

[Section 6]

DESIGN REFERENCE FOR

**Design and Construction Supervision Consulting Services for
the Ex-Post Management Project of Enhancing the Vocational
Training Program of TTC, Chittagong.**

(Tender No.: KOICA-Bangladesh-2026-03)

09, 2026

Korea International Cooperation Agency (KOICA)

1. Project Overview

A. Project Title:

Design and Construction Supervision Consulting Services for the Ex-Post Management Project of Enhancing the Vocational Training Program of TTC, Chittagong.

B. Development Background

The Bangladesh Technical Training Center at Chittagong was first established by the Bangladeshi government in 1962.

Meanwhile, in 2013, the Korea International Cooperation Agency (hereinafter "KOICA") carried out remodeling work on most of the buildings within the Bangladesh Technical Training Center facilities.

At that time, **the facility's name was officially changed to the Bangladesh-Korea Technical Training Center (hereinafter "BK TTC") at Chittagong.**

However, regarding the Academic Building, one of the facilities, the building structure was so dilapidated that it posed a risk of collapse; therefore, it was decided to demolish and rebuild it as a post-management project.

C. Scope of Work

Reconstruction to the same scale utilizing the existing floor plan following the demolition of the existing academic building. However, RAC building and the existing auditorium facilities are not included in the scope of work.

2. Information about Existing Facilities for BK TTC

A. Project summary

a. Location: Chattogram, Bangladesh

b. Site Area: total 12.83 Acres

(Principal & vice principal residential area: 1.69 Acres + academic & staff residential area: 11.14 Acres)

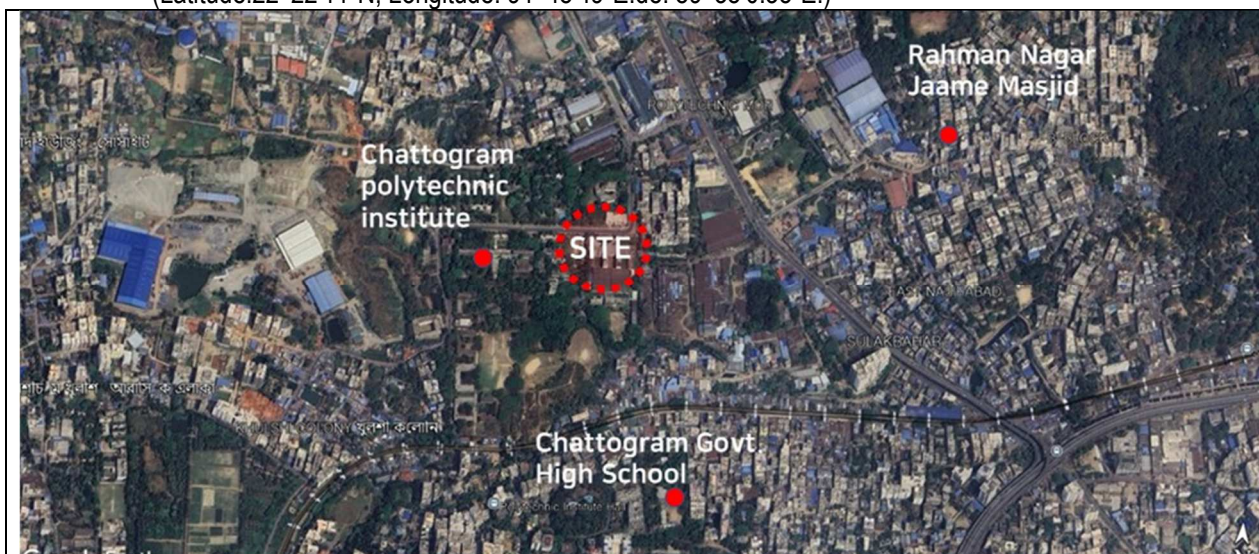
c. Major facilities:

Academic Building, RAC B/D, Work Shop, Dormitories, IT B/D, CNC B/D, Auto Cad B/D, Residence Etc.

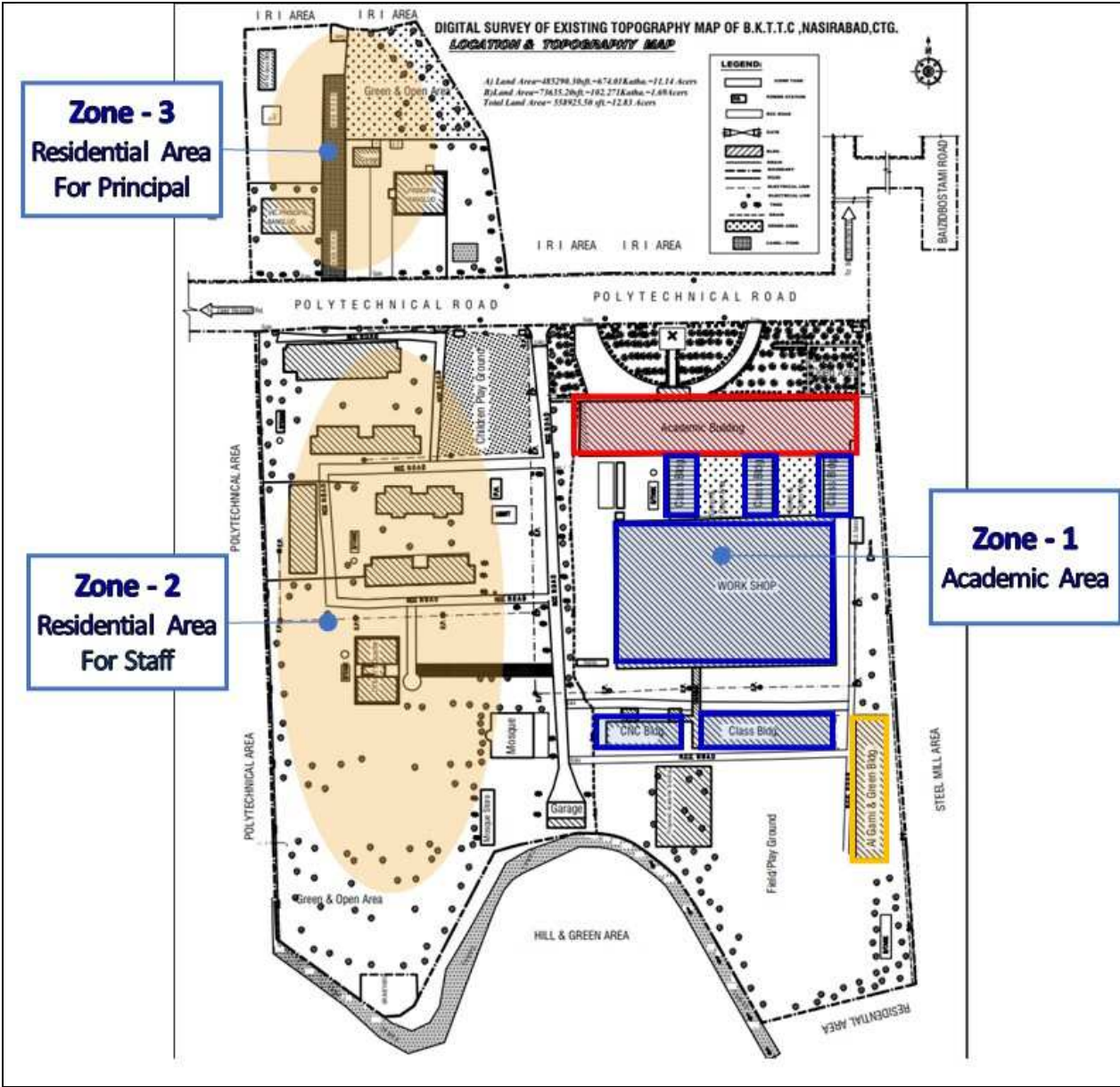
B. Site Location

a. Site Location: Polytechnic Road, Nasirabad, Chattogram, Bangladesh

(Latitude: 22°22'11"N, Longitude: 91°48'49"E, Elevation: 89°38'0.35"E.)

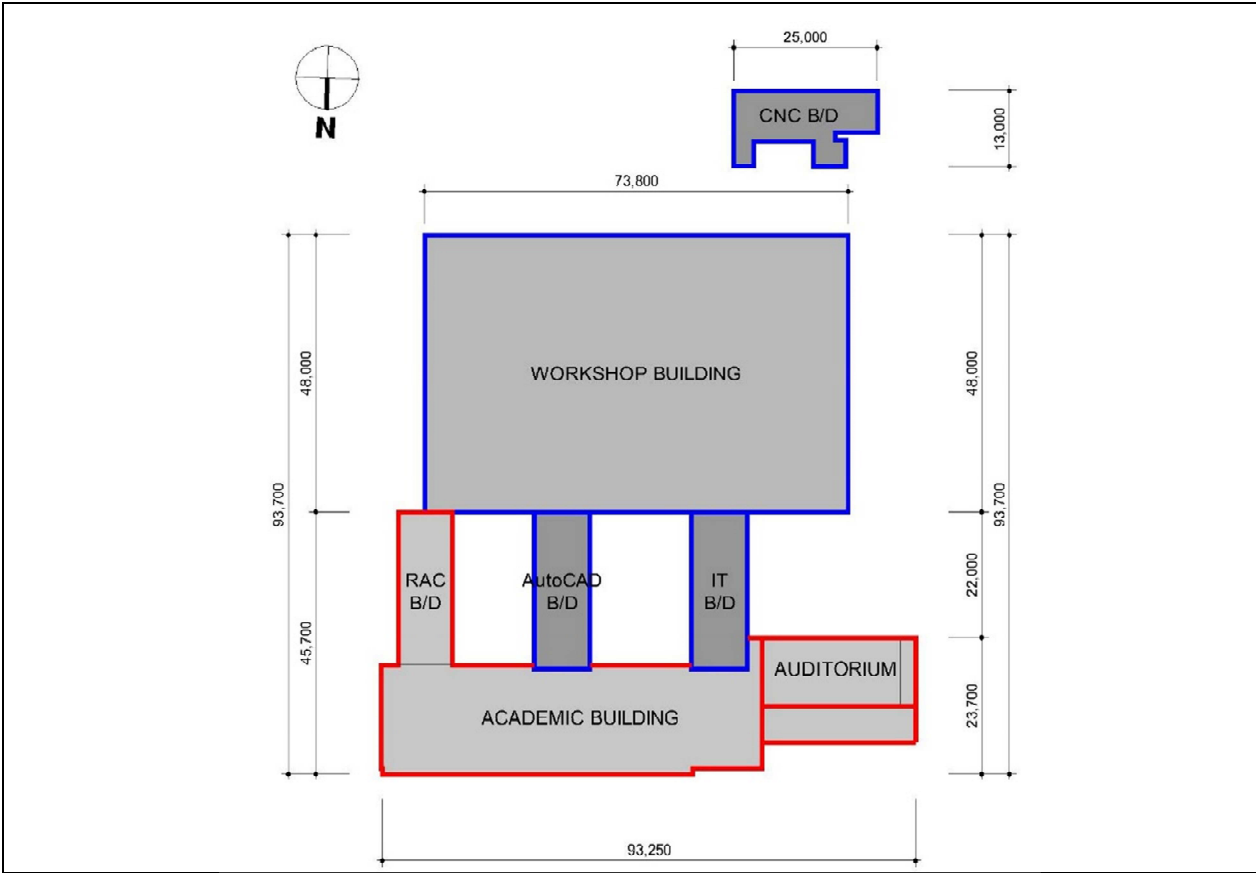


C. Master Plan for BK TTC



D. Site Plan for Academic Facilities

a. site plan: The scope of service applies only to the academic building. (RAC building and Auditorium are excluded.)



b. location of facilities



E. Photos of the surrounding environment



Overall view of the facilities for BK TTC



Overall view of the facilities for BK TTC

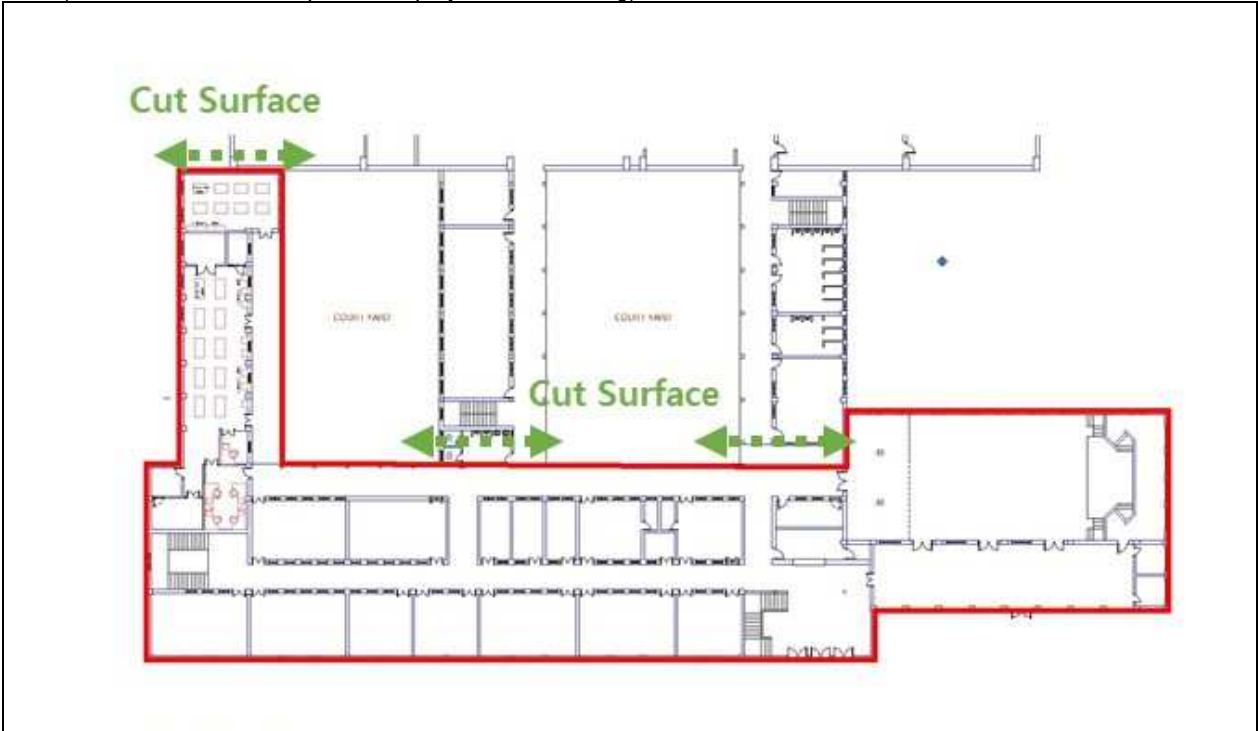


Site plan for Academic building

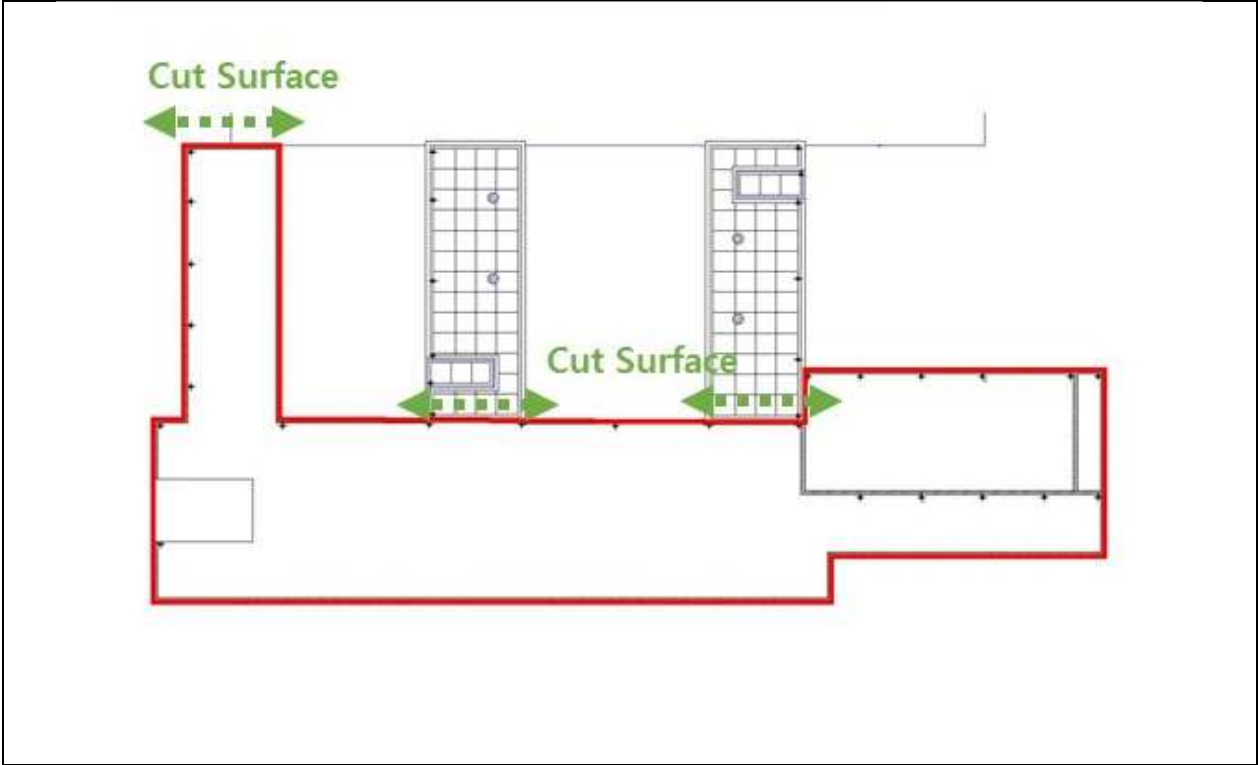
3. Demolition plan for the existing Academic building

A Basic Concept plan for demolition (structural cutting and separation from the existing buildings)

: The demolition of the existing building is scheduled to be carried out by the Bangladesh government (B.M.E.T).
(BMET: Bureau of Manpower Employment & Training)

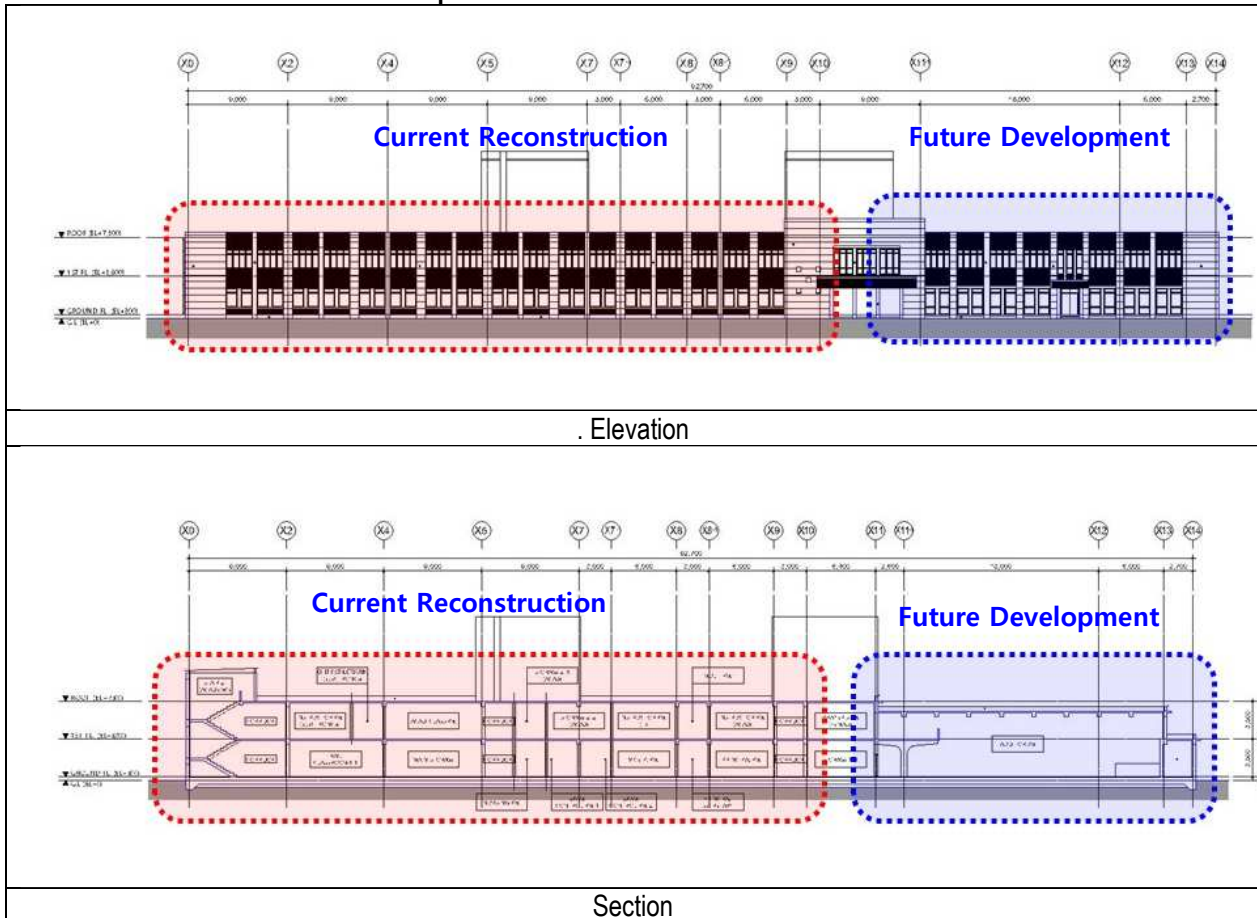


Ground Floor & 1st Floor Plan



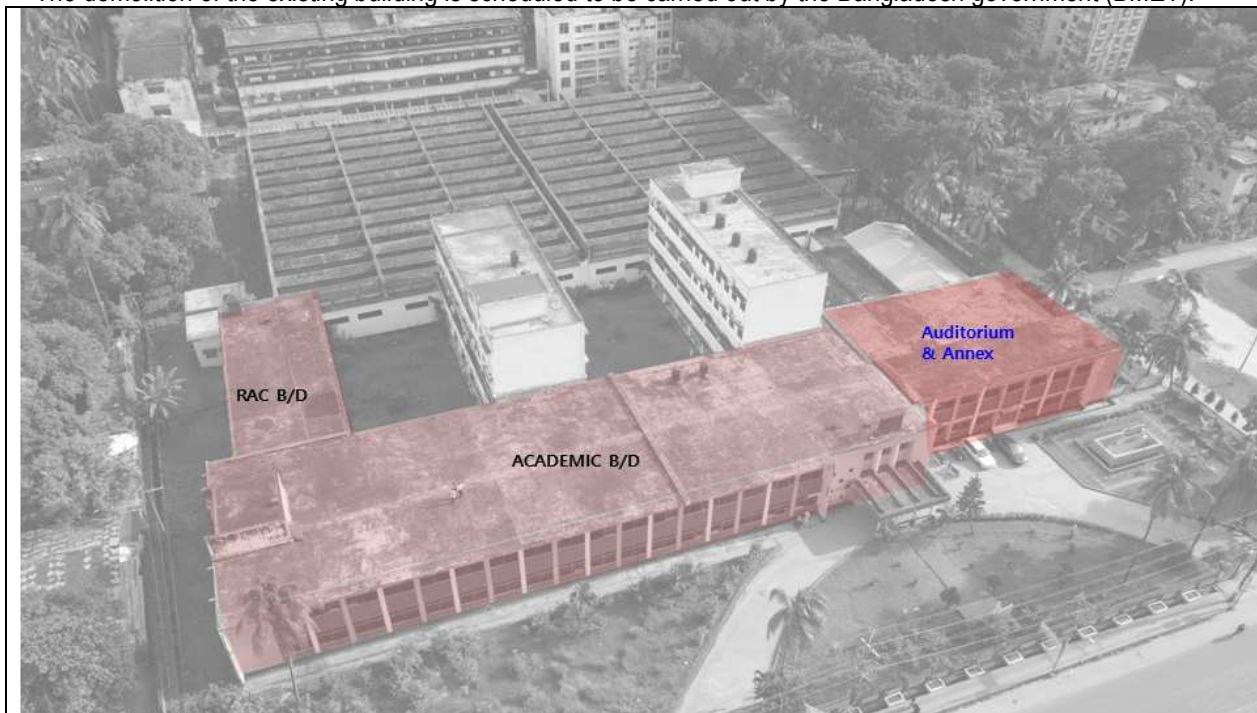
Roof Plan

B. Elevation & Section for Demolition part



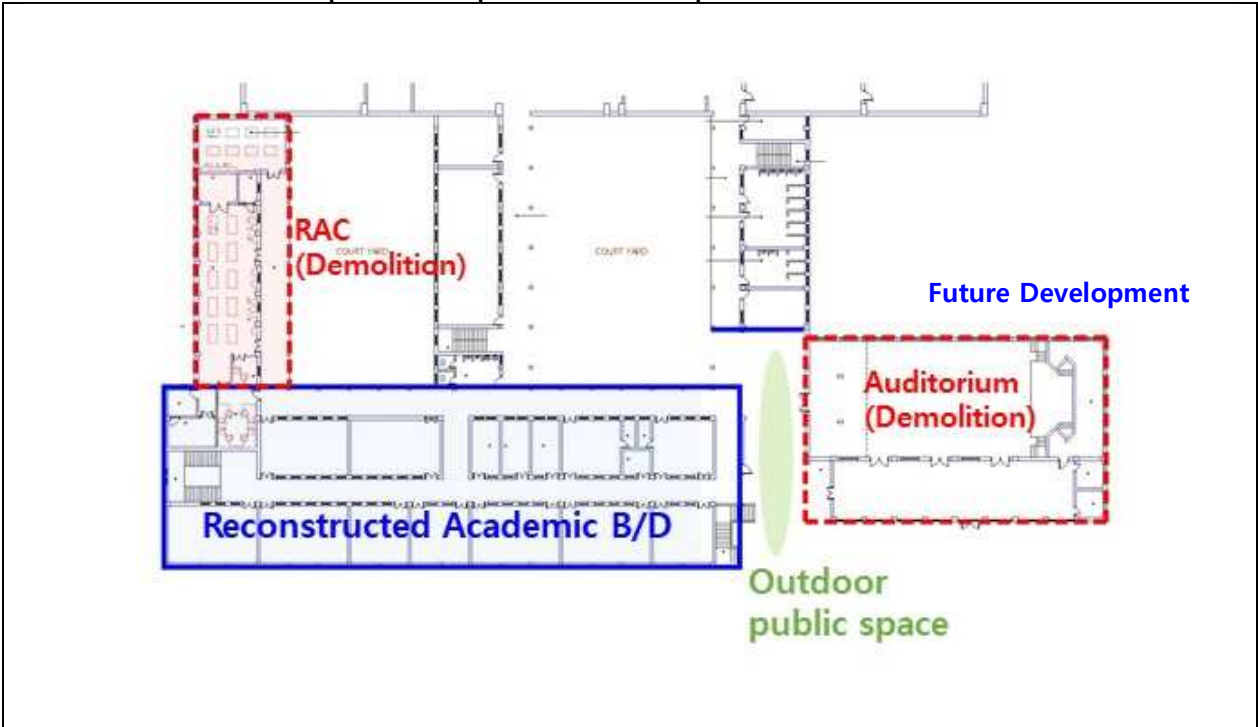
C. Guide to the Demolition Area:

The demolition of the existing building is scheduled to be carried out by the Bangladesh government (BMET).

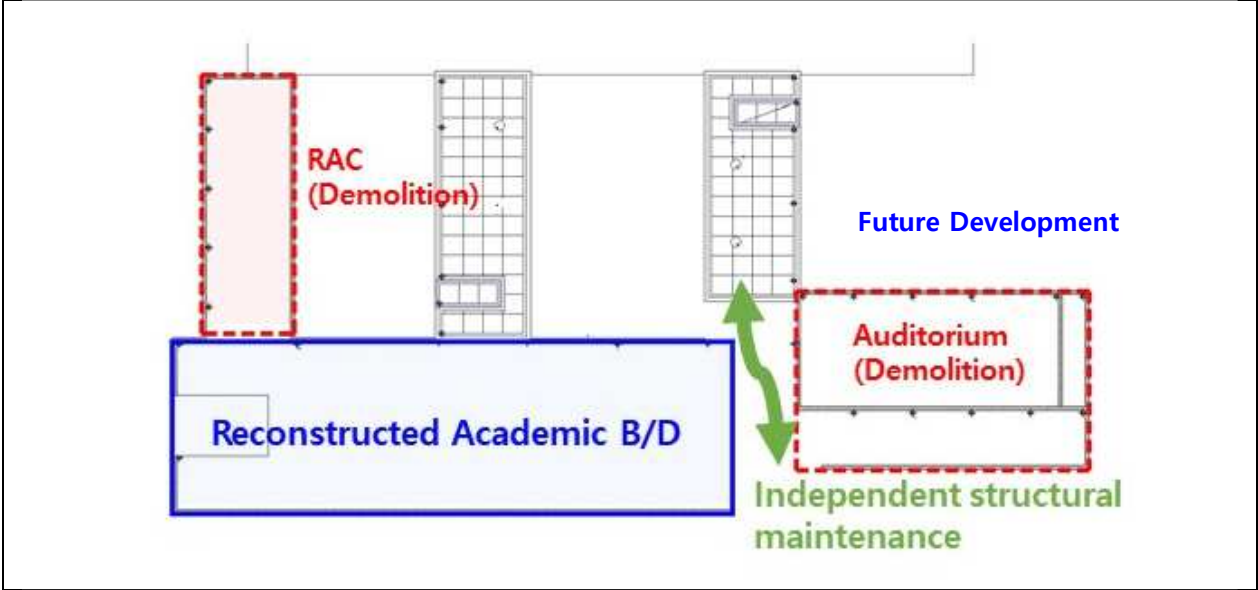


4. Reconstruction Plan for the Existing Academic Building

A. Initial Ideas for the development concept: Plan for an Independent Structure

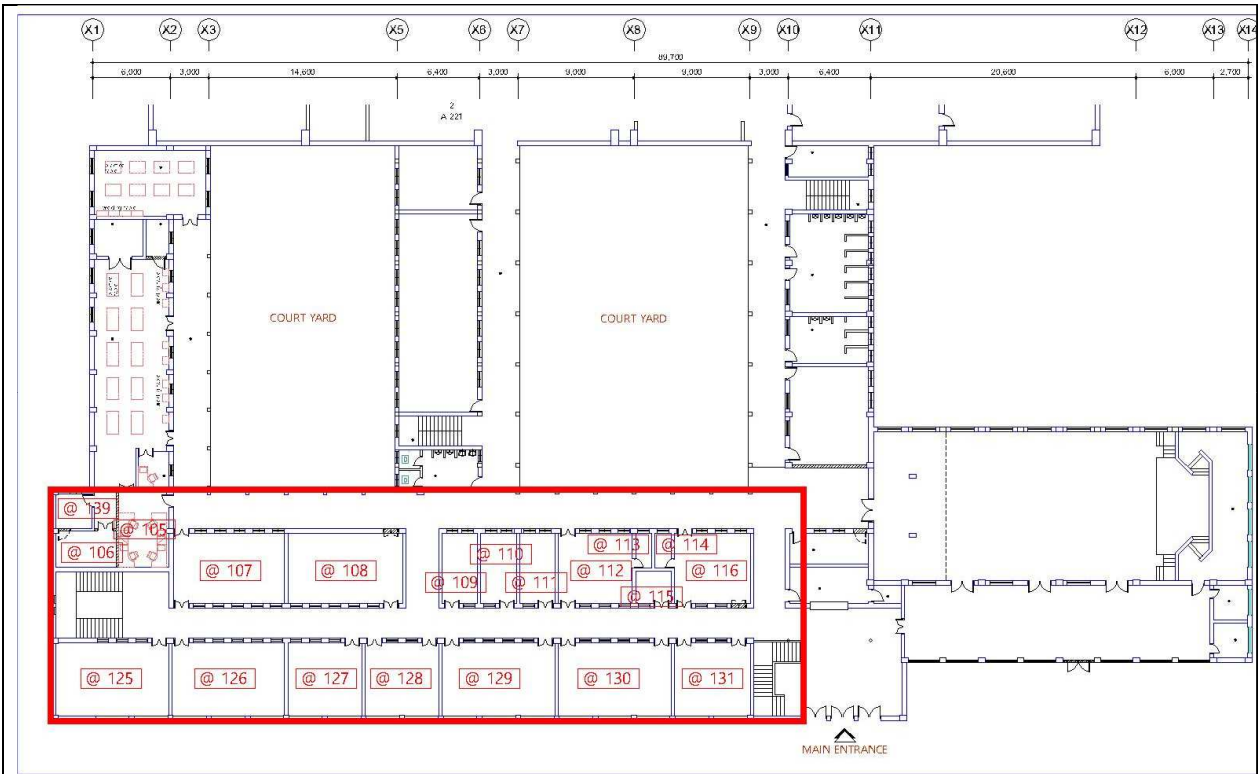


Ground Floor Plan (Conceptual Idea only)

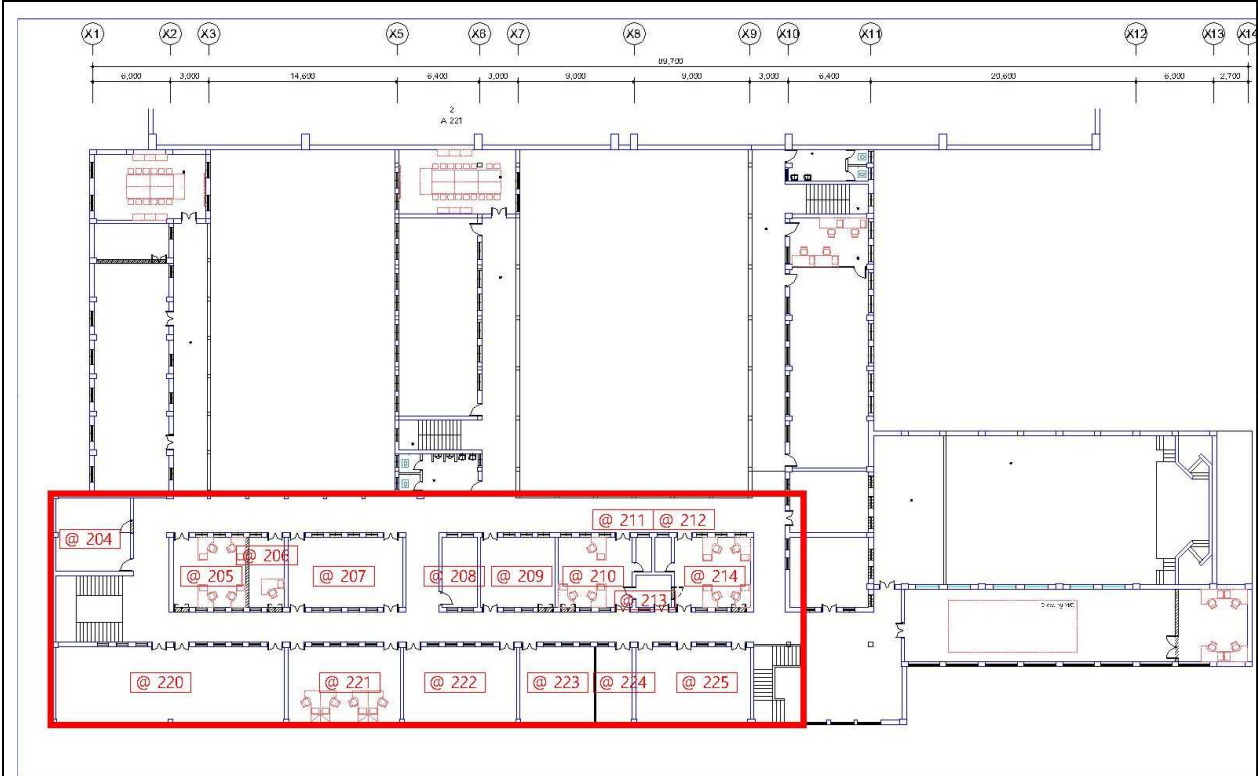


Roof Plan (Conceptual Idea only)

B. Development scope for reconstruction



Development scope for reconstruction for Ground Floor Plan



Development scope for reconstruction for 1st floor Plan

Note: The scope of development for reconstruction may be adjusted based on consultation and proposals.

C. Area Table for Reconstruction (Space Program)

Floor	Room. No	Room Name	Area (m²)	Remark
GF	105	RAC Instructor's Room	15.00	
	106	RAC Tools Room	15.00	
	107	RAC Classroom 1-1	52.30	
	108	Main Storage	52.30	
	109	Nursing Room	17.40	
	110	Exam Control Room-1	17.40	
	111	Exam Control Room-2	17.40	
	112	Vice Principal Room	34.80	
	113	Vice Principal Toilet	4.50	
	114	Principal Toilet	4.50	
	115	Principal Secretary	8.40	
	116	Principal Room	34.80	
	125	Knitting Room-1	54.00	
	126	Knitting Room-2	54.00	
	127	Book Storage	36.00	
	128	Office 1-1 (Store Keepers)	36.00	
	129	Office 1-2 (Admin. Dept.)	54.00	
	130	Office 1-3 (Training Dept.)	54.00	
	131	Office 1-4 (Accounting Dept.)	36.00	
	139	Gas storage	15.00	
		Common Area	431.20	Staircase, Corridor, Hall, Lobby.
		TOTAL (Approximately)	1,044.00	
2F	204	EMM Tools Room	36.00	
	205	Instructor Room (Electronics)	34.80	
	206	Chief Instructor Room (Electronics)	17.40	
	207	ACAD Classroom	52.30	
	208	Storage 2-1 (ACAD)	17.40	
	209	Storage 2-2 (ACAD)	34.80	
	210	Chief Instructor Room	34.80	
	211	Toilet -7 (IT Instructor)	4.50	
	212	Toilet -8 (Instructor)	4.50	
	213	Multi Room	8.40	
	214	Instructor Room (ACAD)	34.80	
	220	EMM Practice Room	108.00	

	221	EMM Instructor Room	54.00	
	222	KOICA LAB-1	54.00	
	223	KOICA LAB-2	36.00	
	224	KOICA Volunteer Room	18.00	
	225	Classroom (IT)	54.00	
		Common Area	440.30	Staircase, Corridor, Hall, etc.
		TOTAL (Approximately)	1,044.00	
		GRAND TOTAL (Approximately)	2,088.00	

[Note for reconstructed academic building]

1. Existing rooms (space program) should be maintained and utilized as much as possible.
2. Common areas (e.g., main entrance, staircase, corridors, lobbies, etc.) may be proposed.
3. The installation of public restrooms & septic tank suitable for the building's occupancy is required.
4. The scope and area of development for reconstruction may be adjusted based on consultation and proposals. However, additional design costs resulting from an increase in area are not considered.

5. Opinions of stakeholders shall be reflected in the design

- A. Employer's requirements shall be reflected in the design through design review meetings with stakeholders. The requirements of the stakeholders designated by the Employer are deemed to be the Employer's requirements.
- B. At every design review meeting, the Consultant shall prepare meeting minutes indicating issues discussed/ resolved and respond to the Employer in writing to all review comments and questions within 7 calendar days.

6. General Considerations for the Design of Academic Buildings to be Reconstructed

A. General

- (a) The building shall be constructed to perform its given function reasonably by design.
- (b) Reasonable design shall be made in consideration of site conditions and existing conditions.
- (c) Develop in connection with its surroundings.
 - Plan to structurally separate from surrounding buildings after demolition of the existing academic Building
 - Plan to architecturally connect with surrounding buildings after demolition of the existing academic building
- (d) Response to the future potential extension to **6** stories.
 - For reference only, redevelopment of the auditorium area is currently under consideration.
- (e) Eco-friendly design
- (f) Safety
 - Full consideration for means of emergency escape and fire-resistant construction.

- The seismic design shall meet Bangladesh and International seismic design standards
- (g) Cost-Effective Design
 - Life Cycle Cost Efficiency.
 - Indoor Comfort.
 - Harmonize with structure, function, and sense of beauty.
 - Optimized space plan.

B. Architectural Plan

(a) Layout

- Utilize the layout (space program) of the existing Academic building (RAC building and Auditorium are excluded.)
- Plan in consideration of the aims of the Project
- Optimum layout plan for the purpose of the project analyzing surroundings and circumstances

(b) Circulation

- Separate pedestrian circulation from vehicles
- Safety first in parking lot plan
- Circulation considerations for a one-story vertical extension inside the building

(c) Plan

- Utilize the floor plan (space program) of the existing Academic building
However, public restrooms should be planned additionally including septic tank.
- Plan for structural separation and architectural connection between the reconstructed academic building and existing surrounding buildings
- Rational space program by each functional zone
- Efficient module to eliminate wasted space
- Minimize noise for indoor comfort, divide quiet space from noisy space and place an absorbing space in the middle.
- Cost-effective facility
- Considering the installation place of Air Conditioner outdoor unit and condensate water drainage system for the beauty of the building exterior (if required)

(d) Elevation

- Design in consideration of beauty and also its dignity as well as harmony with surroundings, getting high name-recognition.
- A design harmonious with existing surrounding buildings.
- A design that considers future expansion

(e) Section

- Decision of optimal floor height for the most effective use and characteristics of the space
- Horizontal and vertical circulation plan for organic relation between operation and management while each function remains independent through zoning

C. Structural Plan

- (a) Detailed structural design for each part in consideration of standard of structural material, design strength, and conditions of load.
- (b) Structural design reflecting future vertical expansion (total of 6 floors)
- (c) Structural design shall meet the requirements of related laws and regulations.
- (d) Seismic design shall meet the requirements of Bangladesh and international standards.
- (e) The academic building to be reconstructed must be structurally independent from surrounding buildings.

D. MEP (Mechanical, Electrical, and Plumbing) Plan

- (a) For various MEP facilities in the reconstructed Academic building, the existing Academic building's systems shall be utilized. Basically.
- (b) Use highly efficient and energy-saving facility equipment and apparatus regarding cost-saving operation.
- (c) Additional public restrooms are planned, and the details are as follows.

Toilet should be exposed directly to open air and equipped with both active and passive ventilating system able to operate at the same time to prevent filthy from spreading out, and arrangement of storage for cleaning and sanitary supplies shall be considered.
- (d) Ventilating system to allow the entrance of enough open air through a natural draft in the daytime, and in the time of passive ventilation, prevent inflow of outside noise, exhaust gas, dust, etc., paying attention to the window design.
- (e) Proper water-supply system (pressurization type of water-supply system or gravity water supply system with overhead water tank) in consideration of electrical and site conditions.
- (f) Electrical system should be able to reduce Life Cycle Cost and satisfy total economical efficiency through its reasonable use and the minimal loss of energy.
- (g) The electric power distribution system should minimize damage area from blackouts or any other incidents. The server and communication line should have anti-power failure system to secure reliability.
- (h) reflects the use of electricity by solar panels as appropriate and in compliance with the law;
- (i) Install MCC for the centralized control of power-loads for each machine, and minimize the distance of each divergence circuit for current stability.
- (j) Electrical lighting system shall be in harmony with natural light to maintain comfortable environment.
- (k) Secure indoor comfort using dazzle-free light fixtures to relieve physiological and psychological stress.
- (l) Include internal and external broadcasting system, A/V system, streetlight, CCTV equipment, Telecom and Internet in MEP design
- (m) Establish an optimized telecommunication line for functions of the facility.

- (n) Lightning protection equipment should meet the requirements of relative laws and regulations.
- (o) Place outlets adequately for convenient use of fixed and movable electric devices, and use moisture-proof outlets for humid space.
- (p) Air Conditioner system with considering the installation place of Air Conditioner outdoor unit and condensate water drainage system for the beauty of the building exterior (if required)
- (q) Design and capacity for MEP reflecting future expansion (total 6 floors)

E. Fire Protection Plan (if necessary)

- (a) Fire Protection system should meet the requirements of related laws and regulations.
- (b) Fire protection system includes fire detection system, fire alarm and broadcasting system, emergency lighting system, fire pumps and fire hydrants, etc.

F. Civil Plan

- (a) Civil plan should be done in connection with the building and other facilities by thorough analysis and investigation of the construction site along with geotechnical surveys about conditions of topography, soil, solid foundation, water level, etc. The required quantities and expenses should be estimated in the minimum value through a civil engineer's professional reviews in economical and stability concerns
- (b) A civil engineer shall review stability through investigation not to generate any damage to buildings nearby due to civil construction, and the proper measures checked by a professional shall be reflected in the design.

G. Environment

- (a) Use highly water permeable material to pave the pedestrian road, and maximize permeability to pave the road and parking lot.
- (b) Landscaping design with harmonization with existing building surroundings.

H. Others

- (a) Signboards which indicate friendly relations between KOICA-Partner Country shall be installed.
- (b) Trenches around the boundary wall and buildings for rainwater drainage shall be installed.
- (d) A septic tank, drinking water system shall be installed.
- (e) Consultant shall submit soil investigation report to the Construction Manager before starting the structural design and the substructure work of the building.

7. Special Considerations for Design of academic building

A. Architectural Plan

- (a) The reconstructed academic building will feature Korean design elements and a symbolic design representing the technology education center in its facade design, if possible.
- (b) Floor finish: Ceramic tile, Access floor (computer classroom), and other proper materials.
- (c) External AL windows shall be made of high-quality aluminum that can prevent the inflow of external noise.

- (d) Canopy should be designed on the upper part of exterior windows to prevent rainwater inflow.
- (e) Wood doors shall use quality materials that meet the high quality taking into account durability and elegance.
- (f) Perspective drawings shall be provided.
- (g) A place for the installation of air conditioning outdoor unit shall be planned to prevent damage to the exterior beauty of the building.

B. Structural Plan

- (a) A structural review of the demolition edge line of the existing academic building must be conducted before commencing design work.
- (b) Structural drawings shall be made in consideration of vertical extension of the 6 stories building in the future.
- (c) Seismic structural design shall meet the requirements on Bangladesh and International seismic design standards. The Consultant is required to review of how the structure of the foundation to each floor has been designed and constructed.
- (d) For future vertical extension, it is necessary to take measures to protect the connecting steel bars to prevent the occurrence of rust and the decrease in the strength.(for roof top floor)

C. MEP (Mechanical, Electrical, and Plumbing) Plan

- (a) Install two elevators and machine room on the roof accordingly. (Only the space is planned.)
- (b) The total electrical capacity to be used shall be estimated to determine whether the transformer expansion is necessary. If new transformer is required, it shall be reflected in the design and cost schedule. However, the cost of transformer shall be calculated, but the cost shall be borne by partner countries, not by KOICA.
- (c) Install fire-fighting equipment including fire pumps, fire hydrants, fire alarms, fire extinguisher etc. to meet the requirements of related laws and regulations in Bangladesh. If necessary.
- (d) The outlets shall be properly and sufficiently placed on the proper place to facilitate the use of the electrical equipment to be installed. In order to identify the electrical equipment to be installed, sufficient consultation shall be made with Construction Manager and beneficiary organization.

D. Others

- (a) Exterior signs and each room shall be designed in accordance with KOICA's sign manual.
- (b) The structural design of the reconstructed academic building shall accommodate future expansion (total 6 floors).
- (c) The reconstructed academic building shall be an independent structural form, structurally separated from surrounding buildings after the demolition of the existing building.
- (d) Proposal for structural treatment or finishing of the cut surfaces of surrounding buildings following the demolition of the existing academic building.
- (e) Proposal of architectural ideas regarding access and entrance locations for the reconstructed academic building and surrounding buildings in the architectural plan.
- (f) Plan and place communal toilets on each floor (including plans for connecting to an external septic tank or installing a new one).

- (g) The floor plan of the reconstructed academic building shall utilize and reflect the existing floor plan (space program) as much as possible.
- (h) The exterior elevations may be proposed freely, but the design must be harmonious with the surrounding buildings.
- (i) A proposal for a new facade may also be submitted for the auditorium building (three stories in total) of future redevelopment located next to the academic building slated for reconstruction.

Note: Concept images for the future redevelopment of the auditorium area, intended only for understanding.

Concept image for the future redevelopment of the auditorium area (for reference only)

