Bangladesh University of Engineering and Technology

Capstone Project (CE 404)

Detailed BOQ (Bill of Quantity)

Comprehensive Redevelopment Project for Mohammadpur Government High School: Enhancing Academic Infrastructure and Sustainability

Submitted By	Submitted To
Student ID & Name: 1804165 - Shoeb Ahmad Tanim 1804173 - SM Nahian Al Wasi (GL) 1804176 – Abu Naser Khan 1804177 - Muhammed Yeasin Arafat 1804179 - Shamim Azad Bakul 1804180 – Samiha Tasneem (DGL) **Level/Term/Department**: 4/2/ Civil Engineering **Section/Group** : C2/3	• **Dr. Hasib Mohammed Ahsan** Professor, Dept. of Civil Engineering, BUET • **Dr. Sarwar Jahan Md. Yasin** Professor, Dept. of Civil Engineering, BUET • **Dr. Rupak Mutsuddy** Associate Professor, Dept. of Civil Engineering, BUET • **Dr. Sheikh Mokhlesur Rahman** Associate Professor, Dept. of Civil Engineering, BUET

Table of Content

Non Structural Costs

Executive Summary

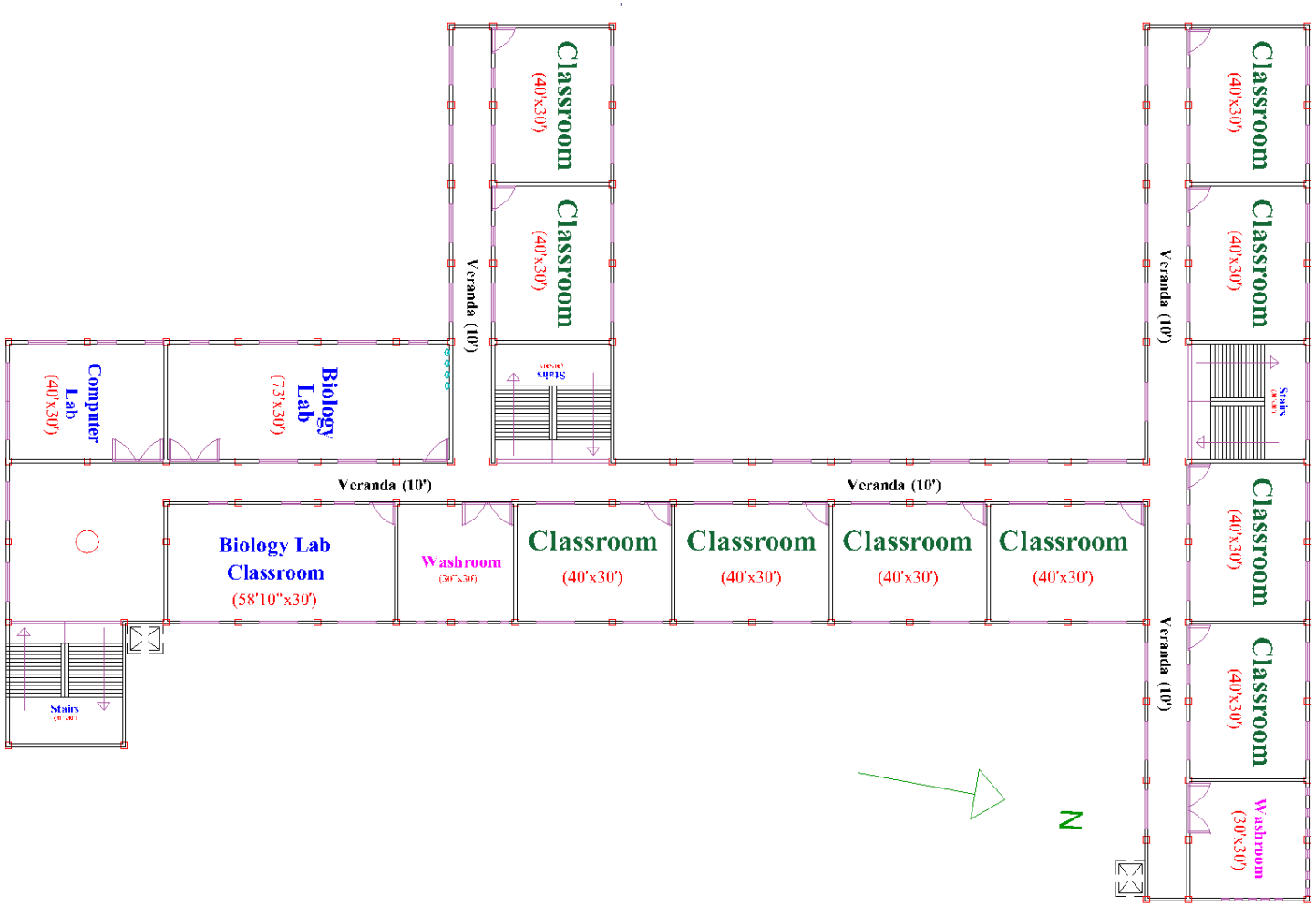
This Bill of Quantities (BOQ) report provides a comprehensive overview of the projected costs for the Mohammadpur Government High School redevelopment project, encompassing various components including structural elements, infrastructure, and finishing works for RCC structure academic and auditorium buildings. The cost per square foot is Tk. 2,783 for the academic building and Tk. 2,475 for the auditorium. With meticulous detailing, the report offers insights into the anticipated costs associated with each aspect of the redevelopment endeavor, facilitating informed decision-making and resource allocation.

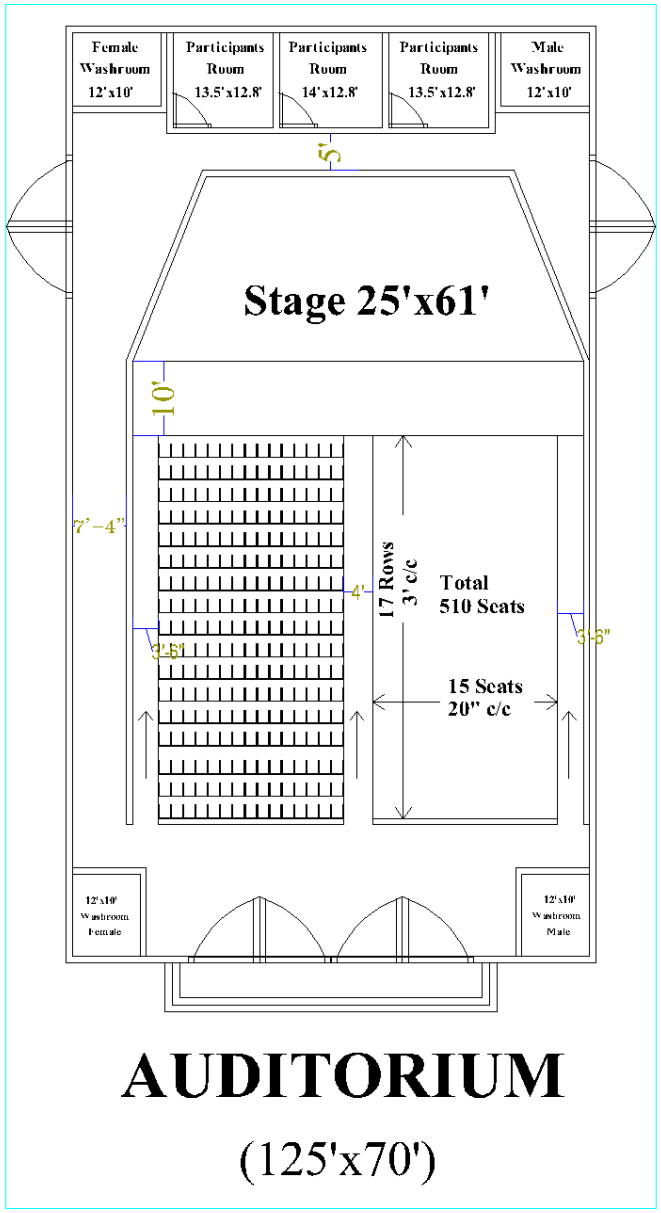
For the substructure, which includes foundational elements such as footing foundation and underground utilities, the total cost amounts to Tk. 18,844,225 for the academic building and Tk. 534,601 for the auditorium. This covers essential structural components required to ensure stability and integrity.

For the superstructure, the report outlines the total structural cost for the academic building of Tk. 261,889,936 and for the auditorium Tk. 16,176,363, with a significant portion allocated to reinforced cement concrete works for floors, beams, columns, and roofing. Additionally, Tk. 149,314,495 for the academic building and Tk. 4,947,508 for the auditorium is attributed to non-structural costs, encompassing elements like plumbing, finishing, and furniture.

The BOQ was formulated based on the PWD SCHEDULE OF RATES 2022 approved by the government, ensuring reliability and alignment with government norms. This meticulous approach facilitates accurate resource planning and financial management throughout the project lifecycle.

Academic Building Plan View





AUDITORIUM

(125'x70')

Project Details:

1	**Name of the Project**	**:**	Comprehensive Redevelopment Project for Mohammadpur Government High School: Enhancing Academic Infrastructure and Sustainability
2	**(a) Sponsoring Ministry/Division** **(b) Implementing Agency**	**:**	1. Ministry Of Education 2. Education Engineering Department
3	**Project Objectives** **(Project to be taken based on the study)**	**:**	1. Modernize Infrastructure by fix physical issues, introduce digital classrooms for enhanced education quality. 2. Implementation of eco-friendly measures. 3. Upgrade facilities, prioritize health, and education for creating good learning environment
4	**Project Area**	**:**	1. Academic Building (31000 Sqft) 2. Auditorium Building (8750 Sqft)
5	**Sector & Sub-Sector**	**:**	Educational Infrastructure
6	**Project Category (Based on Environment Conservation Rules 2023)**	**:**	Orange
7	**Project Geographic Location** **(a) Countrywide** **(b) Division** **(c) District** **(d) Upazila** **(e) Others (City Corporation/Pourashva)**	**:**	1. Bangladesh 2. Dhaka 3. Dhaka North City Corporation 4. Mohammadpur Thana Humayan Road, Dhaka 1207
8	**Project Duration:**	**:**	24-28 months

Project Background:

Rationale: The Mohammadpur Government High School Comprehensive Redevelopment Project stems from a critical need to address the deteriorating state of the school's infrastructure and educational facilities. The current condition, marked by cracked walls, damaged doors, and outdated amenities, impedes effective teaching and learning. The absence of digital classrooms further hinders technological integration, impacting students' academic progress. Inadequate sports facilities, obsolete laboratories, and insufficient focus on health and hygiene collectively diminish the overall educational quality. The project aims to rectify these shortcomings, fostering an environment conducive to modern education and sustainability.

Genesis: The genesis of this project lies in recognizing the urgency to uplift Mohammadpur Government High School from its dilapidated state. Initial surveys, site visits, and interviews with stakeholders unveiled the pressing need for comprehensive redevelopment. The project's inception involves a methodical approach, leveraging skilled professionals and software tools for data analysis. Feasibility studies, including alternatives and temporary relocation considerations, were pivotal in shaping the project's course. The genesis encapsulates a commitment to creating an optimal learning environment through infrastructural enhancements, technological integration, and sustainable practices.

Objective:

The Bill of Quantities (BOQ) report for the Mohammadpur Government High School redevelopment project aims to provide a comprehensive breakdown of estimated costs and quantities required for its construction. It serves as a guiding document to ensure precise cost estimation, transparency in the tendering process, and efficient resource allocation. By detailing construction materials, equipment, and facilities, the BOQ facilitates quality control, contract negotiation, and dispute management. Beyond its role in financial planning, the BOQ embodies the project's objective of creating a modern, inclusive educational facility that meets the needs of the community. Through meticulous cost analysis and transparent documentation, the BOQ supports the realization of a high-quality, sustainable school infrastructure that fosters academic excellence and community engagement in Mohammadpur.

BILL OF QUANTITY CONSIDERATION

1. PWD Schedule of Rates 2022 (REVISED)
2. RHD Schedule of Rates 2022

ACADEMIC BUILDING STRUCTURAL COST DETAILS

Structural Components of Academic Building

Sub Structure and Ground Floor of Academic Building

Item No.	Description of Item	Unit	Quantity	Unit Rate (BDT)	TOTAL (BDT)
1	**Wall**				
1.1	Brick works with first class bricks with cement sand (F.M. 1.2) mortar (1:4) in exterior walls including filling the interstices with mortar, raking out joints, cleaning and socking the bricks at least for 24 hours before use and washing of sand, necessary scaffolding, curing at least for 7 days etc. all complete including cost of water, electricity and other charges (measurement to given as 250 mm width for one brick length and 375 mm for one brick and a half brick length) accepted by the Engineer-in-charge. (Cement: CEM-II/B-M) In ground floor	cum	334	Tk. 10,097	**Tk. 3,376,847**
1.2	Minimum 12 mm thick cement sand (F.M. 1.2) plaster (1:4) with fresh cement to both inner-and outer surface of wall, finishing the corner and edges including washing of sand, cleaning the surface, curing at least for 7 days, cost of water, electricity, scaffolding and other charges etc. all complete in all respect as per drawing and accepted by the Engineer-in charge. (Cement: CEM-II/B-M)	sqm	2652	Tk. 315	**Tk. 835,380**
1.3	Silicon based water repellent of approved quality delivered from authorized local agent of the manufacturer in a sealed container; surface preparation including cleaning, drying, making free from dirt, grease, wax, removing all chalked and scaled materials, fungus, mending good the surface defects using sand paper and necessary scaffolding; applying 3 coats of silicon based water repellent on exposed brick surface/fair face surface spreading by brush/roller/spray & necessary scaffolding etc. up to desired finishing, elapsing specified time for drying or recoating; all complete in all floors and accepted by the Engineer-in-charge	sqm	2652	Tk. 257	**Tk. 681,564**
					Tk. 4,893,791
2	**Short Column**				
2.1	**Reinforced cement concrete works from Ready-Mix concrete** with approved mix design, well graded stone chips (100% sand of F.M. 2.2) and required admixture Reinforced cement concrete works from Ready-Mix concrete with minimum cement content relates to approved mix ratio having minimum f'cr = 40.5 MPa, satisfying a specified compressive strength **f'c = 32 MPa** at 28 days on standard cylinders as per standard practice of Code ACI / BNBC, Cement conforming to BDS EN-197-1-CEM-I, 52.5N, best quality Sylhet sand or coarse sand of equivalent F.M. 2.2 and 20 mm down well graded stone chips conforming to ASTM C-33 (Aggregate grading as per table shown in technical specification), High-range water reducing chemical admixture Type-G under ASTM C494 (Doses to be applied as per Manufacturer's Guideline), conducting necessary tests, making and placing shutter in position and maintaining true to plumb, making shutter water-tight properly, placing reinforcement in position; using machine batched and machine mixed concrete using cement content as per approved design mix (minimum 445 kg/ cum), carrying to the site of laying using Transit Mixer (considering setting time of concrete from plant to the site), including pumping of concrete using line pump or boom placer to site of laying, maintaining allowable slump of 100mm to150mm (measured at site), casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering after specified time approved; including cost of water, electricity, cost of all materials and other charges etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is excluding laboratory test fees, the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering).	cum	45	Tk. 15,523	**Tk. 698,535**
2.2	Grade 400 (B400DWR / B420DWR: complying BDS ISO 6935-2:2016 / ASTM A615) ribbed or deformed bar produced and marked according to Bangladesh standard, with minimum yield strength, fy (ReH)= 400 MPa but fy not exceeding 480 MPa and whatever is the actual yield strength within allowable limit as per BNBC/ ACI 318, the ratio of ultimate tensile strength fu to yield strength fy, shall be at least 1.25 and minimum elongation after fracture and minimum total elongation at maximum force is 17% and 8% respectively : up to ground floor.	kg	12452	Tk. 121	**Tk. 1,506,704**
3.3	**Centering and shuttering,** including strutting, propping etc. (The formwork must be rigid enough both in and out of plane, to make the concrete surface true to the designed shape and size by using necessary MS sheets of minimum 16 BWG, angles of minimum size 40 mm x 40 mm x 5 mm, flat bars etc.) and removal of form for :Columns	sqm	365	Tk. 522	**Tk. 190,530**
					Tk. 2,395,769

Item No.	Description of Item	Unit	Quantity	Unit Rate (BDT)	TOTAL (BDT)
3	**Column**				
3.1	**Reinforced cement concrete works from Ready-Mix concrete** with approved mix design, well graded stone chips (100% sand of F.M. 2.2) and required admixture Reinforced cement concrete works from Ready-Mix concrete with minimum cement content relates to approved mix ratio having minimum f'cr = 40.5 MPa, satisfying a specified compressive strength **f'c = 32 MPa** at 28 days on standard cylinders as per standard practice of Code ACI / BNBC, Cement conforming to BDS EN-197-1-CEM-I, 52.5N, best quality Sylhet sand or coarse sand of equivalent F.M. 2.2 and 20 mm down well graded stone chips conforming to ASTM C-33 (Aggregate grading as per table shown in technical specification), High-range water reducing chemical admixture Type-G under ASTM C494 (Doses to be applied as per Manufacturer's Guideline), conducting necessary tests, making and placing shutter in position and maintaining true to plumb, making shutter water-tight properly, placing reinforcement in position; using machine batched and machine mixed concrete using cement content as per approved design mix (minimum 445 kg/ cum), carrying to the site of laying using Transit Mixer (considering setting time of concrete from plant to the site), including pumping of concrete using line pump or boom placer to site of laying, maintaining allowable slump of 100mm to150mm (measured at site), casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering after specified time approved; including cost of water, electricity, cost of all materials and other charges etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is excluding laboratory test fees, the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering).	cum	99.00	Tk. 15,523	**Tk. 1,536,777**
3.2	Grade 400 (B400DWR / B420DWR: complying BDS ISO 6935-2:2016 / ASTM A615) ribbed or deformed bar produced and marked according to Bangladesh standard, with minimum yield strength, fy (ReH)= 400 MPa but fy not exceeding 480 MPa and whatever is the actual yield strength within allowable limit as per BNBC/ ACI 318, the ratio of ultimate tensile strength fu to yield strength fy, shall be at least 1.25 and minimum elongation after fracture and minimum total elongation at maximum force is 17% and 8% respectively : up to ground floor.	kg	24904	Tk. 121	**Tk. 3,013,408**
3.3	**Centering and shuttering,** including strutting, propping etc. (The formwork must be rigid enough both in and out of plane, to make the concrete surface true to the designed shape and size by using necessary MS sheets of minimum 16 BWG, angles of minimum size 40 mm x 40 mm x 5 mm, flat bars etc.) and removal of form for :Columns	sqm	808	Tk. 522	**Tk. 421,776**
					Tk. 4,971,961

Item No.	Description of Item	Unit	Quantity	Unit Rate (BDT)	TOTAL (BDT)
4	**Beam**				
4.1	**Grade 400/ 420** (400MPa/ 400N/mm2 ≈ 60900 psi/ **60 Grade**), BDS-6935-2006, B400: and ratio fy to fu ≥ 1.25	kg	165209	Tk. 121	**Tk. 19,990,289**
4.2	**Reinforced cement concrete works from Ready-Mix concrete** with approved mix design, well graded stone chips (100% sand of F.M. 2.2) and required admixture Reinforced cement concrete works from Ready-Mix concrete with minimum cement content relates to approved mix ratio having minimum f'cr = 40.5 MPa, satisfying a specified compressive strength **f'c = 32 MPa** at 28 days on standard cylinders as per standard practice of Code ACI / BNBC, Cement conforming to BDS EN-197-1-CEM-I, 52.5N, best quality Sylhet sand or coarse sand of equivalent F.M. 2.2 and 20 mm down well graded stone chips conforming to ASTM C-33 (Aggregate grading as per table shown in technical specification), High-range water reducing chemical admixture Type-G under ASTM C494 (Doses to be applied as per Manufacturer's Guideline), conducting necessary tests, making and placing shutter in position and maintaining true to plumb, making shutter water-tight properly, placing reinforcement in position; using machine batched and machine mixed concrete using cement content as per approved design mix (minimum 445 kg/ cum), carrying to the site of laying using Transit Mixer (considering setting time of concrete from plant to the site), including pumping of concrete using line pump or boom placer to site of laying, maintaining allowable slump of 100mm to150mm (measured at site), casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering after specified time approved; including cost of water, electricity, cost of all materials and other charges etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is excluding laboratory test fees, the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering).	cum	229	Tk. 15,523	**Tk. 3,554,983**
4.3	**Centering and shuttering,** including strutting, propping etc. (The formwork must be rigid enough both in and out of plane, to make the concrete surface true to the designed shape and size by using necessary MS sheets of minimum 16 BWG, angles of minimum size 40 mm x 40 mm x 5 mm, flat bars etc.) and removal of form for :T BEAM	sqm	601	Tk. 574	**Tk. 345,208**
					Tk. 23,890,480
5	**Grade Beam**				
5.1	**Grade 400/ 420** (400MPa/ 400N/mm2 ≈ 60900 psi/ **60 Grade**), BDS-6935-2006, B400: and ratio fy to fu ≥ 1.25	kg	4700	Tk. 121	**Tk. 568,665**
5.2	**Reinforced cement concrete works from Ready-Mix concrete** with approved mix design, well graded stone chips (100% sand of F.M. 2.2) and required admixture Reinforced cement concrete works from Ready-Mix concrete with minimum cement content relates to approved mix ratio having minimum f'cr = 40.5 MPa, satisfying a specified compressive strength **f'c = 32 MPa** at 28 days on standard cylinders as per standard practice of Code ACI / BNBC, Cement conforming to BDS EN-197-1-CEM-I, 52.5N, best quality Sylhet sand or coarse sand of equivalent F.M. 2.2 and 20 mm down well graded stone chips conforming to ASTM C-33 (Aggregate grading as per table shown in technical specification), High-range water reducing chemical admixture Type-G under ASTM C494 (Doses to be applied as per Manufacturer's Guideline), conducting necessary tests, making and placing shutter in position and maintaining true to plumb, making shutter water-tight properly, placing reinforcement in position; using machine batched and machine mixed concrete using cement content as per approved design mix (minimum 445 kg/ cum), carrying to the site of laying using Transit Mixer (considering setting time of concrete from plant to the site), including pumping of concrete using line pump or boom placer to site of laying, maintaining allowable slump of 100mm to150mm (measured at site), casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering after specified time approved; including cost of water, electricity, cost of all materials and other charges etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is excluding laboratory test fees, the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering).	cum	119.1573	Tk. 15,523	**Tk. 1,849,679**
5.3	**Centering and shuttering,** including strutting, propping etc. (The formwork must be rigid enough both in and out of plane, to make the concrete surface true to the designed shape and size by using necessary MS sheets of minimum 16 BWG, angles of minimum size 40 mm x 40 mm x 5 mm, flat bars etc.) and removal of form for :T BEAM	sqm	555.4	Tk. 574	**Tk. 318,800**
					Tk. 2,737,143

Item No.	Description of Item	Unit	Quantity	Unit Rate (BDT)	TOTAL (BDT)
6	**Slab**				
6.1	**Grade 400/ 420** (400MPa/ 400N/mm2 ≈ 60900 psi/ **60 Grade**), BDS-6935-2006, B400: and ratio fy to fu ≥ 1.25	kg	58768	Tk. 121	**Tk. 7,110,928**
6.2	**Reinforced cement concrete works from Ready-Mix concrete** with approved mix design, well graded stone chips (100% sand of F.M. 2.2) and required admixture Reinforced cement concrete works from Ready-Mix concrete with minimum cement content relates to approved mix ratio having minimum f'cr = 40.5 MPa, satisfying a specified compressive strength **f'c = 32 MPa** at 28 days on standard cylinders as per standard practice of Code ACI / BNBC, Cement conforming to BDS EN-197-1-CEM-I, 52.5N, best quality Sylhet sand or coarse sand of equivalent F.M. 2.2 and 20 mm down well graded stone chips conforming to ASTM C-33 (Aggregate grading as per table shown in technical specification), High-range water reducing chemical admixture Type-G under ASTM C494 (Doses to be applied as per Manufacturer's Guideline), conducting necessary tests, making and placing shutter in position and maintaining true to plumb, making shutter water-tight properly, placing reinforcement in position; using machine batched and machine mixed concrete using cement content as per approved design mix (minimum 445 kg/ cum), carrying to the site of laying using Transit Mixer (considering setting time of concrete from plant to the site), including pumping of concrete using line pump or boom placer to site of laying, maintaining allowable slump of 100mm to150mm (measured at site), casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering after specified time approved; including cost of water, electricity, cost of all materials and other charges etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is excluding laboratory test fees, the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering).	cum	385	Tk. 15,523	**Tk. 5,976,355**
6.3	**Centering and shuttering,** including strutting, propping etc. (The formwork must be rigid enough both in and out of plane, to make the concrete surface true to the designed shape and size by using necessary MS sheets of minimum 16 BWG, angles of minimum size 40 mm x 40 mm x 5 mm, flat bars etc.) and removal of form for :Slab	sqm	2526	Tk. 551	**Tk. 1,391,826**
					Tk. 14,479,109

Item No.	Description of Item	Unit	Quantity	Unit Rate (BDT)	TOTAL (BDT)
7	**Stairs**				
7.1	**Grade 400/ 420** (400MPa/ 400N/mm2 ≈ 60900 psi/ **60 Grade**), BDS-6935-2006, B400: and ratio fy to fu ≥ 1.25	kg	8156	Tk. 121	**Tk. 986,876**
7.2	**Reinforced cement concrete works from Ready-Mix concrete** with approved mix design, well graded stone chips (100% sand of F.M. 2.2) and required admixture Reinforced cement concrete works from Ready-Mix concrete with minimum cement content relates to approved mix ratio having minimum f'cr = 40.5 MPa, satisfying a specified compressive strength **f'c = 32 MPa** at 28 days on standard cylinders as per standard practice of Code ACI / BNBC, Cement conforming to BDS EN-197-1-CEM-I, 52.5N, best quality Sylhet sand or coarse sand of equivalent F.M. 2.2 and 20 mm down well graded stone chips conforming to ASTM C-33 (Aggregate grading as per table shown in technical specification), High-range water reducing chemical admixture Type-G under ASTM C494 (Doses to be applied as per Manufacturer's Guideline), conducting necessary tests, making and placing shutter in position and maintaining true to plumb, making shutter water-tight properly, placing reinforcement in position; using machine batched and machine mixed concrete using cement content as per approved design mix (minimum 445 kg/ cum), carrying to the site of laying using Transit Mixer (considering setting time of concrete from plant to the site), including pumping of concrete using line pump or boom placer to site of laying, maintaining allowable slump of 100mm to150mm (measured at site), casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering after specified time approved; including cost of water, electricity, cost of all materials and other charges etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is excluding laboratory test fees, the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering).	cum	26	Tk. 15,523	**Tk. 402,573**
7.3	**Centering and shuttering,** including strutting, propping etc. (The formwork must be rigid enough both in and out of plane, to make the concrete surface true to the designed shape and size by using necessary MS sheets of minimum 16 BWG, angles of minimum size 40 mm x 40 mm x 5 mm, flat bars etc.) and removal of form for :Stairs	sqm	448	Tk. 551	**Tk. 246,940**
					Tk. 1,636,389

Item No.	Description of Item	Unit	Quantity	Unit Rate (BDT)	TOTAL (BDT)
8	**Foundation**				
8.1	**Reinforced cement concrete works from Ready-Mix concrete** with approved mix design, well graded stone chips (100% sand of F.M. 2.2) and required admixture Reinforced cement concrete works from Ready-Mix concrete with minimum cement content relates to approved mix ratio having minimum f'cr = 40.5 MPa, satisfying a specified compressive strength **f'c = 32 MPa** at 28 days on standard cylinders as per standard practice of Code ACI / BNBC, Cement conforming to BDS EN-197-1-CEM-I, 52.5N, best quality Sylhet sand or coarse sand of equivalent F.M. 2.2 and 20 mm down well graded stone chips conforming to ASTM C-33 (Aggregate grading as per table shown in technical specification), High-range water reducing chemical admixture Type-G under ASTM C494 (Doses to be applied as per Manufacturer's Guideline), conducting necessary tests, making and placing shutter in position and maintaining true to plumb, making shutter water-tight properly, placing reinforcement in position; using machine batched and machine mixed concrete using cement content as per approved design mix (minimum 445 kg/ cum), carrying to the site of laying using Transit Mixer (considering setting time of concrete from plant to the site), including pumping of concrete using line pump or boom placer to site of laying, maintaining allowable slump of 100mm to150mm (measured at site), casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering after specified time approved; including cost of water, electricity, cost of all materials and other charges etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is excluding laboratory test fees, the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering).				
	ISOLATED FOOTING	cum	255	Tk. 15,523	**Tk. 3,951,403**
	COMBINED FOOTING	cum	539	Tk. 15,523	**Tk. 8,365,885**
8.2	**Reinforcement Grade 400/ 420** (400MPa/ 400N/mm2 ≈ 60900 psi/ **60 Grade**), BDS-6935-2006, B400: and ratio fy to fu ≥ 1.25				
	ISOLATED FOOTING	kg	12247	Tk. 121	**Tk. 1,481,875**
	COMBINED FOOTING	kg	22069	Tk. 121	**Tk. 2,670,361**
8.3	**Brick Work** One layer brick flat soling in foundation or in floor with first class/picked jhama bricks (BDS 208) including preparation of bed and filling the interstices with local sand, leveling etc. complete and accepted by the Engineer-in-charge.	sqm	23	Tk. 636	**Tk. 14,631**

Item No.	Description of Item	Unit	Quantity	Unit Rate (BDT)	TOTAL (BDT)
8.4	**Centering and shuttering,** including strutting, propping etc. (The formwork must be rigid enough both in and out of plane, to make the concrete surface true to the designed shape and size by using necessary MS sheets of minimum 16 BWG, angles of minimum size 40 mm x 40 mm x 5 mm, flat bars etc.) and removal of form for :Slab				
	ISOLATED FOOTING	sqm	337	Tk. 582	**Tk. 196,134**
	COMBINED FOOTING	sqm	506	Tk. 582	**Tk. 294,478**
8.5	**Earthwork** in excavation in foundation trenches up to 1.5 m depth and maximum 10 m lead Earth work in excavation in all kinds of soil for foundation trenches including layout, providing center lines, local bench mark pillars, levelling, ramming and preparing the base, fixing bamboo spikes and marking layout with chalk powder, providing necessary tools and plants, protecting and maintaining the trench dry etc., stacking, cleaning the excavated earth at a safe distance out of the area enclosed by the layout etc. all complete and accepted by the Engineer in-charge, subject to submit method statement of carrying out excavation work to the Engineer-in-charge for approval. However, engineer's approval shall not relieve the contractor of his responsibilities and obligations under the contract.	cum	3799	Tk. 228	**Tk. 866,189**
8.6	**Earth filling** in foundation trenches and plinth in 150 mm layer with earth available within 90 m of the building site to achieve minimum dry density of 95% with optimum moisture content (Modified proctor test) including carrying watering, leveling, dressing and compacting to a specified percentage each layer up to finished level etc. all complete and accepted by Engineer-in-charge.	cum	2971	Tk. 207	**Tk. 615,059**
8.7	**Soil Investigation**	nos.	10	Tk. 38,821	**Tk. 388,210**
					Tk. 18,844,225

Item No.	Description of Item	Unit	Quantity	Unit Rate (BDT)	TOTAL (BDT)
9	**Cornice, Sunshade, Drop Walll**				
9.1	Cornice, railing, drop walls, louver, fins etc.: ground floor	cum	20	Tk. 459	**Tk. 9,180**
9.2	Sunshade, false ceiling: ground floor	cum	43	Tk. 471	**Tk. 20,018**
9.3	Safety net: Supplying temporary safety net (hessian cloth) around construction work place (along the height of the building) where public safety is likely to be endangered due to construction activities; which shall be supported using scaffolding around the building for brick work/ plaster; including fitting and fixing in position providing necessary anchors, wires, ties etc. all complete and accepted by the Engineer-in-charge. (Rate is excluding the cost of scaffolding)	cum	440	Tk. 51	**Tk. 22,440**
9.4	One layer brick flat soling in foundation or in floor with sand cement solid block (SCSB) (240x114x70) mm including preparation of bed and filling the interstices with local sand, leveling etc. complete and accepted by the Engineer-in-charge.	cum	2526	Tk. 597	**Tk. 1,508,022**
					Tk. 1,559,660
Total Sub-Structural Cost of Academic Building					**Tk. 18,844,225**
Total Structural Cost For Ground Floor of Academic Building					**Tk. 56,564,302**

1st Floor of Academic Building					
Item No.	**Description of Item**	**Unit**	**Quantity**	**Unit Rate (BDT)**	**TOTAL (BDT)**
1	**Wall**				
1.1	Brick works with first class bricks with cement sand (F.M. 1.2) mortar (1:4) in exterior walls including filling the interstices with mortar, raking out joints, cleaning and socking the bricks at least for 24 hours before use and washing of sand, necessary scaffolding, curing at least for 7 days etc. all complete including cost of water, electricity and other charges (measurement to given as 250 mm width for one brick length and 375 mm for one brick and a half brick length) accepted by the Engineer-in-charge. (Cement: CEM-II/B-M) In ground floor	cum	337	Tk. 10,276	**Tk. 3,463,012**
1.2	Minimum 12 mm thick cement sand (F.M. 1.2) plaster (1:4) with fresh cement to both inner-and outer surface of wall, finishing the corner and edges including washing of sand, cleaning the surface, curing at least for 7 days, cost of water, electricity, scaffolding and other charges etc. all complete in all respect as per drawing and accepted by the Engineer-in charge. (Cement: CEM-II/B-M)	sqm	2652	Tk. 315.00	**Tk. 835,380**
1.3	Silicon based water repellent of approved quality delivered from authorized local agent of the manufacturer in a sealed container; surface preparation including cleaning, drying, making free from dirt, grease, wax, removing all chalked and scaled materials, fungus, mending good the surface defects using sand paper and necessary scaffolding; applying 3 coats of silicon based water repellent on exposed brick surface/fair face surface spreading by brush/roller/spray & necessary scaffolding etc. up to desired finishing, elapsing specified time for drying or recoating; all complete in all floors and accepted by the Engineer-in-charge	sqm	2652	Tk. 257.00	**Tk. 681,564**
					Tk. 4,979,956
2	**Column**				
2.1	**Reinforced cement concrete works from Ready-Mix concrete** with approved mix design, well graded stone chips (100% sand of F.M. 2.2) and required admixture Reinforced cement concrete works from Ready-Mix concrete with minimum cement content relates to approved mix ratio having minimum f'cr = 40.5 MPa, satisfying a specified compressive strength **f'c = 32 MPa** at 28 days on standard cylinders as per standard practice of Code ACI / BNBC, Cement conforming to BDS EN-197-1-CEM-I, 52.5N, best quality Sylhet sand or coarse sand of equivalent F.M. 2.2 and 20 mm down well graded stone chips conforming to ASTM C-33 (Aggregate grading as per table shown in technical specification), High-range water reducing chemical admixture Type-G under ASTM C494 (Doses to be applied as per Manufacturer's Guideline), conducting necessary tests, making and placing shutter in position and maintaining true to plumb, making shutter water-tight properly, placing reinforcement in position; using machine batched and machine mixed concrete using cement content as per approved design mix (minimum 445 kg/ cum), carrying to the site of laying using Transit Mixer (considering setting time of concrete from plant to the site), including pumping of concrete using line pump or boom placer to site of laying, maintaining allowable slump of 100mm to150mm (measured at site), casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering after specified time approved; including cost of water, electricity, cost of all materials and other charges etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is excluding laboratory test fees, the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering).	cum	99.00	Tk. 15,616	**Tk. 1,545,984**
2.2	Grade 400 (B400DWR / B420DWR: complying BDS ISO 6935-2:2016 / ASTM A615) ribbed or deformed bar produced and marked according to Bangladesh standard, with minimum yield strength, fy (ReH)= 400 MPa but fy not exceeding 480 MPa and whatever is the actual yield strength within allowable limit as per BNBC/ ACI 318, the ratio of ultimate tensile strength fu to yield strength fy, shall be at least 1.25 and minimum elongation after fracture and minimum total elongation at maximum force is 17% and 8% respectively : up to ground floor.	kg	24904	Tk. 122	**Tk. 3,030,094**
2.3	**Centering and shuttering,** including strutting, propping etc. (The formwork must be rigid enough both in and out of plane, to make the concrete surface true to the designed shape and size by using necessary MS sheets of minimum 16 BWG, angles of minimum size 40 mm x 40 mm x 5 mm, flat bars etc.) and removal of form for :Columns	sqm	808	Tk. 540	**Tk. 436,320**
					Tk. 5,012,398

Item No.	Description of Item	Unit	Quantity	Unit Rate (BDT)	TOTAL (BDT)
3	**Beam**				
3.1	**Grade 400/ 420** (400MPa/ 400N/mm2 ≈ 60900 psi/ **60 Grade**), BDS-6935-2006, B400: and ratio fy to fu ≥ 1.25	kg	165209	Tk. 122	**Tk. 20,100,979**
3.2	**Reinforced cement concrete works from Ready-Mix concrete** with approved mix design, well graded stone chips (100% sand of F.M. 2.2) and required admixture Reinforced cement concrete works from Ready-Mix concrete with minimum cement content relates to approved mix ratio having minimum f'cr = 40.5 MPa, satisfying a specified compressive strength **f'c = 32 MPa** at 28 days on standard cylinders as per standard practice of Code ACI / BNBC, Cement conforming to BDS EN-197-1-CEM-I, 52.5N, best quality Sylhet sand or coarse sand of equivalent F.M. 2.2 and 20 mm down well graded stone chips conforming to ASTM C-33 (Aggregate grading as per table shown in technical specification), High-range water reducing chemical admixture Type-G under ASTM C494 (Doses to be applied as per Manufacturer's Guideline), conducting necessary tests, making and placing shutter in position and maintaining true to plumb, making shutter water-tight properly, placing reinforcement in position; using machine batched and machine mixed concrete using cement content as per approved design mix (minimum 445 kg/ cum), carrying to the site of laying using Transit Mixer (considering setting time of concrete from plant to the site), including pumping of concrete using line pump or boom placer to site of laying, maintaining allowable slump of 100mm to150mm (measured at site), casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering after specified time approved; including cost of water, electricity, cost of all materials and other charges etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is excluding laboratory test fees, the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering).	cum	229	Tk. 15,616	**Tk. 3,576,281**
3.3	**Centering and shuttering,** including strutting, propping etc. (The formwork must be rigid enough both in and out of plane, to make the concrete surface true to the designed shape and size by using necessary MS sheets of minimum 16 BWG, angles of minimum size 40 mm x 40 mm x 5 mm, flat bars etc.) and removal of form for :T BEAM	sqm	601	592	**Tk. 356,033**
					Tk. 24,033,293

Item No.	Description of Item	Unit	Quantity	Unit Rate (BDT)	TOTAL (BDT)
4	**Slab**				
4.1	**Grade 400/ 420** (400MPa/ 400N/mm2 ≈ 60900 psi/ **60 Grade**), BDS-6935-2006, B400: and ratio fy to fu ≥ 1.25	kg	58768	Tk. 122	**Tk. 7,150,303**
4.2	**Reinforced cement concrete works from Ready-Mix concrete** with approved mix design, well graded stone chips (100% sand of F.M. 2.2) and required admixture Reinforced cement concrete works from Ready-Mix concrete with minimum cement content relates to approved mix ratio having minimum f'cr = 40.5 MPa, satisfying a specified compressive strength **f'c = 32 MPa** at 28 days on standard cylinders as per standard practice of Code ACI / BNBC, Cement conforming to BDS EN-197-1-CEM-I, 52.5N, best quality Sylhet sand or coarse sand of equivalent F.M. 2.2 and 20 mm down well graded stone chips conforming to ASTM C-33 (Aggregate grading as per table shown in technical specification), High-range water reducing chemical admixture Type-G under ASTM C494 (Doses to be applied as per Manufacturer's Guideline), conducting necessary tests, making and placing shutter in position and maintaining true to plumb, making shutter water-tight properly, placing reinforcement in position; using machine batched and machine mixed concrete using cement content as per approved design mix (minimum 445 kg/ cum), carrying to the site of laying using Transit Mixer (considering setting time of concrete from plant to the site), including pumping of concrete using line pump or boom placer to site of laying, maintaining allowable slump of 100mm to150mm (measured at site), casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering after specified time approved; including cost of water, electricity, cost of all materials and other charges etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is excluding laboratory test fees, the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering).	cum	385	Tk. 15,616	**Tk. 6,012,160**
4.3	**Centering and shuttering,** including strutting, propping etc. (The formwork must be rigid enough both in and out of plane, to make the concrete surface true to the designed shape and size by using necessary MS sheets of minimum 16 BWG, angles of minimum size 40 mm x 40 mm x 5 mm, flat bars etc.) and removal of form for :Slab	sqm	2526	Tk. 569	**Tk. 1,437,294**
					Tk. 14,599,757

Item No.	Description of Item	Unit	Quantity	Unit Rate (BDT)	TOTAL (BDT)
5	**Stairs**				
5.1	**Grade 400/ 420** (400MPa/ 400N/mm2 ≈ 60900 psi/ **60 Grade**), BDS-6935-2006, B400: and ratio fy to fu ≥ 1.25	kg	8156	Tk. 122	**Tk. 992,341**
5.2	**Reinforced cement concrete works from Ready-Mix concrete** with approved mix design, well graded stone chips (100% sand of F.M. 2.2) and required admixture Reinforced cement concrete works from Ready-Mix concrete with minimum cement content relates to approved mix ratio having minimum f'cr = 40.5 MPa, satisfying a specified compressive strength **f'c = 32 MPa** at 28 days on standard cylinders as per standard practice of Code ACI / BNBC, Cement conforming to BDS EN-197-1-CEM-I, 52.5N, best quality Sylhet sand or coarse sand of equivalent F.M. 2.2 and 20 mm down well graded stone chips conforming to ASTM C-33 (Aggregate grading as per table shown in technical specification), High-range water reducing chemical admixture Type-G under ASTM C494 (Doses to be applied as per Manufacturer's Guideline), conducting necessary tests, making and placing shutter in position and maintaining true to plumb, making shutter water-tight properly, placing reinforcement in position; using machine batched and machine mixed concrete using cement content as per approved design mix (minimum 445 kg/ cum), carrying to the site of laying using Transit Mixer (considering setting time of concrete from plant to the site), including pumping of concrete using line pump or boom placer to site of laying, maintaining allowable slump of 100mm to150mm (measured at site), casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering after specified time approved; including cost of water, electricity, cost of all materials and other charges etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is excluding laboratory test fees, the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering).	cum	26	Tk. 15,616	**Tk. 404,985**
5.3	**Centering and shuttering,** including strutting, propping etc. (The formwork must be rigid enough both in and out of plane, to make the concrete surface true to the designed shape and size by using necessary MS sheets of minimum 16 BWG, angles of minimum size 40 mm x 40 mm x 5 mm, flat bars etc.) and removal of form for :Stairs	sqm	448	Tk. 569	**Tk. 255,007**
					Tk. 1,652,333

Item No.	Description of Item	Unit	Quantity	Unit Rate (BDT)	TOTAL (BDT)
6	**Cornice, Sunshade, Drop Wall, Lintel**				
6.1	Cornice, railing, drop walls, louver, fins etc.	cum	20	Tk. 459	**Tk. 9,180**
6.2	Sunshade, false ceiling	cum	43	Tk. 471	**Tk. 20,018**
6.3	**Lintel: Reinforced cement concrete works from Ready-Mix concrete** with approved mix design, well graded stone chips (100% sand of F.M. 2.2) and required admixture Reinforced cement concrete works from Ready-Mix concrete with minimum cement content relates to approved mix ratio having minimum f'cr = 40.5 MPa, satisfying a specified compressive strength **f'c = 32 MPa** at 28 days on standard cylinders as per standard practice of Code ACI / BNBC, Cement conforming to BDS EN-197-1-CEM-I, 52.5N, best quality Sylhet sand or coarse sand of equivalent F.M. 2.2 and 20 mm down well graded stone chips conforming to ASTM C-33 (Aggregate grading as per table shown in technical specification), High-range water reducing chemical admixture Type-G under ASTM C494 (Doses to be applied as per Manufacturer's Guideline), conducting necessary tests, making and placing shutter in position and maintaining true to plumb, making shutter water-tight properly, placing reinforcement in position; using machine batched and machine mixed concrete using cement content as per approved design mix (minimum 445 kg/ cum), carrying to the site of laying using Transit Mixer (considering setting time of concrete from plant to the site), including pumping of concrete using line pump or boom placer to site of laying, maintaining allowable slump of 100mm to150mm (measured at site), casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering after specified time approved; including cost of water, electricity, cost of all materials and other charges etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is excluding laboratory test fees, the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering)	cum	2.28	Tk. 15,616	**Tk. 35,604**
					Tk. 64,802
Total Structural Cost For 1st Floor of Academic Building					**Tk. 50,342,538**

2nd Floor of Academic Building					
Item No.	**Description of Item**	**Unit**	**Quantity**	**Unit Rate (BDT)**	**TOTAL (BDT)**
1	**Wall**				
1.1	Brick works with first class bricks with cement sand (F.M. 1.2) mortar (1:4) in exterior walls including filling the interstices with mortar, raking out joints, cleaning and socking the bricks at least for 24 hours before use and washing of sand, necessary scaffolding, curing at least for 7 days etc. all complete including cost of water, electricity and other charges (measurement to given as 250 mm width for one brick length and 375 mm for one brick and a half brick length) accepted by the Engineer-in-charge. (Cement: CEM-II/B-M) In ground floor	cum	337	Tk. 10,455	**Tk. 3,523,335**
1.2	Minimum 12 mm thick cement sand (F.M. 1.2) plaster (1:4) with fresh cement to both inner-and outer surface of wall, finishing the corner and edges including washing of sand, cleaning the surface, curing at least for 7 days, cost of water, electricity, scaffolding and other charges etc. all complete in all respect as per drawing and accepted by the Engineer-in charge. (Cement: CEM-II/B-M)	sqm	2652	Tk. 315.00	**Tk. 835,380**
1.3	Silicon based water repellent of approved quality delivered from authorized local agent of the manufacturer in a sealed container; surface preparation including cleaning, drying, making free from dirt, grease, wax, removing all chalked and scaled materials, fungus, mending good the surface defects using sand paper and necessary scaffolding; applying 3 coats of silicon based water repellent on exposed brick surface/fair face surface spreading by brush/roller/spray & necessary scaffolding etc. up to desired finishing, elapsing specified time for drying or recoating; all complete in all floors and accepted by the Engineer-in-charge	sqm	2652	Tk. 257.00	**Tk. 681,564**
					Tk. 5,040,279
2	**Column**				
2.1	**Reinforced cement concrete works from Ready-Mix concrete** with approved mix design, well graded stone chips (100% sand of F.M. 2.2) and required admixture Reinforced cement concrete works from Ready-Mix concrete with minimum cement content relates to approved mix ratio having minimum f'cr = 40.5 MPa, satisfying a specified compressive strength **f'c = 32 MPa** at 28 days on standard cylinders as per standard practice of Code ACI / BNBC, Cement conforming to BDS EN-197-1-CEM-I, 52.5N, best quality Sylhet sand or coarse sand of equivalent F.M. 2.2 and 20 mm down well graded stone chips conforming to ASTM C-33 (Aggregate grading as per table shown in technical specification), High-range water reducing chemical admixture Type-G under ASTM C494 (Doses to be applied as per Manufacturer's Guideline), conducting necessary tests, making and placing shutter in position and maintaining true to plumb, making shutter water-tight properly, placing reinforcement in position; using machine batched and machine mixed concrete using cement content as per approved design mix (minimum 445 kg/ cum), carrying to the site of laying using Transit Mixer (considering setting time of concrete from plant to the site), including pumping of concrete using line pump or boom placer to site of laying, maintaining allowable slump of 100mm to150mm (measured at site), casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering after specified time approved; including cost of water, electricity, cost of all materials and other charges etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is excluding laboratory test fees, the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering).	cum	99.00	Tk. 15,709	**Tk. 1,555,191**
2.2	Grade 400 (B400DWR / B420DWR: complying BDS ISO 6935-2:2016 / ASTM A615) ribbed or deformed bar produced and marked according to Bangladesh standard, with minimum yield strength, fy (ReH)= 400 MPa but fy not exceeding 480 MPa and whatever is the actual yield strength within allowable limit as per BNBC/ ACI 318, the ratio of ultimate tensile strength fu to yield strength fy, shall be at least 1.25 and minimum elongation after fracture and minimum total elongation at maximum force is 17% and 8% respectively : up to ground floor.	kg	24904	Tk. 122	**Tk. 3,046,779**
2.3	**Centering and shuttering,** including strutting, propping etc. (The formwork must be rigid enough both in and out of plane, to make the concrete surface true to the designed shape and size by using necessary MS sheets of minimum 16 BWG, angles of minimum size 40 mm x 40 mm x 5 mm, flat bars etc.) and removal of form for :Columns	sqm	808	Tk. 558	**Tk. 450,864**
					Tk. 5,052,834

Item No.	Description of Item	Unit	Quantity	Unit Rate (BDT)	TOTAL (BDT)
3	**Beam**				
3.1	**Grade 400/ 420** (400MPa/ 400N/mm2 ≈ 60900 psi/ **60 Grade**), BDS-6935-2006, B400: and ratio fy to fu ≥ 1.25	kg	165209	Tk. 122	**Tk. 20,100,979**
3.2	**Reinforced cement concrete works from Ready-Mix concrete** with approved mix design, well graded stone chips (100% sand of F.M. 2.2) and required admixture Reinforced cement concrete works from Ready-Mix concrete with minimum cement content relates to approved mix ratio having minimum f'cr = 40.5 MPa, satisfying a specified compressive strength **f'c = 32 MPa** at 28 days on standard cylinders as per standard practice of Code ACI / BNBC, Cement conforming to BDS EN-197-1-CEM-I, 52.5N, best quality Sylhet sand or coarse sand of equivalent F.M. 2.2 and 20 mm down well graded stone chips conforming to ASTM C-33 (Aggregate grading as per table shown in technical specification), High-range water reducing chemical admixture Type-G under ASTM C494 (Doses to be applied as per Manufacturer's Guideline), conducting necessary tests, making and placing shutter in position and maintaining true to plumb, making shutter water-tight properly, placing reinforcement in position; using machine batched and machine mixed concrete using cement content as per approved design mix (minimum 445 kg/ cum), carrying to the site of laying using Transit Mixer (considering setting time of concrete from plant to the site), including pumping of concrete using line pump or boom placer to site of laying, maintaining allowable slump of 100mm to150mm (measured at site), casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering after specified time approved; including cost of water, electricity, cost of all materials and other charges etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is excluding laboratory test fees, the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering).	cum	229	Tk. 15,709	**Tk. 3,597,579**
3.3	**Centering and shuttering,** including strutting, propping etc. (The formwork must be rigid enough both in and out of plane, to make the concrete surface true to the designed shape and size by using necessary MS sheets of minimum 16 BWG, angles of minimum size 40 mm x 40 mm x 5 mm, flat bars etc.) and removal of form for :T BEAM	sqm	601	Tk. 610	**Tk. 366,859**
					Tk. 24,065,417

Item No.	Description of Item	Unit	Quantity	Unit Rate (BDT)	TOTAL (BDT)
4	**Slab**				
4.1	**Grade 400/ 420** (400MPa/ 400N/mm2 ≈ 60900 psi/ **60 Grade**), BDS-6935-2006, B400: and ratio fy to fu ≥ 1.25	kg	58768	Tk. 122	**Tk. 7,150,303**
4.2	**Reinforced cement concrete works from Ready-Mix concrete** with approved mix design, well graded stone chips (100% sand of F.M. 2.2) and required admixture Reinforced cement concrete works from Ready-Mix concrete with minimum cement content relates to approved mix ratio having minimum f'cr = 40.5 MPa, satisfying a specified compressive strength **f'c = 32 MPa** at 28 days on standard cylinders as per standard practice of Code ACI / BNBC, Cement conforming to BDS EN-197-1-CEM-I, 52.5N, best quality Sylhet sand or coarse sand of equivalent F.M. 2.2 and 20 mm down well graded stone chips conforming to ASTM C-33 (Aggregate grading as per table shown in technical specification), High-range water reducing chemical admixture Type-G under ASTM C494 (Doses to be applied as per Manufacturer's Guideline), conducting necessary tests, making and placing shutter in position and maintaining true to plumb, making shutter water-tight properly, placing reinforcement in position; using machine batched and machine mixed concrete using cement content as per approved design mix (minimum 445 kg/ cum), carrying to the site of laying using Transit Mixer (considering setting time of concrete from plant to the site), including pumping of concrete using line pump or boom placer to site of laying, maintaining allowable slump of 100mm to150mm (measured at site), casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering after specified time approved; including cost of water, electricity, cost of all materials and other charges etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is excluding laboratory test fees, the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering).	cum	385	Tk. 15,709	**Tk. 6,047,965**
4.3	**Centering and shuttering,** including strutting, propping etc. (The formwork must be rigid enough both in and out of plane, to make the concrete surface true to the designed shape and size by using necessary MS sheets of minimum 16 BWG, angles of minimum size 40 mm x 40 mm x 5 mm, flat bars etc.) and removal of form for :Slab	sqm	2526	Tk. 587	**Tk. 1,482,762**
					Tk. 14,681,030

Item No.	Description of Item	Unit	Quantity	Unit Rate (BDT)	TOTAL (BDT)
5	**Stairs**				
5.1	**Grade 400/ 420** (400MPa/ 400N/mm2 ≈ 60900 psi/ **60 Grade**), BDS-6935-2006, B400: and ratio fy to fu ≥ 1.25	kg	8156	Tk. 122	**Tk. 992,341**
5.2	**Reinforced cement concrete works from Ready-Mix concrete** with approved mix design, well graded stone chips (100% sand of F.M. 2.2) and required admixture Reinforced cement concrete works from Ready-Mix concrete with minimum cement content relates to approved mix ratio having minimum f'cr = 40.5 MPa, satisfying a specified compressive strength **f'c = 32 MPa** at 28 days on standard cylinders as per standard practice of Code ACI / BNBC, Cement conforming to BDS EN-197-1-CEM-I, 52.5N, best quality Sylhet sand or coarse sand of equivalent F.M. 2.2 and 20 mm down well graded stone chips conforming to ASTM C-33 (Aggregate grading as per table shown in technical specification), High-range water reducing chemical admixture Type-G under ASTM C494 (Doses to be applied as per Manufacturer's Guideline), conducting necessary tests, making and placing shutter in position and maintaining true to plumb, making shutter water-tight properly, placing reinforcement in position; using machine batched and machine mixed concrete using cement content as per approved design mix (minimum 445 kg/ cum), carrying to the site of laying using Transit Mixer (considering setting time of concrete from plant to the site), including pumping of concrete using line pump or boom placer to site of laying, maintaining allowable slump of 100mm to150mm (measured at site), casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering after specified time approved; including cost of water, electricity, cost of all materials and other charges etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is excluding laboratory test fees, the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering).	cum	26	Tk. 15,709	**Tk. 407,397**
5.3	**Centering and shuttering,** including strutting, propping etc. (The formwork must be rigid enough both in and out of plane, to make the concrete surface true to the designed shape and size by using necessary MS sheets of minimum 16 BWG, angles of minimum size 40 mm x 40 mm x 5 mm, flat bars etc.) and removal of form for :Stairs	sqm	448	Tk. 587	**Tk. 263,074**
					Tk. 1,662,812

Item No.	Description of Item	Unit	Quantity	Unit Rate (BDT)	TOTAL (BDT)
6	**Cornice, Sunshade, Drop Wall, Lintel**				
6.1	Cornice, railing, drop walls, louver, fins etc.	cum	20	Tk. 459	**Tk. 9,180**
6.2	Sunshade, false ceiling	cum	43	Tk. 471	**Tk. 20,018**
6.3	**Lintel: Reinforced cement concrete works from Ready-Mix concrete** with approved mix design, well graded stone chips (100% sand of F.M. 2.2) and required admixture Reinforced cement concrete works from Ready-Mix concrete with minimum cement content relates to approved mix ratio having minimum f'cr = 40.5 MPa, satisfying a specified compressive strength **f'c = 32 MPa** at 28 days on standard cylinders as per standard practice of Code ACI / BNBC, Cement conforming to BDS EN-197-1-CEM-I, 52.5N, best quality Sylhet sand or coarse sand of equivalent F.M. 2.2 and 20 mm down well graded stone chips conforming to ASTM C-33 (Aggregate grading as per table shown in technical specification), High-range water reducing chemical admixture Type-G under ASTM C494 (Doses to be applied as per Manufacturer's Guideline), conducting necessary tests, making and placing shutter in position and maintaining true to plumb, making shutter water-tight properly, placing reinforcement in position; using machine batched and machine mixed concrete using cement content as per approved design mix (minimum 445 kg/ cum), carrying to the site of laying using Transit Mixer (considering setting time of concrete from plant to the site), including pumping of concrete using line pump or boom placer to site of laying, maintaining allowable slump of 100mm to150mm (measured at site), casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering after specified time approved; including cost of water, electricity, cost of all materials and other charges etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is excluding laboratory test fees, the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering)	cum	2.28	Tk. 15,709	**Tk. 35,817**
					Tk. 65,014
Total Structural Cost For 2nd Floor of Academic Building					**Tk. 50,567,386**

3rd Floor of Academic Building					
Item No.	**Description of Item**	**Unit**	**Quantity**	**Unit Rate (BDT)**	**TOTAL (BDT)**
1	**Wall**				
1.1	Brick works with first class bricks with cement sand (F.M. 1.2) mortar (1:4) in exterior walls including filling the interstices with mortar, raking out joints, cleaning and socking the bricks at least for 24 hours before use and washing of sand, necessary scaffolding, curing at least for 7 days etc. all complete including cost of water, electricity and other charges (measurement to given as 250 mm width for one brick length and 375 mm for one brick and a half brick length) accepted by the Engineer-in-charge. (Cement: CEM-II/B-M) In ground floor	cum	337	Tk. 10,634	**Tk. 3,583,658**
1.2	Minimum 12 mm thick cement sand (F.M. 1.2) plaster (1:4) with fresh cement to both inner-and outer surface of wall, finishing the corner and edges including washing of sand, cleaning the surface, curing at least for 7 days, cost of water, electricity, scaffolding and other charges etc. all complete in all respect as per drawing and accepted by the Engineer-in charge. (Cement: CEM-II/B-M)	sqm	2652	Tk. 315.00	**Tk. 835,380**
1.3	Silicon based water repellent of approved quality delivered from authorized local agent of the manufacturer in a sealed container; surface preparation including cleaning, drying, making free from dirt, grease, wax, removing all chalked and scaled materials, fungus, mending good the surface defects using sand paper and necessary scaffolding; applying 3 coats of silicon based water repellent on exposed brick surface/fair face surface spreading by brush/roller/spray & necessary scaffolding etc. up to desired finishing, elapsing specified time for drying or recoating; all complete in all floors and accepted by the Engineer-in-charge	sqm	2652	Tk. 257.00	**Tk. 681,564**
					Tk. 5,100,602
2	**Column**				
2.1	**Reinforced cement concrete works from Ready-Mix concrete** with approved mix design, well graded stone chips (100% sand of F.M. 2.2) and required admixture Reinforced cement concrete works from Ready-Mix concrete with minimum cement content relates to approved mix ratio having minimum f'cr = 40.5 MPa, satisfying a specified compressive strength **f'c = 32 MPa** at 28 days on standard cylinders as per standard practice of Code ACI / BNBC, Cement conforming to BDS EN-197-1-CEM-I, 52.5N, best quality Sylhet sand or coarse sand of equivalent F.M. 2.2 and 20 mm down well graded stone chips conforming to ASTM C-33 (Aggregate grading as per table shown in technical specification), High-range water reducing chemical admixture Type-G under ASTM C494 (Doses to be applied as per Manufacturer's Guideline), conducting necessary tests, making and placing shutter in position and maintaining true to plumb, making shutter water-tight properly, placing reinforcement in position; using machine batched and machine mixed concrete using cement content as per approved design mix (minimum 445 kg/ cum), carrying to the site of laying using Transit Mixer (considering setting time of concrete from plant to the site), including pumping of concrete using line pump or boom placer to site of laying, maintaining allowable slump of 100mm to150mm (measured at site), casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering after specified time approved; including cost of water, electricity, cost of all materials and other charges etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is excluding laboratory test fees, the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering).	cum	99.00	Tk. 15,802	**Tk. 1,564,398**
2.2	Grade 400 (B400DWR / B420DWR: complying BDS ISO 6935-2:2016 / ASTM A615) ribbed or deformed bar produced and marked according to Bangladesh standard, with minimum yield strength, fy (ReH)= 400 MPa but fy not exceeding 480 MPa and whatever is the actual yield strength within allowable limit as per BNBC/ ACI 318, the ratio of ultimate tensile strength fu to yield strength fy, shall be at least 1.25 and minimum elongation after fracture and minimum total elongation at maximum force is 17% and 8% respectively : up to ground floor.	kg	24904	Tk. 123	**Tk. 3,063,465**
2.3	**Centering and shuttering,** including strutting, propping etc. (The formwork must be rigid enough both in and out of plane, to make the concrete surface true to the designed shape and size by using necessary MS sheets of minimum 16 BWG, angles of minimum size 40 mm x 40 mm x 5 mm, flat bars etc.) and removal of form for :Columns	sqm	808	Tk. 576	**Tk. 465,408**
					Tk. 5,093,271

Item No.	Description of Item	Unit	Quantity	Unit Rate (BDT)	TOTAL (BDT)
3	**Beam**				
3.1	**Grade 400/ 420** (400MPa/ 400N/mm2 ≈ 60900 psi/ **60 Grade**), BDS-6935-2006, B400: and ratio fy to fu ≥ 1.25	kg	165209	Tk. 123	**Tk. 20,322,359**
3.2	**Reinforced cement concrete works from Ready-Mix concrete** with approved mix design, well graded stone chips (100% sand of F.M. 2.2) and required admixture Reinforced cement concrete works from Ready-Mix concrete with minimum cement content relates to approved mix ratio having minimum f'cr = 40.5 MPa, satisfying a specified compressive strength **f'c = 32 MPa** at 28 days on standard cylinders as per standard practice of Code ACI / BNBC, Cement conforming to BDS EN-197-1-CEM-I, 52.5N, best quality Sylhet sand or coarse sand of equivalent F.M. 2.2 and 20 mm down well graded stone chips conforming to ASTM C-33 (Aggregate grading as per table shown in technical specification), High-range water reducing chemical admixture Type-G under ASTM C494 (Doses to be applied as per Manufacturer's Guideline), conducting necessary tests, making and placing shutter in position and maintaining true to plumb, making shutter water-tight properly, placing reinforcement in position; using machine batched and machine mixed concrete using cement content as per approved design mix (minimum 445 kg/ cum), carrying to the site of laying using Transit Mixer (considering setting time of concrete from plant to the site), including pumping of concrete using line pump or boom placer to site of laying, maintaining allowable slump of 100mm to150mm (measured at site), casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering after specified time approved; including cost of water, electricity, cost of all materials and other charges etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is excluding laboratory test fees, the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering).	cum	229	Tk. 15,802	**Tk. 3,618,878**
3.3	**Centering and shuttering,** including strutting, propping etc. (The formwork must be rigid enough both in and out of plane, to make the concrete surface true to the designed shape and size by using necessary MS sheets of minimum 16 BWG, angles of minimum size 40 mm x 40 mm x 5 mm, flat bars etc.) and removal of form for :T BEAM	sqm	601	Tk. 628	**Tk. 377,684**
					Tk. 24,318,921

Item No.	Description of Item	Unit	Quantity	Unit Rate (BDT)	TOTAL (BDT)
4	**Slab**				
4.1	**Grade 400/ 420** (400MPa/ 400N/mm2 ≈ 60900 psi/ **60 Grade**), BDS-6935-2006, B400: and ratio fy to fu ≥ 1.25	kg	58768	Tk. 123	**Tk. 7,229,052**
4.2	**Reinforced cement concrete works from Ready-Mix concrete** with approved mix design, well graded stone chips (100% sand of F.M. 2.2) and required admixture Reinforced cement concrete works from Ready-Mix concrete with minimum cement content relates to approved mix ratio having minimum f'cr = 40.5 MPa, satisfying a specified compressive strength **f'c = 32 MPa** at 28 days on standard cylinders as per standard practice of Code ACI / BNBC, Cement conforming to BDS EN-197-1-CEM-I, 52.5N, best quality Sylhet sand or coarse sand of equivalent F.M. 2.2 and 20 mm down well graded stone chips conforming to ASTM C-33 (Aggregate grading as per table shown in technical specification), High-range water reducing chemical admixture Type-G under ASTM C494 (Doses to be applied as per Manufacturer's Guideline), conducting necessary tests, making and placing shutter in position and maintaining true to plumb, making shutter water-tight properly, placing reinforcement in position; using machine batched and machine mixed concrete using cement content as per approved design mix (minimum 445 kg/ cum), carrying to the site of laying using Transit Mixer (considering setting time of concrete from plant to the site), including pumping of concrete using line pump or boom placer to site of laying, maintaining allowable slump of 100mm to150mm (measured at site), casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering after specified time approved; including cost of water, electricity, cost of all materials and other charges etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is excluding laboratory test fees, the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering).	cum	385	Tk. 15,802	**Tk. 6,083,770**
4.3	**Centering and shuttering,** including strutting, propping etc. (The formwork must be rigid enough both in and out of plane, to make the concrete surface true to the designed shape and size by using necessary MS sheets of minimum 16 BWG, angles of minimum size 40 mm x 40 mm x 5 mm, flat bars etc.) and removal of form for :Slab	sqm	2526	Tk. 605	**Tk. 1,528,230**
					Tk. 14,841,052

Item No.	Description of Item	Unit	Quantity	Unit Rate (BDT)	TOTAL (BDT)
5	**Stairs**				
5.1	**Grade 400/ 420** (400MPa/ 400N/mm2 ≈ 60900 psi/ **60 Grade**), BDS-6935-2006, B400: and ratio fy to fu ≥ 1.25	kg	8156	Tk. 123	**Tk. 1,003,270**
5.2	**Reinforced cement concrete works from Ready-Mix concrete** with approved mix design, well graded stone chips (100% sand of F.M. 2.2) and required admixture Reinforced cement concrete works from Ready-Mix concrete with minimum cement content relates to approved mix ratio having minimum f'cr = 40.5 MPa, satisfying a specified compressive strength **f'c = 32 MPa** at 28 days on standard cylinders as per standard practice of Code ACI / BNBC, Cement conforming to BDS EN-197-1-CEM-I, 52.5N, best quality Sylhet sand or coarse sand of equivalent F.M. 2.2 and 20 mm down well graded stone chips conforming to ASTM C-33 (Aggregate grading as per table shown in technical specification), High-range water reducing chemical admixture Type-G under ASTM C494 (Doses to be applied as per Manufacturer's Guideline), conducting necessary tests, making and placing shutter in position and maintaining true to plumb, making shutter water-tight properly, placing reinforcement in position; using machine batched and machine mixed concrete using cement content as per approved design mix (minimum 445 kg/ cum), carrying to the site of laying using Transit Mixer (considering setting time of concrete from plant to the site), including pumping of concrete using line pump or boom placer to site of laying, maintaining allowable slump of 100mm to150mm (measured at site), casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering after specified time approved; including cost of water, electricity, cost of all materials and other charges etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is excluding laboratory test fees, the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering).	cum	26	Tk. 15,802	**Tk. 409,809**
5.3	**Centering and shuttering,** including strutting, propping etc. (The formwork must be rigid enough both in and out of plane, to make the concrete surface true to the designed shape and size by using necessary MS sheets of minimum 16 BWG, angles of minimum size 40 mm x 40 mm x 5 mm, flat bars etc.) and removal of form for :Stairs	sqm	448	Tk. 605	**Tk. 271,141**
					Tk. 1,684,220

Item No.	Description of Item	Unit	Quantity	Unit Rate (BDT)	TOTAL (BDT)
6	**Cornice, Sunshade, Drop Wall, Lintel**				
6.1	Cornice, railing, drop walls, louver, fins etc.	cum	20	Tk. 459	**Tk. 9,180**
6.2	Sunshade, false ceiling	cum	43	Tk. 471	**Tk. 20,018**
6.3	**Lintel: Reinforced cement concrete works from Ready-Mix concrete** with approved mix design, well graded stone chips (100% sand of F.M. 2.2) and required admixture Reinforced cement concrete works from Ready-Mix concrete with minimum cement content relates to approved mix ratio having minimum f'cr = 40.5 MPa, satisfying a specified compressive strength **f'c = 32 MPa** at 28 days on standard cylinders as per standard practice of Code ACI / BNBC, Cement conforming to BDS EN-197-1-CEM-I, 52.5N, best quality Sylhet sand or coarse sand of equivalent F.M. 2.2 and 20 mm down well graded stone chips conforming to ASTM C-33 (Aggregate grading as per table shown in technical specification), High-range water reducing chemical admixture Type-G under ASTM C494 (Doses to be applied as per Manufacturer's Guideline), conducting necessary tests, making and placing shutter in position and maintaining true to plumb, making shutter water-tight properly, placing reinforcement in position; using machine batched and machine mixed concrete using cement content as per approved design mix (minimum 445 kg/ cum), carrying to the site of laying using Transit Mixer (considering setting time of concrete from plant to the site), including pumping of concrete using line pump or boom placer to site of laying, maintaining allowable slump of 100mm to150mm (measured at site), casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering after specified time approved; including cost of water, electricity, cost of all materials and other charges etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is excluding laboratory test fees, the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering)	cum	2.28	Tk. 15,802	**Tk. 36,029**
					Tk. 65,226
Total Structural Cost For 3rd Floor of Academic Building					**Tk. 51,103,291**

4th Floor of Academic Building					
Item No.	**Description of Item**	**Unit**	**Quantity**	**Unit Rate (BDT)**	**TOTAL (BDT)**
1	**Wall**				
1.1	Brick works with first class bricks with cement sand (F.M. 1.2) mortar (1:4) in exterior walls including filling the interstices with mortar, raking out joints, cleaning and socking the bricks at least for 24 hours before use and washing of sand, necessary scaffolding, curing at least for 7 days etc. all complete including cost of water, electricity and other charges (measurement to given as 250 mm width for one brick length and 375 mm for one brick and a half brick length) accepted by the Engineer-in-charge. (Cement: CEM-II/B-M) In ground floor	cum	337	Tk. 10,813	**Tk. 3,643,981**
1.2	Minimum 12 mm thick cement sand (F.M. 1.2) plaster (1:4) with fresh cement to both inner-and outer surface of wall, finishing the corner and edges including washing of sand, cleaning the surface, curing at least for 7 days, cost of water, electricity, scaffolding and other charges etc. all complete in all respect as per drawing and accepted by the Engineer-in charge. (Cement: CEM-II/B-M)	sqm	2652	Tk. 315.00	**Tk. 835,380**
1.3	Silicon based water repellent of approved quality delivered from authorized local agent of the manufacturer in a sealed container; surface preparation including cleaning, drying, making free from dirt, grease, wax, removing all chalked and scaled materials, fungus, mending good the surface defects using sand paper and necessary scaffolding; applying 3 coats of silicon based water repellent on exposed brick surface/fair face surface spreading by brush/roller/spray & necessary scaffolding etc. up to desired finishing, elapsing specified time for drying or recoating; all complete in all floors and accepted by the Engineer-in-charge	sqm	2652	Tk. 257.00	**Tk. 681,564**
					Tk. 5,160,925
2	**Column**				
2.1	**Reinforced cement concrete works from Ready-Mix concrete** with approved mix design, well graded stone chips (100% sand of F.M. 2.2) and required admixture Reinforced cement concrete works from Ready-Mix concrete with minimum cement content relates to approved mix ratio having minimum f'cr = 40.5 MPa, satisfying a specified compressive strength **f'c = 32 MPa** at 28 days on standard cylinders as per standard practice of Code ACI / BNBC, Cement conforming to BDS EN-197-1-CEM-I, 52.5N, best quality Sylhet sand or coarse sand of equivalent F.M. 2.2 and 20 mm down well graded stone chips conforming to ASTM C-33 (Aggregate grading as per table shown in technical specification), High-range water reducing chemical admixture Type-G under ASTM C494 (Doses to be applied as per Manufacturer's Guideline), conducting necessary tests, making and placing shutter in position and maintaining true to plumb, making shutter water-tight properly, placing reinforcement in position; using machine batched and machine mixed concrete using cement content as per approved design mix (minimum 445 kg/ cum), carrying to the site of laying using Transit Mixer (considering setting time of concrete from plant to the site), including pumping of concrete using line pump or boom placer to site of laying, maintaining allowable slump of 100mm to150mm (measured at site), casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering after specified time approved; including cost of water, electricity, cost of all materials and other charges etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is excluding laboratory test fees, the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering).	cum	99.00	Tk. 15,895	**Tk. 1,573,605**
2.2	Grade 400 (B400DWR / B420DWR: complying BDS ISO 6935-2:2016 / ASTM A615) ribbed or deformed bar produced and marked according to Bangladesh standard, with minimum yield strength, fy (ReH)= 400 MPa but fy not exceeding 480 MPa and whatever is the actual yield strength within allowable limit as per BNBC/ ACI 318, the ratio of ultimate tensile strength fu to yield strength fy, shall be at least 1.25 and minimum elongation after fracture and minimum total elongation at maximum force is 17% and 8% respectively : up to ground floor.	kg	24904	Tk. 124	**Tk. 3,080,151**
2.3	**Centering and shuttering,** including strutting, propping etc. (The formwork must be rigid enough both in and out of plane, to make the concrete surface true to the designed shape and size by using necessary MS sheets of minimum 16 BWG, angles of minimum size 40 mm x 40 mm x 5 mm, flat bars etc.) and removal of form for :Columns	sqm	808	Tk. 594	**Tk. 479,952**
					Tk. 5,133,708

Item No.	Description of Item	Unit	Quantity	Unit Rate (BDT)	TOTAL (BDT)
3	**Beam**				
3.1	**Grade 400/ 420** (400MPa/ 400N/mm2 ≈ 60900 psi/ **60 Grade**), BDS-6935-2006, B400: and ratio fy to fu ≥ 1.25	kg	165209	Tk. 124	**Tk. 20,433,049**
3.2	**Reinforced cement concrete works from Ready-Mix concrete** with approved mix design, well graded stone chips (100% sand of F.M. 2.2) and required admixture Reinforced cement concrete works from Ready-Mix concrete with minimum cement content relates to approved mix ratio having minimum f'cr = 40.5 MPa, satisfying a specified compressive strength **f'c = 32 MPa** at 28 days on standard cylinders as per standard practice of Code ACI / BNBC, Cement conforming to BDS EN-197-1-CEM-I, 52.5N, best quality Sylhet sand or coarse sand of equivalent F.M. 2.2 and 20 mm down well graded stone chips conforming to ASTM C-33 (Aggregate grading as per table shown in technical specification), High-range water reducing chemical admixture Type-G under ASTM C494 (Doses to be applied as per Manufacturer's Guideline), conducting necessary tests, making and placing shutter in position and maintaining true to plumb, making shutter water-tight properly, placing reinforcement in position; using machine batched and machine mixed concrete using cement content as per approved design mix (minimum 445 kg/ cum), carrying to the site of laying using Transit Mixer (considering setting time of concrete from plant to the site), including pumping of concrete using line pump or boom placer to site of laying, maintaining allowable slump of 100mm to150mm (measured at site), casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering after specified time approved; including cost of water, electricity, cost of all materials and other charges etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is excluding laboratory test fees, the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering).	cum	229	Tk. 15,895	**Tk. 3,640,176**
3.3	**Centering and shuttering,** including strutting, propping etc. (The formwork must be rigid enough both in and out of plane, to make the concrete surface true to the designed shape and size by using necessary MS sheets of minimum 16 BWG, angles of minimum size 40 mm x 40 mm x 5 mm, flat bars etc.) and removal of form for :T BEAM	sqm	601	Tk. 646	**Tk. 388,509**
					Tk. 24,461,734

Item No.	Description of Item	Unit	Quantity	Unit Rate (BDT)	TOTAL (BDT)
4	**Slab**				
4.1	**Grade 400/ 420** (400MPa/ 400N/mm2 ≈ 60900 psi/ **60 Grade**), BDS-6935-2006, B400: and ratio fy to fu ≥ 1.25	kg	58768	Tk. 124	**Tk. 7,268,426**
4.2	**Reinforced cement concrete works from Ready-Mix concrete** with approved mix design, well graded stone chips (100% sand of F.M. 2.2) and required admixture Reinforced cement concrete works from Ready-Mix concrete with minimum cement content relates to approved mix ratio having minimum f'cr = 40.5 MPa, satisfying a specified compressive strength **f'c = 32 MPa** at 28 days on standard cylinders as per standard practice of Code ACI / BNBC, Cement conforming to BDS EN-197-1-CEM-I, 52.5N, best quality Sylhet sand or coarse sand of equivalent F.M. 2.2 and 20 mm down well graded stone chips conforming to ASTM C-33 (Aggregate grading as per table shown in technical specification), High-range water reducing chemical admixture Type-G under ASTM C494 (Doses to be applied as per Manufacturer's Guideline), conducting necessary tests, making and placing shutter in position and maintaining true to plumb, making shutter water-tight properly, placing reinforcement in position; using machine batched and machine mixed concrete using cement content as per approved design mix (minimum 445 kg/ cum), carrying to the site of laying using Transit Mixer (considering setting time of concrete from plant to the site), including pumping of concrete using line pump or boom placer to site of laying, maintaining allowable slump of 100mm to150mm (measured at site), casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering after specified time approved; including cost of water, electricity, cost of all materials and other charges etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is excluding laboratory test fees, the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering).	cum	385	Tk. 15,895	**Tk. 6,119,575**
4.3	**Centering and shuttering,** including strutting, propping etc. (The formwork must be rigid enough both in and out of plane, to make the concrete surface true to the designed shape and size by using necessary MS sheets of minimum 16 BWG, angles of minimum size 40 mm x 40 mm x 5 mm, flat bars etc.) and removal of form for :Slab	sqm	2526	Tk. 623	**Tk. 1,573,698**
					Tk. 14,961,699

Item No.	Description of Item	Unit	Quantity	Unit Rate (BDT)	TOTAL (BDT)
5	**Stairs**				
5.1	**Grade 400/ 420** (400MPa/ 400N/mm2 ≈ 60900 psi/ **60 Grade**), BDS-6935-2006, B400: and ratio fy to fu ≥ 1.25	kg	8156	Tk. 124	**Tk. 1,008,734**
5.2	**Reinforced cement concrete works from Ready-Mix concrete** with approved mix design, well graded stone chips (100% sand of F.M. 2.2) and required admixture Reinforced cement concrete works from Ready-Mix concrete with minimum cement content relates to approved mix ratio having minimum f'cr = 40.5 MPa, satisfying a specified compressive strength **f'c = 32 MPa** at 28 days on standard cylinders as per standard practice of Code ACI / BNBC, Cement conforming to BDS EN-197-1-CEM-I, 52.5N, best quality Sylhet sand or coarse sand of equivalent F.M. 2.2 and 20 mm down well graded stone chips conforming to ASTM C-33 (Aggregate grading as per table shown in technical specification), High-range water reducing chemical admixture Type-G under ASTM C494 (Doses to be applied as per Manufacturer's Guideline), conducting necessary tests, making and placing shutter in position and maintaining true to plumb, making shutter water-tight properly, placing reinforcement in position; using machine batched and machine mixed concrete using cement content as per approved design mix (minimum 445 kg/ cum), carrying to the site of laying using Transit Mixer (considering setting time of concrete from plant to the site), including pumping of concrete using line pump or boom placer to site of laying, maintaining allowable slump of 100mm to150mm (measured at site), casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering after specified time approved; including cost of water, electricity, cost of all materials and other charges etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is excluding laboratory test fees, the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering).	cum	26	Tk. 15,895	**Tk. 412,221**
5.3	**Centering and shuttering,** including strutting, propping etc. (The formwork must be rigid enough both in and out of plane, to make the concrete surface true to the designed shape and size by using necessary MS sheets of minimum 16 BWG, angles of minimum size 40 mm x 40 mm x 5 mm, flat bars etc.) and removal of form for :Stairs	sqm	448	Tk. 623	**Tk. 279,208**
					Tk. 1,700,163

Item No.	Description of Item	Unit	Quantity	Unit Rate (BDT)	TOTAL (BDT)
6	**Cornice, Sunshade, Drop Wall, Lintel**				
6.1	Cornice, railing, drop walls, louver, fins etc.	cum	20	Tk. 459	**Tk. 9,180**
6.2	Sunshade, false ceiling	cum	43	Tk. 471	**Tk. 20,018**
6.3	**Lintel: Reinforced cement concrete works from Ready-Mix concrete** with approved mix design, well graded stone chips (100% sand of F.M. 2.2) and required admixture Reinforced cement concrete works from Ready-Mix concrete with minimum cement content relates to approved mix ratio having minimum f'cr = 40.5 MPa, satisfying a specified compressive strength **f'c = 32 MPa** at 28 days on standard cylinders as per standard practice of Code ACI / BNBC, Cement conforming to BDS EN-197-1-CEM-I, 52.5N, best quality Sylhet sand or coarse sand of equivalent F.M. 2.2 and 20 mm down well graded stone chips conforming to ASTM C-33 (Aggregate grading as per table shown in technical specification), High-range water reducing chemical admixture Type-G under ASTM C494 (Doses to be applied as per Manufacturer's Guideline), conducting necessary tests, making and placing shutter in position and maintaining true to plumb, making shutter water-tight properly, placing reinforcement in position; using machine batched and machine mixed concrete using cement content as per approved design mix (minimum 445 kg/ cum), carrying to the site of laying using Transit Mixer (considering setting time of concrete from plant to the site), including pumping of concrete using line pump or boom placer to site of laying, maintaining allowable slump of 100mm to150mm (measured at site), casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering after specified time approved; including cost of water, electricity, cost of all materials and other charges etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is excluding laboratory test fees, the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering)	cum	2.28	Tk. 15,895	**Tk. 36,241**
					Tk. 65,438
7	**CC.Water Proof, Damp Proof, Plaster in Rooftop**				
7.1	CC:75 mm thick cement concrete (1:3:6) flooring with cement, best quality coarse sand and 19 mm downgraded picked jhama brick chips including breaking of chips, screening, mixing, laying, compacting, washing and screening of sand (F.M 1.2) and curing at least for 7 days etc. including cost of water, electricity and other charges etc. All complete and accepted by the Engineer-in-charge. (Cement: CEM-II/B-M)	cum	1925.00	Tk. 702	**Tk. 1,351,350**
7.2	Supply and application of 19mm thick (9.5 mm X 2 layer) water proof, damp proof, dry and breathable plaster on roof slab/ underground water reservoir/ overhead water reservoir/ basement/ retaining wall with water proof, damp proof, dry and breathable Izonil cement (STN-EN -1015-11, compressive strength 34 MPa, max depth of water penetration into hardened plaster is < 1 mm) or equivalent compound in a proportion of 1:2.4 (Izonil cement or equivalent compound 1: sand 2.4) after cement grouting on existing concrete surface including finishing the corner and edges, washing sand, cleaning the surface scaffolding and curing at least 3 days etc. all completed in all respects as per direction of Engineering-in-charge. Above mentioned plaster includes glass fiber mesh of 10 mm X 10 mm grid and weight 110 gm/sqm placed in between two layers.	cum	385.00	Tk. 1,240	**Tk. 477,400**
					Tk. 1,828,750
Total Structural Cost For 4th Floor of Academic Building					**Tk. 53,312,418**

Non Structural Components of Academic Building							
1	**Plumbing**						
1.1	Supplying, fitting and fixing of European type country made best quality glazed porcelain combi closet (two piece), including plastic seat cover	Each	14	Tk.	8,963	**Tk.**	**125,482**
1.2	Supplying, fitting and fixing of country made glazed vitreous W/H wash basin excluding pedestal. The sanitary ware shall conform BDS1162:2014. The glaze shall be thoroughly fused to body. The minimum thickness of body at any section shall be 5 mm. When assembled together and when examined from a distance of 60 cm, the outer surface shall not show to the unaided eye, blemishes or defects in excess of those listed in BDS standard. The mean value of water absorption shall not be greater than 0.5% of the ware when dry. When tested with chemical solutions (Acetic acid, Citric acid, Detergent, Hydrochloric acid, Sodium hydroxide, Sodium stearate and Sulfuric acid of various strength) as per BDS1162:2014 procedure, none of the test pieces should suffer any loss of reflectivity on the glaze. There shall be no crazing and no stain on the ware. The materials used for making glaze shall not contain lead compound. In case of certain coloring oxides used for making colored glaze, the lead content, if any, shall not exceed 5 percent of the weight of the glaze materials. Appliances shall be clearly and indelibly marked at a prominent place, visible even after the appliances are installed with the following: a) manufacturer's name and/or registered trademark, b) the number of Bangladesh standard and c) country of origin. Each product shall also be marked with the BSTI Certification Mark. The fixture should be placed in position with heavy type C.I. Brackets. 30 mm dia PVC waste water pipe with brass coupling (not exceeding 750 mm in length), basin waste with chain plug including making holes in walls and floors and fitting with wall, screws and mending good the damages, finishing etc. all complete approved and accepted by the Engineer-in-charge Over Counter: Approx. 400X 200 mm, minimum weight 6.0 kg .	Each	18	Tk.	3,529	**Tk.**	**63,522**
1.3	Supplying, fitting and fixing of 5 mm thick unframed super quality double coated mirror with all necessary fitting including making holes in walls and mending good the damages with cement mortar (1:4) etc. all complete approved and accepted by the Engineer-in-charge. Local Mirror, 5 mm thickness	Each	3	Tk.	2,590	**Tk.**	**7,770**
1.4	Country made urinal Approx. 330 X 355 X 445 mm size, minimum 10.0 kg of weight	Each	14	Tk.	1,705	**Tk.**	**23,870**
1.5	Supplying, fitting and fixing of best quality toilet paper holder of standard size including making holes in walls and mending good the damages with cement mortar (1:4) etc. all complete approved and accepted by the Engineer-in-charge.-PVC toilet paper holder	Each	14	Tk.	293	**Tk.**	**4,102**
1.6	PVC soap tray	Each	14	Tk.	150	**Tk.**	**2,100**
1.7	Supplying, fitting and fixing of floor grating net in traps or in drains including making holes in walls/ floors and mending good the damages with cement mortar (1:4) etc. all complete approved and accepted by the Engineer-in-charge of following type. Approx. 50~75 mm dia stainless steel floor grating net	Each	14	Tk.	187	**Tk.**	**2,618**
1.8	Supplying 50mmt inside dia best quality uPVC soil, waste and ventilation pipe having specific gravity 1.35 - 1.45, wall thickness 2.5 mm - 3.0 mm, and other physical, chemical, thermal, fire resistivity properties etc. as per BSTI approved manufacturer standards or ASTM, BS/ISO/IS standards fitting and fixing in position with sockets, bends, of uPVC Pipe with all accessories such as Round grating/ domed roof grating bands, sockets etc. approved and accepted by the Engineer in-charge.	RM	12	Tk.	564	**Tk.**	**6,768**
1.9	Supplying different inside dia best quality uPVC pressure pipe for water supply having specific gravity 1.35 -1.45, and other physical, chemical, thermal, fire resistivity properties etc. as per BSTI approved manufacturer standards or ASTM, BS/ISO/IS standards fitted and fixed in position with sockets, bends, with all accessories such as Round grating/ domed roof grating, bends, sockets etc. approved and accepted by the Engineer-in-charge.75 mm dia wall thickness 2.9 mm - 3.5 mm	RM	12	Tk.	638	**Tk.**	**7,656**
1.10	Supply & fixing 150 mm dia uPVC pipe for underground laying including fitting, fixing etc. all complete approved and accepted by the Engineer. 50 mm dia G.I. Union	RM	12	Tk.	1,150	**Tk.**	**13,800**
1.11	Supplying, fitting and fixing best quality gate valve with sealant etc. complete approved and accepted by the Engineer.					**Tk.**	**-**
1.12	50 mm brass gate valve	Each	18	Tk.	2,456	**Tk.**	**44,208**
1.13	100 mm dia uPVC long trap	Each	18	Tk.	558	**Tk.**	**10,044**

Item No.	Description of Item	Unit	Quantity	Unit Rate (BDT)	TOTAL (BDT)
1.14	Supplying, fitting and fixing best quality faucets etc. complete approved and accepted by the Engineer				Tk. -
1.15	12 mm Special quality CP bib cock	Each	18	Tk. 1,391	Tk. 25,038
1.16	Supplying, fitting and fixing medium best quality CP pillar cock etc. complete approved and accepted by the Engineer				Tk. -
1.17	12 mm CP stop cock concealed type (heavy quality)	Each	18	Tk. 1,659	Tk. 29,862
1.18	Moving type push shower	Each	14	Tk. 750	Tk. 10,500
1.19	Construction of masonry inspection pit with 250 mm thick brick work in cement mortar (1:4) including necessary earth work, side filling and one layer brick flat soling, 75 mm thick (1:3:6) base concrete for making invert channel and 12 mm thick (1:2) cement plaster with neat finishing etc. all complete up to a depth of 700 mm approved and accepted by the Engineer.	Each	4	Tk. 4,767	Tk. 19,068
1.20	Construction of septic tank of different sizes with walls of brick work in cement mortar (1:6) having a lining of minimum 125 mm R.C.C cast against the walls as per approved type plan over a brick flat soling and 150 mm thick reinforced cement concrete flooring (1:2:4) with 125 mm thick walls in partition and 12 mm thick cement plaster (1:4) with N.C.F. to insides of walls on floor and all around outside walls by 450 mm height at top including supplying, fitting and fixing of two R.C.C. Tees and providing 450 mm dia water sealed heavy type C.I. manhole cover with locking/unlocking arrangement and 100 mm thick R.C.C (1:2:4) top slab, including centering, shuttering, fabricating, casting and curing etc. complete up to required depth including necessary earth work in excavation and shoring, bailing out water and side filling including the cost of all materials, operations and incidental charges etc. all complete as per type plan approved and accepted by the Engineer-in-charge. (Rate is including cost of reinforcement and its fabrication, binding and placing).	For each 200 users	12	Tk. 330,587	Tk. 3,967,044
1.21	Construction of soak well of different sizes (medium and large sizes) with 250 mm thick solid brick work and 250 mm honey comb brick work with cement mortar (1:6) as per design over R.C.C. (1:2:4) well curb with 1% reinforcement up to the depth as per drawing with 450 mm dia water sealed heavy type. C.I. manhole cover with locking arrangement, filling the well up to the required depth with graded khoa and sand including supplying and fabricating M.S. Rod, casting, curing including necessary earth work in excavation, side filling and bailing out water including cost of all materials etc. all complete as per drawing, design approved and accepted by the Engineer. (Rate is including cost of reinforcement and its fabrication, binding and placing)	Each 200 users	4	Tk. 149,820	Tk. 599,280
	Total Plumbing Cost for Ground Floor				Tk. 4,962,732
	Total Plumbing Cost for 1st Floor to Rooftop				Tk. 1,650,780
2	**UGWT**				
2.1	Construction of Underground Water Reservoir	cum	8640	Tk. 10,292	Tk. 88,922,880
3	**OHWR**				
3.1	Overhead water reservoir (2500 liter capacity)	cum	2160	Tk. 15,523	Tk. 3,554,983
4	**Academic Building Component Costs**				
4.1	Chairs, Curtains, Doors, Practise room equipments, Windows, Lights Etc				Tk. 45,347,940
5	**Academic Building Electrification**				
5.1	Internal Electrification	sqm	2526	Tk. 1,930	Tk. 4,875,180
Total Sub-Structural Cost of Academic Building					Tk. 18,844,225
Total Structural Cost of Academic Building					Tk. 261,889,936
Total Non Structural Cost of Academic Building					Tk. 149,314,495
Total Cost of Academic Building					Tk. 430,048,656

Floor Wise Cost Breakdown	Area (Sqft)	Costs	
Sub-Structure	30864	Tk.	18,844,225
Ground Floor Structural Cost	30864	Tk.	56,564,302
1st Floor Structural Cost	30864	Tk.	50,342,538
2nd Floor Structural Cost	30864	Tk.	50,567,386
3rd Floor Structural Cost	30864	Tk.	51,103,291
4th Floor Structural Cost	30864	Tk.	53,312,418
Non Structural Cost		Tk.	149,314,495
Total Cost of Academic Building		**Tk.**	**430,048,656**
Per Sqft Cost (BDT)		**Tk.**	**2,775**

Auditorium BUILDING STRUCTURAL COST DETAILS

Total Cost For Auditorium					
Item No.	**Description of Item**	**Unit**	**Quantity**	**Unit Rate (BDT)**	**TOTAL (BDT)**
1	**Wall**				
1.1	Brick works with first class bricks with cement sand (F.M. 1.2) mortar (1:4) in exterior walls including filling the interstices with mortar, raking out joints, cleaning and socking the bricks at least for 24 hours before use and washing of sand, necessary scaffolding, curing at least for 7 days etc. all complete including cost of water, electricity and other charges (measurement to given as 250 mm width for one brick length and 375 mm for one brick and a half brick length) accepted by the Engineer-in-charge. (Cement: CEM-II/B-M) In ground floor	cum	97	Tk. 10,097	**Tk. 978,409**
1.2	Minimum 12 mm thick cement sand (F.M. 1.2) plaster (1:4) with fresh cement to both inner-and outer surface of wall, finishing the corner and edges including washing of sand, cleaning the surface, curing at least for 7 days, cost of water, electricity, scaffolding and other charges etc. all complete in all respect as per drawing and accepted by the Engineer-in charge. (Cement: CEM-II/B-M)	sqm	763	Tk. 315	**Tk. 240,345**
1.3	Silicon based water repellent of approved quality delivered from authorized local agent of the manufacturer in a sealed container; surface preparation including cleaning, drying, making free from dirt, grease, wax, removing all chalked and scaled materials, fungus, mending good the surface defects using sand paper and necessary scaffolding; applying 3 coats of silicon based water repellent on exposed brick surface/fair face surface spreading by brush/roller/spray & necessary scaffolding etc. up to desired finishing, elapsing specified time for drying or recoating; all complete in all floors and accepted by the Engineer-in-charge	sqm	763	Tk. 257	**Tk. 196,091**
					Tk. 1,414,845
2	**Short Column**				
2.1	**Reinforced cement concrete works from Ready-Mix concretefrom Ready-Mix Concrete plant** with approved mix design, well graded stone chips (100% sand of F.M. 2.2) and required admixture Reinforced cement concrete works from Ready-Mix concrete with minimum cement content relates to approved mix ratio having minimum f'cr = 40.5 MPa, satisfying a specified compressive strength **f'c = 32 MPa** at 28 days on standard cylinders as per standard practice of Code ACI / BNBC, Cement conforming to BDS EN-197-1-CEM-I, 52.5N, best quality Sylhet sand or coarse sand of equivalent F.M. 2.2 and 20 mm down well graded stone chips conforming to ASTM C-33 (Aggregate grading as per table shown in technical specification), High-range water reducing chemical admixture Type-G under ASTM C494 (Doses to be applied as per Manufacturer's Guideline), conducting necessary tests, making and placing shutter in position and maintaining true to plumb, making shutter water-tight properly, placing reinforcement in position; using machine batched and machine mixed concrete using cement content as per approved design mix (minimum 445 kg/ cum), carrying to the site of laying using Transit Mixer (considering setting time of concrete from plant to the site), including pumping of concrete using line pump or boom placer to site of laying, maintaining allowable slump of 100mm to150mm (measured at site), casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering after specified time approved; including cost of water, electricity, cost of all materials and other charges etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is excluding laboratory test fees, the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering).	cum	13.65	Tk. 15,523	Tk. 211,889
2.2	Grade 400 (B400DWR / B420DWR: complying BDS ISO 6935-2:2016 / ASTM A615) ribbed or deformed bar produced and marked according to Bangladesh standard, with minimum yield strength, fy (ReH)= 400 MPa but fy not exceeding 480 MPa and whatever is the actual yield strength within allowable limit as per BNBC/ ACI 318, the ratio of ultimate tensile strength fu to yield strength fy, shall be at least 1.25 and minimum elongation after fracture and minimum total elongation at maximum force is 17% and 8% respectively : up to ground floor.	kg	2591	Tk. 121	Tk. 313,461
2.3	**Centering and shuttering,** including strutting, propping etc. (The formwork must be rigid enough both in and out of plane, to make the concrete surface true to the designed shape and size by using necessary MS sheets of minimum 16 BWG, angles of minimum size 40 mm x 40 mm x 5 mm, flat bars etc.) and removal of form for :Columns	sqm	99.5	Tk. 522	**Tk. 51,939**
					Tk. 577,289

Item No.	Description of Item	Unit	Quantity	Unit Rate (BDT)	TOTAL (BDT)
3	**Column**				
3.1	**Reinforced cement concrete works from Ready-Mix concretefrom Ready-Mix Concrete plant** with approved mix design, well graded stone chips (100% sand of F.M. 2.2) and required admixture Reinforced cement concrete works from Ready-Mix concrete with minimum cement content relates to approved mix ratio having minimum f'cr = 40.5 MPa, satisfying a specified compressive strength **f'c = 32 MPa** at 28 days on standard cylinders as per standard practice of Code ACI / BNBC, Cement conforming to BDS EN-197-1-CEM-I, 52.5N, best quality Sylhet sand or coarse sand of equivalent F.M. 2.2 and 20 mm down well graded stone chips conforming to ASTM C-33 (Aggregate grading as per table shown in technical specification), High-range water reducing chemical admixture Type-G under ASTM C494 (Doses to be applied as per Manufacturer's Guideline), conducting necessary tests, making and placing shutter in position and maintaining true to plumb, making shutter water-tight properly, placing reinforcement in position; using machine batched and machine mixed concrete using cement content as per approved design mix (minimum 445 kg/ cum), carrying to the site of laying using Transit Mixer (considering setting time of concrete from plant to the site), including pumping of concrete using line pump or boom placer to site of laying, maintaining allowable slump of 100mm to150mm (measured at site), casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering after specified time approved; including cost of water, electricity, cost of all materials and other charges etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is excluding laboratory test fees, the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering).	cum	40.94	Tk. 15,523	Tk. 635,472
3.2	Grade 400 (B400DWR / B420DWR: complying BDS ISO 6935-2:2016 / ASTM A615) ribbed or deformed bar produced and marked according to Bangladesh standard, with minimum yield strength, fy (ReH)= 400 MPa but fy not exceeding 480 MPa and whatever is the actual yield strength within allowable limit as per BNBC/ ACI 318, the ratio of ultimate tensile strength fu to yield strength fy, shall be at least 1.25 and minimum elongation after fracture and minimum total elongation at maximum force is 17% and 8% respectively : up to ground floor.	kg	6908	Tk. 121	Tk. 835,897
3.3	**Centering and shuttering,** including strutting, propping etc. (The formwork must be rigid enough both in and out of plane, to make the concrete surface true to the designed shape and size by using necessary MS sheets of minimum 16 BWG, angles of minimum size 40 mm x 40 mm x 5 mm, flat bars etc.) and removal of form for :Columns	sqm	262	Tk. 522	**Tk. 136,764**
					Tk. 1,608,134

Item No.	Description of Item	Unit	Quantity	Unit Rate (BDT)	TOTAL (BDT)
4	**Beam**				
4.1	**Grade 400/ 420** (400MPa/ 400N/mm2 ≈ 60900 psi/ **60 Grade**), BDS-6935-2006, B400: and ratio fy to fu ≥ 1.25	kg	58875	Tk. 121	Tk. 7,123,875
4.2	**Reinforced cement concrete works from Ready-Mix concretefrom Ready-Mix Concrete plant** with approved mix design, well graded stone chips (100% sand of F.M. 2.2) and required admixture Reinforced cement concrete works from Ready-Mix concrete with minimum cement content relates to approved mix ratio having minimum f'cr = 40.5 MPa, satisfying a specified compressive strength **f'c = 32 MPa** at 28 days on standard cylinders as per standard practice of Code ACI / BNBC, Cement conforming to BDS EN-197-1-CEM-I, 52.5N, best quality Sylhet sand or coarse sand of equivalent F.M. 2.2 and 20 mm down well graded stone chips conforming to ASTM C-33 (Aggregate grading as per table shown in technical specification), High-range water reducing chemical admixture Type-G under ASTM C494 (Doses to be applied as per Manufacturer's Guideline), conducting necessary tests, making and placing shutter in position and maintaining true to plumb, making shutter water-tight properly, placing reinforcement in position; using machine batched and machine mixed concrete using cement content as per approved design mix (minimum 445 kg/ cum), carrying to the site of laying using Transit Mixer (considering setting time of concrete from plant to the site), including pumping of concrete using line pump or boom placer to site of laying, maintaining allowable slump of 100mm to150mm (measured at site), casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering after specified time approved; including cost of water, electricity, cost of all materials and other charges etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is excluding laboratory test fees, the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering).	cum	58.52	Tk. 15,523	Tk. 908,406
4.3	**Centering and shuttering,** including strutting, propping etc. (The formwork must be rigid enough both in and out of plane, to make the concrete surface true to the designed shape and size by using necessary MS sheets of minimum 16 BWG, angles of minimum size 40 mm x 40 mm x 5 mm, flat bars etc.) and removal of form for :T BEAM	sqm	894	Tk. 574	**Tk. 513,156**
					Tk. 8,545,437

Item No.	Description of Item	Unit	Quantity	Unit Rate (BDT)	TOTAL (BDT)
5	**Grade Beam**				
5.1	**Grade 400/ 420** (400MPa/ 400N/mm2 ≈ 60900 psi/ **60 Grade**), BDS-6935-2006, B400: and ratio fy to fu ≥ 1.25	kg	2305	Tk. 121	Tk. 278,905
5.2	**Reinforced cement concrete works from Ready-Mix concretefrom Ready-Mix Concrete plant** with approved mix design, well graded stone chips (100% sand of F.M. 2.2) and required admixture Reinforced cement concrete works from Ready-Mix concrete with minimum cement content relates to approved mix ratio having minimum f'cr = 40.5 MPa, satisfying a specified compressive strength **f'c = 32 MPa** at 28 days on standard cylinders as per standard practice of Code ACI / BNBC, Cement conforming to BDS EN-197-1-CEM-I, 52.5N, best quality Sylhet sand or coarse sand of equivalent F.M. 2.2 and 20 mm down well graded stone chips conforming to ASTM C-33 (Aggregate grading as per table shown in technical specification), High-range water reducing chemical admixture Type-G under ASTM C494 (Doses to be applied as per Manufacturer's Guideline), conducting necessary tests, making and placing shutter in position and maintaining true to plumb, making shutter water-tight properly, placing reinforcement in position; using machine batched and machine mixed concrete using cement content as per approved design mix (minimum 445 kg/ cum), carrying to the site of laying using Transit Mixer (considering setting time of concrete from plant to the site), including pumping of concrete using line pump or boom placer to site of laying, maintaining allowable slump of 100mm to150mm (measured at site), casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering after specified time approved; including cost of water, electricity, cost of all materials and other charges etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is excluding laboratory test fees, the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering).	cum	50.8	Tk. 15,523	Tk. 788,568
5.3	**Centering and shuttering,** including strutting, propping etc. (The formwork must be rigid enough both in and out of plane, to make the concrete surface true to the designed shape and size by using necessary MS sheets of minimum 16 BWG, angles of minimum size 40 mm x 40 mm x 5 mm, flat bars etc.) and removal of form for :T BEAM	sqm	555.4	Tk. 574	**Tk. 318,800**
					Tk. 1,386,273

Item No.	Description of Item	Unit	Quantity	Unit Rate (BDT)	TOTAL (BDT)
6	**Slab**				
6.1	**Grade 400/ 420** (400MPa/ 400N/mm2 ≈ 60900 psi/ **60 Grade**), BDS-6935-2006, B400: and ratio fy to fu ≥ 1.25	kg	4867	Tk. 121	**Tk. 588,907**
6.2	**Reinforced cement concrete works from Ready-Mix concretefrom Ready-Mix Concrete plant** with approved mix design, well graded stone chips (100% sand of F.M. 2.2) and required admixture Reinforced cement concrete works from Ready-Mix concrete with minimum cement content relates to approved mix ratio having minimum f'cr = 40.5 MPa, satisfying a specified compressive strength **f'c = 32 MPa** at 28 days on standard cylinders as per standard practice of Code ACI / BNBC, Cement conforming to BDS EN-197-1-CEM-I, 52.5N, best quality Sylhet sand or coarse sand of equivalent F.M. 2.2 and 20 mm down well graded stone chips conforming to ASTM C-33 (Aggregate grading as per table shown in technical specification), High-range water reducing chemical admixture Type-G under ASTM C494 (Doses to be applied as per Manufacturer's Guideline), conducting necessary tests, making and placing shutter in position and maintaining true to plumb, making shutter water-tight properly, placing reinforcement in position; using machine batched and machine mixed concrete using cement content as per approved design mix (minimum 445 kg/ cum), carrying to the site of laying using Transit Mixer (considering setting time of concrete from plant to the site), including pumping of concrete using line pump or boom placer to site of laying, maintaining allowable slump of 100mm to150mm (measured at site), casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering after specified time approved; including cost of water, electricity, cost of all materials and other charges etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is excluding laboratory test fees, the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering).	cum	107	Tk. 15,523	**Tk. 1,660,961**
6.3	**Centering and shuttering,** including strutting, propping etc. (The formwork must be rigid enough both in and out of plane, to make the concrete surface true to the designed shape and size by using necessary MS sheets of minimum 16 BWG, angles of minimum size 40 mm x 40 mm x 5 mm, flat bars etc.) and removal of form for :Slab	sqm	716	Tk. 551	**Tk. 394,516**
					Tk. 2,644,384

Item No.	Description of Item	Unit	Quantity	Unit Rate (BDT)	TOTAL (BDT)
7	**Foundation**				
7.1	**Reinforced cement concrete works from Ready-Mix concrete from Ready-Mix Concrete plant** with approved mix design, well graded stone chips (100% sand of F.M. 2.2) and required admixture Reinforced cement concrete works from Ready-Mix concrete with minimum cement content relates to approved mix ratio having minimum f'cr = 40.5 MPa, satisfying a specified compressive strength **f'c = 32 MPa** at 28 days on standard cylinders as per standard practice of Code ACI / BNBC, Cement conforming to BDS EN-197-1-CEM-I, 52.5N, best quality Sylhet sand or coarse sand of equivalent F.M. 2.2 and 20 mm down well graded stone chips conforming to ASTM C-33 (Aggregate grading as per table shown in technical specification), High-range water reducing chemical admixture Type-G under ASTM C494 (Doses to be applied as per Manufacturer's Guideline), conducting necessary tests, making and placing shutter in position and maintaining true to plumb, making shutter water-tight properly, placing reinforcement in position; using machine batched and machine mixed concrete using cement content as per approved design mix (minimum 445 kg/ cum), carrying to the site of laying using Transit Mixer (considering setting time of concrete from plant to the site), including pumping of concrete using line pump or boom placer to site of laying, maintaining allowable slump of 100mm to150mm (measured at site), casting in forms, compacting by vibrator machine and curing at least for 28 days, removing centering-shuttering after specified time approved; including cost of water, electricity, cost of all materials and other charges etc. all complete, approved and accepted by the Engineer-in-charge. (Rate is excluding laboratory test fees, the cost of reinforcement and its fabrication, placing, binding etc. and the cost of shuttering & centering)	cum	18	Tk. 15,523	**Tk. 285,055**
7.2	**Reinforcement Grade 400/ 420** (400MPa/ 400N/mm2 ≈ 60900 psi/ **60 Grade**), BDS-6935-2006, B400: and ratio fy to fu ≥ 1.25	kg	807	Tk. 121	**Tk. 97,680**
7.3	**Brick Work** One layer brick flat soling in foundation or in floor with first class/picked jhama bricks (BDS 208) including preparation of bed and filling the interstices with local sand, leveling etc. complete and accepted by the Engineer-in-charge.	sqm	10	Tk. 636	**Tk. 6,355**
7.4	**Centering and shuttering,** including strutting, propping etc. (The formwork must be rigid enough both in and out of plane, to make the concrete surface true to the designed shape and size by using necessary MS sheets of minimum 16 BWG, angles of minimum size 40 mm x 40 mm x 5 mm, flat bars etc.) and removal of form for :Slab	sqm	59	Tk. 582	**Tk. 34,406**
7.5	**Earthwork** in excavation in foundation trenches up to 1.5 m depth and maximum 10 m lead Earth work in excavation in all kinds of soil for foundation trenches including layout, providing center lines, local bench mark pillars, levelling, ramming and preparing the base, fixing bamboo spikes and marking layout with chalk powder, providing necessary tools and plants, protecting and maintaining the trench dry etc., stacking, cleaning the excavated earth at a safe distance out of the area enclosed by the layout etc. all complete and accepted by the Engineer in-charge, subject to submit method statement of carrying out excavation work to the Engineer-in-charge for approval. However, engineer's approval shall not relieve the contractor of his responsibilities and obligations under the contract.	cum	181	Tk. 228	**Tk. 41,222**
7.6	**Earth filling** in foundation trenches and plinth in 150 mm layer with earth available within 90 m of the building site to achieve minimum dry density of 95% with optimum moisture content (Modified proctor test) including carrying watering, leveling, dressing and compacting to a specified percentage each layer up to finished level etc. all complete and accepted by Engineer-in-charge.	cum	150	Tk. 207	**Tk. 31,061**
7.7	**Soil Investigation**	nos.	1	Tk. 38,821	**Tk. 38,821**
					Tk. 534,601
8	**Auditorium Component Costs**				
8.1	Chairs, Curtains, Doors, Practise room equipments, Windows, Lights Etc				**Tk. 2,100,950**
9	**Auditorium Plumbing and Electrification**				
9.1	Internal Sanitary & Water Supply	sqm	814	Tk. 1,567	**Tk. 1,275,538**
9.2	Internal Electrification	sqm	814	Tk. 1,930	**Tk. 1,571,020**
					Tk. 2,846,558

Cost Breakdown for Auditorium Building	
Total Structural Cost For Auditorium	**Tk. 16,176,363**
Total Sub-Structural Cost For Auditorium	**Tk. 534,601**
Non Structural Costs For Auditorium	**Tk. 4,947,508**
Total Cost For Auditorium (8750 Sqft)	**Tk. 21,658,472**
Total Cost Per Sqft For Auditorium	**Tk. 2,475**