 233.280 103.680 236.160 348.480	

Fire control room and staff room	2	(5.45+5.9) *2		3.600		163.441	
Electrical room	1	(4.4+7.5)* 2		3.600		85.680	
Toilet wing ladies	1	(4.4+7.65) *2		3.600		86.760	
Staff toilet	1	(4.4+2.9)* 2		3.600		52.561	
Passage	2	69.250		3.600		498.600	
		GF Dedu	uctions for p	lastering			
W4	24	2.000		1.350		-64.800	
W3	26	1.500		1.350		-52.650	
V	12	0.600		0.450		-3.240	
D1	11	1.200	E W	2.100		-27.720	
D2	3	1.000	20/3	2.100		-6.300	
DT	12	0.800		1.500	7	-14.400	
		In	side Wall - F				
Gents rest room	1 ther Er	(4.10+5.20)*2	na Ora	3.600	70 C	66.961	
Passage		(4.4+2.1)*		3.600		46.801	
Gents toilet room	1	(4.70+7)*2		3.600		84.240	
Fire staircase	4	5+5.6+5.6		3.600		233.280	
Store GF FF SF	3	(2.8+2)*2		3.600		103.680	
Lifts GF to Terrace	4*2	(2.1+2)*2		3.600		236.160	
Library and Lab	1	(9+15.2)*2		3.600		174.240	
Seminar Hall	1	(11+22.9)* 2		3.600		244.080	
Research lab 1,2,3 and Class room	4	(9+7.5)*2		3.600		475.200	
HOD toilet	1	(2.1+2)*2		3.600		29.520	
partition wall	2	2.100		3.600		15.121	
Fire control room and staff room	2	(5.45+5.9) *2		3.600		163.441	
Electrical room	1	(4.4+7.5)* 2		3.600		85.680	

Toilet wing ladies	1	(4.4+7.65)	3.600	86.760
Staff toilet	1	(4.4+2.9)*	3.600	52.561
Staff room	1	(9+7.65)*2	3.600	119.880
Passage	2	69.250	3.600	498.600
		DED	UCTION FF	
fIRST FLOOR DEDUCTION w3	51	1.500	1.500	-114.750
V	13	0.600	0.600	-4.680
d1	7	1.200	2.100	-17.640
D2	4	1.000	2.100	-8.400
DT	15	0.800	2.100	-25.200
	6.	Insid	de Wall - SF	
Gents rest room	1	(4.10+5.20)*2	3.600	66.961
Passage	1	(4.4+2.1)*	3.600	46.801
Gents toilet room	that En	(4.70+7)*2	3.600	84.240
Fire staircase	4	5+5.6+5.6	3.600	233.280
Store GF FF SF	3	(2.8+2)*2	3.600	103.680
Lifts GF to Terrace	4*2	(2.1+2)*2	3.600	236.160
Library and Lab	1	(9+15.2)*2	3.600	174.240
Seminar Hall	1	(11+22.9)*	3.600	244.080
Research lab 1,2,3 and Class room	4	(9+7.5)*2	3.600	475.200
HOD toilet	1	(2.1+2)*2	3.600	29.520
partition wall	2	2.100	3.600	15.121
Fire control room and staff room	2	(5.45+5.9)	3.600	163.441
Electrical room	1	(4.4+7.5)*	3.600	85.680
Toilet wing ladies	1	(4.4+7.65) *2	3.600	86.760

Staff toilet	1	(4.4+2.9)*		3.600	52.561
Staff room	1	(9+7.65)*2		3.600	119.880
Passage	2	69.250		3.600	498.600
		DE	DUCTION	SF	
fIRST FLOOR DEDUCTION w3	51	1.500		1.500	-114.750
V	13	0.600		0.600	-4.680
d1	7	1.200		2.100	-17.640
D2	4	1.000		2.100	-8.400
DT	15	0.800	123	2.100	-25.200
			Ceiling - GF		
Gents rest room	1	4.100	5.200		21.320
Passage	1	4.400	2.100		9.241
Gents toilet room	1	4.700	7.000	Th	32.900
Fire staircase	4	5.000	5.600		112.000
Store GF FF SF	3	2.800	2.000		16.800
Lifts GF to Terrace	4*2	2.100	2.000	. , .	33.600
Library and Lab	tner Er 1*2	9.000	15.200	anisatioi	273.600
Class room,Office	4	9.000	7.500		270.000
HOD toilet	1	2.100	2.000		4.200
Fire control room and staff room	2	5.450	5.900		64.310
Electrical room	1	4.400	7.500		33.000
Toilet wing ladies	1	4.400	7.650		33.661
Staff toilet	1	4.400	2.900		12.760
Passage	1	69.250	3.000		207.750
		(Ceiling - FF		
Gents rest room	1	4.100	5.200		21.320
Passage	1	4.400	2.100		9.241
Gents toilet room	1	4.700	7.000		32.900
Fire staircase	4	5.000	5.600		112.000
Store GF FF SF	3	2.800	2.000		16.800

Lifts GF to Terrace	4*2	2.100	2.000		33.600
Library and Lab	1	9.000	15.200		136.800
Seminar Hall	1	11.000	22.900		251.900
Research lab 1,2,3 and Class room	4	9.000	7.500		270.000
HOD toilet	1	2.100	2.000		4.200
Fire control room and staff room	2	5.450	5.900		64.310
Electrical room	1	4.400	7.500		33.000
Toilet wing ladies	1	4.400	7.650		33.661
Staff toilet	1	4.400	2.900		12.760
Staff room	1	9.000	7.650		68.851
Passage	2	69.250	3.000	3	415.500
	Pi '	TERRACE	AND STA	IRECABIN	
fIRESTAIRE	2	9.400	5.555	TAN.	104.434
MAINSTARE	2	9.300	5.850		108.810
waste slab	3*2*2	3.700	1.200		53.280
Landing	3*2*2	1.200	1.200		17.280
U	ther Ei	ngineerii s	TAIRCABII	anisations	
WINDOWS	9	1.500	0.200	1.500	-4.050
		tERRACE	AND STAI	RECABIN	
fIRESTAIRE	2	(9.400+5.5 5)*2		3.600	215.280
MAINSTARE	2	9.300+5.8 5		3.600	109.080
		s	TAIRCABI	N	
WINDOWS	9	1.500		1.500	-20.250
			Outer wall		
fIRESTAIRE	2	9.800		3.600	70.560
	2	5.950	0.200	3.600	8.569
MAINSTARE	2	9.700	0.200	3.600	13.968
	2	6.200	0.200	3.600	8.929
Outer wall including parapet in and out	2	69.655		14.160	1972.630

	2	21.800		14.160		617.376	
	3	9.200		14.160		390.816	
	3	11.200		14.160		475.776	
			Ceiling - SF	=			
Gents rest room	1	4.100	5.200			21.320	
Passage	1	4.400	2.100			9.241	
Gents toilet room	1	4.700	7.000			32.900	
Fire staircase	4	5.000	5.600			112.000	
Store GF FF SF	3	2.800	2.000			16.800	
Lifts GF to Terrace	4*2	2.100	2.000			33.600	
Library and Lab	1	9.000	15.200			136.800	
Seminar Hall	1	11.000	22.900	-		251.900	
Research lab 1,2,3 and Class room	4	9.000	7.500			270.000	
HOD toilet	1	2.100	2.000	d In	1	4.200	
Fire control room and staff room	2	5.450	5.900			64.310	
Electrical room	1 1 -	4.400	7.500			33.000	
Toilet wing ladies	ther En	gineeri 4.400	ng Org 7.650	anisatio	ns –	33.661	
Staff toilet	1	4.400	2.900			12.760	
Staff room	1	9.000	7.650			68.851	
Passage	2	69.250	3.000			415.500	
		su	nshade bott	tom			
w3 bottom	2*4*3	1.500	0.600			21.600	
ventilator bottom	4*1*3	1.000	0.600			7.200	
KW2 bottom	4*1*3	3.400	0.600			24.480	
W2 bottom	4*1*3	1.000	0.600			7.200	
W2A bottom	4*1*3	1.500	0.600			10.800	
Stair room window bottom	1*3	2.650	0.600			4.770	
				Tota	l Quantity	16360.561	sqm
			To	otal Deducted	d Quantity	-534.750 s	sqm
				Net Tota	l Quantity	15825.811	sqm
		Say 15	825.811 sq	m @ Rs 314	.09 / sqm	Rs 497	0728.98

38 od71458/2022_2023 Providing and laying vitrified matt finished floor tiles 1st quality double charged Kajaria or equivalent in different sizes (thickness to be specified by the manufacturer) with water absorption less than 0.08% and conforming to IS: 15622, of approved make, in all colours and shades, laid on 20 mm thick cement mortar 1:4(1 cement: 4 coarse sand), including grouting the joints with epoxy joint filler with spacer bar in equal interval and matching pigments etc. complete as per the direction from the Engineer in charge. Size of Tile 800 x 800 mm. Flooring - GF 4.100 Gents rest room 1 5.200 21.320 Passage 1 4.400 2.100 9.241 1 4.700 7.000 32.900 Gents toilet room Fire staircase 4 5.000 5.600 112,000 Store GF FF SF 3 2.800 2.000 16.800 Lifts GF to Terrace 4*2 2.100 2.000 33.600 1*2 9.000 15.200 273.600 Library and Lab Class room, Office 4 9.000 7.500 270.000 room HOD room **HOD** toilet 1 2.100 2.000 4.200 Fire control room and 5.450 5.900 64.310 2 staff room 7.500 Electrical room 4.400 33.000 4.400 7.650 33.661 Toilet wing ladies 4.400 2.900 Staff toilet 1 12.760 Passage 1 69.250 3.000 207.750 Flooring - FF 1 4.100 5.200 21.320 Gents rest room 1 4.400 2.100 9.241 Passage Gents toilet room 1 4.700 7.000 32.900 4 Fire staircase 5.000 5.600 112.000 Store GF FF SF 3 2.800 16.800 2.000 Lifts GF to Terrace 4*2 2.100 2.000 33.600 Library and Lab 1 9.000 15.200 136.800 11.000 22.900 251.900 Seminar Hall 1 Research lab 1,2,3 4 9.000 270.000 7.500 and Class room

	HOD toilet	1	2.100	2.000		4.200
	Fire control room and staff room	2	5.450	5.900		64.310
	Electrical room	1	4.400	7.500		33.000
	Toilet wing ladies	1	4.400	7.650		33.661
	Staff toilet	1	4.400	2.900		12.760
	Staff room	1	9.000	7.650		68.851
	Passage	2	69.250	3.000		415.500
				Flooring - S	F	
	Gents rest room	1	4.100	5.200		21.320
	Passage	1	4.400	2.100		9.241
	Gents toilet room	1	4.700	7.000		32.900
	Fire staircase	4	5.000	5.600	1	112.000
	Store GF FF SF	3	2.800	2.000		16.800
	Lifts GF to Terrace	4*2	2.100	2.000	1 30%	33.600
	Library and Lab	1	9.000	15.200		136.800
	Seminar Hall	1	11.000	22.900		251.900
	Research lab 1,2,3 and Class room	ther En	gi9.0001i	ng .500g	anisations	270.000
	HOD toilet	1	2.100	2.000		4.200
	Fire control room and staff room	2	5.450	5.900		64.310
	Electrical room	1	4.400	7.500		33.000
	Toilet wing ladies	1	4.400	7.650		33.661
	Staff toilet	1	4.400	2.900		12.760
	Staff room	1	9.000	7.650		68.851
	Passage	2	69.250	3.000		415.500
			STAIRCA	SES ANS L	ANDINGS	
	LANDING	2*3*2	1.200	1.200		17.280
					Total Quantity	4176.108 sqm
				To	otal Deducted Quantity	0.000 sqm
					Net Total Quantity	4176.108 sqm
			Say 41	76.108 sqm	n @ Rs 1486.76 / sqm	Rs 6208870.33
39	od71459/2022_2023					

Providing and laying vitrified floor tiles 1st quality double charged Kajaria or equivalent in different sizes (thickness to be specified by the manufacturer) with water absorption less than 0.08% and conforming to IS: 15622, of approved make, in all colours and shades, laid on 20 mm thick cement mortar 1:4(1 cement: 4 coarse sand), including grouting the joints with epoxy joint filler with spacer bar in equal interval and matching pigments etc for skirting, risers and threads of stairs etc. complete as per the direction from the Engineer in charge. Size of Tile 800 x 800 mm.

direction from the Eng				
		Sk 	KIRTING - GF	
Gents rest room	1	(4.10+5.20)*2	0.100	1.861
Passage	1	(4.4+2.1)* 2	0.100	1.300
Fire staircase	4	5+5.6+5.6	0.100	6.480
Store GF FF SF	3	(2.8+2)*2	0.100	2.880
Lifts GF to Terrace	4*2	(2.1+2)*2	0.100	6.560
Library and Lab	1*2	(9+15.2)*2	0.100	9.680
Class room,Office room HOD room	4	(9+7.5)*2	0.100	13.201
partition wall	2	2.100	0.100	0.421
Fire control room and staff room	2	(5.45+5.9)	0.100	4.541
Electrical room	ther En	(4.4+7.5)*	ng Organisations 0.100	2.381
Passage	2	69.250	0.100	13.851
_		Sł	KIRTING - FF	
Gents rest room	1	(4.10+5.20)*2	0.100	1.861
Passage	1	(4.4+2.1)* 2	0.100	1.300
Fire staircase	4	5+5.6+5.6	0.100	6.480
Store GF FF SF	3	(2.8+2)*2	0.100	2.880
Lifts GF to Terrace	4*2	(2.1+2)*2	0.100	6.560
Library and Lab	1	(9+15.2)*2	0.100	4.840
Seminar Hall	1	(11+22.9)*	0.100	6.780
Research lab 1,2,3 and Class room	4	(9+7.5)*2	0.100	13.201
partition wall	2	2.100	0.100	0.421

	Fire control room and staff room	2	(5.45+5.9) *2		0.100		4.541	
	Electrical room	1	(4.4+7.5)* 2		0.100		2.381	
	Staff room	1	(9+7.65)*2		0.100		3.330	
	Passage	2	69.250		0.100		13.851	
			Sk	(IRTING - S	SF			
	Gents rest room	1	(4.10+5.20)*2		0.100		1.861	
	Passage	1	(4.4+2.1)* 2		0.100		1.300	
	Fire staircase	4	5+5.6+5.6		0.100		6.480	
	Store GF FF SF	3	(2.8+2)*2	1	0.100		2.880	
	Lifts GF to Terrace	4*2	(2.1+2)*2	E W	0.100		6.560	
	Library and Lab	1	(9+15.2)*2		0.100		4.840	
	Seminar Hall	1	(11+22.9)*		0.100	L	6.780	
	Research lab 1,2,3 and Class room	4	(9+7.5)*2		0.100		13.201	
	partition wall	ther Er	gineerii	ng Orga	anisatio	ns	0.421	
	Fire control room and staff room	\mathbf{P}_{2}	(5.45+5.9)		0.100	1	4.541	
	Electrical room	1	(4.4+7.5)* 2		0.100		2.381	
	Staff room	1	(9+7.65)*2		0.100		3.330	
	Passage	2	69.250		0.100		13.851	
			STAIRCAS	SES ANS L	ANDINGS			
	STEPS	2*3*24	.15+.3	1.200			77.760	
	LANDING	2*3*2	1.200	1.200			17.280	
					Tot	al Quantity	295.048 s	qm
				To	tal Deducte	ed Quantity	0.000 sqm	1
					Net Tot	al Quantity	295.048 s	qm
			Say 29	95.048 sqm	@ Rs 207	3.45 / sqm	Rs 61	1767.28
40	od71460/2022_2023 Providing and laying an the manufacturer), of 1		•			•		•

	Ivory, Grey, Fume Re 3mm thick spacers in coated filler of desire	cluding poir	iting the joints	s with appro	oved quality	epoxy grou	t mix of .7ko	g of orga		
	finishing									
	Flooring - GF									
	Gents toilet room	1	4.700	7.000			32.900			
	Toilet wing ladies	1	4.400	7.650			33.661			
	Staff toilet	1	4.400	2.900			12.760			
			F	Flooring - Fl	F		T	Т		
	Gents toilet room	1	4.700	7.000			32.900			
	HOD toilet	1	2.100	2.000			4.200			
	Toilet wing ladies	1	4.400	7.650			33.661			
	Staff toilet	1	4.400	2.900	7		12.760			
		6.		Flooring - S	F 1-1					
	Gents toilet room	1	4.700	7.000	1-21		32.900			
	HOD toilet	1	2.100	2.000	اللولية	Î.	4.200			
	Toilet wing ladies	1	4.400	7.650			33.661			
	Staff toilet	1	4.400	2.900			12.760			
	Other Engineering Organisation Quantity 246.363 sqm									
				To	otal Deducted	d Quantity	0.000 sqm	1		
					Net Tota	I Quantity	246.363 s	qm		
			Say 2	46.363 sqm	n @ Rs 1091	.04 / sqm	Rs 268	3791.89		
41	11.37A Providing and fixing 1st quality ceramic glazed floor tiles conforming to IS:15622 (thickness to specified by the manufacturer) of approved make in allcolours, shades except burgundy, bottle greel black of any size as approved by Engineer-in-Charge in skirting, risers of steps and dados over 12 thickbed of cement Mortar 1:3 (1 cement: 3 coarse sand) and jointing with grey cementslurry @ 3.3kg sqm including pointing in white cement mixed with pigment of matching shade complete.									
			Sk	KIRTING - C	3F					
	Gents toilet room	1	(4.70+7)*2		2.000		46.800			
	HOD toilet	1	(2.1+2)*2		2.000		16.400			
	Toilet wing ladies	1	(4.4+7.65) *2		2.000		48.200			
	Staff toilet	1	(4.4+2.9)*		2.000		29.201			
	SKIRTING - FF									

	Gents toilet room	1	(4.70+7)*2	2.000	46.800					
	HOD toilet	1	(2.1+2)*2	2.000	16.400					
	partition wall	2	2.100	2.000	8.400					
	Toilet wing ladies	1	(4.4+7.65) *2	2.000	48.200					
	Staff toilet	1	(4.4+2.9)* 2	2.000	29.201					
			SKIR	TING - SF						
	Gents toilet room	1	(4.70+7)*2	2.000	46.800					
	HOD toilet	1	(2.1+2)*2	2.000	16.400					
	Toilet wing ladies	1	(4.4+7.65) *2	2.000	48.200					
	Staff toilet	1	(4.4+2.9)*	2.000	29.201					
		M.	J. Vila	Total Quan	tity 430.203 sqm					
	Total Deducted Quantity 0.000 sqm									
	Net Total Quantity 430.203 sqm									
				Net Total Quan	tity 430.203 sqm					
		ACC.	Say 430.	Net Total Quan 203 sqm @ Rs 1092.18 / sc						
42	13.43.1 Applying one coat of surface:Water thinnab		ngineering	1850 PM	qm Rs 469859.11					
42			ngineering nable cement p t primer	203 sqm @ Rs 1092.18 / sc	qm Rs 469859.11					
42			ngineering nable cement p t primer	203 sqm @ Rs 1092.18 / so Organisations orimer of approved brand	qm Rs 469859.11					
42	surface:Water thinnab	ole cemen	nable cement primer Inside	203 sqm @ Rs 1092.18 / so Corganisations Drimer of approved brand	and manufacture on w					
42	Surface:Water thinnab	ole cemen	nable cement primer Inside (4.10+5.20)*2 (4.4+2.1)*	203 sqm @ Rs 1092.18 / so Corganisations Drimer of approved brand Wall - GF	and manufacture on w					
42	Gents rest room Passage	1 1	nable cement primer Inside (4.10+5.20)*2 (4.4+2.1)* 2	203 sqm @ Rs 1092.18 / so Corganisations Drimer of approved brand Wall - GF 3.600	Rs 469859.11 and manufacture on w 66.961 46.801					
42	Gents rest room Passage Gents toilet room	1 1 1	Inside (4.10+5.20)*2 (4.4+2.1)* 2 (4.70+7)*2	203 sqm @ Rs 1092.18 / so Corganisations Drimer of approved brand Wall - GF 3.600 3.600	Rs 469859.11 and manufacture on w 66.961 46.801 84.240					
42	Gents rest room Passage Gents toilet room Fire staircase	1 1 1 4	Inside (4.10+5.20)*2 (4.4+2.1)* 2 (4.70+7)*2 5+5.6+5.6	203 sqm @ Rs 1092.18 / so Corganisations Drimer of approved brand 9 Wall - GF 3.600 3.600 3.600	Rs 469859.11 and manufacture on w 66.961 46.801 84.240 233.280					
42	Gents rest room Passage Gents toilet room Fire staircase Store GF FF SF	1 1 1 4 3	Inside (4.10+5.20)*2 (4.4+2.1)* 2 (4.70+7)*2 5+5.6+5.6 (2.8+2)*2	203 sqm @ Rs 1092.18 / so Corganisations Orimer of approved brand 2 Wall - GF 3.600 3.600 3.600 3.600	Rs 469859.11 and manufacture on w 66.961 46.801 84.240 233.280 103.680					
42	Gents rest room Passage Gents toilet room Fire staircase Store GF FF SF Lifts GF to Terrace	1 1 4 3 4*2	Inside (4.10+5.20)*2 (4.4+2.1)* 2 (4.70+7)*2 5+5.6+5.6 (2.8+2)*2 (2.1+2)*2	203 sqm @ Rs 1092.18 / so Corganisations Orimer of approved brand 3.600 3.600 3.600 3.600 3.600 3.600	Rs 469859.11 and manufacture on w 66.961 46.801 84.240 233.280 103.680 236.160					
42	Gents rest room Passage Gents toilet room Fire staircase Store GF FF SF Lifts GF to Terrace Library and Lab Class room,Office	1 1 4 3 4*2 1*2	Inside (4.10+5.20)*2 (4.4+2.1)* 2 (4.70+7)*2 5+5.6+5.6 (2.8+2)*2 (2.1+2)*2 (9+15.2)*2	203 sqm @ Rs 1092.18 / so Corganisations orimer of approved brand 3.600 3.600 3.600 3.600 3.600 3.600 3.600	Rs 469859.11 and manufacture on w 66.961 46.801 84.240 233.280 103.680 236.160 348.480					

Fire control room and staff room	2	(5.45+5.9) *2		3.600		163.441	
Electrical room	1	(4.4+7.5)* 2		3.600		85.680	
Toilet wing ladies	1	(4.4+7.65) *2		3.600		86.760	
Staff toilet	1	(4.4+2.9)* 2		3.600		52.561	
Passage	2	69.250		3.600		498.600	
		GF Dedu	uctions for p	lastering			
W4	24	2.000		1.350		-64.800	
W3	26	1.500		1.350		-52.650	
V	12	0.600		0.450		-3.240	
D1	11	1.200	E W	2.100		-27.720	
D2	3	1.000	20/3	2.100		-6.300	
DT	12	0.800		1.500	7	-14.400	
		In	side Wall - F				
Gents rest room	1 ther Er	(4.10+5.20)*2	na Ora	3.600	**O C	66.961	
Passage		(4.4+2.1)*		3.600		46.801	
Gents toilet room	1	(4.70+7)*2		3.600		84.240	
Fire staircase	4	5+5.6+5.6		3.600		233.280	
Store GF FF SF	3	(2.8+2)*2		3.600		103.680	
Lifts GF to Terrace	4*2	(2.1+2)*2		3.600		236.160	
Library and Lab	1	(9+15.2)*2		3.600		174.240	
Seminar Hall	1	(11+22.9)* 2		3.600		244.080	
Research lab 1,2,3 and Class room	4	(9+7.5)*2		3.600		475.200	
HOD toilet	1	(2.1+2)*2		3.600		29.520	
partition wall	2	2.100		3.600		15.121	
Fire control room and staff room	2	(5.45+5.9) *2		3.600		163.441	
Electrical room	1	(4.4+7.5)* 2		3.600		85.680	

Toilet wing ladies	1	(4.4+7.65) *2		3.600	86.760
Staff toilet	1	(4.4+2.9)* 2		3.600	52.561
Staff room	1	(9+7.65)*2		3.600	119.880
Passage	2	69.250		3.600	498.600
		DE	DUCTION	FF	,
fIRST FLOOR DEDUCTION w3	51	1.500		1.500	-114.750
v	13	0.600		0.600	-4.680
d1	7	1.200	.60	2.100	-17.640
D2	4	1.000		2.100	-8.400
DT	15	0.800		2.100	-25.200
	6. 3	Ins	side Wall - S	SF	
Gents rest room	SA	(4.10+5.20)*2		3.600	66.961
Passage		(4.4+2.1)* 2		3.600	46.801
Gents toilet room	than En	(4.70+7)*2	0.00	3.600	84.240
Fire staircase	ther En	5+5.6+5.6	ng Orga	3.600	233.280
Store GF FF SF	3	(2.8+2)*2		3.600	103.680
Lifts GF to Terrace	4*2	(2.1+2)*2		3.600	236.160
Library and Lab	1	(9+15.2)*2		3.600	174.240
Seminar Hall	1	(11+22.9)*		3.600	244.080
Research lab 1,2,3 and Class room	4	(9+7.5)*2		3.600	475.200
HOD toilet	1	(2.1+2)*2		3.600	29.520
partition wall	2	2.100		3.600	15.121
Fire control room and staff room	2	(5.45+5.9) *2		3.600	163.441
Electrical room	1	(4.4+7.5)* 2		3.600	85.680
Toilet wing ladies	1	(4.4+7.65) *2		3.600	86.760

Staff toilet	1	(4.4+2.9)*		3.600	52.561
Staff room	1	(9+7.65)*2		3.600	119.880
Passage	2	69.250		3.600	498.600
		DE	DUCTION	SF	
fIRST FLOOR DEDUCTION w3	51	1.500		1.500	-114.750
V	13	0.600		0.600	-4.680
d1	7	1.200		2.100	-17.640
D2	4	1.000		2.100	-8.400
DT	15	0.800	123	2.100	-25.200
		tERRACE	AND STAI	RECABIN	
fIRESTAIRE	2	(9.400+5.5 5)*2		3.600	215.280
MAINSTARE	2	9.300+5.8 5		3.600	109.080
		s	TAIRCABI	V	
WINDOWS	9	1.500	HEPE?	1.500	-20.250
0	ther E	ngineeri	Geiling - GF	anisations	
Gents rest room	1	4.100	5.200		21.320
Passage	1	4.400	2.100	i H	9.241
Gents toilet room	1	4.700	7.000		32.900
Fire staircase	4	5.000	5.600		112.000
Store GF FF SF	3	2.800	2.000		16.800
Lifts GF to Terrace	4*2	2.100	2.000		33.600
Library and Lab	1*2	9.000	15.200		273.600
Class room,Office room HOD room	4	9.000	7.500		270.000
 HOD toilet	1	2.100	2.000		4.200
Fire control room and staff room	2	5.450	5.900		64.310
Electrical room	1	4.400	7.500		33.000
Toilet wing ladies	1	4.400	7.650		33.661
Staff toilet	1	4.400	2.900		12.760
Passage	1	69.250	3.000		207.750

			Ceiling - FF		
Gents rest room	1	4.100	5.200		21.320
Passage	1	4.400	2.100		9.241
Gents toilet room	1	4.700	7.000		32.900
Fire staircase	4	5.000	5.600		112.000
Store GF FF SF	3	2.800	2.000		16.800
Lifts GF to Terrace	4*2	2.100	2.000		33.600
Library and Lab	1	9.000	15.200		136.800
Seminar Hall	1	11.000	22.900		251.900
Research lab 1,2,3 and Class room	4	9.000	7.500		270.000
HOD toilet	1	2.100	2.000		4.200
Fire control room and staff room	2	5.450	5.900		64.310
Electrical room	1	4.400	7.500	Y	33.000
Toilet wing ladies	1	4.400	7.650		33.661
Staff toilet	1	4.400	2.900	DE.	12.760
Staff room	1	9.000	7.650	*****	68.851
Passage	mer En	69.250	3.000		415.500
		TERRACI	AND STAI	RECABIN	
fIRESTAIRE	2	9.400	5.555		104.434
MAINSTARE	2	9.300	5.850		108.810
waste slab	3*2*2	3.700	1.200		53.280
Landing	3*2*2	1.200	1.200		17.280
		.	Ceiling - SF		
Gents rest room	1	4.100	5.200		21.320
Passage	1	4.400	2.100		9.241
Gents toilet room	1	4.700	7.000		32.900
Fire staircase	4	5.000	5.600		112.000
Store GF FF SF	3	2.800	2.000		16.800
Lifts GF to Terrace	4*2	2.100	2.000		33.600
Library and Lab	1	9.000	15.200		136.800
Seminar Hall	1	11.000	22.900		251.900

Research lab 1, and Class room	4	9.000	7.500		270.000
HOD toilet	1	2.100	2.000		4.200
Fire control room staff room	and 2	5.450	5.900		64.310
Electrical room	1	4.400	7.500		33.000
Toilet wing ladies	1	4.400	7.650		33.661
Staff toilet	1	4.400	2.900		12.760
Staff room	1	9.000	7.650		68.851
Passage	2	69.250	3.000		415.500
		180	Outer wall		
fIRESTAIRE	2	9.800		3.600	70.560
	2	5.950	0.200	3.600	8.569
MAINSTARE	2	9.700	0.200	3.600	13.968
	2	6.200	0.200	3.600	8.929
Outer wall include parapet in and contact of the co	- '	69.655		14.160	1972.630
	2	21.800	1 10	14.160	617.376
	Other Er	gi <u>9.200</u> ri	ng Org	anis 160 ons	390.816
	3	11.200		14.160	475.776
			sunshade to	p	
w3 bottom	2*4*3	1.500	0.600		21.600
ventilator bottom	4*1*3	1.000	0.600		7.200
KW2 bottom	4*1*3	3.400	0.600		24.480
W2 bottom	4*1*3	1.000	0.600		7.200
W2A bottom	4*1*3	1.500	0.600		10.800
Stair room wind	dow 1*3	2.650	0.600		4.770
		su	nshade bott	tom	
w3 bottom	2*4*3	1.500	0.600		21.600
ventilator bottom	4*1*3	1.000	0.600		7.200
KW2 bottom	4*1*3	3.400	0.600		24.480
W2 bottom	4*1*3	1.000	0.600		7.200
W2A bottom	4*1*3	1.500	0.600		10.800

	Stair room window bottom	1*3	2.650	0.600			4.770	
					Tota	I Quantity	16436.611	sqm
				To	otal Deducted	I Quantity	-530.700	sqm
					Net Tota	I Quantity	15905.911	sqm
			Say 1	5905.911 s	qm @ Rs 70.	64 / sqm	Rs 112	3593.55
43	13.47.1 Finishing walls with Pre work (Two or more coa applied @ 2.20 kg/ 10	its applied		•			•	
			140	Outer wall				
	fIRESTAIRE	2	9.800		3.600		70.560	
		2	5.950	0.200	3.600		8.569	
	MAINSTARE	2	9.700	0.200	3.600		13.968	
		2	6.200	0.200	3.600		8.929	
	Outer wall including parapet in and out	2	69.655		14.160		1972.630	
		2	21.800		14.160		617.376	
	0	ther En	9.200 gineeri 11.200	ng Orga	14.160 14.160	ns	390.816 475.776	
		Dil		sunshade to			170.770	
	w3 bottom	2*4*3	1.500	0.600			21.600	
	ventilator bottom	4*1*3	1.000	0.600			7.200	
	KW2 bottom	4*1*3	3.400	0.600			24.480	
	W2 bottom	4*1*3	1.000	0.600			7.200	
	W2A bottom	4*1*3	1.500	0.600			10.800	
	Stair room window bottom	1*3	2.650	0.600			4.770	
			su	nshade bott	om			
	w3 bottom	2*4*3	1.500	0.600			21.600	
	ventilator bottom	4*1*3	1.000	0.600			7.200	
	KW2 bottom	4*1*3	3.400	0.600			24.480	
	W2 bottom	4*1*3	1.000	0.600			7.200	
	W2A bottom	4*1*3	1.500	0.600			10.800	

	Stair room window bottom	1*3	2.650	0.600			4.770	
					Tota	al Quantity	3710.724	sqm
				То	tal Deducte	d Quantity	0.000 sqn	า
					Net Tota	al Quantity	3710.724	sqm
			Say 3	710.724 sqr	m @ Rs 189	.69 / sqm	Rs 70:	3887.24
44	13.50.1 Applying priming coat:V (hard and soft wood)	√ith ready	mixed pink o	r Grey prime	er of approv	ed and mar	nufacture on	wood work
			1	GF	I		ı	T
	D1	11	1.200	.6\	2.100	2.24	62.093	
	D2	3	1.000		2.100	2.24	14.113	
		1	EL 11	FF	1			ı
	d1	7	1.200	55 X	2.100	2.25	39.690	
	D2	4	1.000	MY A	2.100	2.25	18.901	
		(6)	Wai	SF	البالوال	Sec.		
	d1	7	1.200		2.100	2.24	39.514	
	D2	4	1.000	110	2.100	2.24	18.817	
	0	ther E	ngineeri	n Terrace	anisatio	ns		
		2	1.000		2.100	2.24	9.409	
					Tota	al Quantity	202.537 s	qm
				To	tal Deducte	d Quantity	0.000 sqn	า
					Net Tota	al Quantity	202.537 s	qm
			Say	/ 202.537 sc	qm @ Rs 67	.18 / sqm	Rs 13	606.44
45	13.60.1 Wall painting with acryli or more coats on new w		n paint of app	proved brand	d and manu	facture to g	ive an even	shade:Two
			Ins	side Wall - C	3F			
	Gents rest room	1	(4.10+5.20)*2		3.600		66.961	
	Passage	1	(4.4+2.1)* 2		3.600		46.801	
	Gents toilet room	1	(4.70+7)*2		3.600		84.240	
	Fire staircase	4	5+5.6+5.6		3.600		233.280	
	Store GF FF SF	3	(2.8+2)*2		3.600		103.680	

Lifts GF to	Terrace 4	*2	(2.1+2)*2		3.600		236.160	
Library an	d Lab 1	*2	(9+15.2)*2		3.600		348.480	
	oom,Office DD room	4	(9+7.5)*2		3.600		475.200	
HOD toilet		1	(2.1+2)*2		3.600		29.520	
partition w	all 2	2	2.100		3.600		15.121	
Fire contr	ol room and	2	(5.45+5.9) *2		3.600		163.441	
Electrical	oom	1	(4.4+7.5)* 2		3.600		85.680	
Toilet wing	g ladies	1	(4.4+7.65) *2	100	3.600		86.760	
Staff toilet		1-7	(4.4+2.9)* 2		3.600		52.561	
Passage	(P)	2	69.250	23/1	3.600		498.600	
			GF Dedu	uctions for pl	astering			
W4	2	24	2.000		1.350		-64.800	
W3	2	26	1.500		1.350		-52.650	
V	0415 1	2	0.600	0.00	0.450		-3.240	
D1	Othe 1	1	1.200	ng Orga	2.100	1115	-27.720	
D2	D.	3	1.000		2.100	1	-6.300	
DT	1	2	0.800		1.500		-14.400	
			Ins	side Wall - F	·F			
Gents resi	room	1	(4.10+5.20)*2		3.600		66.961	
Passage		1	(4.4+2.1)* 2		3.600		46.801	
Gents toile	et room	1	(4.70+7)*2		3.600		84.240	
Fire stairc	ase	4	5+5.6+5.6		3.600		233.280	
Store GF	FF SF ;	3	(2.8+2)*2		3.600		103.680	
Lifts GF to	Terrace 4	*2	(2.1+2)*2		3.600		236.160	
Library an	d Lab	1	(9+15.2)*2		3.600		174.240	
Seminar F	lall	1	(11+22.9)* 2		3.600		244.080	

Research lab 1,2,3 and Class room	4	(9+7.5)*2		3.600	475.200	
HOD toilet	1	(2.1+2)*2		3.600	29.520	
partition wall	2	2.100		3.600	15.121	
Fire control room and staff room	2	(5.45+5.9) *2		3.600	163.441	
Electrical room	1	(4.4+7.5)* 2		3.600	85.680	
Toilet wing ladies	1	(4.4+7.65) *2		3.600	86.760	
Staff toilet	1	(4.4+2.9)* 2	S)	3.600	52.561	
Staff room	1	(9+7.65)*2		3.600	119.880	
Passage	2	69.250	화 장	3.600	498.600	
	PAG	DE	DUCTION	FF		
fIRST FLOOR DEDUCTION w3	51	1.500		1.500	-114.750	
v	13	0.600		0.600	-4.680	
d1	7	1.200	1 3 1	2.100	-17.640	
D2	ther En	gineeri	ng Orga	anisatio	ns -8.400	
DT	15	0.800		2.100	-25.200	
		ln:	side Wall - S	SE		
Gents rest room	1	(4.10+5.20)*2		3.600	66.961	
Passage	1	(4.4+2.1)* 2		3.600	46.801	
Gents toilet room	1	(4.70+7)*2		3.600	84.240	
Fire staircase	4	5+5.6+5.6		3.600	233.280	
Store GF FF SF	3	(2.8+2)*2		3.600	103.680	
Lifts GF to Terrace	4*2	(2.1+2)*2		3.600	236.160	
Library and Lab	1	(9+15.2)*2		3.600	174.240	
Seminar Hall	1	(11+22.9)* 2		3.600	244.080	
Research lab 1,2,3 and Class room	4	(9+7.5)*2		3.600	475.200	
HOD toilet	1	(2.1+2)*2		3.600	29.520	

partition wall	2	2.100		3.600	15.121
Fire control room and staff room	2	(5.45+5.9) *2		3.600	163.441
Electrical room	1	(4.4+7.5)* 2		3.600	85.680
Toilet wing ladies	1	(4.4+7.65) *2		3.600	86.760
Staff toilet	1	(4.4+2.9)* 2		3.600	52.561
Staff room	1	(9+7.65)*2		3.600	119.880
Passage	2	69.250	Call Control	3.600	498.600
		DE	DUCTION	SF	
fIRST FLOOR DEDUCTION w3	51	1.500		1.500	-114.750
V	13	0.600	21/2	0.600	-4.680
d1	7	1.200		2.100	-17.640
D2	4	1.000		2.100	-8.400
DT	15	0.800		2.100	-25.200
	than Er	tERRACE	AND STAI	RECABIN	
fIRESTAIRE		(9.400+5.5 5)*2	ng Org	3.600	215.280
MAINSTARE	2	9.300+5.8		3.600	109.080
		S	TAIRCABI	N	
WINDOWS	9	1.500		1.500	-20.250
		(Ceiling - GF	-	
Gents rest room	1	4.100	5.200		21.320
Passage	1	4.400	2.100		9.241
Gents toilet room	1	4.700	7.000		32.900
Fire staircase	4	5.000	5.600		112.000
Store GF FF SF	3	2.800	2.000		16.800
Lifts GF to Terrace	4*2	2.100	2.000		33.600
Library and Lab	1*2	9.000	15.200		273.600
Class room,Office	4	9.000	7.500		270.000

 HOD toilet	1	2.100	2.000		4.200
Fire control room and staff room	2	5.450	5.900		64.310
Electrical room	1	4.400	7.500		33.000
Toilet wing ladies	1	4.400	7.650		33.661
Staff toilet	1	4.400	2.900		12.760
 Passage	1	69.250	3.000		207.750
			Ceiling - FF	=	
Gents rest room	1	4.100	5.200		21.320
Passage	1	4.400	2.100		9.241
 Gents toilet room	1	4.700	7.000		32.900
 Fire staircase	4	5.000	5.600		112.000
Store GF FF SF	3	2.800	2.000	1	16.800
Lifts GF to Terrace	4*2	2.100	2.000		33.600
Library and Lab	1	9.000	15.200	3 Pol	136.800
Seminar Hall	1	11.000	22.900		251.900
Research lab 1,2,3 and Class room	4	9.000	7.500		270.000
HOD toilet	ther Er	2.100	ng Org 2.000	anisations	4.200
Fire control room and staff room		5.450	5.900		64.310
Electrical room	1	4.400	7.500		33.000
Toilet wing ladies	1	4.400	7.650		33.661
Staff toilet	1	4.400	2.900		12.760
Staff room	1	9.000	7.650		68.851
Passage	2	69.250	3.000		415.500
		TERRACE	E AND STA	IRECABIN	
 fIRESTAIRE	2	9.400	5.555		104.434
MAINSTARE	2	9.300	5.850		108.810
waste slab	3*2*2	3.700	1.200		53.280
Landing	3*2*2	1.200	1.200		17.280
			Ceiling - SF	=	
Gents rest room	1	4.100	5.200		21.320
 Passage	1	4.400	2.100		9.241

	Gents toilet room	1	4.700	7.000			32.900	
	Fire staircase	4	5.000	5.600			112.000	
	Store GF FF SF	3	2.800	2.000			16.800	
	Lifts GF to Terrace	4*2	2.100	2.000			33.600	
	Library and Lab	1	9.000	15.200			136.800	
	Seminar Hall	1	11.000	22.900			251.900	
	Research lab 1,2,3 and Class room	4	9.000	7.500			270.000	
	HOD toilet	1	2.100	2.000			4.200	
	Fire control room and staff room	2	5.450	5.900			64.310	
	Electrical room	1	4.400	7.500			33.000	
	Toilet wing ladies	1	4.400	7.650			33.661	
	Staff toilet	1	4.400	2.900			12.760	
	Staff room	1	9.000	7.650	1 Th	\ .	68.851	
	Passage	2	69.250	3.000		-	415.500	
					Tota	al Quantity	12725.887	cam
			FF6.254214	Mar 4812-2217	1016	al Qualitity	12723.007	Sqiii
		41 E		To	otal Deducte		-530.700	•
	0	ther En	gineeri	ng Orga	tal Deducte			sqm
	0	ther En		ng Orga	otal Deducte Net Tota	d Quantity	-530.700 s	sqm
46	13.61.1	ther En		ng Orga	otal Deducte Net Tota	d Quantity	-530.700 s	sqm
46		enamel pai	Say 12	ng Orga 195.187 sqr	Net Tota	d Quantity Al Quantity .39 / sqm	-530.700 s 12195.187 Rs 184	sqm sqm 6229.36
46	13.61.1 Painting with synthetic	enamel pai	Say 12	ng Orga 195.187 sqr	Net Tota	d Quantity Al Quantity .39 / sqm	-530.700 s 12195.187 Rs 184	sqm sqm 6229.36
46	13.61.1 Painting with synthetic	enamel pai	Say 12	195.187 sqr ved brand ar	Net Tota	d Quantity Al Quantity .39 / sqm	-530.700 s 12195.187 Rs 184	sqm sqm 6229.36
46	13.61.1 Painting with synthetic more coats on new wo	enamel pai	Say 12	195.187 sqr ved brand ar	Net Total Met Total m @ Rs 151	d Quantity al Quantity .39 / sqm ture to give	-530.700 s 12195.187 Rs 184 an even sh	sqm sqm 6229.36
46	13.61.1 Painting with synthetic more coats on new wo	enamel pairk	Say 12 nt of approv	195.187 sqr ved brand ar	ntal Deducte Net Tota m @ Rs 151 nd manufac	d Quantity al Quantity .39 / sqm ture to give	-530.700 s 12195.187 Rs 184 an even sh	sqm sqm 6229.36
46	13.61.1 Painting with synthetic more coats on new wo	enamel pairk	Say 12 nt of approv	red brand an	ntal Deducte Net Tota m @ Rs 151 nd manufac	d Quantity al Quantity .39 / sqm ture to give	-530.700 s 12195.187 Rs 184 an even sh	sqm sqm 6229.36
46	13.61.1 Painting with synthetic more coats on new word D1 D2	enamel pairk	1.200 1.000	red brand an	ntal Deducte Net Tota Me Rs 151 nd manufact 2.100 2.100	d Quantity al Quantity .39 / sqm ture to give	-530.700 s 12195.187 Rs 184 an even sh 62.093 14.113	sqm sqm 6229.36
46	13.61.1 Painting with synthetic more coats on new word D1 D2	enamel pairk 11 3	1.200 1.200	red brand an	ntal Deducte Net Tota Net Tota Me Rs 151 nd manufact 2.100 2.100	d Quantity .39 / sqm ture to give 2.24 2.24	-530.700 s 12195.187 Rs 184 an even sh 62.093 14.113	sqm sqm 6229.36
46	13.61.1 Painting with synthetic more coats on new word D1 D2	enamel pairk 11 3	1.200 1.200	red brand and	ntal Deducte Net Tota Net Tota Me Rs 151 nd manufact 2.100 2.100	d Quantity .39 / sqm ture to give 2.24 2.24	-530.700 s 12195.187 Rs 184 an even sh 62.093 14.113	sqm sqm 6229.36
46	13.61.1 Painting with synthetic more coats on new wold to be a synthetic more data on the synthetic mo	enamel pairk 11 3 7 4	1.200 1.200 1.000	red brand and	ntal Deducte Net Tota Net Tota m @ Rs 151 nd manufac 2.100 2.100 2.100	d Quantity .39 / sqm ture to give 2.24 2.24 2.25 2.25	-530.700 s 12195.187 Rs 184 an even sh 62.093 14.113 39.690 18.901	sqm sqm 6229.36
46	13.61.1 Painting with synthetic more coats on new wold to be a synthetic more coats on the synt	enamel pairk 11 3 7 4	1.200 1.000 1.200 1.200	red brand and	2.100 2.100 2.100	d Quantity .39 / sqm ture to give 2.24 2.24 2.25 2.25	-530.700 s 12195.187 Rs 184 an even sh 62.093 14.113 39.690 18.901	sqm sqm 6229.36

W3 51 1.500 1.500 1.14.750									
V				T	FF				
W3		w3							
W3		V	13	0.600		0.600		4.680	
V					SF			1	
STAIRCABIN WINDOWS 9 1.500 1.500 20.250 GF W4 24 2.000 1.350 64.801 W3 26 1.500 1.350 52.651 V 12 0.600 0.450 3.240 Total Quantity 582.339 sqm Total Deducted Quantity 582.339 sqm Net Total Quantity 582.339 sqm Say 582.339 sqm @ Rs 143.05 / sqm Rs 83303.59 SI No Description No L B D CF Quantity Remark 1 17.2.1 Providing and fixing white vitreous china pedestal type water closet (European type W.C. pan) with sea and lid, 10 litre low level white P.V.Q. flushing cistern, including flush pipe, with manually controlle device (handle lever), conforming to IS : 7231, with all fittings and fixtures complete, including cutting an making good the walls and floors wherever required: W.C. pan with ISI marked white solid plastic sea and lid GF,FF and SF 14*3 42.000 Total Quantity 42.000 each Total Deducted Quantity 0.000 each Total Deducted Quantity 0.000 each Net Total Quantity 42.000 each Say 42.000 each @ Rs 6192.67 / each Rs 260092.14 2 17.4.1 Providing and fixing white vitreous china flat back or wall corner type lipped front urinal basin of 430x260x350 mm and 340x410x265 mm sizes respectively with automatic flushing cistern with standar flush pipe and C.P. brass spreaders with brass unions and G.I. clamps complete, including painting of fittings and brackets, cutting and making good the walls and floors wherever required:One urinal basis with 5 litre white P.V.C. automatic flushing cistern		w3	51	1.500		1.500		114.750	
WINDOWS 9 1.500 1.500 0F W4 24 2.000 1.350 64.801 W3 26 1.500 1.350 52.651 V 12 0.600 0.450 Total Quantity 582.339 sqm Total Deducted Quantity 883303.59 Say 582.339 sqm @ Rs 143.05 / sqm Rs 83303.59 SINo Description No L B D CF Quantity Remark 2.Sanitory and water supply arrangements 1 17.2.1 Providing and fixing white vitreous china pedestal type water closet (European type W.C. pan) with sea and lid, 10 litre low level white P.V.O. flushing cistern, including flush pipe, with manually controlled evice (handle lever), conforming to IS: 7231, with all fittings and fixures complete, including cutting an making good the walls and floors wherever required:W.C. pan with ISI marked white solid plastic sea and lid GF,FF and SF 14*3 Total Quantity 42.000 42.000 At Total Quantity 42.000 each Total Deducted Quantity 42.000 each Net Total Quantity 42.000 each Rs 260092.14 2 17.4.1 Providing and fixing white vitreous china flat back or wall corner type lipped front urinal basin or 430x260x350 mm and 340x410x265 mm sizes respectively with automatic flushing cistern with standar flush pipe and C.P. brass spreaders with brass unions and G.I. clamps complete, including painting of fittings and brackets, cutting and making good the walls and floors wherever required:One urinal basis with 5 litre white P.V.C. automatic flushing cistern		V	13	0.600		0.600		4.680	
W4 24 2.000 1.350 64.801 W3 26 1.500 1.350 52.651 V 12 0.600 0.450 3.240 Total Quantity 582.339 sqm Total Deducted Quantity 582.339 sqm Net Total Quantity 582.339 sqm Say 582.339 sqm @ Rs 143.05 / sqm Rs 83303.59 SINO Description No L B D CF Quantity Remark 2 Sanitory and water supply arrangements 1 17.2.1 Providing and fixing white vitreous china pedestal type water closet (European type W.C. pan) with sea and lid, 10 litre low level white P.V.O. flushing cistern, including flush pipe, with manually controlle device (handle lever), conforming to IS : 7231, with all fittings and fixures complete, including cutting an making good the walls and floors wherever required:W.C. pan with ISI marked white solid plastic sea and lid GF,FF and SF 14*3 42.000 Total Quantity 42.000 each Total Quantity 42.000 each Total Quantity 42.000 each Rs 260092.14 2 17.4.1 Providing and fixing white vitreous china flat back or wall corner type lipped front urinal basin of 430x260x350 mm and 340x410x265 mm sizes respectively with automatic flushing cistern with standar flush pipe and C.P. brass spreaders with brass unions and G.J. clamps complete, including painting of fittings and brackets, cutting and making good the walls and floors wherever required:One urinal basi with 5 litre white P.V.C. automatic flushing cistern					STAIRCABIN	N	T	T	T
W4 24 2.000 1.350 64.801 W3 26 1.500 1.350 52.651 V 12 0.600 0.450 3.240 Total Quantity 582.339 sqm Total Deducted Quantity 0.000 sqm Net Total Quantity 582.339 sqm Say 582.339 sqm @ Rs 143.05 / sqm Rs 83303.59 Si No Description No L B D CF Quantity Remark 2. Sanitory and water supply arrangements 1 17.2.1 Providing and fixing white vitreous china pedestal type water closet (European type W.C. pan) with sea and lid, 10 litre low level white P.V.C. flushing cistern, including flush pipe, with manually controlle device (handle lever), conforming to IS: 7231, with all fittings and fixures complete, including cutting an making good the walls and floors wherever required:W.C. pan with ISI marked white solid plastic sea and lid GF,FF and SF 14*3 42.000 Total Quantity 42.000 each Total Deducted Quantity 42.000 each Net Total Quantity 42.000 each Say 42.000 each @ Rs 6192.67 / each Rs 260092.14 2 17.4.1 Providing and fixing white vitreous china flat back or wall corner type lipped front urinal basin or 430x260x350 mm and 340x410x266 mm sizes respectively with automatic flushing cistern with standar flush pipe and C.P. brass spreaders with brass unions and G.I. clamps complete, including painting of fittings and brackets, cutting and making good the walls and floors wherever required:One urinal basi with 5 litre white P.V.C. automatic flushing cistern		WINDOWS	9	1.500		1.500		20.250	
W3 26 1.500 1.350 52.651 V 12 0.600 0.450 3.240 Total Quantity 582.339 sqm Total Deducted Quantity 582.339 sqm Net Total Quantity 582.339 sqm Net Total Quantity 582.339 sqm Say 582.339 sqm ® Rs 143.05 / sqm Rs 83303.59 SI No Description No L B D CF Quantity Remark 2 Sanitory and water supply arrangements. 1 17.2.1 Providing and fixing white vitreous china pedestal type water closet (European type W.C. pan) with sea and lid, 10 litre low level white P V.C. flushing cistern, including flush pipe, with manually controlled device (handle lever), conforming to IS : 7231, with all fittings and fixures complete, including cutting an making good the walls and floors wherever required:W.C. pan with ISI marked white solid plastic sea and lid GF.FF and SF 14*3 42.000 Total Quantity 42.000 each Total Deducted Quantity 42.000 each Net Total Quantity 42.000 each Say 42.000 each @ Rs 6192.67 / each Rs 260092.14 2 17.4.1 Providing and fixing white vitreous china flat back or wall corner type lipped front urinal basin or 430x260x350 mm and 340x410x266 mm sizes respectively with automatic flushing cistern with standar flush pipe and C.P. brass spreaders with brass unions and G.I. clamps complete, including painting of fittings and brackets, cutting and making good the walls and floors wherever required:One urinal basi with 5 litre white P.V.C. automatic flushing cistern					GF				
V 12 0.600 0.450 3.240 Total Quantity 582.339 sqm Total Deducted Quantity 582.339 sqm Total Deducted Quantity 582.339 sqm Net Total Quantity 582.339 sqm Say 582.339 sqm @ Rs 143.05 / sqm Rs 83303.59 Si No Description No L B D CF Quantity Remark 2. Sanitory and water supply arrangements. 1 17.2.1 Providing and fixing white vitreous china pedestal type water closet (European type W.C. pan) with sea and lid, 10 litre low level white P.V.C. flushing cistern, including flush pipe, with manually controlle device (handle lever), conforming to IS: 7231, with all fittings and fixtures complete, including cutting an making good the walls and floors wherever required:W.C. pan with ISI marked white solid plastic sea and lid GF,FF and SF 14*3 42.000 Total Quantity 42.000 each Net Total Quantity 42.000 each Net Total Quantity 42.000 each Say 42.000 each @ Rs 6192.67 / each Rs 260092.14 2 17.4.1 Providing and fixing white vitreous china flat back or wall corner type lipped front urinal basin of 430x260x350 mm and 340x410x265 mm sizes respectively with automatic flushing cistern with standar flush pipe and C.P. brass spreaders with brass unions and G.I. clamps complete, including painting of fittings and brackets, cutting and making good the walls and floors wherever required:One urinal basis with 5 litre white P.V.C. automatic flushing cistern		W4	24	2.000	60.	1.350		64.801	
Total Quantity 582.339 sqm Total Deducted Quantity 0.000 sqm Net Total Quantity 582.339 sqm Say 582.339 sqm @ Rs 143.05 / sqm Rs 83303.59 SI No Description No L B D CF Quantity Remark 2 Sanitory and water supply arrangements 1 17.2.1 Providing and fixing white vitreous china pedestal type water closet (European type W.C. pan) with sea and lid, 10 litre low level white P.V.C. flushing cistern, including flush pipe, with manually controlle device (handle lever), conforming to IS: 7231, with all fittings and fixtures complete, including cutting an making good the walls and floors wherever required:W.C. pan with ISI marked white solid plastic sea and lid GF,FF and SF 14*3 42.000 Total Quantity 42.000 each Net Total Quantity 42.000 each Say 42.000 each @ Rs 6192.67 / each Rs 260092.14 2 17.4.1 Providing and fixing white vitreous china flat back or wall corner type lipped front urinal basin of 430x260x350 mm and 340x410x265 mm sizes respectively with automatic flushing cistern with standar flush pipe and C.P. brass spreaders with brass unions and G.I. clamps complete, including painting of fittings and brackets, cutting and making good the walls and floors wherever required:One urinal basi with 5 litre white P.V.C. automatic flushing cistern		W3	26	1.500		1.350		52.651	
Total Deducted Quantity 0.000 sqm Net Total Quantity 582.339 sqm Say 582.339 sqm @ Rs 143.05 / sqm		V	12	0.600		0.450		3.240	
Say 582.339 sqm @ Rs 143.05 / sqm Rs 83303.59 SI No Description No L B D CF Quantity Remark 2. Sanitory and water supply arrangements 1 17.2.1 Providing and fixing white vitreous china pedestal type water closet (European type W.C. pan) with sea and lid, 10 litre low level white P.V.C. flushing cistern, including flush pipe, with manually controlle device (handle lever), conforming to IS: 7231, with all fittings and fixtures complete, including cutting an making good the walls and floors wherever required:W.C. pan with ISI marked white solid plastic sea and lid GF,FF and SF 14*3 42.000 Total Quantity 42.000 each Total Deducted Quantity 42.000 each Net Total Quantity 42.000 each Say 42.000 each @ Rs 6192.67 / each Rs 260092.14 2 17.4.1 Providing and fixing white vitreous china flat back or wall corner type lipped front urinal basin of 430x260x350 mm and 340x410x265 mm sizes respectively with automatic flushing cistern with standar flush pipe and C.P. brass spreaders with brass unions and G.I. clamps complete, including painting of fittings and brackets, cutting and making good the walls and floors wherever required:One urinal basi with 5 litre white P.V.C. automatic flushing cistern				J. 3	K. N	Tota	al Quantity	582.339 s	qm
Say 582.339 sqm @ Rs 143.05 / sqm Rs 83303.59 SI No Description No L B CF Quantity Remark 2. Sanitory and water supply arrangements 1 17.2.1 Providing and fixing white vitreous china pedestal type water closet (European type W.C. pan) with sea and lid, 10 litre low level white P.V.C. flushing cistern, including flush pipe, with manually controlle device (handle lever), conforming to IS: 7231, with all fittings and fixtures complete, including cutting an making good the walls and floors wherever required:W.C. pan with ISI marked white solid plastic sea and lid GF,FF and SF 14*3 42.000 Total Quantity 42.000 each Net Total Quantity 42.000 each Net Total Quantity 42.000 each Say 42.000 each @ Rs 6192.67 / each Rs 260092.14 2 17.4.1 Providing and fixing white vitreous china flat back or wall corner type lipped front urinal basin of 430x260x350 mm and 340x410x265 mm sizes respectively with automatic flushing cistern with standar flush pipe and C.P. brass spreaders with brass unions and G.I. clamps complete, including painting of fittings and brackets, cutting and making good the walls and floors wherever required:One urinal basi with 5 litre white P.V.C. automatic flushing cistern				11/20	To	tal Deducte	d Quantity	0.000 sqm	า
2 Sanitory and water supply arrangements 1 17.2.1 Providing and fixing white vitreous china pedestal type water closet (European type W.C. pan) with sea and lid, 10 litre low level white P.V.C. flushing cistern, including flush pipe, with manually controlle device (handle lever), conforming to IS: 7231, with all fittings and fixtures complete, including cutting an making good the walls and floors wherever required:W.C. pan with ISI marked white solid plastic sea and lid GF,FF and SF 14*3 42.000 Total Quantity 42.000 each Net Total Quantity 42.000 each Say 42.000 each @ Rs 6192.67 / each Rs 260092.14 2 17.4.1 Providing and fixing white vitreous china flat back or wall corner type lipped front urinal basin of 430x260x350 mm and 340x410x265 mm sizes respectively with automatic flushing cistern with standar flush pipe and C.P. brass spreaders with brass unions and G.I. clamps complete, including painting of fittings and brackets, cutting and making good the walls and floors wherever required:One urinal basin with 5 litre white P.V.C. automatic flushing cistern			181			Net Tota	al Quantity	582.339 s	qm
2 Sanitory and water supply arrangements 1 17.2.1 Providing and fixing white vitreous china pedestal type water closet (European type W.C. pan) with sea and lid, 10 litre low level white P.V.C. flushing cistern, including flush pipe, with manually controlle device (handle lever), conforming to IS: 7231, with all fittings and fixtures complete, including cutting an making good the walls and floors wherever required:W.C. pan with ISI marked white solid plastic sea and lid GF,FF and SF 14*3 42.000 Total Quantity 42.000 each Net Total Quantity 42.000 each Say 42.000 each @ Rs 6192.67 / each Rs 260092.14 2 17.4.1 Providing and fixing white vitreous china flat back or wall corner type lipped front urinal basin of 430x260x350 mm and 340x410x265 mm sizes respectively with automatic flushing cistern with standar flush pipe and C.P. brass spreaders with brass unions and G.I. clamps complete, including painting of fittings and brackets, cutting and making good the walls and floors wherever required:One urinal basi with 5 litre white P.V.C. automatic flushing cistern			400	Say	582.339 sqr	m @ Rs 143	3.05 / sqm	Rs 83	303.59
1 17.2.1 Providing and fixing white vitreous china pedestal type water closet (European type W.C. pan) with sea and lid, 10 litre low level white P.V.C. flushing cistern, including flush pipe, with manually controlle device (handle lever), conforming to IS: 7231, with all fittings and fixtures complete, including cutting an making good the walls and floors wherever required:W.C. pan with ISI marked white solid plastic sea and lid GF,FF and SF 14*3 42.000 Total Quantity 42.000 each Net Total Quantity 42.000 each Net Total Quantity 42.000 each Say 42.000 each © Rs 6192.67 / each Rs 260092.14 2 17.4.1 Providing and fixing white vitreous china flat back or wall corner type lipped front urinal basin of 430x260x350 mm and 340x410x265 mm sizes respectively with automatic flushing cistern with standar flush pipe and C.P. brass spreaders with brass unions and G.I. clamps complete, including painting of fittings and brackets, cutting and making good the walls and floors wherever required:One urinal basis with 5 litre white P.V.C. automatic flushing cistern	SI No	Description	No	L	В	D	CF	Quantity	Remark
Providing and fixing white vitreous china pedestal type water closet (European type W.C. pan) with sea and lid, 10 litre low level white P.V.C. flushing cistern, including flush pipe, with manually controlled device (handle lever), conforming to IS: 7231, with all fittings and fixtures complete, including cutting an making good the walls and floors wherever required:W.C. pan with ISI marked white solid plastic sea and lid GF,FF and SF 14*3 42.000 Total Quantity 42.000 each Net Total Quantity 42.000 each Say 42.000 each Rs 260092.14 2 17.4.1 Providing and fixing white vitreous china flat back or wall corner type lipped front urinal basin of 430x260x350 mm and 340x410x265 mm sizes respectively with automatic flushing cistern with standar flush pipe and C.P. brass spreaders with brass unions and G.I. clamps complete, including painting of fittings and brackets, cutting and making good the walls and floors wherever required:One urinal basin with 5 litre white P.V.C. automatic flushing cistern			2 Sanitor	y and water	supply arra	angements	ns		
Total Quantity 42.000 each Total Deducted Quantity 0.000 each Net Total Quantity 42.000 each Say 42.000 each @ Rs 6192.67 / each Rs 260092.14 2 17.4.1 Providing and fixing white vitreous china flat back or wall corner type lipped front urinal basin of 430x260x350 mm and 340x410x265 mm sizes respectively with automatic flushing cistern with standar flush pipe and C.P. brass spreaders with brass unions and G.I. clamps complete, including painting of fittings and brackets, cutting and making good the walls and floors wherever required:One urinal basi with 5 litre white P.V.C. automatic flushing cistern	1	Providing and fixing and lid, 10 litre low device (handle lever	level white F	v.V.C. flushi	ng cistern, i	,	ush pipe, w		,
Total Deducted Quantity Net Total Quantity 42.000 each Say 42.000 each @ Rs 6192.67 / each Rs 260092.14 2 17.4.1 Providing and fixing white vitreous china flat back or wall corner type lipped front urinal basin of 430x260x350 mm and 340x410x265 mm sizes respectively with automatic flushing cistern with standar flush pipe and C.P. brass spreaders with brass unions and G.I. clamps complete, including painting of fittings and brackets, cutting and making good the walls and floors wherever required:One urinal basis with 5 litre white P.V.C. automatic flushing cistern			-			_	· ·	te, including	cutting and
Net Total Quantity 42.000 each Say 42.000 each @ Rs 6192.67 / each Rs 260092.14 2 17.4.1 Providing and fixing white vitreous china flat back or wall corner type lipped front urinal basin of 430x260x350 mm and 340x410x265 mm sizes respectively with automatic flushing cistern with standar flush pipe and C.P. brass spreaders with brass unions and G.I. clamps complete, including painting of fittings and brackets, cutting and making good the walls and floors wherever required:One urinal basis with 5 litre white P.V.C. automatic flushing cistern		and lid	alls and floors			_	· ·	te, including white solid	cutting and
Say 42.000 each @ Rs 6192.67 / each 17.4.1 Providing and fixing white vitreous china flat back or wall corner type lipped front urinal basin of 430x260x350 mm and 340x410x265 mm sizes respectively with automatic flushing cistern with standar flush pipe and C.P. brass spreaders with brass unions and G.I. clamps complete, including painting of fittings and brackets, cutting and making good the walls and floors wherever required:One urinal basing with 5 litre white P.V.C. automatic flushing cistern		and lid	alls and floors			c. pan with	ISI marked	te, including white solid	cutting and
2 17.4.1 Providing and fixing white vitreous china flat back or wall corner type lipped front urinal basin of 430x260x350 mm and 340x410x265 mm sizes respectively with automatic flushing cistern with standar flush pipe and C.P. brass spreaders with brass unions and G.I. clamps complete, including painting of fittings and brackets, cutting and making good the walls and floors wherever required:One urinal basing with 5 litre white P.V.C. automatic flushing cistern		and lid	alls and floors		equired:W.C	c. pan with	ISI marked	te, including white solid 42.000 42.000 ea	cutting and plastic sea
Providing and fixing white vitreous china flat back or wall corner type lipped front urinal basin of 430x260x350 mm and 340x410x265 mm sizes respectively with automatic flushing cistern with standar flush pipe and C.P. brass spreaders with brass unions and G.I. clamps complete, including painting of fittings and brackets, cutting and making good the walls and floors wherever required:One urinal basis with 5 litre white P.V.C. automatic flushing cistern		and lid	alls and floors		equired:W.C	Total Deducte	ISI marked al Quantity d Quantity	42.000 42.000 eac	cutting and plastic sea
		and lid	alls and floors	wherever re	equired:W.C	Total Deducte	al Quantity d Quantity al Quantity	42.000 eac 42.000 eac	cutting and plastic sea
	2	and lid GF,FF and SF 17.4.1 Providing and fixin 430x260x350 mm a flush pipe and C.P. fittings and brackets	alls and floors 14*3 14*3 ag white vitred and 340x410x2 brass spread s, cutting and	Say 4 Dous china flee 65 mm sizes ers with bras making good	To 12.000 each at back or s respectivel ss unions ar d the walls a	Total Deducted Net Total Rs 6192 wall corner by with automated G.I. clan	al Quantity d Quantity al Quantity 67 / each type lippe matic flushir	42.000 42.000 eac 42.0	cutting and plastic season characteristic se

					Tots	al Quantity	9.000 eac	h
				т.	otal Deducte		0.000 eac	
				10			9.000 eac	
			Sou	, 0, 000 anah		al Quantity		
	47.70		Say	/ 9.000 each	W KS 3604	.54 / each	KS 32	780.86
3	17.7.3 Providing and fixing of standard pattern wherever require:W pillar taps	n, including pa	ainting of f	ittings and I	brackets, cu	utting and r	naking goo	d the walls
		3*10					30.000	
		·	1.5	040	Tota	al Quantity	30.000 ea	ch
			//@	Т	otal Deducte	d Quantity	0.000 eac	h
			5.0		Net Tota	al Quantity	30.000 ea	ch
			Say	30.000 each	@ Rs 3351	.04 / each	Rs 100	0531.20
	of 645 mm, width 78		ctive height	of 88 mm, v	veighting not	less than 1	90 gms	
	I/ = L L ANA CL	1/1*2	1.00				42 000	
	GF,FF and SF	14*3 Other Er	oineer	ing Org	anisation	al Quantity	42.000	
	GF,FF and SF	Other Er	ngineer		anisa Tota		42.000 no	
	GF,FF and SF	0 1 5	ngineer R		otal Deducte	d Quantity	42.000 no	
	GF,FF and SF	0 1 5	ngineer	To	otal Deducte	d Quantity	42.000 no 0.000 no 42.000 no	
5	50.17.1.5 Supplying and fixing materials and labour	Other Er	aucet supe	Say 42.000 erior quality	Net Total Net Total Ono @ Rs 70	d Quantity al Quantity 01.00 / no	42.000 no 0.000 no 42.000 no Rs 29	442.00 ding cost o
5	50.17.1.5 Supplying and fixing	Other Er	aucet supe	Say 42.000 erior quality	Net Total Net Total Ono @ Rs 70	d Quantity al Quantity 01.00 / no	42.000 no 0.000 no 42.000 no Rs 29	442.00 ding cost o
5	50.17.1.5 Supplying and fixing materials and labou	Cther Er	aucet supe	Say 42.000 erior quality	Net Total Net Total Ono @ Rs 70 (Jagur or elirection of s	d Quantity al Quantity 01.00 / no	42.000 no 0.000 no 42.000 no Rs 29 nake) includer-in-charge	442.00 ding cost o
5	50.17.1.5 Supplying and fixing materials and labou	Cther Er	aucet supe	Say 42.000 erior quality as per the d	Net Total Net Total Ono @ Rs 70 (Jagur or elirection of s	d Quantity al Quantity 01.00 / no equvalent material Engines	42.000 no 0.000 no 42.000 no Rs 29 nake) includer-in-charge	442.00 ding cost o
5	50.17.1.5 Supplying and fixing materials and labou	Cther Er	aucet supe	Say 42.000 erior quality as per the d	Net Total Ono @ Rs 70 (Jagur or elirection of some	d Quantity al Quantity 01.00 / no equvalent material Engines	42.000 no 0.000 no 42.000 no Rs 29 nake) includer-in-charge 42.000 42.000 no	442.00 ding cost o
5	50.17.1.5 Supplying and fixing materials and labou	Cther Er	Faucet super complete	Say 42.000 erior quality as per the d	Net Total Net Total (Jagur or elirection of some otal Deducted)	d Quantity al Quantity 01.00 / no equvalent material Engines al Quantity d Quantity al Quantity	42.000 no 0.000 no 42.000 no Rs 29 nake) includer-in-charge 42.000 42.000 no 0.000 no	442.00 ding cost o
5	50.17.1.5 Supplying and fixing materials and labou	Cther Er P G CP Health For charges etc. 14*3	faucet super complete steel soap	Say 42.000 erior quality as per the d To Say 42.000 dish includi	Net Total Ono @ Rs 70 (Jagur or elirection of solution of soluti	d Quantity 01.00 / no equvalent material Quantity d Quantity d Quantity al Quantity al Quantity	42.000 no 0.000 no 42.000 no Rs 29 nake) includer-in-charge 42.000 42.000 no 0.000 no 42.000 no Rs 53	442.00 ding cost o
	50.17.1.5 Supplying and fixing materials and labour GF,FF and SF 50.17.1.1 Supplying and fixing	Cther Er P G CP Health For charges etc. 14*3	faucet super complete steel soap	Say 42.000 erior quality as per the d To Say 42.000 dish includi	Net Total Ono @ Rs 70 (Jagur or elirection of solution of soluti	d Quantity 01.00 / no equvalent material Quantity d Quantity d Quantity al Quantity al Quantity	42.000 no 0.000 no 42.000 no Rs 29 nake) includer-in-charge 42.000 42.000 no 0.000 no 42.000 no Rs 53	442.00 ding cost of

				To	tal Deducted Quantity	0.000 no
					Net Total Quantity	42.000 no
				Say 42.00	0 no @ Rs 67.02 / no	Rs 2814.84
7	18.51.1 Providing and fixing weighing not less that		•		proved quality conform	ing to IS standards an
	GF,FF and SF	14*3				42.000
					Total Quantity	42.000 each
				То	tal Deducted Quantity	0.000 each
					Net Total Quantity	42.000 each
			Say	42.000 each	n @ Rs 650.15 / each	Rs 27306.30
8	18.52.1 Providing and fixing conforming to IS: 8				of standard design a	and of approved mak
	In toilet	14*3*3	N/A		1-21	126.000
		181			Total Quantity	126.000 each
		400		То	tal Deducted Quantity	0.000 each
			100	HE227	Net Total Quantity	126.000 each
SI No	Description	Other En	gin Say 1	26.000 each	0 Rs 713,61 / each	Rs 89914.86 Quantity Remark
		3 Interi	nal drainage	and water	supply	
1	includes jointing of p	pipes & fittings neer-in-Chargo	with one st	ep PVC sol	the pipe with clamps a vent cement and testinuding cutting chases are	ng of joints complete a
		75				75.000
					Total Quantity	75.000 metre
				To	tal Deducted Quantity	0.000 metre
					Net Total Quantity	75.000 metre
			Say 7	5.000 metre	@ Rs 438.93 / metre	Rs 32919.75
2	includes jointing of	pipes with or -in-Charge. C	ne step PV0	c solvent c	the pipe with clamps a ement and testing of g cutting chases and m	joints complete as pe

				•		1		
	From wash basin to out side	1*3*2	7.5+4.4+7. 5				116.400	
	From Sink	1*3*2	7.5+4.4+7. 5				116.400	
	fROM STAFF TOILETS	1*3	5.4+2.5+2. 5				31.201	
		1*3	5.4+2.5+2. 5				31.201	
					Tota	al Quantity	295.202 m	netre
				To	tal Deducte	d Quantity	0.000 met	re
			100	-	Net Tota	al Quantity	295.202 m	netre
			Say 29	5.202 metre	@ Rs 609.4	45 / metre	Rs 179	910.86
3	50.18.9.17.2 Providing and fixing P includes jointing of pip direction of Engineer-i	es with o	ne step PV0	C solvent c	ement and	testing of j	oints comp	lete as per
	VERTICALFrom FLOOR TRAP OF WASH AREA to out side gENTS	1*3*2*2	10.800			÷	129.601	
	VERTICALFrom FLOOR TRAPS OF TOILET to out side gENTS	1*3*2*2	gineeri 10.800	ng Orga	anisatio	ns 1	129.601	
	fROM STAFF TOILETS	1*2	10.800				21.600	
					Tota	al Quantity	280.802 m	netre
				To	tal Deducte	d Quantity	0.000 met	re
					Net Tota	al Quantity	280.802 m	netre
			Say 280	0.802 metre	@ Rs 225.6	60 / metre	Rs 63	348.93
4	50.18.9.7.1 Providing and fixing PV & testing of joints comp		• .	•	•		· ·	ing refilling
		60					60.000	
			1	1	Tota	al Quantity	60.000 me	etre
				To	tal Deducte	<u>-</u>	0.000 met	
						al Quantity	60.000 me	etre
			Say 60	0.000 metre	@ Rs 346.9	95 / metre	Rs 20	817.00

	50.18.9.20.1 Providing and fixing P' solvent cement - 63 m		_	cessories fo	r Rigid PVC	pipes, incl	uding jointin	g with F
		20					20.000	
					Tota	al Quantity	20.000 no	L
				To	otal Deducte	<u> </u>	0.000 no	
					Net Tota	al Quantity	20.000 no	
				Say 20.00	0 no @ Rs 7	72.95 / no	Rs 14	159.00
6	50.18.9.20.2 Providing and fixing P's solvent cement -63 dia		Ū	cessories fo	r Rigid PVC	pipes, incl	uding jointin	g with F
		20	<i>J1</i> 6				20.000	
			52	W 30	Tota	al Quantity	20.000 no	
		6.3	-K 2	To	otal Deducte	d Quantity	0.000 no	
			1100	34/1	Net Tota	al Quantity	20.000 no	
		181		Say 20.00	0 no @ Rs (64.20 / no	Rs 12	284.00
				cessories fo	ragia i ve	pipes, inci	danig jonitin	g with F
	solvent cement - 63 m			ing Orga	anisatio	IIS	12.000 12.000 no	
		m dia Door	Elbow	ing Orga	Total Deducte	IIS al Quantity d Quantity	12.000 12.000 no 0.000 no	
		m dia Door	Elbow	ng Orga	Total Deducte Net Total	Quantity d Quantity al Quantity	12.000 no 12.000 no 0.000 no 12.000 no	
8		m dia Door 12 VC moulded	d fittings/ ac	Say 12.00	Total Deducte Net Total 0 no @ Rs 8	Quantity d Quantity al Quantity 30.50 / no	12.000 12.000 no 0.000 no 12.000 no Rs 9	66.00
8	50.18.9.20.4 Providing and fixing P	m dia Door 12 VC moulded	d fittings/ ac	Say 12.00	Total Deducte Net Total 0 no @ Rs 8	Quantity d Quantity al Quantity 30.50 / no	12.000 12.000 no 0.000 no 12.000 no Rs 9	66.00
8	50.18.9.20.4 Providing and fixing P	vC moulded	d fittings/ ac	Say 12.00	Total Deducte Net Total 0 no @ Rs 8	Quantity d Quantity al Quantity 30.50 / no	12.000 12.000 no 0.000 no 12.000 no Rs 9	66.00 g with F
8	50.18.9.20.4 Providing and fixing P	vC moulded	d fittings/ ac	Say 12.00	Total Deducte Net Total 0 no @ Rs 8	al Quantity d Quantity al Quantity 80.50 / no pipes, included	12.000 12.000 no 0.000 no 12.000 no Rs 9 uding jointin	66.00 g with F
8	50.18.9.20.4 Providing and fixing P	vC moulded	d fittings/ ac	Say 12.00	Total Deducte Net Total O no @ Rs 8 r Rigid PVC Total otal Deducte	al Quantity d Quantity al Quantity 80.50 / no pipes, included	12.000 12.000 no 0.000 no 12.000 no Rs 9 uding jointin 30.000 30.000 no	66.00 g with F
8	50.18.9.20.4 Providing and fixing P	vC moulded	d fittings/ ac	Say 12.00	Total Deducte Net Total O no @ Rs 8 r Rigid PVC Total otal Deducte	al Quantity d Quantity al Quantity 30.50 / no c pipes, incl al Quantity d Quantity d Quantity	12.000 12.000 no 0.000 no 12.000 no Rs 9 uding jointin 30.000 30.000 no 0.000 no	66.00 g with F
8	50.18.9.20.4 Providing and fixing P	VC moulded 30	d fittings/ ad	Say 12.00 ccessories for	Total Deducte Net Total O no @ Rs a r Rigid PVC Total otal Deducte Net Total O no @ Rs a	Quantity d Quantity al Quantity 30.50 / no pipes, included Quantity d Quantity d Quantity d Quantity al Quantity al Quantity	12.000 12.000 no 0.000 no 12.000 no Rs 9 uding jointin 30.000 30.000 no 0.000 no Rs 23	66.00 g with P

					Tota	I Quantity	12.000 no	
				To	otal Deducted	d Quantity	0.000 no	
					Net Tota	I Quantity	12.000 no	
				Say 12.00	0 no @ Rs 8	6.10 / no	Rs 10	33.20
10	50.18.9.20.6 Providing and fixing PV solvent cement -63x63x		_	cessories fo	r Rigid PVC	pipes, incl	uding jointin	g with P\
		5					5.000	
					Tota	I Quantity	5.000 no	
				To	otal Deducted	d Quantity	0.000 no	
	Net Total Quantity							
	Say 5.000 no @ Rs 94.25 / no							71.25
	Providing and fixing PV solvent cement - 63 mm	n dia vent	1 1 2 1 4	cessories fo	r Rigid PVC	pipes, incl		g with P
		8	A(C)			-	8.000	
						1 0 111		
	-				20%	I Quantity	8.000 no	
		41 E.			otal Deducted	d Quantity	0.000 no	
	0	ther E	ngineeri	ng Org	20%	d Quantity	0.000 no 8.000 no	11.20
12	50.18.9.19.1 Providing and fixing Princludes jointing of pip direction of Engineer-i	VC pipes	including fixi	Say 8.00	Net Total Deducted Net Total O no @ Rs 7	d Quantity I Quantity 6.40 / no s/ clips/ at testing of j	0.000 no 8.000 no Rs 6 1.00 m spa	icing . T lete as l
12	50.18.9.19.1 Providing and fixing Princludes jointing of pip	VC pipes	including fixi	Say 8.00	Net Total Deducted Net Total O no @ Rs 7	d Quantity I Quantity 6.40 / no s/ clips/ at testing of j	0.000 no 8.000 no Rs 6 1.00 m spa	icing . T lete as ¡
12	50.18.9.19.1 Providing and fixing Princludes jointing of pip direction of Engineer-invertical pipe from wtraps of bath and	VC pipes bes with o	including fixine step PV0	Say 8.00	Net Total Deducted Net Total O no @ Rs 7	d Quantity I Quantity 6.40 / no s/ clips/ at testing of j	0.000 no 8.000 no Rs 6 1.00 m spanioints comprosed on was	icing . T lete as l
12	50.18.9.19.1 Providing and fixing Princludes jointing of pip direction of Engineer-invertical pipe from wtraps of bath and	VC pipes bes with o n-Charge 2*4	including fixing step PV0 110 mm dia 7.000	Say 8.00	Net Total Deducted Net Total O no @ Rs 7	d Quantity I Quantity 6.40 / no s/ clips/ at testing of j	0.000 no 8.000 no Rs 6 1.00 m spanionts comprosed on was 56.000	icing . T lete as l
12	50.18.9.19.1 Providing and fixing Princludes jointing of pip direction of Engineer-i Vertical pipe from wtraps of bath and toilet From wash basin to	VC pipes pes with of n-Charge 2*4	7.000 20.000 7.5+4.4+7.	Say 8.00	Net Total Deducted Net Total O no @ Rs 7	d Quantity I Quantity 6.40 / no s/ clips/ at testing of j	0.000 no 8.000 no Rs 6 1.00 m spanioints comprosed on was 56.000	icing . T lete as l
12	50.18.9.19.1 Providing and fixing Princludes jointing of pip direction of Engineer-i Vertical pipe from wtraps of bath and toilet From wash basin to out side	VC pipes pes with of the confidence of the confi	7.000 7.5+4.4+7. 7.5+4.4+7.	Say 8.00	Net Total Deducted Net Total O no @ Rs 7	d Quantity I Quantity 6.40 / no s/ clips/ at testing of j	0.000 no 8.000 no Rs 6 1.00 m sparoints comprosed on was 56.000 20.000	ncing . T lete as p
12	50.18.9.19.1 Providing and fixing Princludes jointing of pip direction of Engineer-i Vertical pipe from wtraps of bath and toilet From wash basin to out side From Sink f R O M STAFF	VC pipes pes with of in-Charge 2*4 1 1*3*2	7.000 7.5+4.4+7. 5 7.5+4.2-5+2.	Say 8.00	Net Total Deducted Net Total O no @ Rs 7	d Quantity I Quantity 6.40 / no s/ clips/ at testing of j	0.000 no 8.000 no Rs 6 1.00 m spanioints comprosed on was 56.000 20.000 116.400	icing . T lete as ¡

				To	tal Deducte	d Quantity	0.000 met	tre
						al Quantity	371.202 n	netre
			Say 37	1.202 metre	@ Rs 381.7	75 / metre	Rs 14	1706.36
13	50.18.9.19.2 Providing and fixing Pincludes jointing of pindirection of Engineer-	oes with or	ne step PV	C solvent c	ement and	testing of j	oints comp	lete as pe
		1	50.000				50.000	
					Tota	l Quantity	50.000 me	etre
				To	otal Deducted	d Quantity	0.000 met	tre
			n.	.60.	Net Tota	l Quantity	50.000 me	etre
			Say 5	0.000 metre	@ Rs 331.7	0 / metre	Rs 16	585.00
	Providing and fixing Providing and fixing Providing of pipeline direction of Engineer-in 110 mm pipe 6kgf/cm2	oes with or	ne step PV	C solvent c	ement and	testing of j	oints comp	lete as pe
	From closet waste line	1*4*3	4 000					
	to out side wall	143	1.000				12.000	
	to out side wall	1 5	1.000 gineeri	ng Org	anisa Tota	al Quantity	12.000 12.000 me	etre
	to out side wall	1 5		116 016	Tota	115		
	to out side wall	1 5		116 016	otal Deducted	115	12.000 me	tre
	to out side wall	1 5	gineeri	To	otal Deducted	d Quantity	12.000 met	tre
15	50.18.9.22.2 Providing and fixing PV solvent cement - 110 m	ther En	Say 1	2.000 metre	Net Tota @ Rs 722.9	d Quantity Il Quantity 00 / metre	12.000 met 0.000 met 12.000 me	etre 674.80
15	50.18.9.22.2 Providing and fixing PV	ther En	Say 1	2.000 metre	Net Tota @ Rs 722.9	d Quantity Il Quantity 00 / metre	12.000 met 0.000 met 12.000 me	etre 674.80
15	50.18.9.22.2 Providing and fixing PV	ther En	Say 1	2.000 metre	Net Tota @ Rs 722.9 or Rigid PVC	d Quantity Il Quantity 00 / metre	12.000 met 0.000 met 12.000 met Rs 86	etre 674.80 ng with PVC
15	50.18.9.22.2 Providing and fixing PV	ther En	Say 1	2.000 metre	Net Tota @ Rs 722.9 or Rigid PVC	d Quantity I Quantity O / metre pipes, included in Quantity	12.000 met 0.000 met 12.000 met Rs 86 uding jointin	etre 674.80 ng with PVC
15	50.18.9.22.2 Providing and fixing PV	ther En	Say 1	2.000 metre	Net Tota @ Rs 722.9 or Rigid PVC Tota otal Deducted	d Quantity I Quantity O / metre pipes, included in Quantity	12.000 met 0.000 met 12.000 met Rs 86 uding jointin	etre 674.80 ag with PVC
15	50.18.9.22.2 Providing and fixing PV	ther En	Say 1	2.000 metre	Net Tota @ Rs 722.9 or Rigid PVC Tota otal Deducted	d Quantity I Quantity O / metre pipes, included Quantity d Quantity d Quantity I Quantity	12.000 met 0.000 met 12.000 met 12.000 met 24.000 24.000 no 0.000 no	etre 674.80 ag with PVC
15	50.18.9.22.2 Providing and fixing PV	C moulded am dia 45 d	Say 1 fittings / acegree Elbov	2.000 metre ccessories for w	Net Tota @ Rs 722.9 or Rigid PVC Tota tal Deducted Net Tota no @ Rs 10	d Quantity I Quantity O / metre I pipes, included Quantity I Quantity I Quantity I Quantity I Quantity I Quantity I Quantity	12.000 met 0.000 met 12.000 met 12.000 met 24.000 24.000 no 24.000 no 24.000 no Rs 25	tre etre 674.80 ag with PVC
	50.18.9.22.2 Providing and fixing PV solvent cement - 110 m 50.18.9.22.3 Providing and fixing PV	C moulded am dia 45 d	Say 1 fittings / acegree Elbov	2.000 metre ccessories for w	Net Tota @ Rs 722.9 or Rigid PVC Tota tal Deducted Net Tota no @ Rs 10	d Quantity I Quantity O / metre I pipes, included Quantity I Quantity I Quantity I Quantity I Quantity I Quantity I Quantity	12.000 met 0.000 met 12.000 met 12.000 met 24.000 24.000 no 24.000 no 24.000 no Rs 25	tre etre 674.80 ag with PVC

				То	tal Deducte	•	0.000 no	
						al Quantity	12.000 no	
				Say 12.000	no @ Rs 1:	32.03 / no	Rs 158	34.36
17	50.18.9.22.4 Providing and fixing Postly solvent cement- 110 m		_	essories fo	r Rigid PVC	pipes, incl	uding jointing	with PV
		50					50.000	
					Tota	al Quantity	50.000 no	
				То	tal Deducte	d Quantity	0.000 no	
					Net Tota	al Quantity	50.000 no	
			Bu	Say 50.000	no @ Rs 1	61.08 / no	Rs 805	54.00
18	50.18.9.22.5 Providing and fixing P'solvent cement 110x1		Aug. A STATE	cessories fo	r Rigid PV(pipes inclu	uding jointing	with P\
		10	N/A		1-21		10.000	
		451			Tota	al Quantity	10.000 no	
	1		#472E	То	tal Deducte	d Quantity	0.000 no	
			100	2555	Net Tota	al Quantity	10.000 no	
	C	ther En	gineeri	Say 10.000	no @ Rs 1	74.79 / no	Rs 174	47.90
19	50.18.9.22.6 Providing and fixing P'solvent cement - 110x		_		Rigid PVC	pipes, inclu	uding jointing	with P\
		5					5.000	
					Tota	al Quantity	5.000 no	
				То	tal Deducte	d Quantity	0.000 no	
					Net Tota	al Quantity	5.000 no	
				Say 5.000	no @ Rs 1	87.59 / no	Rs 93	7.95
20	50.18.9.22.7 Providing and fixing PVC moulded fittings/ accessories for Rigid PVC pipes, inclusolvent cement - 110x110x75 mm dia Door Tee							with P
		5					5.000	
					Tota	al Quantity	5.000 no	
				To	tal Deducte	d Quantity	0.000 no	
				10	tai Deadole	<u> </u>		
				10		al Quantity	5.000 no	

21	50.18.9.22.8 Providing and fixing PVC moulded fittings /accessories for Rigid PVC pipes, including jointing with PV											
	solvent cement -110 m		•	cessories fo	r Rigid PVC	pipes, incl	uding jointin	ig with I				
		4					4.000					
					Tota	⊥al Quantity	4.000 no					
				To	otal Deducte		0.000 no					
						al Quantity						
	Say 4.000 no @ Rs 123.88 / no Rs 495.52											
22	50.18.9.5.2 Providing and fixing P\ refilling & testing of joir		• .			•						
		20	1/128				20.000					
			6.0		Tota	al Quantity	20.000 m	etre				
		1	37.5	To	otal Deducte	d Quantity	0.000 me	tre				
		6 1			Net Tota	al Quantity	20.000 m	etre				
	Net Total Quantity 20.000 metre Say 20.000 metre @ Rs 234.39 / metre Rs 4687.80											
23	50.18.8.3.1 Providing and fixing P includes jointing of pip per direction of Engine	es & fittings	fittings inclu	ding fixing tep PVC so	the pipe wit	th clamps a	t 1.00 m sp	acing.				
23	Providing and fixing P	es & fittings er-in-Charg	fittings inclu	ding fixing tep PVC so	the pipe wit	th clamps a	t 1.00 m sp	acing.				
23	Providing and fixing P includes jointing of pip per direction of Engine	es & fittings er-in-Charg f/cm2	fittings inclus with one si	ding fixing tep PVC so	the pipe wit Ivent cemer uding cutting	th clamps a	t 1.00 m sp ng of joints o nd making go	eacing. complet cod the				
23	Providing and fixing P includes jointing of pip per direction of Engine	es & fittings er-in-Charg f/cm2	fittings inclus with one si	ding fixing tep PVC so d work, incl	the pipe wit Ivent cemer uding cutting	th clamps a nt and testin g chases an al Quantity	t 1.00 m sp ng of joints o nd making go 50.000	eacing. complet				
23	Providing and fixing P includes jointing of pip per direction of Engine	es & fittings er-in-Charg f/cm2	fittings inclus with one si	ding fixing tep PVC so d work, incl	the pipe wit lvent cemer uding cutting Tota otal Deducte	th clamps a nt and testin g chases an al Quantity	t 1.00 m spag of joints of dimaking go	etre				
23	Providing and fixing P includes jointing of pip per direction of Engine	es & fittings er-in-Charg f/cm2	fittings inclus with one sie. Conceale	ding fixing tep PVC so d work, incl	the pipe wit lvent cemer uding cutting Tota otal Deducte	th clamps and testing chases and Quantity d Quantity	t 1.00 m spag of joints of making got 50.000 met 50.000 met	eacing. complete cod the cod t				
23	Providing and fixing P includes jointing of pip per direction of Engine	es & fittings er-in-Charg f/cm2 1 VC pipes, es & fittings er-in-Charg	fittings inclus with one since Conceale 50.000 Say 50 fittings inclusions with one since	ding fixing tep PVC so diwork, ingle	the pipe with livent cemer uding cutting. Total Deducte. Net Total. @ Rs 440.4 the pipe with livent cemer.	th clamps and testing chases and all Quantity all Quantity 43 / metre	t 1.00 m spring of joints of displaying displaying the spring of joints of joints of the spring of joints of the spring of joints of j	eacing. completed by the book the betre betre betre beacing. complete book the beacing.				
	Providing and fixing P includes jointing of pip per direction of Engine etc. 25 mm pipe 12 kgf 50.18.8.4.1 Providing and fixing P includes jointing of pip per direction of Engine	es & fittings er-in-Charg f/cm2 1 VC pipes, es & fittings er-in-Charg	fittings inclus with one since Conceale 50.000 Say 50 fittings inclusions with one since	ding fixing tep PVC so diwork, ingle	the pipe with livent cemer uding cutting. Total Deducte. Net Total. @ Rs 440.4 the pipe with livent cemer.	th clamps and testing chases and all Quantity all Quantity 43 / metre	t 1.00 m spring of joints of displaying displaying the spring of joints of joints of the spring of joints of the spring of joints of j	eacing. completed by the book the betre betre betre beacing. complete book the beacing.				
	Providing and fixing P includes jointing of pip per direction of Engine etc. 25 mm pipe 12 kgf 50.18.8.4.1 Providing and fixing P includes jointing of pip per direction of Engine	es & fittings er-in-Charg f/cm2 1 1 VC pipes, es & fittings er-in-Charg /cm2	fittings inclusive with one size. Conceale 50.000 Say 50 fittings inclusive with one size. Conceale	ding fixing tep PVC so diwork, ingle	the pipe with livent cemer uding cutting a training cutting a training a trai	th clamps and testing chases and all Quantity all Quantity 43 / metre	t 1.00 m spring of joints of displaying displaying to the spring of joints of displaying of joints of displaying displaying displaying displaying displaying of joints of displaying of joints of displaying disp	eacing. completed by the book the betre betre betre beacing. complete book the beacing.				
	Providing and fixing P includes jointing of pip per direction of Engine etc. 25 mm pipe 12 kgf 50.18.8.4.1 Providing and fixing P includes jointing of pip per direction of Engine	es & fittings er-in-Charg f/cm2 1 1 VC pipes, es & fittings er-in-Charg /cm2	fittings inclusive with one size. Conceale 50.000 Say 50 fittings inclusive with one size. Conceale	ding fixing tep PVC so diwork, including fixing tep PVC so diwork, including the pvc so diwork, including fixing tep PVC so diwork, including fixing tep PVC so diwork, including fixing tep pvc so diwork, including tep pvc so diwork, including fixing tep pvc so diwork, including fix	the pipe with livent cemer uding cutting a training cutting a training a trai	th clamps and testing chases and all Quantity all Quantity 43 / metre	t 1.00 m spring of joints of displaying displaying to the spring of joints of displaying of joints of displaying displaying displaying displaying displaying of joints of displaying of joints of displaying disp	eacing. complete cod the etre etre etre coacing. complete				
	Providing and fixing P includes jointing of pip per direction of Engine etc. 25 mm pipe 12 kgf 50.18.8.4.1 Providing and fixing P includes jointing of pip per direction of Engine etc. 32 mm pipe 10Kgf	es & fittings er-in-Charg f/cm2 1 VC pipes, f es & fittings er-in-Charg /cm2 25	fittings incluses with one size. Conceale 50.000 Say 50 fittings incluses with one size. Conceale for base for	ding fixing tep PVC so diwork, including fixing tep PVC so diwork, includes the policy of the policy	the pipe with livent cemer uding cutting the pipe with livent cemer uding cutting the pipe with livent cemer uding cutting the pipe with livent cemer uding cutting the pipe with livent cemer uding cutting the pipe with livent cemer uding cutting the livent cemer uding cemer	th clamps and testing chases and all Quantity all Quantity 43 / metre	t 1.00 m spring of joints of displayed making go 50.000 me 50.000 me 50.000 me 10.000	etre etre etacing. complete				

	commen area	4	2.030	1.700	0.075		1.036	
	kitchen	4	3.300	2.650	0.075		2.624	
	dining area	4	3.000	5.750	0.075		5.175	
	stair cabin	2	2.650	5.750	0.075		2.286	
	lobby	1	5.950	2.650	0.075		1.183	
	entrance	1	2.650	2.150	0.075		0.428	
					Tota	al Quantity	41.535 m	etre
				To	tal Deducte	d Quantity	0.000 me	tre
					Net Tota	al Quantity	41.535 m	etre
			Say 4	1.535 metre	@ Rs 446.4	48 / metre	Rs 18	544.55
	Providing and fixing refilling & testing of					•		
		18	This		Tota	al Quantity	10.000 m	etre
		104	Ka	To	tal Deducte	d Quantity	0.000 me	tre
					Net Tota	al Quantity	10.000 m	etre
				0.000 metre	, ,	40 / metre	Rs 3	604.00
		111000						
26	od71455/2022_202 Suppling and fixing	23	ngineeri					
26		23			amisauc		12.000	
26	Suppling and fixing	23 110 steel grati					12.000	
26	Suppling and fixing Bath room	23 110 steel grati 4*3*1						
26	Suppling and fixing Bath room Toilet	23 110 steel grati 4*3*1 4*3*1			T	al Quantity	12.000	ach
26	Suppling and fixing Bath room Toilet	23 110 steel grati 4*3*1 4*3*1			T		12.000	
26	Suppling and fixing Bath room Toilet	23 110 steel grati 4*3*1 4*3*1			Tota		12.000 12.000 36.000 ea	ch
26	Suppling and fixing Bath room Toilet	23 110 steel grati 4*3*1 4*3*1	ngs		Total deducte	d Quantity	12.000 12.000 36.000 ea 0.000 eac 36.000 ea	ch

internal dimensions, total weight of cover and frame to be not less than 38 kg (weigh of cover 23 kg and

	weight of frame 15	kg):VVith comm					T	
		5					5.000	
					Tota	al Quantity	5.000 eac	h
				To	tal Deducte	d Quantity	0.000 eac	h
					Net Tota	al Quantity	5.000 eac	h
			Say 5	5.000 each @	® Rs 12836	.64 / each	Rs 64	183.20
28	od71456/2022_202 Supplying approve light duty C.I cover and frame to be reconveying to size chamber and dept plastering inside we, installing and testing 1:1.5:3, 150x150m over the chamber	ed make PVC gu with frames 30 not less than2. the above me h upto 60cm,11 with CM 1:3,12m ng approved ma nmm,top with Cl including cost of	Ommx300m 7kg (CI MH ntioned iten 5 thk brick of m thk with a ake PVC gul grating abo	m size(insid cover and ns and conswall in CM 1 neat ceme ly trap with ove the PVC	e) the weight frame as p structing 30 1:6 on a four nt flushing of 160mm outled gulley trap	nt of cover the IS:1726 Demx30cm Indation of Facoat and conet (Fabricate and light d	o be not lesson obe not lesson obe not lesson object the second of the second object to be second object to second object object object to second object object object to second object	s than4. Iled of segully to the gully to th
	by Engineer-in- Ch	4*3*1			J 10	Š.	12.000	
	Toilet	4*3*1					12.000	
	wash basin	4*3*1	1000				12.000	
	Wdoii bdoiii	Other Er	ngineeri	ng Orga	anisa t io	Ouantity	36.000 ea	ch
		DI			otal Deducte	_	0.000 eac	
						al Quantity	36.000 ea	
			Say 3	86.000 each	@ Rs 3020	.69 / each	Rs 108	3744.84
29	18.18.3 Providing and fixing complete:25 mm	•	orass) of ap	proved qua	ility, High o	r low press	ure, with pl	astic flo
29	Providing and fixing	•	orass) of ap	proved qua			sure, with pl	astic flo
29	Providing and fixing	nominal bore	orass) of ap		Tota	al Quantity	5.000 5.000 eac	h
29	Providing and fixing	nominal bore	orass) of ap			al Quantity	5.000	h
29	Providing and fixing	nominal bore	orass) of ap		Tota	al Quantity	5.000 5.000 eac	h h
29	Providing and fixing	nominal bore			Total Deducte	al Quantity d Quantity al Quantity	5.000 eac 0.000 eac 5.000 eac	h h
29	Providing and fixing	5	Sa	To y 5.000 eacl	Total Deducte Net Total	al Quantity d Quantity al Quantity 79 / each	5.000 5.000 eac 0.000 eac 5.000 eac Rs 23	h h h 318.95
	Providing and fixing complete:25 mm in the second s	5	Sa	To y 5.000 eacl	Total Deducte Net Total	al Quantity d Quantity al Quantity 79 / each	5.000 5.000 eac 0.000 eac 5.000 eac Rs 23	h h h 318.95

				To	otal Deducte	ed Quantity	0.000 ead	-h
						al Quantity	5.000 ead	
			Cov	y 5.000 eacl				170.75
31	18.48 Providing and placir with cover and suita pipes but without fit	able locking a	(at all floor le	evels) polye and making	thylene wat	ter storage t	ank :ISI 127	701 marked
	P P	1	12000.000				12000.000	
					Tot	al Quantity	12000.000) Litre
				To	tal Deducte	ed Quantity	0.000 Litr	е
			100	60.	Net Tot	al Quantity	12000.000) Litre
			Say 1	2000.000 Li	tre @ Rs 10	0.37 / Litre	Rs 12	4440.00
SI No	Description	No	0	В	D	CF	Quantity	Remark
			4 sept	ic tank	10			
	roads, flood banks, and lift up to 1.5 m:	_	The second second	ng Orga	anisatio	ons	96.000 cu	
				To	otal Deducte	al Quantity ed Quantity	0.000 cur	
					Net Tot	al Quantity	96.000 cu	ım
			Sa	y 96.000 cui	m @ Rs 879	9.03 / cum	Rs 84	1386.88
2	4.1.8 Providing and laying shuttering - All work nominal size)			•	-	•		•
	рсс	2	1.500				3.000	
					Tot	al Quantity	3.000 cur	n
				To	tal Deducte	ed Quantity	0.000 cur	n
					Net Tot	al Quantity	3.000 cur	n
			Say	y 3.000 cum	@ Rs 681	4.89 / cum	Rs 20)444.67
3	5.1.2 Providing and laying centering, shuttering	•					_	

	base slab	2	1.500				3.000	
	cover slab	2	1.500				3.000	
					Т	otal Quantity	6.000 cun	n
				To	otal Dedu	cted Quantity	0.000 cun	n
					Net T	otal Quantity	6.000 cun	n
			Sa	y 6.000 cum	@ Rs 90)85.14 / cum	Rs 54	510.84
4	5.2.2 Reinforced cement count and string courses, firexcluding cost of cenus graded stone aggre	llets, column tering, shutte	s, pillars, pi ring, finishir	iers, abutme	nts, post	s and struts e	tc. up tot flo	or five l
	side walls	2	5.000		-		10.000	
		1	300	K. V	7 17	otal Quantity	10.000 cu	ım
				To	tal Dedu	cted Quantity	0.000 cun	n
		155			Net T	otal Quantity	10.000 cu	ım
		400	Say	10.000 cum	@ Rs 109	954.04 / cum	Rs 10	9540.40
5	5.22.6							
5	5.22.6 Steel reinforcement binding all complete steel bars	ITHOY HY	101110011		0101001	1 (10 () =		
5	Steel reinforcement binding all complete	upto plinth l	evelThermo		cally Trea	1 (10 () =	rade Fe-50	0D or n
5	Steel reinforcement binding all complete	upto plinth l	evelThermo	o - Mechanio	cally Trea	ated bars of g	2100.000	0D or n
5	Steel reinforcement binding all complete	upto plinth l	evelThermo	o - Mechanio	Total Deduc	otal Quantity	2100.000 2100.000	OD or n kilograr gram
5	Steel reinforcement binding all complete	upto plinth l	evelThermo	o - Mechanio	tal Deduc	otal Quantity otal Quantity otal Quantity	2100.000 2100.000 0.000 kilo 2100.000	0D or n kilograr gram kilograr
6	Steel reinforcement binding all complete	upto plinth l	1050.000 1050.000 Say 2100.00	To 00 kilogram (tal Deduc	otal Quantity otal Quantity otal Quantity	2100.000 2100.000 0.000 kilo 2100.000	0D or n kilograr gram kilograr
	Steel reinforcement binding all complete steel bars 13.3.1	upto plinth l	1050.000 1050.000 Say 2100.00	To 00 kilogram (tal Deduc	otal Quantity otal Quantity otal Quantity	2100.000 2100.000 0.000 kilo 2100.000	0D or n kilograr gram kilograr
	Steel reinforcement binding all complete steel bars 13.3.1 20 mm cement plaste	upto plinth le	1050.000 1050.000 Say 2100.00	To 00 kilogram (tal Deduc	otal Quantity otal Quantity otal Quantity	2100.000 2100.000 0.000 kilo 2100.000 Rs 20	0D or n kilograr gram kilograr
	Steel reinforcement binding all complete steel bars 13.3.1 20 mm cement plaste wall plastereing	upto plinth legal 2 2 ar of mix:1:4 (** 76	1050.000 1050.000 Say 2100.00	To 00 kilogram (really Treated and Treated Deduction Net To Rs 98.3	otal Quantity otal Quantity otal Quantity	2100.000 2100.000 0.000 kilo 2100.000 Rs 20	kilograr gram kilograr 6430.00
	Steel reinforcement binding all complete steel bars 13.3.1 20 mm cement plaste wall plastereing	upto plinth legal 2 2 ar of mix:1:4 (** 76	1050.000 1050.000 Say 2100.00	To Oo kilogram (really Treated and	otal Quantity otal Quantity otal Quantity otal Quantity otal Quantity	2100.000 2100.000 0.000 kilo 2100.000 Rs 200 76.000 11.000	kilograr gram kilograr 6430.00
	Steel reinforcement binding all complete steel bars 13.3.1 20 mm cement plaste wall plastereing	upto plinth legal 2 2 ar of mix:1:4 (** 76	1050.000 1050.000 Say 2100.00	To Oo kilogram (Net T Rs 98.3	otal Quantity otal Quantity otal Quantity otal Quantity otal Quantity otal Quantity	76.000 11.000 sq	kilograr gram kilograr 6430.00
	Steel reinforcement binding all complete steel bars 13.3.1 20 mm cement plaste wall plastereing	upto plinth legal 2 2 ar of mix:1:4 (** 76	1050.000 Say 2100.00	To Oo kilogram (Net Total Deduction Net Total Deduction Total Deduction Net Total	otal Quantity otal Quantity otal Quantity otal Quantity otal Quantity otal Quantity otal Quantity otal Quantity	76.000 11.000 87.000 sqn 87.000 sqn	kilograr gram kilograr 6430.00

	side wall of soak pit	10							10.000	
	Old Wall C. Coall P.		1			Tot	tal Qua	ntitv	10.000 so	am
				T	otal l		ed Qua		0.000 sqr	
							tal Qua		10.000 so	
			Sa	y 10.000 so						993.70
8	19.19.1.1 Providing and fixing i approved quality.L D	•							•	shape a
	approvou quamy.	2					Trair Giri		2.000	
						Tot	⊥ tal Qua	ntity	2.000 ea	ch
			se.	- A	otol I				0.000 ea	
			- J/M				ed Qua			
		-		0.000	$\overline{}$		tal Qua		2.000 ea	
SI No	Description	No	Say	2.000 each	1 @ F	RS 1446	c.54 / ea		Quantity	893.08 Remark
31110	•	D 102		TAIN A		\sim		'1	Quantity	Kemark
1	2.3.1 Banking excavated earliayer with 1/2 tonne ropower roller of minimulanks, and guide banks	rth in layers ller, or woo im 8 tonnes	s not exceed oden or stee s and dressi	el rammers, ing up, in e	in de , and emba	epth, br I rolling ankmen	eaking g every its for r	3rd a	ind top-mo	st layer w
1	2.3.1 Banking excavated earlayer with 1/2 tonne ropower roller of minimu	rth in layers ller, or woo im 8 tonnes	s not exceed oden or stee s and dressi	ling 20 cm el rammers, ing up, in e n and lift u	in de , and emba p to	epth, br I rolling ankmen 1.5 m	eaking g every its for r All kind tal Qua	3rd a coads, ds of s	ind top-mo	st layer w ks, margir um
1	2.3.1 Banking excavated earlayer with 1/2 tonne ropower roller of minimu	rth in layers iller, or woo im 8 tonnes ss etc., lead	s not exceed oden or stee s and dressi dup to 50 n	ling 20 cm el rammers, ing up, in e n and lift u	in de, and emba	epth, br I rolling ankmen 1.5 m : Tot Deducte	eaking g every its for r All kind tal Qua	3rd a roads, ds of s	nd top-mo flood bank soil 10.000	st layer wks, margin
1	2.3.1 Banking excavated earlayer with 1/2 tonne ropower roller of minimu	rth in layers iller, or woo im 8 tonnes ss etc., lead	s not exceed oden or stee s and dress d up to 50 n	ling 20 cm el rammers, ing up, in e n and lift u	in de , and emba p to otal l	epth, br I rolling ankmen 1.5 m : To Deducte	eaking g every its for r All kind tal Qual ed Qual tal Qual	3rd a roads, ds of s	10.000 cu	st layer wks, margin
2	2.3.1 Banking excavated earlayer with 1/2 tonne ropower roller of minimu	ion by medit exceeding to 1.5	s not exceed oden or steed and dress dup to 50 m 10.000 Say Chanical me of 1.5 m in wind me of m, includir	ling 20 cm el rammers, ing up, in e n and lift u y 10.000 cu ans (Hydra vidth or 10	in de, and and p to otal I I I I I I I I I I I I I I I I I I I	epth, brid rolling ankmen 1.5 m : Total Deducte Net Total Rs 55 excava on plathe excava	eaking gevery ats for recall Rind and Quartal	ard a roads, ds of some of the contity of the country of the count	10.000 cu 10.000 cu 10.000 cu 10.000 cu Rs 5	st layer w ks, margin um 5538.90 In foundati of sides a
	2.3.1 Banking excavated earlayer with 1/2 tonne ropower roller of minimulants, and guide banks, and guide banks. 2.8.1 Earth work in excavate trenches or drains (no ramming of bottoms, limited)	ion by medit exceeding to 1.5	s not exceed oden or steed and dress dup to 50 m 10.000 Say Chanical me of 1.5 m in wind me of m, includir	ling 20 cm el rammers, ing up, in e n and lift u y 10.000 cu ans (Hydra vidth or 10	in de, and and p to otal I I I I I I I I I I I I I I I I I I I	epth, brid rolling ankmen 1.5 m : Total Deducte Net Total Rs 55 excava on plathe excava	eaking gevery ats for recall Rind and Quartal	ard a roads, ds of some of the contity of the country of the count	10.000 cu 10.000 cu 10.000 cu 10.000 cu Rs 5	st layer w ks, margin um 5538.90 In foundati of sides a
	2.3.1 Banking excavated earlayer with 1/2 tonne ropower roller of minimulants, and guide banks, and guide banks. 2.8.1 Earth work in excavate trenches or drains (no ramming of bottoms, limited)	ion by med t exceeding ift up to 1.5	s not exceed oden or steed and dress dup to 50 m 10.000 Say Chanical me of 1.5 m in with a lead of 5	ling 20 cm el rammers, ing up, in e n and lift u y 10.000 cu ans (Hydra vidth or 10	in de, and and p to otal I I I I I I I I I I I I I I I I I I I	epth, brid rolling ankmen 1.5 m : Tot Deducte Net Tot Procession places of soil	eaking gevery ats for recall Rind and Quartal	ard a roads, ds of solution of the control of the c	10.000 cu 10.000 cu 10.000 cu 10.000 cu Rs 5	st layer w ks, margin um 5538.90 In foundati of sides a al of surpl
	2.3.1 Banking excavated earlayer with 1/2 tonne ropower roller of minimulants, and guide banks, and guide banks. 2.8.1 Earth work in excavate trenches or drains (no ramming of bottoms, limited)	ion by med t exceeding ift up to 1.5	s not exceed oden or steed and dress dup to 50 m 10.000 Say Chanical me of 1.5 m in with a lead of 5	ling 20 cm el rammers, ing up, in e n and lift u y 10.000 cu ans (Hydra yidth or 10 ng getting of	in de, and p to otal I um @	epth, brid rolling ankmen 1.5 m : Total Peducte Net Total Percava on plathe excava of soil	eaking gevery ats for recall Rind atal Quartal	antity ntity ntity ntity nanua uding soil a	10.000 cu 10.000 cu 10.000 cu 10.000 cu 10.000 cu 10.000 cu 10.000 cu Rs 5	st layer wks, marginum state of surplum um state of surplum um
	2.3.1 Banking excavated earlayer with 1/2 tonne ropower roller of minimulants, and guide banks, and guide banks. 2.8.1 Earth work in excavate trenches or drains (no ramming of bottoms, limited)	ion by med t exceeding ift up to 1.5	s not exceed oden or steed and dress dup to 50 m 10.000 Say Chanical me of 1.5 m in with a lead of 5	ling 20 cm el rammers, ing up, in e n and lift u y 10.000 cu ans (Hydra yidth or 10 ng getting of	in de, ancemba p to otal I um @ aulic sqm out tl nds c	epth, brid rolling ankmen 1.5 m : Tot Deducte Net Tot Percent	eaking gevery ats for recall Rind at Quartal Q	antity ntity ntity ntity nanua uding soil a	nd top-mo flood bank soil 10.000 10.000 cu 10.000 cu 10.000 cu Rs 5 al means in dressing of and disposa 90.000 90.000 cu	st layer w ks, margir um 538.90 In foundati of sides a al of surpl um m
	2.3.1 Banking excavated earlayer with 1/2 tonne ropower roller of minimulants, and guide banks, and guide banks. 2.8.1 Earth work in excavate trenches or drains (no ramming of bottoms, limited)	ion by med t exceeding ift up to 1.5	s not exceed oden or steed and dress dup to 50 m 10.000 Sathanical me of 1.5 m in win a lead of 5 m, including a lead of 5 m.	ling 20 cm el rammers, ing up, in e n and lift u y 10.000 cu ans (Hydra yidth or 10 ng getting of	in de, ancemba p to otal I um @ aulic sqm out tl nds c	epth, brid rolling ankmen 1.5 m : Total Deducte Net Total Project Soil	eaking gevery ats for recall Rind Qualed Qua	antity ntity ntity ntity nanua uding soil a ntity ntity	10.000 cu 10.000 cu 10.000 cu 10.000 cu 10.000 cu 10.000 cu 10.000 cu 10.000 cu 10.000 cu 10.000 cu 10.000 cu 10.000 cu 10.000 cu 10.000 cu 10.000 cu	st layer w ks, margir um 538.90 In foundati of sides a al of surpl um m

	and lift up to 1.5 m.						
		1	72.000			72.000	
				Tota	al Quantity	72.000 cu	ım
				Total Deducte	d Quantity	0.000 cun	n
				Net Tota	al Quantity	72.000 cu	ım
			Say 72.000	cum @ Rs 258	.57 / cum	Rs 18	617.04
4	2.28.1 Surface dressing of deep and disposal o	•	•	•	•		ding 15
		1	100.000			100.000	
			E. S. William	Tota	al Quantity	100.000 s	qm
				Total Deducte	d Quantity	0.000 sqn	n
		Ck.		Net Tota	al Quantity	100.000 s	qm
			Say 100.00	00 sqm @ Rs 28	.68 / sqm	Rs 2	868.00
	nominal size)		ngineering O		7	0.000	
						9.000	
			K	Tota	al Quantity	9.000 cun	n
		Γ.	KII	Total Deducte			
		Ρ.	KII	Total Deducte		9.000 cun	n
		<u>P</u>	Say 9.000	Total Deducte	d Quantity	9.000 cun 0.000 cun 9.000 cun	n n
6	4.1.10 Providing and laying shuttering - All work omm nominal size)	•	cement concrete of sp	Total Deducte Net Total cum @ Rs 7990 Decified grade e	d Quantity al Quantity .86 / cum	9.000 cun 0.000 cun 9.000 cun Rs 71	n 917.74 entering
6	Providing and laying shuttering - All work	•	cement concrete of sp	Total Deducte Net Total cum @ Rs 7990 Decified grade e	d Quantity al Quantity .86 / cum	9.000 cun 0.000 cun 9.000 cun Rs 71	n 917.74 entering
6	Providing and laying shuttering - All work	up to plinth	cement concrete of spleevel:1:5:10 (1 cemer	Total Deducte Net Total cum @ Rs 7990 pecified grade ent: 5 coarse san	d Quantity al Quantity .86 / cum	9.000 cun 0.000 cun 9.000 cun Rs 71 e cost of ce	n 917.74 entering ggregat
6	Providing and laying shuttering - All work	up to plinth	cement concrete of spleevel:1:5:10 (1 cemer	Total Deducte Net Total cum @ Rs 7990 pecified grade ent: 5 coarse san	d Quantity al Quantity al Quantity as a Company as a Comp	9.000 cun 0.000 cun 9.000 cun Rs 71 e cost of ce led stone ag	n 917.74 entering
6	Providing and laying shuttering - All work	up to plinth	cement concrete of spleevel:1:5:10 (1 cemer	Total Deducte Net Total cum @ Rs 7990 Decified grade ent: 5 coarse san Total Total Deducte	d Quantity al Quantity al Quantity as a Company as a Comp	9.000 cun 0.000 cun 9.000 cun Rs 71 e cost of ce led stone ag 29.000 29.000 cu	n 917.74 entering ggregat

	columns, etc for mass	concrete					
		1	156.000			156.000	
				Tota	I Quantity	156.000 s	qm
				Total Deducted	d Quantity	0.000 sqn	1
				Net Tota	l Quantity	156.000 s	qm
			Say 156.0	000 sqm @ Rs 335	.31 / sqm	Rs 52	308.36
8	5.9.2 Centering and shutter attached pilasters, bu	_	-		for:Walls (a	any thicknes	s) includi
		1	700.000			700.000	
			18-8	Tota	l Quantity	700.000 s	qm
			1/100	Total Deducted	d Quantity	0.000 sqn	1
		-	53 W	Net Tota	l Quantity	700.000 s	qm
		60	Say 700.0	000 sqm @ Rs 717	.20 / sqm	Rs 502	2040.00
	(Other E	ngineering	O15ambano	l Quantity	27.000 sq	
		1	27.000	544		27.000	
			Ď T	Total Deducted	d Quantity	0.000 sqn	า
		P	RI	Net Tota	I Quantity	27.000 sq	m
			Say 27 (200 @ D- 040			
				000 sqm @ Rs 649	.82 / sqm	Rs 17	545.14
10	5.9.6 Centering and shutte Abutments, Posts ar	J	•	·	•		
10	Centering and shutte	J	•	·	•		
10	Centering and shutte	nd Struts	ing strutting, etc	and removal of	•	olumns, Pil	lars, Pie
10	Centering and shutte	nd Struts	ing strutting, etc	and removal of	form for:C	olumns, Pil	lars, Pie
10	Centering and shutte	nd Struts	ing strutting, etc	and removal of Total	form for:C	50.000 50.000 sq	lars, Pie
10	Centering and shutte	nd Struts	ing strutting, etc	and removal of Total	form for:C Il Quantity Il Quantity Il Quantity	50.000 50.000 sq 0.000 sqn 50.000 sq	lars, Pie
10	Centering and shutted Abutments, Posts are 5.22.6 Steel reinforcement for the short of the short	ond Struts 1 for R.C.C w	50.000 Say 50.000	Total Deducted Net Total 000 sqm @ Rs 863	form for:C Il Quantity Id Quantity Il Quantity Il Quantity Il Quantity Il Ouantity	50.000 50.000 sq 0.000 sq 50.000 sq Rs 43	m m 182.00
	Centering and shutted Abutments, Posts and Shuttering and Shutteri	ond Struts 1 for R.C.C w	50.000 Say 50.000	Total Deducted Net Total 000 sqm @ Rs 863	form for:C Il Quantity Id Quantity Il Quantity Il Quantity Il Quantity Il Ouantity	50.000 50.000 sq 0.000 sq 50.000 sq Rs 43	m m 182.00

				То	tal Deducte	d Quantity	0.000 kilo	gram
					Net Tota	al Quantity	15600.000) kilogram
		Sa	ay 15600.00	0 kilogram @	® Rs 98.30	/ kilogram	Rs 153	3480.00
12	5.23 Smooth finishing of the sand).	exposed su	urface of RC	C work with	6mm thick	cement mor	tar 1:3 (cer	nent : 3 fine
		1	20.000				20.000	
					Tota	al Quantity	20.000 sq	ım
				То	tal Deducte	d Quantity	0.000 sqn	n
	Net Total Quantity 20							lm
			Sa	y 20.000 sqr	m @ Rs 267	7.59 / sqm	Rs 5	351.80
	including pumping of cand reinforcement, incretard setting of concretengineer - in-charge. It cement used as per defended as p	cluding adm ete, improve Note:- Ceme	nixtures in r workability ent content payable or 156.000	ecommende without impa considered recoverable	ed proportional proportion in this item e separately annual control tall Deducte Net Total	ons as per of the and durantis @ 330 kg. All work upon all Quantity all Quantity	IS: 9103 to bility as per g/ cum. Except plinth le 156.000 c 0.000 cun 156.000 c	accelerate. direction of cess or less vel
14	5.33.2 Providing and laying in position machine batched and machine mixed design mix M-25 grade cemen concrete for reinforced cement concrete work, using cement content as per approved design mix including pumping of concrete to site of laying but excluding the cost of centering, shuttering, finishing and reinforcement, including admixtures in recommended proportions as per IS: 9103 to accelerate retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer - in-charge. Note:- Cement content considered in this item is @ 330 kg/ cum. Excess or less cement used as per design mix is payable or recoverable separately. All work above plinth level upto floo V level							design mix. ng, finishing accelerate. direction of cess or less
		1	55.000				55.000	
					Tota	al Quantity	55.000 cu	ım
				То	tal Deducte	d Quantity	0.000 cun	n
					Net Tota	al Quantity	55.000 cu	ım
			Say 5	5.000 cum (@ Rs 11065	5.64 / cum	Rs 608	8610.20

	5.35 Add for using extra therein	cement in th	ne items of design mix	over and abo	ve the spe	ecified ceme	nt conten
		1	60.000			60.000	
				Total	Quantity	60.000 quir	ntal
			-	Total Deducted	Quantity	0.000 quint	al
				Net Total	Quantity	60.000 quir	ntal
			Say 60.000 quinta	al @ Rs 792.52	/ quintal	Rs 475	51.20
16		above plinth	vork including straighten level.Thermo - Mecha	-	• .	rade Fe-500	
		1	5500.000			5500.000	
					Quantity	5500.000 k	g
		-61		Total Deducted	Quantity	0.000 kg	
		18	A NEWS	Net Total	Quantity	5500.000 k	g
		4.61	Say 5500.	000 kg @ Rs 98	3.30 / kg	Rs 5406	550.00
		0 1 -	th in super structure and sand)eering Or		•	loor V level i	n:Ceme
			33.440	† `		20.000	
						33.440	
				Total	Quantity	33.440 58.440 cum	1
				Total Total Deducted	Quantity Quantity		1
					Quantity	58.440 cum	
				Total Deducted	Quantity Quantity	58.440 cum	1
18	concrete 1:6:12 (1 ce	ement : 6 coa		Net Total Met Total Met Total Met Total Met Total Met Total Met Total	Quantity Quantity 03 / cum	58.440 cum 0.000 cum 58.440 cum Rs 5008	n 332.55 th ceme
18	Random rubble mas	ement : 6 coa	Say 58.440 cu ard stone in foundatio arse sand : 12 graded s	Net Total Met Total Met Total Met Total Met Total Met Total Met Total	Quantity Quantity 03 / cum	58.440 cum 0.000 cum 58.440 cum Rs 5008	n 332.55 th ceme
18	Random rubble mas	ement : 6 coa ortar 1:6 (1 c	Say 58.440 cu ard stone in foundatio arse sand : 12 graded s ement : 6 coarse sand)	Net Total Met Total m @ Rs 8570.0 n and plinth incitone aggregate	Quantity Quantity 03 / cum	58.440 cum 0.000 cum 58.440 cum Rs 5008 velling up with pminal size) up	n 332.55 th ceme
18	Random rubble mas	ement : 6 coa ortar 1:6 (1 c	Say 58.440 cu ard stone in foundatio arse sand : 12 graded s ement : 6 coarse sand) 2.000	Net Total Met Total m @ Rs 8570.0 n and plinth incitone aggregate	Quantity Quantity 03 / cum cluding level 20 mm no	58.440 cum 0.000 cum 58.440 cum Rs 5008 velling up with pminal size) u 2.000	n 332.55 th ceme
18	Random rubble mas	ement : 6 coa ortar 1:6 (1 c	Say 58.440 cu ard stone in foundatio arse sand : 12 graded s ement : 6 coarse sand) 2.000	Net Total Met Total m @ Rs 8570.0 n and plinth incitone aggregate Total	Quantity Quantity O3 / cum cluding level 20 mm no	58.440 cum 0.000 cum 58.440 cum Rs 5008 velling up with pminal size) u 2.000 2.000 cum	n 332.55 th ceme
18	Random rubble mas	ement : 6 coa ortar 1:6 (1 c	Say 58.440 cu ard stone in foundationse sand : 12 graded sement : 6 coarse sand)	Total Deducted Net Total Im @ Rs 8570.0 In and plinth incitone aggregate Total Total Deducted	Quantity Quantity O3 / cum cluding level 20 mm no	58.440 cum 0.000 cum 58.440 cum Rs 5008 velling up with pminal size) u 2.000 2.000 cum 0.000 cum	n 332.55 th ceme up to plin

		1	2680.000				2680.000	
					Tota	al Quantity	2680.000	kg
				To	otal Deducte	<u> </u>	0.000 kg	
					Net Tota	al Quantity	2680.000	kg
			Say 26	80.000) kg @ Rs 1	54.17 / kg	Rs 41	3175.60
20	13.1.2 12 mm cement plaste	er of mix:1:6	(1 cement : 6 fine	sand).				
		1	255.000				255.000	
			JAGH.		Tota	al Quantity	255.000 s	sqm
		-	£ 2 1111	To	otal Deducte	d Quantity	0.000 sqr	n
		6		K	Net Tota	al Quantity	255.000 s	sqm
		18	Say 255.0)00 sqı	m @ Rs 299	.25 / sqm	Rs 76	308.75
21	13.2.2 15 mm cement plaste	er on the rou	gh side of single o	half b	rick wall of n	nix:1:6 (1 c	ement : 6 fir	ne sand)
		1	255.000	227			255.000	
		Other E	ngineering	Orga	anisa Tet a	al Quantity	255.000 s	sqm
			DI	To	otal Deducte	d Quantity	0.000 sqr	n
			<u>K</u>		Net Tota	al Quantity	255.000 s	sqm
			Say 255.0	000 sqı	m @ Rs 344	.67 / sqm	Rs 87	7890.85
22	13.52.1 Finishing with Epo manufacturer's specifisteel work	• • • •		•				
		1	550.000				550.000	
					Tota	al Quantity	550.000 s	qm
				To	otal Deducte	d Quantity	0.000 sqr	n
					Net Tota	al Quantity	550.000 s	sqm
			Say 550.0	000 sqı	m @ Rs 223	.32 / sqm	Rs 12	2826.00
23	13.48A.1 Finishing walls with resistance as per IS	15489:200	•	esista	nce, dirt res	sistance ex	terior paint	of requ

					I						
		1	175.000				175.000				
					Tota	al Quantity	175.000 s	qm			
				То	tal Deducte	d Quantity	0.000 sqm	1			
					Net Tota	al Quantity	175.000 s	qm			
			Say	175.000 sqr	m @ Rs 172	.13 / sqm	Rs 30	122.75			
24	od78676/2022_2023 Providing and laying far lawns, drive ways or lig table vibratory method bed of 6mm metal, corbedding layer ber required size and pmm thick C.C. paver b	ght traffic pausing PU m mpacting and agh vibratory pattern, finis	arking etc, conould, laid in nd br>property compactions shing etc. co	f required s er embeddir by using p omplete all a	trength, d colour & p ng/laying of late vibrator as per direc	ethickness & attern over inter locking and tion of Engi	& size/ shap 50mm thick g paver bloo atting of pave neer-in-Cha	e, made b compacte cks into th er blocks a			
		1	100.000				100.000				
		6.0		K. K	Tota	al Quantity	100.000 s	qm			
				To	otal Deducte	d Quantity	0.000 sqm				
		151			Net Tota	al Quantity	100.000 s	qm			
	1		Say 1	00.000 sqm	@ Rs 1058	.07 / sqm	Rs 105	807.00			
SI No	Description	No	L	В	D	CF	Quantity	Remark			
1	(exceeding 30 cm in d	Earth work in excavation by mechanical means (Hydraulic excavator)/manual means over area (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plan) including disposal of excavate earth, lead up to 50 m and lift up to 1.5 m, disposed earth to be levelled and neatly dressed.All kinds									
		180					180.000				
					Tota	al Quantity	180.000 c	um			
				То	tal Deducte	d Quantity	0.000 cum	1			
					Net Tota	al Quantity	180.000 c	um			
			Say	180.000 cur	m @ Rs 214	.03 / cum	Rs 38	525.40			
2	_	2.25 Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundation etc. in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 r									
		30					30.000				
					Tota	al Quantity	30.000 cu	m			
				To	Tota otal Deducte	· · · · · · · · · · · · · · · · · · ·	30.000 cur				

				Net Tota	al Quantity	30.000 cu	m
			Say 30.000 cu	ım @ Rs 258	.57 / cum	Rs 77	757.10
3	2.26.1 Extra for every acmaterials.All kinds		5 m or part there of in	excavation	/ banking	excavated	or stacke
		102				102.000	
				Tota	al Quantity	102.000 c	um
			Te	otal Deducte	d Quantity	0.000 cum	1
				Net Tota	al Quantity	102.000 c	um
			Say 102.000 cu	ım @ Rs 106	.37 / cum	Rs 10	849.74
	•	rk up to plinth le	ement concrete of specevel:1:5:10 (1 cement :	_	_	ded stone ag	•
		9		1-21	i.	9.000	
		165	LA SECTION	-	al Quantity	9.000 cum	
						0.000	
			To the second second	otal Deducted	•	0.000 cum	
		Other Er	Say 9.000 cun	Net Tota	al Quantity	9.000 cum	
5	5.9.1 Centering and shu columns, etc for m	ttering including		Net Tota	al Quantity	9.000 cum Rs 58	480.92
5	Centering and shu	ttering including	Say 9.000 cun	Net Tota	al Quantity	9.000 cum Rs 58	480.92
5	Centering and shu	ttering including	Say 9.000 cun	Net Total	al Quantity	9.000 cum Rs 58	480.92 s, bases
5	Centering and shu	ttering including	Say 9.000 cungineering Org	Net Total	.88 / cum INS for:Foundat	9.000 cum Rs 58 tions, footing	480.92 s, bases o
5	Centering and shu	ttering including	Say 9.000 cungineering Org	Net Total n @ Rs 6497 annsatio oval of form total Total	.88 / cum INS for:Foundat	9.000 cum Rs 58 tions, footing 13.000 13.000 sq	1 480.92 is, bases o
5	Centering and shu	ttering including	Say 9.000 cungineering Org	Net Total n @ Rs 6497 annsatio oval of form total Total Otal Deducted Net Total	al Quantity .88 / cum for:Foundat al Quantity d Quantity al Quantity	9.000 cum Rs 58 ions, footing 13.000 13.000 sq 0.000 sqm 13.000 sq	480.92 s, bases o
6	Centering and shu columns, etc for m 5.9.2 Centering and shu	ttering including ass concrete 13	Say 9.000 cungineering org	Net Total n @ Rs 6497 an Satio oval of form total otal Deducted Net Total m @ Rs 335	al Quantity .88 / cum for:Foundat al Quantity d Quantity al Quantity .31 / sqm	9.000 cum Rs 58 ions, footing 13.000 13.000 sq 0.000 sqm 13.000 sq Rs 43	m m 359.03
	Centering and shu columns, etc for m 5.9.2 Centering and shu	ttering including ass concrete 13	Say 9.000 cungineering org	Net Total n @ Rs 6497 an Satio oval of form total otal Deducted Net Total m @ Rs 335	al Quantity .88 / cum for:Foundat al Quantity d Quantity al Quantity .31 / sqm	9.000 cum Rs 58 ions, footing 13.000 13.000 sq 0.000 sqm 13.000 sq Rs 43	m m 359.03
	Centering and shu columns, etc for m 5.9.2 Centering and shu	ttering including ass concrete 13 ttering including butteresses, pl	Say 9.000 cungineering org	Net Total n @ Rs 6497 an Satio oval of form total otal Deducted Net Total m @ Rs 335 oval of form etc.	al Quantity .88 / cum for:Foundat al Quantity d Quantity al Quantity .31 / sqm	9.000 cum Rs 58 tions, footing 13.000 13.000 sq 0.000 sqm 13.000 sq Rs 43 any thickness	m 359.03
	Centering and shu columns, etc for m 5.9.2 Centering and shu	ttering including ass concrete 13 ttering including butteresses, pl	Say 9.000 cuning or grant strutting, etc. and remove the say 13.000 square strutting, etc. and remove the say 13.000 square strutting, etc. and remove the say 13.000 square strutting, etc. and remove the say 13.000 square strutting, etc. and remove the say 13.000 square strutting, etc. and remove the say 13.000 square strutting, etc. and remove the say 13.000 square strutting, etc.	Net Total n @ Rs 6497 an Satio oval of form total otal Deducted Net Total m @ Rs 335 oval of form etc.	al Quantity .88 / cum .88 / cum for:Foundat al Quantity d Quantity al Quantity .31 / sqm for:Walls (a	9.000 cum Rs 58 ions, footing 13.000 13.000 sq 0.000 sqm 13.000 sq Rs 43 any thickness	m m 359.03
	Centering and shu columns, etc for m 5.9.2 Centering and shu	ttering including ass concrete 13 ttering including butteresses, pl	Say 9.000 cuning or grant strutting, etc. and remove the say 13.000 square strutting, etc. and remove the say 13.000 square strutting, etc. and remove the say 13.000 square strutting, etc. and remove the say 13.000 square strutting, etc. and remove the say 13.000 square strutting, etc. and remove the say 13.000 square strutting, etc. and remove the say 13.000 square strutting, etc.	Net Total n @ Rs 6497 an I Satto oval of form total otal Deducted Net Total m @ Rs 335 oval of form etc. Total otal Deducted	al Quantity .88 / cum .88 / cum for:Foundat al Quantity d Quantity al Quantity .31 / sqm for:Walls (a	9.000 cum Rs 58 ions, footing 13.000 13.000 sqm 13.000 sqm 13.000 sqm 200.000 200.000 s	m m 359.03
	Centering and shu columns, etc for m 5.9.2 Centering and shu	ttering including ass concrete 13 ttering including butteresses, pl	Say 9.000 cuning or grant strutting, etc. and remove the say 13.000 square strutting, etc. and remove the say 13.000 square strutting, etc. and remove the say 13.000 square strutting, etc. and remove the say 13.000 square strutting, etc. and remove the say 13.000 square strutting, etc. and remove the say 13.000 square strutting, etc. and remove the say 13.000 square strutting, etc.	Net Total n @ Rs 6497 an I Satto oval of form total otal Deducted Net Total m @ Rs 335 oval of form etc. Total otal Deducted Net Total	al Quantity .88 / cum .88 / cum for:Foundat al Quantity d Quantity .31 / sqm for:Walls (and Quantity) d Quantity d Quantity	9.000 cum Rs 58 ions, footing 13.000 13.000 sqm 13.000 sqm 13.000 sq Rs 43 any thickness 200.000 200.000 sqm 200.000 sqm 200.000 sqm	m m 359.03

	Centering and shutter landings, balconies a	nd access						
	landinge, saleemee a	37					37.000	
					Tota	al Quantity	37.000 so	mp
				To	tal Deducte	d Quantity	0.000 sqr	n
					Net Tota	al Quantity	37.000 so	mp
			Sa	y 37.000 sqı	m @ Rs 815	5.78 / sqm	Rs 30	0183.86
8	5.9.5 Centering and shutteri girders bressumers an	•	•	etc. and rem	noval of form	n for:Lintels	s, beams, p	linth beam
		25	16	60			25.000	
			110		Tota	al Quantity	25.000 so	mp
			521	To	otal Deducte	d Quantity	0.000 sqr	n
		60	-K. 2	25. X	Net Tota	al Quantity	25.000 so	mp
9	5.22.6 Steel reinforcement for binding all complete u	ipto plinth le	ork including		ing, cutting	, bending,	placing in prade Fe-50	
9	Steel reinforcement for	pto plinth le	ork including	g straighten - Mechanio	ing, cutting cally Treate Tota	, bending, of d bars of g	placing in prade Fe-50 5000.000 5000.000 0.000 kild	oosition ai 00D or mo kilogram
9	Steel reinforcement for	5000	ork including evelThermo	g straighten - Mechanio	ing, cutting cally Treate Tota tal Deducte	, bending, d bars of g last Quantity d Quantity last Quantity last Quantity	placing in prade Fe-50 5000.000 5000.000 0.000 kild	oosition ar 00D or mo kilogram
9	Steel reinforcement for	n position med cement of concrete to soluding admete, improve	Say 5000.00 nachine bate concrete we site of laying intures in reworkability ent content	g straighten - Mechanic - Mechani	ing, cutting cally Treate Total Deducte Net Total Rs 98.30 achine mixed ement containing the costed proportionairing streng in this item a separately	d bars of g d bars of g d Quantity d Quantity d Quantity d Red design ment as per t of centering ons as per th and dura is @ 330 k d.All work up al Quantity	placing in prade Fe-50 5000.000 5000.000 0.000 kild 5000.000 Rs 49 hix M-25 gr approved ng, shutteri IS: 9103 to ability as per g/ cum. Ex pto plinth le 50.000	kilogram kilogram tilogram til
	5.33.1 Providing and laying in concrete for reinforce including pumping of and reinforcement, incretard setting of concrete Engineer - in-charge.	n position med cement of concrete to soluding admete, improve Note:- Cemeesign mix is	Say 5000.00 nachine bate concrete we site of laying intures in reworkability ent content	g straighten - Mechanic - Mechani	ing, cutting cally Treate Tota Tota Net Tota Rs 98.30 achine mixe ement conding the cose ed proportion airing streng in this item e separately Tota otal Deducte	d bars of g d bars of g d Quantity d Quantity d Quantity d Red design ment as per t of centering ons as per th and dura is @ 330 k d.All work up al Quantity	placing in prade Fe-50 5000.000 5000.000 0.000 kild 5000.000 Rs 49 hix M-25 gr approved ng, shutteri IS: 9103 to ability as per g/ cum. Ex pto plinth lef 50.000	kilogram kilogram tilogram til

11	5.35 Add for using extra ce therein	ement in the	e items of	design mix	over and ab	ove the sp	ecified cem	ent conte
		15					15.000	
			1		Tota	al Quantity	15.000 qu	intal
				Т	otal Deducte	d Quantity	0.000 quii	ntal
					Net Tota	al Quantity	15.000 qu	intal
			Say 1	5.000 quintal	@ Rs 792.5	2 / quintal	Rs 11	887.80
12	5.22A.6 Steel reinforcement fo binding all complete at	oove plinth		-		_	grade Fe-50	
		150	11		<u> </u>		150.000	
		-				al Quantity	150.000 k	g
		fi "	1	24/	otal Deducte	<u> </u>	0.000 kg	
		16		0 450.0	Net Tota 00 kg @ Rs	al Quantity	150.000 k	g 745.00
	including making horizo (1 cement : 6 coarse sa	4 300					3.000	mortar
					Tota	al Quantity	3.000 cun	า
				Т	otal Deducte	d Quantity	0.000 cun	า
					Net Tota	al Quantity	3.000 cun	า
			S	Say 3.000 cur	n @ Rs 6284	I.61 / cum	Rs 18	853.83
14	6.34.2 Brick work with non mo 10 average compressi mortar 1:6 (1 cement	ive strengtl	n in super	`	,	ū		•
		3.2					3.200	
					Tota	al Quantity	3.200 cun	า
				Т	otal Deducte	d Quantity	0.000 cun	า
					Net Tota	al Quantity	3.200 cun	า
			S	Say 3.200 cur	n @ Rs 8570	0.03 / cum	Rs 27	424.10
15	9.96.1 Providing and fixing al	luminium s	liding doo	r bolts, ISI m	narked anod	ised (anodi	c coating no	ot less th

	1	1.000
	Total Quantity	1.000 no
	Total Deducted Quantity	0.000 no
	Net Total Quantity	1.000 no
	Say 1.000 no @ Rs 302.70 / no	Rs 302.70
16	9.97.1 Providing and fixing aluminium tower bolts, ISI marked, anodised(anodic coating 10 as per : 1868), transparent or dyed to required colour or shade, wi complete:300x10 mm	•
	1	1.000
	Total Quantity	1.000 no
	Total Deducted Quantity	0.000 no
	Net Total Quantity	1.000 no
	Say 1.000 no @ Rs 137.49 / no	Rs 137.49
17	9.97.4 150x10 mm	4.000
	Other Engineering Organisations Total Quantity	4.000 no
	Total Deducted Quantity	0.000 no
	Net Total Quantity	4.000 no
	Say 4.000 no @ Rs 88.27 / no	Rs 353.08
	9.100.1	
18	Providing and fixing aluminium handles, ISI marked, anodised (anodic coating not as per IS: 1868) transparent or dyed to required colour or shade, with no complete:125 mm	ecessary screws
18	Providing and fixing aluminium handles, ISI marked, anodised (anodic coating not as per IS: 1868) transparent or dyed to required colour or shade, with no complete:125 mm	1.000
18	Providing and fixing aluminium handles, ISI marked, anodised (anodic coating not as per IS: 1868) transparent or dyed to required colour or shade, with no complete:125 mm 1 Total Quantity	1.000 no
18	Providing and fixing aluminium handles, ISI marked, anodised (anodic coating not as per IS: 1868) transparent or dyed to required colour or shade, with no complete:125 mm 1 Total Quantity Total Deducted Quantity	1.000 1.000 no 0.000 no
18	Providing and fixing aluminium handles, ISI marked, anodised (anodic coating not as per IS: 1868) transparent or dyed to required colour or shade, with no complete:125 mm 1 Total Quantity	1.000 no

		1					1.000	
					Tot	al Quantity	1.000 no	
				То	tal Deducte	ed Quantity	0.000 no	
					Net Tot	al Quantity	1.000 no	
				Say 1.00	0 no @ Rs	39.93 / no	Rs :	39.93
20	10.16.1 Steel work in built up to cutting, hoisting, fixing and bolted with special	position an	d applying	a priming co	at of appro	ved steel pr	imer, includ	_
		135					135.000	
			100	.60.	Tot	al Quantity	135.000 k	g
			<i>J1</i> 6	То	tal Deducte	ed Quantity	0.000 kg	
		-	521		Net Tot	al Quantity	135.000 k	g
		6.3	-K 2	Say 135.000	kg @ Rs 1	68.81 / kg	Rs 22	789.35
21	10.19 Providing and fixing mile	d steel rour	nd holding d	own bolts wi	th nuts and	washer plat	es complete	
		20					20.000	
				HE PEN	Tot	al Quantity	20.000 kg	
	0	ther Er	ngineer	ing Or b 9	tal Deducte	ed Quantity	0.000 kg	
			<u> </u>		Net Tot	al Quantity	20.000 kg	
			K	Say 20.00	0 kg @ Rs	98.64 / kg	Rs 19	972.80
22	Providing and laying vitrified floor tiles in different sizes (thickness to be specified by the manufacture with water absorption less than 0.08% and conforming to IS: 15622, of approved make, in all colours ar shades, laid on 20 mm thick cement mortar 1:4(1 cement: 4 coarse sand), including grouting the join with white cement and matching pigments etc., complete. Size of Tile 600 x 600 mm.							colours and
		8					8.000	
					Tot	al Quantity	8.000 sqn	า
				То	tal Deducte	ed Quantity	0.000 sqn	า
					Net Tot	al Quantity	8.000 sqn	1
			Sa	y 8.000 sqm	@ Rs 1766	6.26 / sqm	Rs 14	130.08
23	11.46.2 Providing and laying Vit absorption less than 0. skirting, riser of steps, of grouting the joint with w	08 % and o	conforming thick bed	to I.S. 15622 of cement m	ortar 1:3 (1	ved make, in cement : 3	all colours	& shade, in d), including

			I	T	1		1	
		1					1.000	
					Tota	al Quantity	1.000 sqm	1
				To	otal Deducte	d Quantity	0.000 sqm	1
					Net Tota	al Quantity	1.000 sqm	1
			Sa	y 1.000 sqm	ı @ Rs 1819	9.62 / sqm	Rs 18	319.62
24	12.50 Providing and fixing prapproved by Engineer-per sqm as per IS: 277 polyester top coat 15-2 avoid scratches during by Engineer-in-charge. with EPDM seal, complete purlins, rafters and trus	in-charge) (, in 240 mp 18 microns transportati The sheet s lete upto ar	0.50 mm (+0) a steel grade. Sheet shown and shown and shown shall be fixed by pitch in head and shown shall be fixed by pitch in head and shown shall be fixed by pitch in head and shown shall be fixed by pitch in head and shown shall be fixed by pitch in head and shown shall be fixed by pitch in head and shown shall be fixed by pitch in head and shown shown shown in the shall be	0.05%), tota de, 5-7 micro ould have pr uld be suppl ed using self orizontal/ ve	I coated thic ons epoxy p otective gua ied in single drilling/self ertical or cur	ckness with rimer on both ard film of 2 length upto tapping screwed surface	zinc coating th side of the 5 microns re 12 metre of ews of size (s, excluding	120 grams e sheet and ninimum to as desired 5.5x55mm)
		1	15.000		1		15.000	
		11	Defi	211/A	Tota	al Quantity	15.000 sq	m
		16		To	otal Deducte	d Quantity	0.000 sqm	1
		1444		May X	Net Tota	al Quantity	15.000 sq	m
			Sa	y 15.000 sq	m @ Rs 738	3.69 / sqm	Rs 11	080.35
25	12.51.1 Providing and fixing p coated thickness, zinc coating 120 grams per side of the sheet and complete:Ridges plai	recoated g coating 12 sqm as pe polyeste	0 grams pe r IS: 277, ii r top coat	steel sheet in sqm as pe on 240 mpa s	er IS:mm(+0 steel grade,	essories 0.9 .05%) total 5-7 microns	coated thicks epoxy prin	kness, Zinc ner on both
		1	8.000				8.000	
					Tota	al Quantity	8.000 met	re
				To	otal Deducte	d Quantity	0.000 met	re
					Net Tota	al Quantity	8.000 met	re
			Say	8.000 metre	@ Rs 490.0	02 / metre	Rs 39	20.16
26	13.1.2 12 mm cement plaster of	of mix:1:6 (1	1 cement : 6	ine sand).				
		36					36.000	
					Tota	al Quantity	36.000 sq	m
				To	otal Deducte	d Quantity	0.000 sqm	1
					Net Tota	al Quantity	36.000 sq	m
			Sa	y 36.000 sq	m @ Rs 299	9.25 / sqm	Rs 10	773.00
							•	

27	13.2.2	1 coment : 6 fine cond)
	15 mm cement plaster on the rough side of single or half brick wall of mix:1:6 (31.000
	Total Quan	
	Total Deducted Quant	
	Net Total Quan	ity 31.000 sqm
	Say 31.000 sqm @ Rs 344.67 / sq	m Rs 10684.77
28	13.9.1 Cement plaster 1:3 (1 cement : 3 coarse sand) finished with a floating cocement plaster	oat of neat cement.12 r
	1 152.000	152.000
	Total Quan	ity 152.000 sqm
	Total Deducted Quan	ity 0.000 sqm
	Net Total Quan	ity 152.000 sqm
	Say 152.000 sqm @ Rs 412.13 / sq	m Rs 62643.76
	shade and colour complete, as per manufacturer'sspecification. 1 36.000	36.000
	Other Engineering Organisations Total Quant	
	Total Deducted Quant	
	Net Total Quan	ity 36.000 sqm
	Say 36.000 sqm @ Rs 102.57 / sq	m Rs 3692.52
30	13.61.1 Painting with synthetic enamel paint of approved brand and manufacture to more coats on new work	give an even shade:Two
	1 10.000	10.000
	Total Quant	ity 10.000 sqm
	Total Deducted Quant	ity 0.000 sqm
	Net Total Quant	ity 10.000 sqm
	Say 10.000 sqm @ Rs 143.05 / sq	m Rs 1430.50
31	13.48A.1 Finishing walls with 100% Premium acrylic emulsion paint having VOC leresistance as per IS 15489:2004, Alkali & fungalresistance, dirt resistance shade (Company DepotTinted) with silicon additives. New work (Two or more	exterior paint of requi

	Total RCC steel quantity	1625				14.0	22750.000	
					Tota	al Quantity	22750.000	sqm
				To	tal Deducte	d Quantity	0.000 sqn	า
					Net Tota	al Quantity	22750.000	sqm
			Say 22	750.000 sqr	m @ Rs 172	.13 / sqm	Rs 391	5957.50
32	18.7.5 Providing and fixing Ch water supply, including 1.00 m spacing. This in of joints complete as pe outer dia pipes	all CPVC _l cludes join	plain & bras ting of pipes	s threaded & fittings w	fittings inclu ith one step	ding fixing CPVC solv	the pipe wit	h clamps at and testing
		1	10.000				10.000	
		1	531		Tota	al Quantity	10.000 m	etre
		11	1 1	To	tal Deducte	d Quantity	0.000 met	tre
		150		1911	Net Tota	al Quantity	10.000 m	etre
		104	Say 1	0.000 metre	@ Rs 763.4	14 / metre	Rs 70	634.40
	Providing and fixing Ch water supply including with one step CPVC so Engineer- in-Charge. E	all CPVC p	lain & brass ent, trenchin	threaded fig , refilling	ttings. This & testing of	includes joi	nting of pipe	es & fittings
		1	20.000				20.000	
					Tota	al Quantity	20.000 m	etre
				Тс	tal Deducte	d Quantity	0.000 met	tre
					Net Tota	al Quantity	20.000 m	etre
			Say 2	0.000 metre	@ Rs 631.8	35 / metre	Rs 12	637.00
34	18.17.3 Providing and fixing gunominal bore	ın metal ga	ate valve wi	th C.I. whe	el of approv	ed quality	(screwed e	nd) :40 mm
		1					1.000	
					Tota	al Quantity	1.000 eac	h
				To	tal Deducte	d Quantity	0.000 eac	h
					Net Tota	al Quantity	1.000 eac	h
			Sa	y 1.000 each	n @ Rs 798.	56 / each	Rs 7	98.56
35	18.19.3.1 Providing and fixing g	un metal n	on-return v	alve of app	roved quali	ty (screwed	d end):40 m	nm nominal

	boreHorizontal								
		1					1.000		
					Tota	al Quantity	1.000 eac	h	
				То	tal Deducte	d Quantity	0.000 eac	h	
					Net Tota	al Quantity	1.000 eac	h	
			Sa	y 1.000 each	n @ Rs 932.	72 / each	Rs 9	32.72	
36	21.1.1.2 Providing and fixing all standard tubular section 733 and IS: 1285, fixing gaps at junctions, i.e. Aluminium sections security required including clean screws, all complete a paneling and dash far (minimum thickness of the security of the secur	ns/ appropring with dash at top, bo hall be smoot angle, Aluras per archisteners to	iate Z section fasteners of the total and sooth, rust from the total and tectural drapt be paid for	ns and other of required of ides with refee, straight up beading for wings and the separately)	r sections o dia and size equired EPI t, mitred an or glazing /p he directior	f approved , including DM rubber/ ad jointed n paneling, C.I as of Engine	make conformake conformates mechanicall r. brass/ state eer-in-charg	rming to IS illing up th gasket et y whereve ainless stee ge.(Glazin	
	(IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	1 18 3	35.000		1		35.000		
		1.7	35.000		Total	ol Ougatitu			
		LEAST TO SERVICE STATE OF THE PERSON NAMED IN COLUMN TO SERVICE STATE OF THE PERSON NAMED STATE OF THE PERSON NAMED STATE OF THE PERSON NAMED STATE OF THE PERSON NAME				al Quantity	35.000 kg		
			And the second	10	tal Deducte		0.000 kg		
	Net Total Quantity Other Engineering Organisations							35.000 kg	
		Other Engineering Organisations Say 35.000 kg @ Rs 537.07 / kg							
27	24.4.2.2	ther En	iginiceri	Say 35.000	kg @ Rs 5	37.07 / kg	Rs 18	797.45	
37	21.1.2.2 For shutters of doors,	windows &	ventilators		T	1			
37	21.1.2.2 For shutters of doors, provision for fixing of required (Fittings shall coating 50 micron)	fittings whe	rever requi	including pr	oviding and	fixing hing	es / pivots a	and makir ene gask	
37	For shutters of doors, provision for fixing of required (Fittings shall	fittings whe	rever requi	including pr	oviding and	fixing hing	es / pivots a	and makir ene gask	
37	For shutters of doors, provision for fixing of required (Fittings shall	fittings whe be paid for	rever requii separately)	including pr	oviding and g the cost o tted alumini	fixing hing	es / pivots a bber/ neopr um thicknes	and makir ene gask s of powde	
37	For shutters of doors, provision for fixing of required (Fittings shall	fittings whe be paid for	rever requii separately)	including pr ed including Powder coa	oviding and g the cost o tted alumini	fixing hing of EPDM ru um (minimu	es / pivots a bber/ neopr um thickness 25.000	and makir ene gask s of powde	
37	For shutters of doors, provision for fixing of required (Fittings shall	fittings whe be paid for	rever requii separately)	including pr ed including Powder coa	oviding and g the cost of ted alumini Total tal Deducte	fixing hing of EPDM ru um (minimu	es / pivots a bber/ neopr um thickness 25.000 25.000 kg	and makir ene gask s of powde	
37	For shutters of doors, provision for fixing of required (Fittings shall	fittings whe be paid for	rever requii separately)	including pred including Powder coa	oviding and g the cost of ted alumini Total tal Deducte	fixing hing of EPDM ru um (minimulated) al Quantity d Quantity al Quantity	es / pivots a bber/ neopr um thickness 25.000 25.000 kg 0.000 kg 25.000 kg	and makin ene gaske s of powde	
37	For shutters of doors, provision for fixing of required (Fittings shall	fittings whe be paid for 1 2 mm thick sing to IS: 1 frames with s of Engineer	prelaminate 2823 Grado C.P. brasser - in- Char	red including project including Powder coal To Say 25.000 ed particle be all Type II, if stainless sige.Pre-laming	oviding and g the cost of ted alumini Tota tal Deducte Net Tota kg @ Rs 64 oard flat proposed proposed teel screws	fixing hing of EPDM ru um (minimulated Quantity al Quantity 43.10 / kg essed three fixed in alu etc. comple	es / pivots abber/ neoprum thickness 25.000 25.000 kg 0.000 kg 25.000 kg Rs 16 e layer or grainum doorete as per a	ond makir ene gask s of powd o77.50 raded woo	

	Total C	Quantity	1.200 sqn	า		
	Total Deducted C	Quantity	0.000 sqn	า		
	Net Total C	Quantity	1.200 sqn	า		
	Say 1.200 sqm @ Rs 1174.41	/ sqm	Rs 1	409.29		
39	21.3.2 Providing and fixing glazing in aluminium door, window, ventilator shutters and partitions etc. with EPDM rubber / neoprene gasket etc. complete as per the architectural drawings and the directions of Engineer - in -Charge. (Cost of aluminium snap beading shall be paid in basic item):With float glass panes of 5.50 mm thickness					
	1 3.000		3.000			
	Total C	uantity	3.000 sqn	า		
	Total Deducted C	uantity	0.000 sqn	า		
	Net Total C	Quantity	3.000 sqn	า		
	Say 3.000 sqm @ Rs 1526.00) / sqm	Rs 4	578.00		
40	21.8.1 nullUpto 5 mm depth and 5 mm width					
	1 15.000		15.000			
	Total C	Quantity	15.000 m	etre		
	Other Engineering Organications	0.000 metre				
	Net Total C		15.000 m	etre		
	Say 15.000 metre @ Rs 93.56 /	metre	Rs 1	103.40		
41	19.18.1 Supplying and fixing C.I with out frame for manholes:455 x 610 mm rectal weight of the cover to be no less than 23 kg	ngular C.	I cover (lig	nt duty) th		
	1 2.000		2.000			
	Total C	Quantity	2.000 eac	h		
	Total Deducted C	0.000 eac	h			
	Net Total C	Quantity	2.000 eac	h		
	Say 2.000 each @ Rs 1561.12	Rs 3	122.24			
	Provision for GST payments (in %) @		18.0%			
	Amount reserved for GST payments		18996541.5	i4		
	Total	1	124532883.	54		
	Lumpsum for round off		0.00			
		то	TAL Rs 12	4532883.5		
	F	Rounded	Total Rs 1	2,45,32,88		

Rupees Twelve Crore Forty Five Lakh Thirty Two Thousand Eight Hundred and Eighty Four Only

(Cost Index Applied for this estimate is 35.59%)



CONSTRUCTION OF TRANSLATIONAL RESEARCH CENTRE AT CUSAT THRIKKAKARA CAMPUS

DATA ANALYSIS

Data Analysis

	civil works
1 Specification Code: od71454/2022_2023	

od71454/2022_2023 :Providing and applying Antitermite treatment by injecting chemical emulsion Imidacloprid emulsiable concentrate .075% for pre-constructional treatment and creating a chemical barrier as per IS 6313 (Part II) 2001 for wall trenches, foundation, top surface of plinth filling, foundation of wall and floor, along the external perimeter of the building, etc. complete conforming to manufacturers specification and as directed by the Engineer-in-Charge. (Plinth area only to be measured for the payment)

Rate as per quotation

Code	Description	Unit	Quantity	Rate	Amount
MR	Rate as per quotation	per sqm	1.00000	120.00	120.00
	TOTAL				120.00
	cost fo			m	120.00
	say	2 ESPT 10	L		120.00

Add Water Charges @ 1.0%	1.20
Otada Crohi@15.0% Organisations	18.18
Cost index 35.59 %	0.00
Total with Cost index	139.38
Say	139.38

2 Specification Code: od71457/2022_2023

od71457/2022_2023 :Providing and fixing M.S. Grills of required pattern in frames of windows etc. with M.S. flats, square or round bars etc. including priming coat with approved steel primer all complete.
br>Fixed to steel windows by welding (MR 2020)

Details of cost for a grill 90x120 cm =

1.08 sqm.

MATERIAL:

M.S. bar 16 mm diameter - 11x86cm = 9.46 m.

@ 1.58 kg/m = 14.95 kg +

Add wastage @ 10% = 1.50 kg.

Total = 16.45 kg.

@1.58kg/m = 14.95 kg.Say 0.165 quintal

Code	Description		Unit	Quantity	Rate	Amount
MR	Mild Steel round bar above 12 mm dia Mid steel round bar above 12 mm dia M.S. flat 25x3.15 mm br > 2x120cm = 2.40 m+ 2x90cm = 1.80 m + 1x120cm = 1.20 m + 2x15cm = 0.30m br > Total = 5.70 m br > s.70m @ 0.63kg/m = 3.59kg+ Add wastage @ 10% = 0.36 kg. Total = 3.95 kg. Say 4 kg. or 0.04 quintal		quintal	0.16500	5200.00	858.00
MR	Flats up to 10 mm in thickness		quintal	0.04000	5400.00	216.00
2205	Steel br> Carriage of steel = 0.0205 t Say 0.02 tonne	205 q	tonne	0.02000	92.24	1.84
MR	Sundries	3	L.S	26.91000	2.50	67.28
MR	Sundries Sundries Welding charges Priming coat: Area = 1x0.9x1.2x1=1.08 sqm		L.S	19.76000	2.50	49.40
13.50.3	Rate as per item number13.50.3of SH:Finishing LABOUR:		sqm	1.08000	37.88	40.91
MR	Blacksmith 1st class	327	Day	0.86000	950.00	817.00
MR	Beldar other Engineering	Orga	niDayti	n <u>1</u> 510000	800.00	880.00
	DDI		7 T	TOTA	AL	2930.43
	cost for 18.54 kg					2930.43
	cost for one					158.06
	say					158.06
	A del Wester Observes @ 4.00/	1		1		4 5

Add Water Charges @ 1.0%		1.58
Add CPOH @ 15.0%		23.94
Cost index 35.59 %		0.95
Total with Cost index		184.54
Say		184.54

3 Specification Code: od71458/2022_2023

od71458/2022_2023 :Providing and laying vitrified matt finished floor tiles 1st quality double charged Kajaria or equivalent in different sizes (thickness to be specified by the manufacturer) with water absorption less than 0.08% and conforming to IS : 15622, of approved make, in all colours and shades, laid on 20 mm thick cement mortar 1:4(1 cement : 4 coarse sand), including grouting the joints with epoxy joint filler with spacer bar in equal interval and matching pigments etc. complete as per the direction from the Engineer in charge. Size of Tile 800 x 800 mm.

Details of cost for 1 sqm.

MATERIAL:

Vitrified floor tiles 60x60 cm size = 1.00 sqm

Add for wastage & breakage @ 2.5 % =

0.025 sqm

Total = 1.025 sqm

Code	Description	Unit	Quantity	Rate	Amount
MR	Vitrified matt finished floor tile 60x60 cm	sqm	1.02500	659.72	676.21
9977	Carriage of tiles 20 mm 'thick cement 1:4 (1 cement : 4 coarse sand)	mortar L.S	6.24000	2.00	12.48
3.9	Rate as per item number3.9of SH:Mortars thick cement mortar 1:4(1 cement: coarse s	I cum	0.02400	4010.35	96.25
9999	Sundries Sundries Sundries Cement for slurry over bed @ 3.3 kg	per sqm L.S	3.64000	2.00	7.28
0367	Portland Cement LABOUR:	tonne	0.00330	4940.00	16.30
0123	Mason (brick layer) Ist class	Day	0.20000	738.00	147.60
0115	Coolie coolie coolie coolie 	Day	0.20000	558.00	111.60
9988	Carriage and sundries of cement etc	L.S	26.91000	2.00	53.82
			TOTA	AL	1121.54
	cost for one sqm				
	say				1121.54

Add Water Charges @ 1.0%		11.21
Add CPOH @ 15.0%		169.91
Cost index 35.59 %		184.08
Total with Cost index		1486.76
Say		1486.76

4 Specification Code: od71459/2022_2023

od71459/2022_2023 :Providing and laying vitrified floor tiles 1st quality double charged Kajaria or equivalent in different sizes (thickness to be specified by the manufacturer) with water absorption less than 0.08% and conforming to IS : 15622, of approved make, in all colours and shades, laid on 20 mm thick cement mortar 1:4(1 cement : 4 coarse sand), including grouting the joints with epoxy joint filler with spacer bar in equal interval and matching pigments etc for skirting, risers and threads of stairs etc. complete as per the direction from the Engineer in charge. Size of Tile 800 x 800 mm.

Details of cost for 1 sqm.

MATERIAL:

Vitrified floor tiles 60x60 cm size = 1.00 sqm

Add for wastage & breakage @ 2.5 % =

0.025 sqm

Total = 1.025 sqm

Code	Description		Unit	Quantity	Rate	Amount
8622	Vitrifies floor tile 80x80 cn		sqm	1.02500	850.00	871.25
9977	Carriage of tiles 1:4 (1 cement : 4 coarse s	20 mm 'thick cement mortar and)	L.S	6.24000	2.00	12.48
3.9	Rate as per item number3 thick cement mortar 1:4(1 c	ganisati	0.02400	4010.35	96.25	
9999	Sundries br> Mortar for proceedings of the companies	pointing in white rry over bed @ 3.3 kg per squ	n L.S	3.64000	2.00	7.28
0367	Portland Cement LA	Portland Cement LABOUR:		0.00330	4940.00	16.30
0123	Mason (brick layer) Ist cla	ss	Day	0.20000	738.00	147.60
0115	Coolie		Day	0.20000	558.00	111.60
9988	Carriage and sundries <b< td=""><td>r> of cement etc</td><td>L.S</td><td>26.91000</td><td>2.00</td><td>53.82</td></b<>	r> of cement etc	L.S	26.91000	2.00	53.82
				ТОТ	AL	1316.58
			cost	for one so	ım	1316.58
	say					1316.58
		1				
	Add Wate	r Charges @ 1.0%				13.1

Total with Cost index		2073.45
Say		2073.45

5 Specification Code: od71460/2022_2023

od71460/2022_2023 :Providing and laying antiskid Ceramic glazed floor tiles of size 300x300 mm (thickness to be specified by the manufacturer), of 1st quality conforming to IS : 15622, of approved make, in colours such as White, Ivory, Grey, Fume Red Brown, laid on 20 mm thick cement mortar 1:4 (1 Cement : 4 Coarse sand),using 3mm thick spacers including pointing the joints with approved quality epoxy grout mix of .7kg of organic coated filler of desired shade (.10 kg of hardner and .2 kg of resin per kg)including filling /grouting and finishing

Details of cost for 1 sqm

MATERIAL:

Glazed Ceramic floor tiles 300x300 mm size = 1.00 sqm

Add for wastage & breakage @ 2.5 % =0.025 sqm

Total = 1.025 sqm

Code	Description	Unit	Quantity	Rate	Amount	
7801	Ceramic Glazed Tiles 1st quality 300 x 300 mm in all shades and designs of White, Ivory, grey, Fume Red brown etc.	ganisati	ns 1.02500	209.10	214.33	
9977	Carriage Carriage of tiles20 mm thick cement mortar (1 cement : 4 coarse sand)	:4 L.S	6.24000	2.00	12.48	
3.9	Rate as per item number3.9of SH:Mortars	cum	0.02400	4010.35	96.25	
9999	Sundries Mortar for pointing in white cement Cement f	or L.S	20.20000	2.00	40.40	
0367	Portland Cement LABOUR:	tonne	0.00330	4940.00	16.30	
0123	Mason (brick layer) Ist class	Day	0.20000	738.00	147.60	
0115	Coolie	Day	0.20000	558.00	111.60	
9988	Carriage and sundries including carriage of cement et	c. L.S	26.91000	2.00	53.82	
			TOTA	AL	692.78	
	cost for one sqm					
	say				692.78	
		1	1			
	Add Water Charges @ 1.0%				6.92	

Add CPOH @ 15.0%		104.95
Cost index 35.59 %		286.37
Total with Cost index		1091.04
Say		1091.04

Internal drainage and water supply

1 Specification Code: od71455/2022_2023

od71455/2022_2023 :Suppling and fixing 110 steel gratings

Code	Description	Unit	Quantity	Rate	Amount
MR	110mm steel gratings	each	1.00000	223.60	223.60
			TOTA	\L	223.60
		cost	for one ea	ch	223.60
	say Engine	ering Organisatio	ons		223.60

Add Water Charges @ 1.0%		H	2.23
Add CPOH @ 15.0%)		33.87
Cost index 35.59 %			0.00
Total with Cost index			259.71
Say			259.71

2 Specification Code: od71456/2022_2023

od71456/2022_2023 :Supplying approved make PVC gully trap of size 160 x 110mm and CI grating 150mmx150mm size and light duty C.I cover with frames 300mmx300mm size(inside) the weight of cover to be not less than4.5kg and frame to be not less than2.7kg (CI MH cover and frame as per IS:1726) single sealed of size conveying to size the above mentioned items and constructing 30cmx30cm internal size gully trap chamber and depth upto 60cm,115 thk brick wall in CM 1:6 on a foundation of PCC 1:4:8.100mm thick plastering inside with CM 1:3,12mm thk with a neat cement flushing coat and conveying to site,cleaning

installing and testing approved make PVC gully trap with 160mm outlet(Fabricated), surrounding with CC 1:1.5:3, 150x150mmm, top with CI grating above the PVC gulley trap and light duty CI cover and frame over the chamber including cost of all materials, etc complete as per approved drawing and as directed by Engineer-in- Charge.

Details of cost for one gully trap

Code	Description	Unit	Quantity	Rate		Amount
MR	160x110mm gully trap		1.00000	462	2.30	462.30
MR	C.I. grating 150X150MM	each	1.00000	39	.95	39.95
1352	C.I. Cover and frame 300X300 mm inside	each	1.00000	477	7.00	477.00
9977	Carriage of materialsCement concrete 1:5:10 (1 ceme : 5 fine sand: 10 graded stone aggregate 40 mm nominal size) $0.68 \times 0.68 \times 0.10 \text{ m} = 0.046 \text{cumConcrete}$ around trap $0.30 \times 0.30 \times 0.675 \text{ m} = 0.061 \text{ cumTotal} = 0.107 \text{ cumDeduct}: 0.55/3 \times [0.09 + 0.032 + (0.09 \times 0.032)/2] = 0.008 \text{cum} 3.14/4 \times (0.182) 2 \times 0.70 = 0.018 \text{ cumTotal} = 0.00 \text{ cumNet} quantity = 0.107 \text{ cum} (-) 0.026 \text{ cum} = 0.081 \text{ cum} say 0.08 \text{ cum}$	L.S	4.50000	2.	00	9.00
4.1.11	Rate as per item number4.1.11of SH:Concrete work Brick work with 75 class designation brick in cement mortar 1:4 (1 cement :4 coarse sand)1.66x0.115x0.675 = 0.129 cum say 0.13 cum	cum ganisatio	0.08000 ns	390	5.34	312.43
6.1.1		,		476	5.73	619.55
4.2.3	Rate as per item number4.2.3of SH:Concrete work 12 mm cement plaster 1:3 (1 cement: 3 coarse sand) finished with floating coat of neat cement:[1/2x0.166x(I.20+0.72)] = 0.159 sqm say0.16 sq	cum	0.00800	639	3.80	51.15
13.9.1	Rate as per item number13.9.1of SH:Finishing	sqm	0.30000	261	1.69	78.51
			TOT	AL		2049.89
		cost	cost for one ead			2049.88
	say					2049.88
	, , , , , , , , , , , , , , , , , , , ,	<u> </u>				
	Add Water Charges @ 1.0%					20.49
	Add CPOH @ 15.0%					310.55

Cost index 35.59 %		639.75
Total with Cost index		3020.69
Say		3020.69

APPENDIX B RETAINING AND COMPOUND WALL

1 Specification Code: od78676/2022_2023

od78676/2022_2023 :Providing and laying factory made chamfered edge Cement Concrete paver blocks
br>in footpath, parks, lawns, drive ways or light traffic parking etc, of required strength,
br>thickness & size/ shape, made by table vibratory method using PU mould, laid in
br>required colour & pattern over 50mm thick compacted bed of 6mm metal, compacting and
br>proper embedding/laying of inter locking paver blocks into the bedding layer
br>through vibratory compaction by using plate vibrator, and
br>cutting of paver blocks as per required size and pattern, finishing etc. complete all as per direction of Engineer-in-Charge.
br>80 mm thick C.C. paver block of M-30 grade with approved color design and pattern.

Details of cost for 10.00 sqm.

MATERIALS:

Code	Descrip	otion	er Engineering	Org	Unit	Quantity	Rate	Amount
8785	Interlocking C.C. paver block (80 mm thick, M-30)			sqm	10.00000	470.00	4700.00	
0298	Stone Aggregate(single size): 06 mm nominal size				cum	0.50000	1400.00	700.00
2202	Stone aggregate below 40 mm nominal size			cum	0.50000	103.77	51.89	
0123	Mason (brick layer) Ist class			Day	0.50000	738.00	369.00	
0124	Mason (brick layer)2nd class			Day	0.50000	679.00	339.50	
0114	Beldar				Day	1.00000	558.00	558.00
						TOTA	AL.	6718.39
		cost for 10.0 sqm						6718.39
		cost for one						671.84
		say						671.84

Add Water Charges @ 1.0%

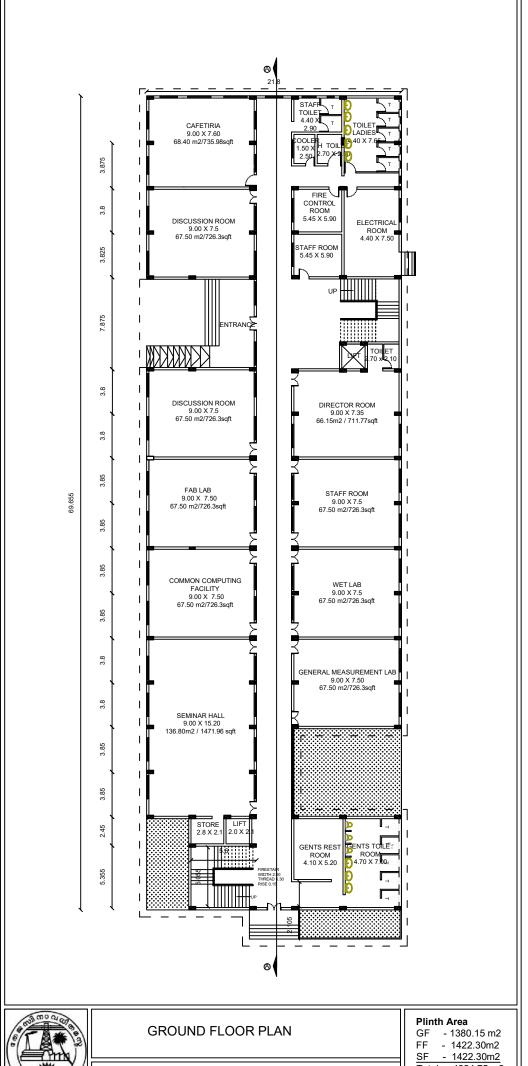
6.71

Add CPOH @ 15.0%		101.78
Cost index 35.59 %		277.72
Total with Cost index		1058.07
Say		1058.07



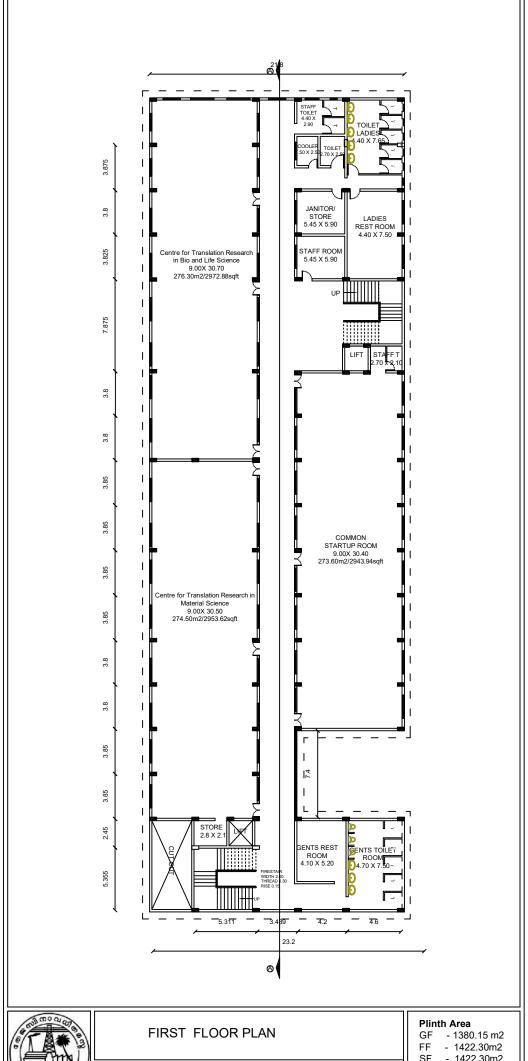
CONSTRUCTION OF TRANSLATIONAL RESEARCH CENTRE AT CUSAT THRIKKAKARA CAMPUS

DRAWINGS



NAME OF WORK: CONSTRUCTION OF TRANSALATIONAL RESEARCH CENTRE AT CUSAT THRIKKAKARA CAMPUS

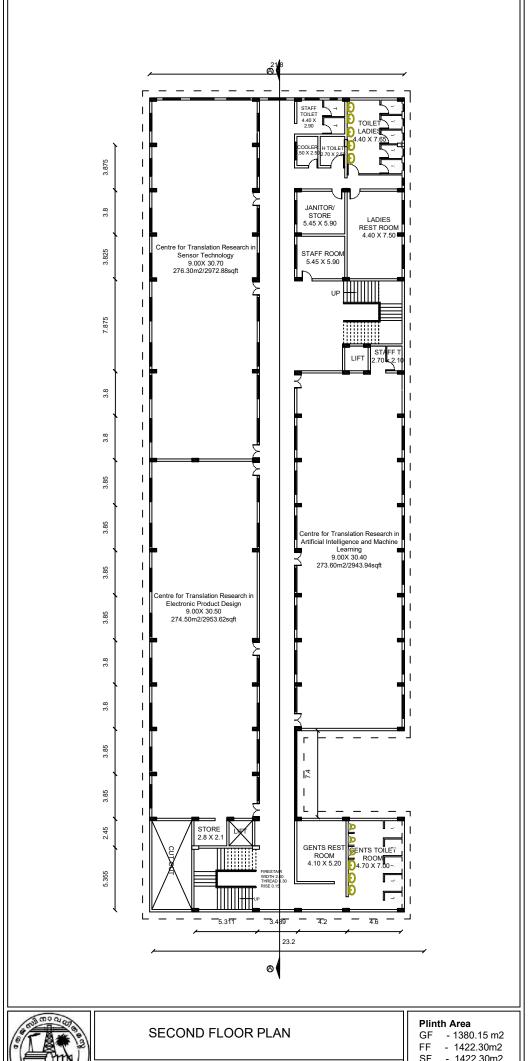
SF - 1422.30m2 Total - 4224.75 m2





NAME OF WORK: CONSTRUCTION OF TRANSALATIONAL RESEARCH CENTRE AT CUSAT THRIKKAKARA CAMPUS

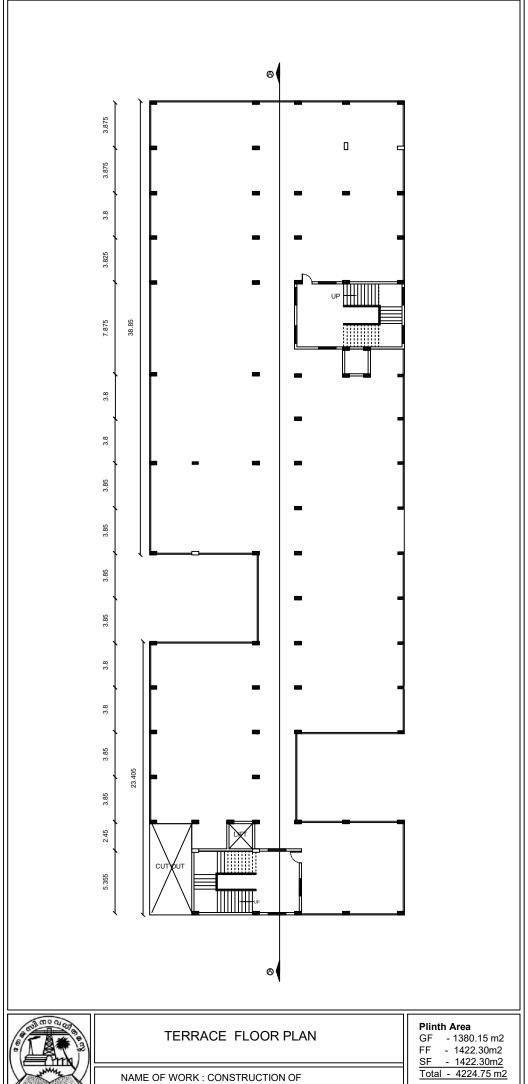
FF - 1422.30m2 SF - 1422.30m2 Total - 4224.75 m2





NAME OF WORK: CONSTRUCTION OF TRANSALATIONAL RESEARCH CENTRE AT CUSAT THRIKKAKARA CAMPUS

FF - 1422.30m2 SF - 1422.30m2 Total - 4224.75 m2





NAME OF WORK : CONSTRUCTION OF TRANSALATIONAL RESEARCH CENTRE AT CUSAT THRIKKAKARA CAMPUS

