EEE 414: Electrical Services Design

Course Schedule:

Time: 11am-1:30pm, Wednesday, Venue - VLSI Lab

Course Teacher:

Yeasir Arafat

Associate Professor

EEE, BUET

EEE 414: Electrical Services Design

Lectures based on

BNBC 2020 (Vol. 3, Part VIII, Ch. 1): Electrical and Electronic Engineering Services for Buildings

Lecture1:	Module1:	INTRODUCTION
Lecture2:	Module2:	LIGHTING AND ILLUMINATION
	Module3:	DESIGN/DRAWING OF ELECTRICAL INSTALLATIONS
Lecture3:	Module4:	Distribution Wiring in a Building
	Module5:	Power Supplies in a Building
Lecture4:	Module6:	Earthing System Design
	Module7:	Lightning Protection System Design
	Module8:	Data/Telecom, FDAS, Security System Design
	Module9:	Compliance Issues of a Building

M1: INTRODUCTION- Presentation Outline

- Introduction to the Course (EEE414)
- Design Approach
- Steps of Building Construction
- Acts, Rules, Regulations, Codes and Standards
- Familiarization with the Bangladesh National Building Code (BNBC) 2020
- Scopes of BNBC 2020 – Electrical
- Relevant Terminologies and Definitions
- Voltage Ratings

Introduction to the Course (EEE414)

Course Contents, References, Evaluation Etc.

EEE 414: Electrical Services Design - Contents:

Familiarization with CAD tools for building services design. Introduction to building regulations, codes and standards: BNBC, NFPA etc. Terminology and definitions: fuses, circuit breakers, distribution boxes, cables, bus-bars and conduits. Familiarization with symbols and legends used for electrical services design. Classification of wiring. Design for illumination and lighting: lux, lumen, choice of luminaries for various applications- domestic building, office building and industry. Wattage rating of common electrical equipment.

Designing electrical distribution system for low and high rise domestic, office and academic buildings, for multipurpose buildings. Size selection of conductors and breakers, bus-bar trunking (BBT) system for various applications. Single line diagram (SLD) of a typical 11kV/0.415kV, 500kVA sub-station and a 200kVA pole-mounted transformer.

EEE 414: Electrical Services Design (Cont.…)

Earthing requirements, various earthing methods. Earthing and lightning protection system design.

Familiarization with indoor and underground telephone and fiber optic cables, UTP and CAT5/6 data cables. Designing routing layout and installation of intercom, PABX, telephone, public address (PA) systems, cable TV distribution, LAN and wireless data systems for a building.

Safety regulations, design of security systems including CCTV, burglar alarm.

Concept of fire prevention and its importance. Fire detection (smoke, heat etc.) and alarm system (with voice evacuation), firefighting system (sprinkler system, hose).

Installation of air-conditioning, heating, lifts and elevators.

Reference Books/Reading Materials:

1) Bangladesh National Building Code (BNBC), 2020
2) Handbook of Electrical Installation Practice edited by Geoffrey Stokes, Blackwell, 2003
3) Electrical Installation Calculations by A. J. Watkins, C. Kitcher, Elsevier, 2009
4) BS7671:2008, (17th IEE Wiring Regulation), IET; Relevant Part of NFPA
5) Electrical Rate Schedules, (PWD, 2022)
6) Bangladesh Electricity Act 2018 (Replaced 1910), Rule 2020 (Replaced 1937), ELB Regulations 2022 (Replaced Rule 48(1) of 1937); Bangladesh Energy Regulatory Commission, BERC Act 2003
7) Fire Prevention and Fire Fighting Act 2003, Fire Prevention and Fire Fighting Rule 2014
8) Building Construction Act, 1952 (E.B. Act II of 1953), Rules 1996, DMINB 2008

Evaluation Method/Mark Distribution:

	Attendance, Lab Test (on CAD)	**10%+(10%)**
	Assignment	20%
	Design Project, Presentation	25%+15%
	Final Quiz	20%
	Total Marks	**100%**

Score for Attendance:

Attendance	Marks (%)
90% and Above	10.0
85% to < 90%	9.0
80% to < 85%	8.0
75% to < 80%	7.0
70% to < 75%	6.0
65% to < 70%	5.0
60% to < 65%	4.0
Less Than 60%	0.0

Building Services Design: Electrical

Design Approach

Building Services

- What to Building Services Engineers (BSEs) do?
- BSEs Bring Buildings to Life
- The role of modern Building Services Design Engineers.
- Electrical, Mechanical, Fire & Plumbing (EMF, P) Services – Newer Term (used in BNBC 2020)
- Mechanical, Electrical and Plumbing (MEP) Services – Conventional Term

Building Services

- **Electrical Services**
  - Power Supply, Backup Power (DG, GE), Emergency Power (UPS)
- **Data based or Low-Voltage Systems**
  - Security, Fire Alarm, BMS, PA, Cable TV, Data and Voice Networks
- **Mechanical Services**
  - Firefighting, Elevators & Escalators
  - HVAC, Gas Supply (heating/cooking in residences, O_2/N_2 in hospitals)
  - Compressed Air Systems
- **Plumbing Systems**
  - Water Supply, Drainage, Recycling, Rainwater Harvesting, Waste Water Drainage

Steps of Building Construction (Project Concept)

Pre-Construction:

- Step 1: Survey and Design [Appointment direct OR Open]
- Step 2: All Designs Approval [Permits]
- Step 3: Spec & BOQ for bidding [Procurement]

Post/Construction:

- Step 4: Construction [all type supervisions]
- Step 5: Commissioning [all type supervisions]
- Step 6: Owner/User Occupancy [Certificate]
- Step 7: Project Closeout

Steps of Building Construction (Detailed)

- Own a Piece of Land - (Create ECPS* Account)
- Concept and Design - Architect (Assigned by Owner as Team Leader)
- Support for the Design - Structural (Assigned by the TL)
- Appointment of BSEs - (Assigned by the TL)
- Obtaining Building Permits - from Authorities (DAs/BBRA**)
- Clearing and Excavating the Land - under supervision of QP
- Pouring the Foundation - under supervision of QP
- Completing the Framing - under supervision of QP
- Doing Rough Electrical & Plumbing - under supervision of QP
- Installing the Roof - under supervision of QP
- Completing the Interior - under supervision of QP
- Installing fixtures - under supervision of QP
- Taking Care of Heating and Cooling Needs, Finishing Up - under supervision of QP

- *ECPS = Electronic Construction Permitting System (ECPS)-> has registered database of Qualified Professionals (QP)

Definition of Acts, Rules, Regulations, Codes and Standards

Technological Definition of Codes, Standards, *Specifications*, and Regulations:

What Is a Code?

- A code is a **set of rules** that serve as **generally accepted guidelines** recommended for the industry to follow. They exist for the purpose of **safety, quality or other benefit**. For example, fire codes exist to ensure system reliability and that building occupants are safe from fire hazards.
- On its own, a code is **not a law that must be followed**, but can be adopted into a law or included in a business contract.
- Each code specifies the **minimum acceptable requirements** for an electrical process or for the performance of the final system itself. Codes may **incorporate or refer** to existing standards or specifications.

Is Compliance with a Code Mandatory?

- A code on its own does not need to be followed, but **compliance is often a best practice**. The intent of a code is for it to apply widely across an industry, making it easy to be adopted and customized by **local jurisdictions**. Codes that have been adopted by a **city, state or country** must then be followed.
- Local jurisdictions may diligently review a code to ensure it is acceptable and applicable to the area, and it may **take years to adopt a code**.

What Is a Standard?

- A standard is “in a more detailed elaboration, the nuts and bolts of meeting a code” i.e. it tells you how to do it.
- While a code provides requirements for the **products** (performance) and **processes** (design methodology) involved in installation, standards **benefit both** the **contractors** and **engineers**, and also the **end users**.
- Standards fall into **two** general categories:
- **Voluntary standards.** One type of voluntary standard is established by a private-sector body and made available to persons or organizations, whether private or public, to use. Also considered voluntary standards are those known as “industry standards” or “consensus standards.”

What Is a Standard? [c..]

- Mandatory standards: A mandatory standard requires compliance because of a government statute or regulation, an organization internal policy or contractual requirement. Failure to comply with a mandatory standard's guidelines can cause legal repercussions.
- **Respective authority** may make a voluntary standard mandatory as a result of its use, reference or adoption in its regulations, or when invoked in contracts, purchase orders or other commercial instruments.

What Is a Specification?

- Unlike a code or standard, specifications outline the requirements of a specific product/work/service. A specification provides specific requirements for the material, construction or service used in an application.
- Specification requirements may go above and beyond code or standard requirements.
- For example, a **grounding system** designed for a given application may be sufficient for most situations. If some locations have difficulty meeting the specification with the standard layout, a grounding specification may outline additional measures to improve site results.

What Is a Regulation?

- A regulation is mandated by a **government body** and requires that—by law—those in the industry comply. The regulation can –
  - incorporate codes or standards, or
  - be created completely on its own.
- Unlike a code or standard, a regulation does not necessarily require any industry consensus or knowledgeable body to put it in affect.

Summary of Codes, Standards, Specifications, and Regulations

- **Codes** are generally accepted sets of rules that tell you what you need to do.
- **Standards** provide the "how to" of executing codes.
- **Specifications**, unlike codes or standards, outline the requirements of a specific product/work/service.
- **Regulations**, which can incorporate codes and standards, are mandated by a government body and required, by law, to be complied with.

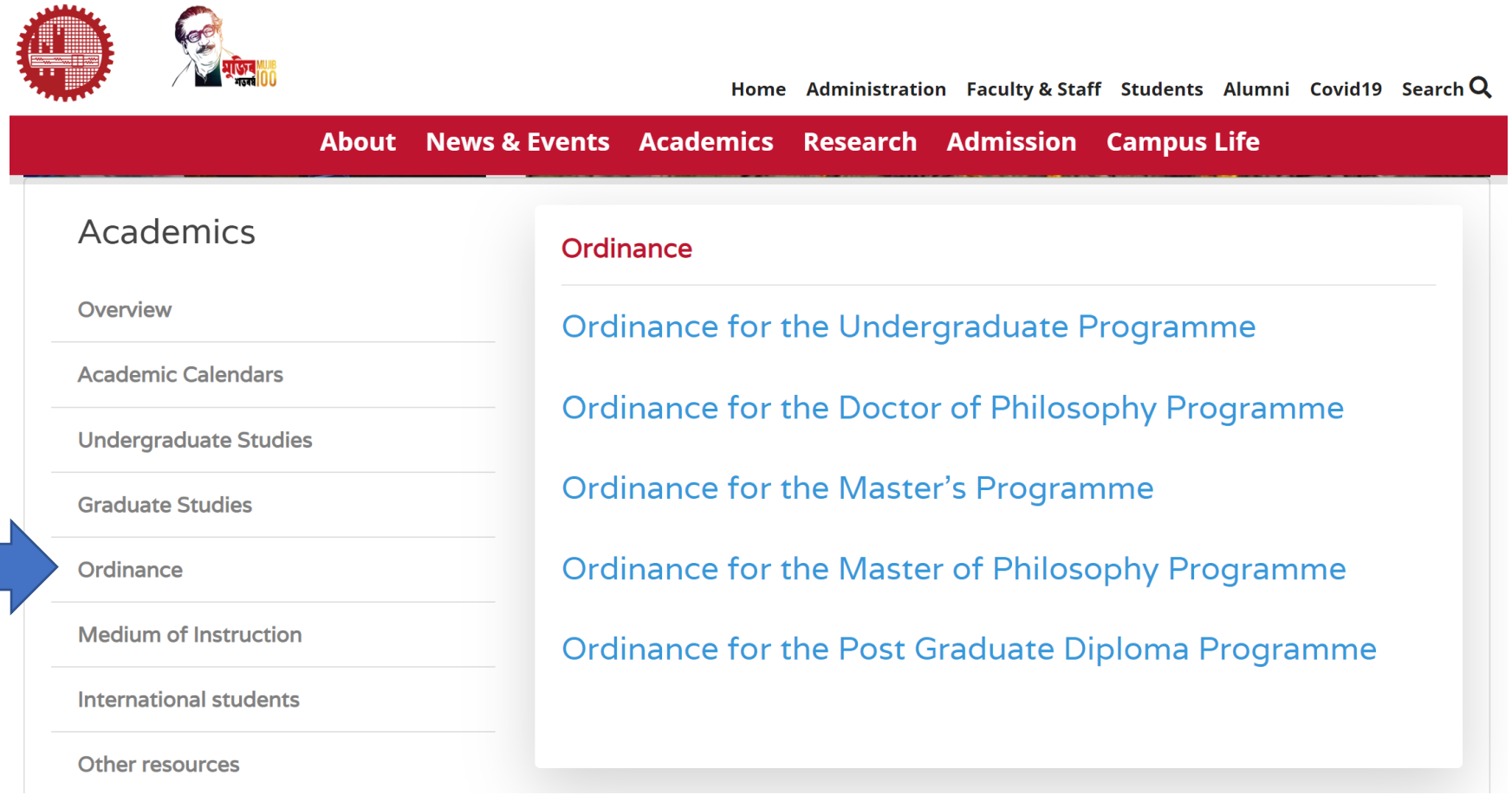
Legal (Jurisprudence) Definition of Act, Statute, *Ordinance, Rule/Regulation, Code, Policy, Opinion, and Case Law.

*Confusing Definition of Ordinance

Act, Statute, Ordinance, Rule/Regulation, Code, Policy, Opinion, and Case Law

- **Statutes** are usually new laws made by legislatures.
- **Act** is normally used as the formal title of a statute. It may also modify an existing statute by amendment.
- **Ordinances*** are laws created by local "legislatures", like city and county governments. [*Global definition]
- **Regulations** are not laws themselves, but are legal directives written (by executive branch) to explain how to implement statutes/laws. So, one has to read regulations together with the statutes under which they were made. Agencies can only make regulations on subjects the authorizing statutes say they can.

*Confusing Definition of Ordinance: Example in BD



Definition in BD

What is ordinance in Bangladesh?

(2) An Ordinance made under clause (1) shall be laid before Parliament at its first meeting following the promulgation of the Ordinance and shall, unless it is earlier repealed, cease to have effect at the expiration of thirty days after it is so laid or, if a resolution disapproving of the Ordinance is passed by ...

Act, Statute, Ordinance, Rule/Regulation, Code, Policy, Opinion, and Case Law (c..)

- Regulations and **Rules** are pretty close to the same thing. A regulation is a bit **more formal** than a rule - it prescribes the required conduct or action **exactly**;
- **Rules** are also binding but by contrast, they are guidelines/ instructions for doing something **right**.
- i.e. **Rules** are more **flexible**; **regulations** are more **stringent**.
- Rules are the set of instructions given to the public; regulations are **rules accepted legally by the administration**.
- Rules/Regulations are used by agencies to "fill in the gaps" of legislation.

Act, Statute, Ordinance, Rule/Regulation, Code, Policy, Opinion, and Case Law (c..)

- **Codes** are books where statutes/acts or regulations on similar subjects are grouped together. For instance, BNBC 2020.
- **Policy** materials aren't laws, exactly, but are more like guides. They may influence how laws are applied, or they may help to understand the laws. It includes agency's operating manuals and written opinions that agencies issue to explain decisions they've made.

Act, Statute, Ordinance, Rule/Regulation, Code, Policy, Opinion, and Case Law (c..)

- **Opinion** is usually a written explanation by a judge or group of judges that accompanies an order or ruling in a case, laying out the rationale and legal principles for the ruling;
- **Case law** is law made by judges. Nearly all case law is made by judges on appellate courts, not trial level courts. In making case law, judges apply relevant statutes, regulations, and prior case laws.

Example of Relevant Laws (*) for Safety

- **International** Act/Statute/Ordinance/ Rule/Regulation/Code/Standard: USA, EU, UK, France, Germany, Australia
- **Laws of the Land** (Bangladesh) - Local Act/Statute/Ordinance/Rule/Regulation /Code/Standard: From Ministry of Power/ Home/Housing/Industries/Labour etc. and their subordinate organizations.

Relevant **International** Safety Laws*…

- **USA:**
  - **NFPA 70: NEC (National Electrical Code) - used for residential, commercial, and industrial building wiring**
  - **NFPA 70E (Standard for electrical safety at workplace)**
  - **NFPA 72 - National Fire Alarm & Signalling Code**
  - **NFPA 101 - Life Safety Code**
  - **NFPA 496: Purged & Pressurized Enclosures for Electrical**
  - **ANSI Standard C2: National Electrical Safety Code (NESC) – used for safe installation, operation, and maintenance of power/communication utilities including substations, lines (OH/UG). Published by the IEEE.**
  - **IEEE STD 80: Guide for safety in AC substation grounding**

Relevant **International** Safety Laws*[c]…

- **Europe/Switzerland:**
  - **International Electrotechnical Commission (IEC) Standards**
- **UK: BS: 7671 (IEE wiring Regulation), 5266, 5839, 6423, 6626, 62305, 60529, BS EN 61439**
- **France: C 15-100**
- **Germany: VDE, NSR Niederspannungsrichtlinie 2014/35/EU**
- **Australia - AS/NZS 3000:2007, 3012:2010, 3017:2007, 3760:2010, 4836:2011**
- **Indian Standard: IS-5216, 5571, 6665**
- **China: GB4943, 17625, 9254**
- **ISO 50001 Standard for Energy Management System**

Relevant **Laws*** **of the Land** (Bangladesh)

- The **Electricity Act 2018** (Replaced Electricity **Act 1910** & amendments)
- Electricity **Rule 2020** (Replaced Electricity **Rule 1937**)
- **Electricity Licensing Board Regulations 2022** (Replaced **48(1)** of Electricity Rules 1937)
- Bangladesh Energy Regulatory Commission, **BERC Act 2003**
- BERC Electricity **Grid Code** 2023 (Gazetted in **2020**)
- Fire Prevention and **Fire Fighting Act 2003**
- Fire Prevention and **Fire Fighting Rule 2014**
- Bangladesh National Building Code, **BNBC 2020** (Replaced **BNBC 2006**)
- Building **Construction Act, 1952** (E.B. Act II of 1953)
- The Building **Construction Rules 1996**
- Dhaka Mahanagar Imarat Nirman Bidhimala, **DMINB 2008**
- Bangladesh Standards (BDS), **BDS-IEC**

Familiarization with the Bangladesh National Building Code (BNBC) 2020

BANGLADESH NATIONAL BUILDING CODE 2020

Government of the People's Republic of Bangladesh
Ministry of Housing and Public Works

BANGLADESH GAZETTE
Published: Thursday 11th February 2021

Notification
Date: 05-11-1426/18-02-2020
S.R.O. No.55-Law/2020

BANGLADESH NATIONAL BUILDING CODE 2020

Government of the People's Republic of Bangladesh

Ministry of Housing and Public Works

Notification

Date : 05-11-1426/18-02-2020

S.R.O. No.55-Law/2020.—In exercise of the powers conferred under section 18A of the Building Construction Act, 1952 (Act No. II of 1953) the Government is pleased to make the following Code by repealing the Bangladesh National Building Code, 2006, namely :—

BNBC 2020 – Volume, Parts, Chapters

Volume	Part	Part Names	C, A*	Page-Page
Volume1 (473 Pages)	I	SCOPE AND DEFINITIONS	C=3	2583-2594
	II	ADMINISTRATION AND ENFORCEMENT	C=3, A=6	2595-2621
	III	GENERAL BUILDING REQUIREMENTS, CONTROL AND REGULATION	C=4, A=6	2622-2858
	IV	**FIRE PROTECTION**	C=5, A=3	2859-2957
	V	BUILDING MATERIALS	C=2	2958-3055
Volume2 (1339 Pages)	VI	STRUCTURAL DESIGN	C=13, A=21	3056-4394
Volume3 (648 Pages)	VII	CONSTRUCTION PRACTICES AND SAFETY	C=5, A=1	4395-4510
	VIII	**BUILDING SERVICES**	C=8, A=23	4511-5000
	IX	ALTERATION, ADDITION TO AND CHANGE OF USE OF EXISTING BUILDINGS	C=3	5001-5017
	X	SIGNS AND OUTDOOR DISPLAY	C=3, A=1	5018-5042
3	10	---	C=49, A=61	2460 Pages

*C for Chapter, A for Appendix

Volume1, Part-IV (FIRE PROTECTION), Chapters

Part IV	C, A*	Chapter, Appendix Names	
Chapters	1	General Provisions	
	2	Precautionary Requirements	
	3	Means of Egress	
	4	Equipment and In-Built Facilities Standards	
	5	**Requirements For Fire Detection and Extinguishing System**	
Appendix	A	Guidelines For Fire Drill and Evacuation Procedure	
	B	Fire Protection Considerations For Venting In Industrial And Storage Buildings	
	C	**Selection and Sitting of Fire Detection System**	

*C for Chapter, A for Appendix

Volume3, Part-VIII (BUILDING SERVICES), Chapters

Part IV	C, A*	Chapter, Appendix Names	
Chapters	1	**Electrical and Electronic Engineering Services for Buildings**	
	2	Air-Conditioning, Heating And Ventilation	
	3	Building Acoustics	
	4	Lifts, Escalators and Moving Walks	
	5	Water Supply	
	6	Sanitary Drainage	
	7	Rainwater Management	
	8	Fuel Gas Supply	
Appendix	A	Maximum Demand and Diversity	
	B	Useful Tables Relating to Conductor Sizes	
	C	Completion Certificate Form (Electrical Works)	
	…	…	
	W	Documentation for Piping Installation	

*C for Chapter, A for Appendix

BNBC 2020, Part I, Chapter 1: Scopes (Total 8)

Remarkable Scopes Only:

- (1) - The provisions of this Code shall apply to the design, construction, use or occupancy, alteration, moving, demolition and repair of any building or structure and to any appurtenances installed therein or connected or attached thereto, **except** such matters as are otherwise provided for in **other laws** controlling and regulating buildings.
- (5) References made to a section without mentioning a part shall be construed to refer to that section of the part in which the reference is made.
- (6) The provisions of any **appendix** in this Code shall **not be mandatory** unless they are referred to as such in any section of the Code or they are specifically adopted by any regulation.

Occupancy and Construction Classification of Buildings (pp. 2629-2631, BNBC 2020)

Every **building or portion** there of shall be classified according to its **use or character of occupancy**. A brief description of such occupancy groups is presented in **Table 3.1.1.** Details of all occupancy group and sub-divisions are set forth in Sec 2.1 of Chapter 2 of this Part (III). Type of construction based on fire resistance are specified in **Table 3.1.2.** Details of such types of construction are set forth in Chapter 3 of this Part. Any development permit for a site or a location shall clearly mention the permitted occupancy and construction type in accordance to Tables 3.1.1 and 3.1.2 for the existing or proposed building.

Table 3.1.1: Summary of Occupancy Classification

Occupancy Type	Subdivision	Nature of Use or Occupancy	Fire Index*
A: Residential	A1	Single family dwelling	1
	A2	Two families dwelling	1
	A3	Flats or apartments	1
	A4	Mess, boarding houses, dormitories and hostels	1
	A5	Hotels and lodging houses	1
B: Educational Facilities	B1	Educational facilities up to higher secondary levels	1
	B2	Facilities for training and above higher secondary education	1
	B3	Pre-school facilities	1

Occupancy Type	Subdivision	Nature of Use or Occupancy	Fire Index*
C: Institution for Care	C1	Institution for care of children	1
	C2	Custodial institution for physically capable adults	1
	C3	Custodial institution for the incapable adults	1
	C4	Penal and mental institutions for children	1
	C5	Penal and mental institutions for adults	1
D: Healthcare Facilities	D1	Normal medical facilities	2
	D2	Emergency medical facilities	2
E: Business	E1	Offices	2
	E2	Research and testing laboratories	2
	E3	Essential services	2
F: Mercantile	F1	Small shops and market	2
	F2	Large shops and market	2
	F3	Refueling station	2

G: Industrial Buildings	G1	Low hazard industries	3
	G2	Moderate hazard industries	3
H: Storage Buildings	H1	Low fire risk storage	3
	H2	Moderate fire risk storage	3
I: Assembly	I1	Large assembly with fixed seats	1
	I2	Small assembly with fixed seats	1
	I3	Large assembly without fixed seats	1
	I4	Small assembly without fixed seats	1
	I5	Sports facilities	1
J: Hazardous Building	J1	Explosion hazard building	4
	J2	Chemical hazard building	4
	J3	Biological hazard building	4
	J4	Radiation hazard building	4

Occupancy Type	Subdivision	Nature of Use or Occupancy	Fire Index*
K: Garage	K1	Parking garage	2
	K2	Private garage	1
	K3	Repair garage	3
L: Utility	L	Utility	2
M: Miscellaneous	M1	Special structures	2
	M2	Fences, tanks and towers	1

* Fire Index: fire index is an absolute number, Occupancy group having same fire index may be permitted as mixed occupancy and different fire index shall be separated or detached as per provisions of this Code.

Table 3.1.2: Summary of Classification of Buildings Based on Types of Construction

Construction Group	Construction Type	Description
Group I: Non-combustible	Type I-A	4 hour protected
	Type I-B	3 hour protected
	Type I-C	2 hour protected
	Type I-D	1 hour protected
	Type I-E	Unprotected
Group II: Combustible	Type II-A	Heavy timber
	Type II-B	Protected wood joist
	Type II-C	Unprotected wood joist
	Type II-D	Protected wood frame
	Type II-E	Unprotected wood frame

Occupancy Summary (p. 2663, BNBC 2020)

Occupancy A:	Residential
Occupancy B:	Educational
Occupancy C:	Institution for care
Occupancy D:	Health Care
Occupancy E:	Business
Occupancy F:	Mercantile
Occupancy G:	Industrial
Occupancy H:	Storage
Occupancy I:	Assembly
Occupancy J:	Hazardous
Occupancy K:	Garages
Occupancy L:	Utilities
Occupancy M:	Miscellaneous

[BNBC 2020, Part II, Chapter 3]

3.6 Preparation and Signing of Drawings

3.6.1 All drawings submitted for approval shall be prepared and **signed by registered professionals** as specified in **Table 2.3.4**, which shall be considered as equivalent to certifying that the **drawing on which the signature appears conforms to all the requirements of this Code**. Registered Professionals shall put his or her signature with date on the title box of the drawing along with his **name, address, professional society membership number, registration number** and any other information required by the concerned Building Official.

Table 2.3.3: Building Classification Based on Height, Floor Area and Occupancy Type

Building Category	Height of Building	Floor Area	Type of Occupancy
I	Up to 2 Stories or 8 m height (without basement) applicable only for areas beyond the jurisdiction of Development Authority, City Corporation and Pourashava	Up to 250 m^2	A (A1-A2)
A→ II	Up to 5 Stories (with or without basement)	Up to 1000 m^2	A (A1-A5)
B→ III	Up to 10 stories or 33 m height for engineering design and supervision and any height for land survey, sub-soil investigation and architectural design	Up to 7500 m^2	A, B, C, E1, E2, F1, F2 and H1
C→ IV	Any height	Any Size	All Occupancy Type

Registration No. : DMINB/EE/(C:ED/LW/EI/HV_AC/ LE/ACS/SINC/IS/CR)/0061

Category of Building	Maximum no. of Stories	Maximum Floor Area (sq. m.)	Occupancy Type of Building
A	5	1,000	A: Residential
B	Any number	7,500	A: Residential B: Educational C: Institution for Care F2 & F3: Shops and Markets G: Industiral H: Storage
C	Any number	Any area	All Occupancy Types

Abbreviation of Items		
ED= Electrical Design Including Wiring	HVAC = Heating, Ventilation & Air-Conditioning	SINC = Sound Installation and Noise Control
LW = Lighting Design	LE = Lifts and Escalator	IS = Installation Supervision and Testing
EI = Electrical Installation	ACS = Acoustics Design	CR = Completion Report

Registrar, BPERB

Date : 01/03/2021

HGS, IEB

Eligible Registered Professionals a/p BNBC 2020

Table 2.3.4: Eligible Registered/Licensed Professionals for Signing of Design, Drawings, Reports and Documents

Types of Work	Registered Professional	Minimum Experience Requirement in Years for Building Category			
		I	II	III	IV
Electrical Design	Electrical Engineer	NA	2	4	8
	Diploma Engineer (Electrical)	NA	3	NE	NE

Note: NA: Not Applicable, NE: Not Eligible, NR: Not Required.

Table 2.3.4: Eligible Registered/Licensed Professionals for Signing of Design, Drawings, Reports and Documents

Types of Work	Registered Professional	Minimum Experience Requirement in Years for Building Category			
		I	II	III	IV
Land Survey	Civil Engineer	NA	NR	NR	NR
	Planner		NR	NR	NR
	Diploma Engineer (Civil)		3	3	3
	Certified Surveyor		3	3	3
Soil Investigation Report	Geotechnical Engineer having experience in soil investigation and soil test report analysis	NA	NR	NR	NR
	Civil Engineer having experience in soil investigation and soil test report analysis	NA	2	2	5

		Building Category			
		I	II	III	IV
Architectural Design	Architect	NA	NR	2	8
	Civil Engineer	NA	NR	NE	NE
	Diploma Architect	NA	5	NE	NE
Structural Design	Civil Engineer with experience in structural design or PEng.	NA	2	4	8 (having 5 years in Structural design)
	Civil Engineer with M.S in Structural Engineering	NA	1	3	8 (having 4 years in Structural design)
Plumbing Design	Plumbing Engineer	NA	NR	4	8
	Architect	NA	NR	NE	
	Diploma Engineer (Civil)	NA	3	NE	NE
Mechanical (HVAC/Vertical Transportation) Design	Mechanical Engineer	NA	2	4	8

Construction Supervision	Architect/Engineer in their respective field or PEng.	NA	2	4	8
	Diploma Architect/Diploma Engineer in their respective field	NA	2	4	20*
Building Demolition	Civil Engineer	NA	NR	2	8
	Diploma Engineer (Civil)	NA	2	NE	NE
Completion Report	Architect and Engineer with experience in their respective field	NA	2	4	8

Note: NA: Not Applicable, NE: Not Eligible, NR: Not Required.

*Shall be countersigned by registered/licensed Architect/Engineer eligible for Building Category IV.

3.9 Responsibilities and Duties of Technical Personnel

- **3.9.1 -** To qualify as **Architect, Engineer, Construction Supervisor** of any building works, one shall have **memberships** (M/F) of the respective **professional body** in the country.
- In addition, they shall have to qualify as **registered professional** (P.Eng./DMINB) through an **examination** (written/oral) to be conducted by their respective **professional body** as per **requirement of this Code**.
- **3.9.2 -** Only technical professionals qualified under Sec 3.9.1 shall **design, execute and supervise** any building which is subjected to approval granted under this Code.
- **3.9.3 -** Any **lapses** on the part of the technical personnel in delivering the requirements of the Code shall call for **punitive actions** against him/her in the proper forum.

BNBC 2020, Part II, Chapter 2: Establishment of Authority

10. Establishment of Authority: The Government **may**, with the approval of the Ministry of Public Administration, Finance Division and other relevant Ministries and Divisions, by a notification in the official Gazette, establish the **Bangladesh Building Regulatory Authority** (BBRA).

11. Head office of the Authority: The head office of the Authority shall be in Dhaka.

12. Constitution of Authority: The Authority shall consist of 5 (five) members.

13. Responsibilities (12 nos.) of the Authority

The Authority shall…

(d) Develop an effective **licensing system**, **jointly** with the **professional bodies** by forming a **National Council for Licensing of Building Professionals (NCLBP)** for conducting **examinations** for the members of those respective professional bodies;

(f) … to carry out **review** of design and construction by **licensed professionals** acceptable to the Authority;

(i) recommend punitive and other measures against **developers and professionals** for **violation** of the Code and safety measures;

(j) take measures for updating of the Code in light of research, improved technique, new products and technology;

(k) advise the Government on policy…including **capacity development…**

24. Limits of Professional Conduct

(1) Any **licensed** architect, engineer or planner may take **assistance** from fellow professionals who are **not licensed** but is **member** of **professional bodies** and who shall work under his direct control and he shall be allowed to plan, design and supervise construction, repair, maintenance, alteration and modification of buildings or other structures regulated by this Code provided the **licensed professional certify** compliance of the work with the provisions of the Code.

(2) In case of any **violation** of the Code the **licensed professionals** who shall certify will be **liable** for action through professional bodies…

Professional Competency Mandatory for a Designer

INTERNATIONAL ENGINEERING ALLIANCE

	Graduate Attributes	Professional Competencies
APPLICABLE FOR	ACCORDS	AGREEMENTS
Engineers	Washington (1989) (Bangladesh - **BAETE** is full Signatory)	**IPEA** (International Professional Engineers Agreement) (Bangladesh - **BPERB** is Provisional Signatory)
~~	~~~~~~	~~~~~~
Engineering Technologists	Sydney (2001)	IETA (International Engineering Technologists Agreement)
Engineering Technicians	Dublin (2002)	AIET (Agreement for International Engineering Technicians)

Washington Accord (WA):

The Washington Accord, originally signed among six countries in 1989, is an International Agreement among bodies responsible for accrediting undergraduate engineering degree programs. It recognizes the substantial equivalency of programs accredited by those bodies and recommends that graduates of programs accredited by any of the signatory bodies be recognized by the other bodies as having met the academic requirements for entry to the practice of engineering in the area of their jurisdiction. The membership of Washington Accord is an international recognition of the quality of undergraduate engineering education offered by the member country and is an avenue to bring it into the world class category. It encourages and facilitates the mobility of engineering graduates and professionals at international level.

The Board of Accreditation for Engineering and Education (BAETE), the Institution of Engineers, Bangladesh (IEB), Dhaka, Bangladesh is full signatory of the Washington Accord. The BAETE, IEB has submitted a self-assessment report to the International Engineering Alliance on September 14, 2021, for consideration of IEB-BAETE as a full signatory. On June 12, 2024, in the International Engineering Alliance Meetings (IEAM) 2024, held in Gurugram, Delhi NCR, India, IEB-BAETE was inducted to the Washington Accord. The decision was unanimously approved by 23 full-signatories of the Washington Accord.

IPEA

stands for

International Professional Engineers Agreement

BPERB is also engaged to enable the recognition of the expertise of the **engineers of Bangladesh** and their **mobility at the international level as demand by the WTO/GATS**. This will have the effect of removing barriers to the free movement of professional engineering services between nations, provided the professional engineers meet certain agreed **international standards**. BPERB has already become the **Provisional Member** of the International Professional Engineers Agreement (**IPEA**). In 2018, BPERB applied for the Authorized Membership status of IPEA. It was declined by in IEAM 2020. BPERB is now implementing the recommendations made by IPEA; Provisional Membership has been extended up to 2024.

Bangladeh Professional Engineers Registration Board

BPERB

List of PEng

Deceased Archive | De-registered

Show 10 entries Search:

SN	Name	Discipline	PEng_Regn_No	Type	IEB_F/M_No
463	Engr. Md. Harun-Ar-Rashid, PEng.	EE	03/0071	Domestic	F/3390
470	Engr. Md. Ainul Haque, PEng.	EE	03/0070	Domestic	F/3144
472	Engr. Quazi Nasiruddin, PEng.	EE	03/0072	Domestic	F/5559
473	Engr. Md. Anwarul Karim, PEng.	EE	03/0073	Domestic	F/6843
477	Dr. Engr. Md. Aynal Haque, PEng.	EE	03/0074	Domestic	F/5421
478	Engr. Yeasir Arafat, PEng.	EE	03/0075	Domestic	F/10059
479	Engr. Md. Iqbal, PEng.	EE	03/0076	Domestic	F/4593
482	Engr. Khandker Mustafizur Rahman, PEng.	EE	03/0077	Domestic	M/28096

What’s about the Jurisdiction Outside Rajuk Area?

বিল্ডিং কোড অনুসরণ
নিশ্চিত করে নিরাপদ ভবন

হাউজিং এন্ড বিল্ডিং রিসার্চ ইনস্টিটিউট
HOUSING AND BUILDING RESEARCH INSTITUTE (HBRI)
Ministry of Housing and Public Works

স্মারক নং: ২৫.৪৪.২৬০০.০০০.২২.০০৬.২১-৪১০৫ তারিখ: ০৩ আগস্ট ২০২৩ খ্রিস্টাব্দ

বিষয়ঃ **বাংলাদেশ বিল্ডিং রেগুলেটরি অথরিটি গঠন সম্পর্কিত মত বিনিময় ও সুপারিশ গ্রহণ সভায় অংশগ্রহণের আমন্ত্রণ প্রসঙ্গে।**

উপর্যুক্ত বিষয়ের প্রেক্ষিতে জানানো যাচ্ছে যে, বাংলাদেশে টেকসই এবং নিরাপদ ভবন নির্মাণের লক্ষ্যে বাংলাদেশ ন্যাশনাল বিল্ডিং কোড (বিএনবিসি-২০২০) এর সর্বশেষ এডিশন ২০২১ সালের ১১ ফেব্রুয়ারি গেজেট আকারে প্রকাশিত হয়। বাংলাদেশ বিল্ডিং কোডের যথাযথ প্রয়োগ ও বাংলাদেশের টেকসই উন্নয়ন নিশ্চিতকল্পে বিএনবিসি ২০২০ এর ভলিউম ১, পার্ট ২ অধ্যায় ২ এর ১০ নং ধারা অনুসারে বাংলাদেশ বিল্ডিং রেগুলেটরি অথরিটি (বিবিআরএ) গঠন বিষয়ে বিভিন্ন কারিগরি প্রতিষ্ঠান ও সংশ্লিষ্ট মন্ত্রণালয়ের উপযুক্ত প্রতিনিধিগণের সমন্বয়ে একটি মতবিনিময় ও সুপারিশ গ্রহণ সভা আগামী ২০ আগস্ট ২০২৩, রবিবার সকাল ১০:৩০ টায় অত্র প্রতিষ্ঠানের সভাকক্ষে (২য় তলা) আয়োজন করা হয়েছে। উক্ত মতবিনিময় ও সুপারিশ গ্রহণ সভায় আপনার প্রতিষ্ঠান হতে ০১ (এক) জন উপযুক্ত প্রতিনিধি প্রেরণের অনুরোধ জানানো হলো।

(মোঃ আশরাফুল আলম
মহাপরিচালক

Recent Steps for Implementation of BNBC 2020

Urban Resilience Project (URP) seeks to create and enabling environment for centrally coordinated and locally managed **Disaster Risk Management (DRM)**. There are three core pillars of disaster resilience in urban settings *i*) Effective emergency management; *ii*) Improving structural resilience through reduction of existing physical vulnerability and *iii*) Risk-sensitive land use planning and safe construction standards practices to ensure **sustainable growth**. Project Sponsoring Ministry of Housing & Public Works (MoHPW) and Project Executing Agency Rajuk, development partner: **The World Bank**.

One of the Objectives of URP is Digitalization of..

Thus URP Introduces ECPS..

ECPS: Electronic Construction Permitting System

Registration in ECPS

Registration of Qualified Professionals

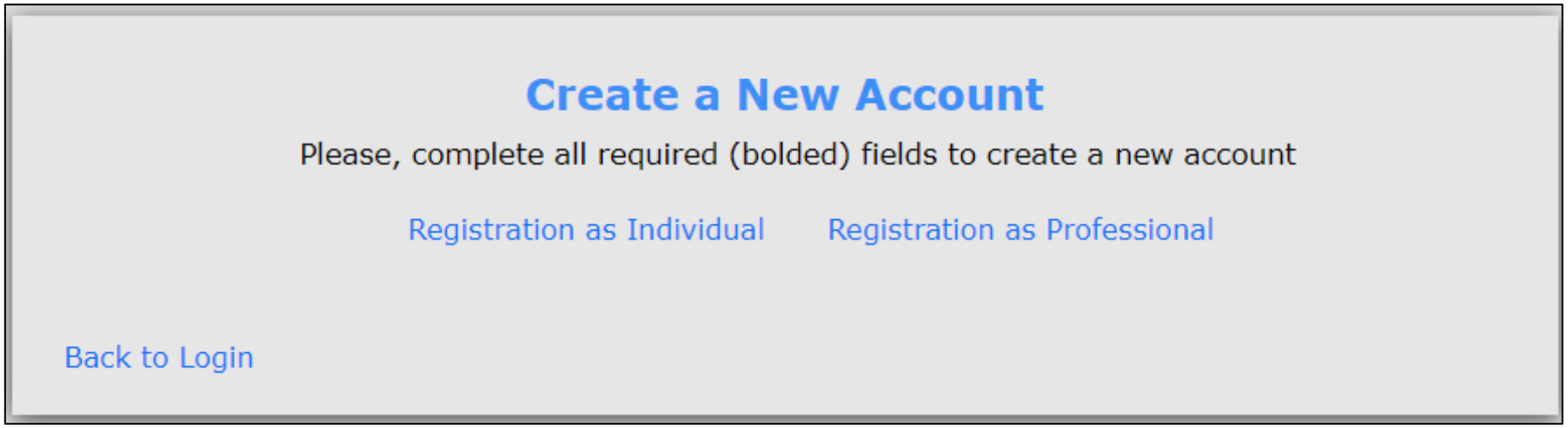
For Registration, go to Electronic Construction Permitting System website URL https://ecps.gov.bd/ Click "**Register**" on the upper right section. As shown in ***Figure 1***

Figure 1

Registration in ECPS

Registration of Qualified Professionals

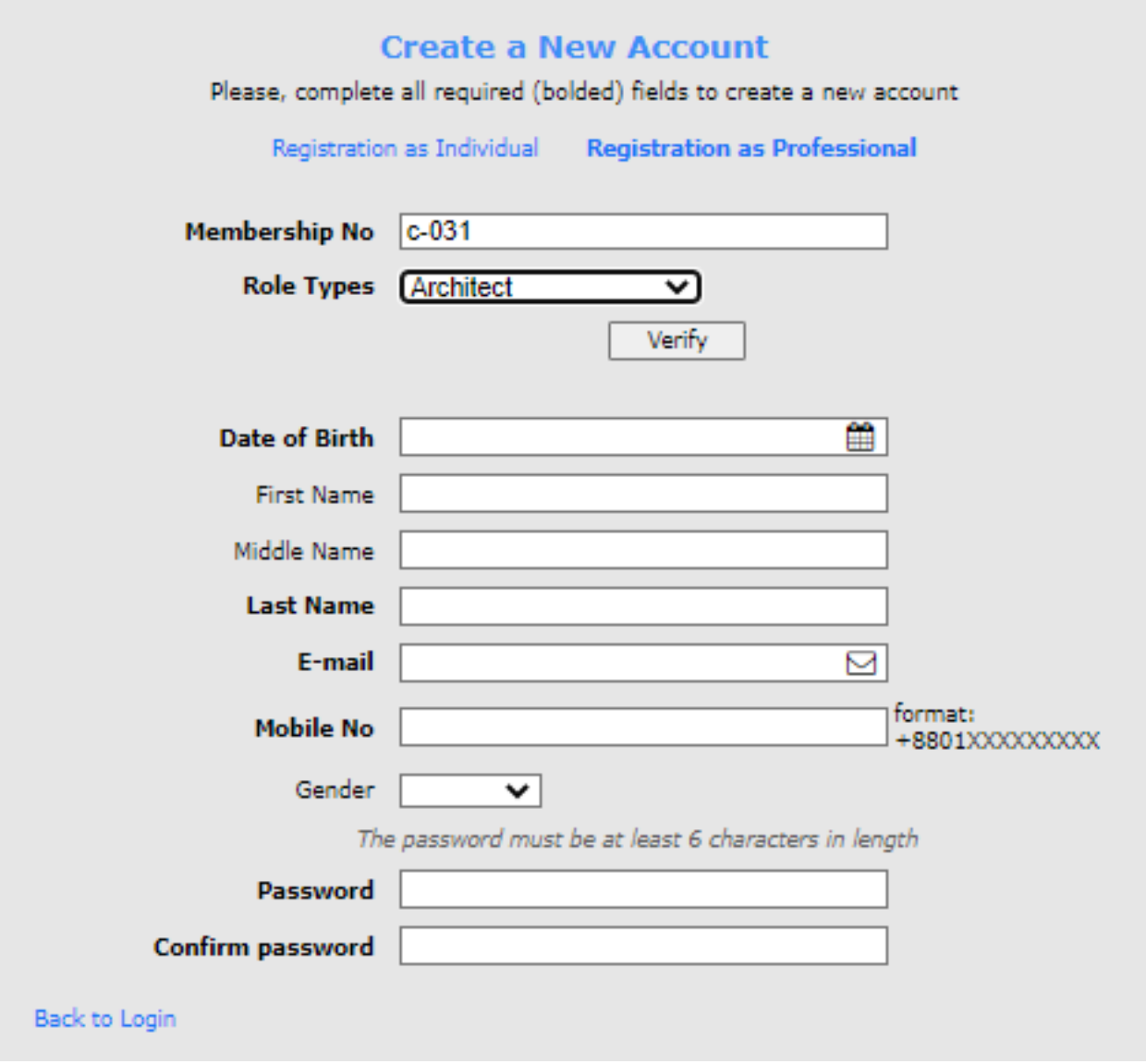
Click "**Registration as Professional**" link; the system will take the user to the registration page. As shown in ***Figure below:***



Enter Membership Number and select Role Types (***Architects, Structural Engineer, Mechanical Engineer, Electrical Engineer, Plumbing Engineer, Fire Safety Specialist***) and press "**Verify**" button. As shown in ***Figure next page.*** ECPS system will fetch data from their corresponding **institution's database**.

Registration in ECPS

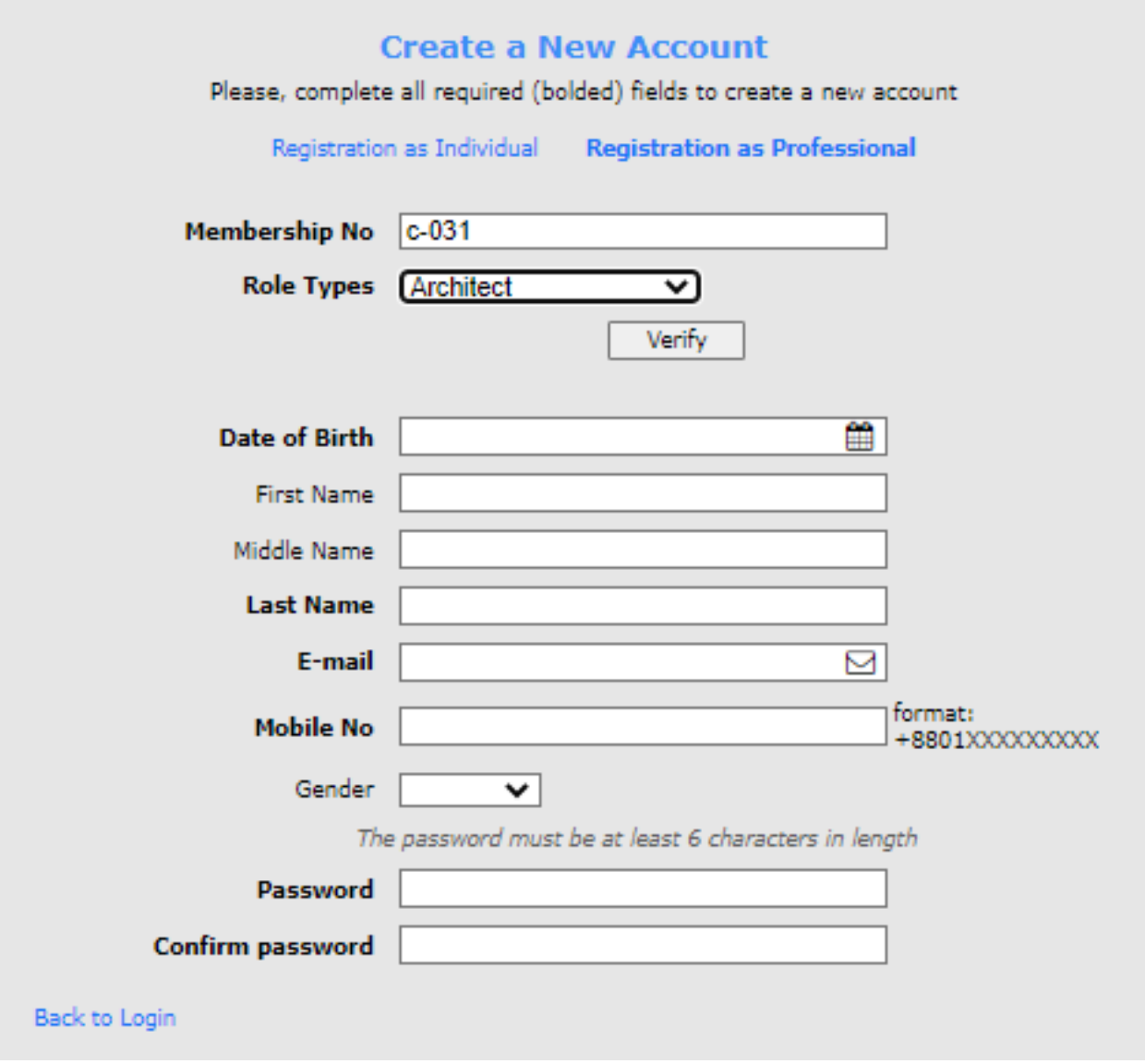
Registration of Qualified Professionals



Upon automatic verification, the First Name, Middle Name, Last Name, Gender, E-mail and Mobile Number of the professional will be fetched from their corresponding **institution's database** [No need to enter them].

Registration in ECPS

Registration of Qualified Professionals



Upon automatic verification, the First Name, Middle Name, Last Name, Gender, E-mail and Mobile Number of the professional will be fetched from their corresponding **institution's database** [No need to enter them].

Personal Info
Change Password
Profile

Personal Info

First Name: ENGR.

Middle Name: YEASIR

Last Name: ARAFAT, PEng.

Email: arafat@eee.buet.ac.bd

Phone Number: 01552329234

Signature: Choose File No file chosen

Preview:

Apply

ECPS: Implementation Notices

রাজধানী উন্নয়ন কর্তৃপক্ষ
রাজউক ভবন, ঢাকা।
www.rajuk.gov.bd

ভূমি ব্যবহার ছাড়পত্র, বিশেষ প্রকল্প ছাড়পত্র এবং নকশা অনুমোদন গ্রহণ সংক্রান্ত জরুরী বিজ্ঞপ্তি

সকল সেবা গ্রহীতাগণের অবগতির জন্য জানানো যাচ্ছে যে, ভূমিকম্প দূর্যোগ ঝুঁকি হ্রাসের লক্ষ্যে আগামী ০১ এপ্রিল ২০২৩ তারিখ থেকে রাজউক আওতাধীন সাবজোন-৩/২ ও ৪/২ এর ভূমি ব্যবহার ছাড়পত্র, বিশেষ প্রকল্প ছাড়পত্র এবং নকশা অনুমোদন সংক্রান্ত যাবতীয় সেবা গ্রহণের ক্ষেত্রে Bangladesh National Building Code (BNBC)-2020 অনুযায়ী Architectural Drawing, Structural Design ও Building Services Drawing সহ আবেদন নিম্নোক্ত ওয়েবসাইটের মাধ্যমে দাখিল করার জন্য অনুরোধ করা যাচ্ছে।

https://ecps.gov.bd

০৩.০৫.২০২৩

চেয়ারম্যান
(সচিব)
রাজধানী উন্নয়ন কর্তৃপক্ষ
রাজউক ভবন, ঢাকা।

THE DAILY JUGANTOR
যুগান্তর
Publish-Date: 2023-05-13

রাজধানী উন্নয়ন কর্তৃপক্ষ
রাজউক ভবন, ঢাকা।
www.rajuk.gov.bd

নকশা অনুমোদন গ্রহণ সংক্রান্ত জরুরী বিজ্ঞপ্তি

সকলের অবগতির জন্য জানানো যাচ্ছে যে, রাজউকের আওতাধীন এলাকায় টেকসই ও ভূমিকম্প সহনীয় ভবন নির্মাণের লক্ষ্যে কর্তৃপক্ষের নিকট নকশা অনুমোদনের আবেদন দাখিলের ক্ষেত্রে Bangladesh National Building Code (BNBC)-2020. Building Constgruction ACT-1952 ও ঢাকা মহানগর ইমরাত (নির্মাণ, উন্নয়ন, সংরক্ষণ ও অপসারণ) বিধিমালা ২০০৮ অনুযায়ী স্থাপত্য নকশা (Architectural Drawing) এর সাথে নিবন্ধিত কারিগরী ব্যক্তি (IAB. IEB. BIP ও IDEB নিবন্ধিত) কর্তৃক প্রণয়নকৃত ও স্বাক্ষরিত কাঠামোগত নকশা (Structural Design) এবং Building Services Drawing বৈদ্যুতিক নকশা, প্লাবিং নকশা এবং প্রযোজ্য ক্ষেত্রে ফায়ার সার্ভিস ও সিভিল ডিফেন্স নকশা) আগামী ০১ জুন ২০২৩ তারিখ হতে আবশ্যিকভাবে দাখিল করার জন্য অনুরোধ করা যাচ্ছে।

(তন্ময় দাস)
সদস্য (উন্নয়ন নিয়ন্ত্রণ)
রাজধানী উন্নয়ন কর্তৃপক্ষ (রাজউক)
ঢাকা।

ডিজি-৩৭৮/২৩ (৫"×৩)

ECPS: Implementation Notices

রাজধানী উন্নয়ন কর্তৃপক্ষ
রাজউক ভবন, ঢাকা।

নং- ২৫.৩৯.০০০০.০৪৬.০৬.০০২.২৩-

তারিখ- আশ্বিন ১৪৩০ / সেপ্টেম্বর ২০২৩

বিষয়: স্থাপত্য নকশা অনুমোদনের ২ (দুই) মাসের মধ্যে স্ট্রাকচারাল, প্লাম্বিং, ফায়ার সেফটি ও ইলেক্ট্রো-মেকানিক্যাল ইত্যাদি নকশা জমাদান সংক্রান্ত।

উপর্যুক্ত বিষয়ের প্রেক্ষিতে জানানো যাচ্ছে যে, গত ২৭/০৮/২০২৩ খ্রী. তারিখে চেয়ারম্যান (সচিব), রাজউক মহোদয়ের সভাপতিতে রাজউকের উন্নয়ন নিয়ন্ত্রণ উইং এর কর্মকর্তাদের উপস্থিতিতে অনুষ্ঠিত মতবিনিময় সভার ০৯ নং সিদ্ধান্তের প্রেক্ষিতে স্থাপত্য নকশা অনুমোদিত হবার ০২ (দুই) মাসের মধ্যে সংশ্লিষ্ট পেশাজীবী সংগঠন কর্তৃক অনুমোদিত পেশাজীবী প্রণীত স্ট্রাকচারাল, প্লাম্বিং, ফায়ার সেফটি ও ইলেক্ট্রো-মেকানিক্যাল প্ল্যান ইত্যাদি জমা দেওয়ার প্রেক্ষিতে নির্মাণ অনুমোদন প্রদান করা হবে মর্মে সিদ্ধান্ত গৃহীত হয়। উল্লিখিত নকশাসমূহ জমাদান ব্যতিত আবেদনকারী নির্মাণ কাজ শুরু করতে পারবেন না।

এমতাবস্থায়, বর্ণিত সিদ্ধান্ত অনুযায়ী স্থাপত্য নকশা অনুমোদিত হবার ০২ (দুই) মাসের মধ্যে সংশ্লিষ্ট পেশাজীবী সংগঠন কর্তৃক অনুমোদিত পেশাজীবী প্রণীত স্ট্রাকচারাল, প্লাম্বিং, ফায়ার সেফটি ও ইলেক্ট্রো-মেকানিক্যাল প্ল্যান ইত্যাদি জমা দেওয়ার প্রেক্ষিতে নির্মাণ অনুমোদন প্রদান করার বিষয়ে প্রয়োজনীয় ব্যবস্থা গ্রহণের জন্য নির্দেশক্রমে অনুরোধ করা হলো।

স্বা:
(মোহাম্মদ সামছুল হক)
পরিচালক (উন্নয়ন নিয়ন্ত্রণ-১)
রাজধানী উন্নয়ন কর্তৃপক্ষ, ঢাকা।

Q: What is the criteria of a Qualified Professional? Who can Sign a Design?

Non-Corporate	Corporate	Can Sign a Design?
1) Student Member, Affiliate or Subscriber		
2) Associate Member		
3) Honorary Member		
	4) A Full Member	
	5) A Fellow	

A: Must have a DMINB Number

Q: How to Qualify for a DMINB Number?

A: There are 2 ways:

1) Permanent→ to pass P.Eng. (Written, Presentation, Viva*)

2) Temporary for 3 years→ (Only Viva with 5 Nos Guided Design)

Q: How to Apply for a DMINB Number?

A: Apply through ECPS Recommendation Form Available in BPERB @10k BDT

Granted only to Successful Candidates

ECPS Recommendation Form

Bangladesh Professional Engineers Registration Board, IEB

IEB Headquarters (13th floor), Ramna, Dhaka-1000
Phone: +880 2 22338 2936, E-mail: bperb.ieb@gmail.com , Web: www.bperb-ieb.org.bd

Sl. No. .....

Attested Passport Size Photo

APPLICATION FOR RECOMMENDATION TO RAJUK FOR ENROLMENT IN ECP SYSTEM

1. Name : Engr. .....
2. IEB Membership No. : F/M .....
3. Date of Birth : ..... 4. Sex : Male/Female/Others (Please Tick)
5. Nationality : .....
6. Postal Address : .....
7. Contact Details : Mobile: ..... Email. .....

PLEASE FILL UP THE BOX WITH TICK OR CROSS OR AS APPROPRIATE FOR THE FOLLOWING:

8. Engineering Discipline : Civil ☐; Electrical ☐; Mechanical ☐
9. Academic Qualification : BSc Engg. ☐; MSc Engg. ☐; PhD ☐
10. Professional Certificate Obtained : PEng ☐; DMINB ☐; PE ☐; CEng ☐
11. Attended URP Training by ICC : Yes ☐; No ☐; N/A ☐
12. Appeared in Written Exam by IEB at BUET : Yes ☐; No ☐; N/A ☐
13. Type of Applicant : ICC Trained ☐; PEng/DMINB ☐; Renowned Designer ☐
14. Applied for Category :

Regd. Structural Engr. : **Cat. IV** ☐; **Cat. III** ☐; **Cat. II** ☐
Regd. Geo-tech Engr. : **Cat. IV** ☐; **Cat. III** ☐; **Cat. II** ☐
Regd. Building Services Engineer :
(i) Electrical : **Cat. IV** ☐; **Cat. III** ☐; **Cat. II** ☐
Regd. Building Services Engineer :
(ii) EME : **Cat. IV** ☐; **Cat. III** ☐; **Cat. II** ☐
(iii) Plumbing : **Cat. IV** ☐; **Cat. III** ☐
(iv) Fire : **Cat. IV** ☐; **Cat. III** ☐

15. Years of Experience as Engr. : ☐☐ years in figures
16. Years of Experience in Relevant Field : ☐☐ years in figures
17. Please enclose :

i. IEB Membership Certificate. ☐
ii. Academic Certificates (B.Sc. Engg. /MSc. Engg. /PhD). ☐
iii. Professional Certificates (PEng, DMINB or similar). ☐
iv. URP Training Certificates by ICC. ☐
v. A complete CV with signature. ☐
vi. Detailed structural/geo-tech design (or detailed Electrical/ EME/ Plumbing/ Fire safety designs as the case may be) for 5 (five) buildings/Projects of which at least 2 completed in last 4 years. ☐
vii. Photocopy of NID ☐

I do certify that the information given above is true and correct. I undertake that after assessment through oral examination and scrutinizing the submittals in accordance with the Guidelines framed by the IEB, BPERB reserves the right to issue a registration for any category that the applicant may fit, or reject the application. The IEB reserves further the right to investigate complaints of violation for any misuse of the issued registration according to the rules, procedures of BPERB and Code of Ethics of the IEB that exists now or framed in future by appropriate authorities of the IEB.

Date: ..... Signature of the Applicant: .....

Zoomed in Form

Bangladesh Professional Engineers Registration Board, IEB

IEB Headquarters (13th floor), Ramna, Dhaka-1000
Phone: +880 2 22338 2936, E-mail: bperb.ieb@gmail.com , Web: www.bperb-ieb.org.bd

Sl. No. .....

Attested Passport Size Photo

APPLICATION FOR RECOMMENDATION TO RAJUK FOR ENROLMENT IN ECP SYSTEM

1. Name : Engr. .....
2. IEB Membership No. : F/M .....
3. Date of Birth : ..... 4. Sex : Male/Female/Others (Please Tick)
5. Nationality : .....
6. Postal Address : .....
7. Contact Details : Mobile: ..... Email. .....

PLEASE FILL UP THE BOX WITH TICK OR CROSS OR AS APPROPRIATE FOR THE FOLLOWING:

8. Engineering Discipline : Civil ☐; Electrical ☐; Mechanical ☐
9. Academic Qualification : BSc Engg. ☐; MSc Engg. ☐; PhD ☐
10. Professional Certificate Obtained : PEng ☐; DMINB ☐; PE ☐; CEng ☐
11. Attended URP Training by ICC : Yes ☐; No ☐; N/A ☐
12. Appeared in Written Exam by IEB at BUET : Yes ☐; No ☐; N/A ☐
13. Type of Applicant : ICC Trained ☐; PEng/DMINB ☐; Renowned Designer ☐

Zoomed in Form

14. Applied for Category :

Regd. Structural Engr. : **Cat. IV** ☐; **Cat. III** ☐; **Cat. II** ☐ Regd. Building Services Engineer :

Regd. Geo-tech Engr. : **Cat. IV** ☐; **Cat. III** ☐; **Cat. II** ☐ (ii) EME : **Cat. IV** ☐; **Cat. III** ☐; **Cat. II** ☐

Regd. Building Services Engineer : (iii) Plumbing : **Cat. IV** ☐; **Cat. III** ☐

(i) Electrical : **Cat. IV** ☐; **Cat. III** ☐; **Cat. II** ☐ (iv) Fire : **Cat. IV** ☐; **Cat. III** ☐

15. Years of Experience as Engr. : ☐☐ years in figures

16. Years of Experience in Relevant Field : ☐☐ years in figures

17. Please enclose :

i. IEB Membership Certificate. ☐
ii. Academic Certificates (B.Sc. Engg. /MSc. Engg. /PhD). ☐
iii. Professional Certificates (PEng, DMINB or similar). ☐
iv. URP Training Certificates by ICC. ☐
v. A complete CV with signature. ☐
vi. Detailed structural/geo-tech design (or detailed Electrical/ EME/ Plumbing/ Fire safety designs as the case may be) for 5 (five) buildings/Projects of which at least 2 completed in last 4 years. ☐
vii. Photocopy of NID ☐

I do certify that the information given above is true and correct. I undertake that after assessment through oral examination and scrutinizing the submittals in accordance with the Guidelines framed by the IEB, BPERB reserves the right to issue a registration for any category that the applicant may fit, or reject the application. The IEB reserves further the right to investigate complaints of violation for any misuse of the issued registration according to the rules, procedures of BPERB and Code of Ethics of the IEB that exists now or framed in future by appropriate authorities of the IEB.

Date: ..... Signature of the Applicant: .....

Scopes of BNBC 2020 - Electrical

1.1.1 Scope

The provisions of the Code presented in this Chapter (EEESB), cover the **Electrical and Electronic Engineering Services for Buildings** to ensure that the related installation work becomes perfect and safe for the persons **residing in and around** the building. The term safe means safe for the **persons** and safe for the **properties**. Provisions of the Specifications are to set **minimum standards** for Electrical and Electronic Engineering Installations in various **Occupancy categories** of buildings, as described in **Part 3** of this Code, including **annexes and premises**. All the systems and equipment intended for the supply of normal power and standby power to all these places are covered by the provisions of this Code.

Scopes & Provisions

Scopes & provisions of the Code for various EEE systems and/or installations for the buildings include, but not limited to:

(a) Lighting and illumination

(b) Fans, cooling and heating

(c) Normal and standby power supply

(d) Supply system and feeder for lifts/escalators/moving walks

(e) Cable television distribution

(f) Electronic access control system

(g) Burglar alarm/CCTV monitoring/security

Scopes & Provisions

(h) Electrical cables/conductors and equipment

(i) Switches, sockets, other accessories

(j) Cable & conductor in a building that connect to power supply

(k) Electrical protection system

(l) Earthing system of an electrical installation

(m) Lightning Protection System (LPS) of a building and its electrical installation

(n) Fire Detection and Alarm System (FDAS) in a building

(o) Multi-media communications, data communications and tele-communications.

Not in the Scope of BNBC 2020

Electrical wiring/cabling form a major part in the above mentioned installation works. Electrical wiring/cabling must be **reasonably safe to persons and properties**. Installations, alteration, or extension of Electrical wiring/cabling systems conforming to the provisions of this Code shall be deemed to be reasonably safe to persons and property.

The provisions of the Code in this Chapter **do not cover** Installations in **ship, water craft, railway rolling stock, aircraft, or automotive vehicles and recreational vehicles**.

Relevant Terminologies and Definitions used in BNBC 2020

1.1.3 Terminologies and Definitions

This Section provides an **alphabetical list** of the terms used in and applicable to this Chapter of the Code.

In case of any conflict or contradiction between a definition given in this Section and that in **Part 1**, the meaning provided in this Section shall govern for interpretation of the provisions of this Chapter (of **Part 8**).

Sample Terminology and Definition

APPARATUS means Energy Efficient Apparatus. Electrical apparatus including all machines, appliances and fittings in which conductors are used or of which they form a part.

APPLIANCE means Energy Efficient Appliance. An item of electric current using equipment other than a luminaries or an independent motor.

BDB - Branch Distribution Board located in the same floor of a building and connected to one of the SDBs in the same floor.

CELING ROSE A ceiling rose is used for terminating the point wiring for a Light or a Fan in the ceiling. It has brass terminals in which incoming cables are terminated using brass screws on the terminals and the outgoing flexible cables get connection through the screw connections.

Sample Terminology and Definition

EARTH ELECTRODE A metal plate, pipe or other conductor electrically connected to the general mass of the earth.

EDB Emergency Distribution Board. This may be the box where the main incoming cable from the Emergency or Standby Generator Panel enters and. The ESDBs get feed from a EDB.

ENGINEER-INCHARGE An engineer responsible for implementation/ execution of the work of a building or a project. Such an engineer is expected to have significant knowledge in Electrical Engineering, Electrical Construction, Measurement, Codes and Practices of such work and availability of different materials needed for the construction.

LUMINAIRE A complete light fitting consisting of lamp, holder, starting gears, reflectors, housing and mounting accessories.

ACCESSORY	A device associated with current using equipment or with the wiring of an installation; for example, a switch, a plug, a socket outlet, a lamp holder, or a ceiling rose.
ALIVE	See LIVE.
APPARATUS	Apparatus means Energy Efficient Apparatus. Electrical apparatus including all machines, appliances and fittings in which conductors are used or of which they form a part.
APPLIANCE	Appliance means Energy Efficient Appliance. An item of electric current using equipment other than a luminaries or an independent motor.
BDB	Branch-Distribution Board located in the same floor of a building and connected to one of the SDBs in the same floor.

BRANCH CIRCUIT, APPLIANCE	A branch circuit supplying energy to one or more outlets to which appliances are to be connected; such branch circuits do not have any permanently connected lighting fixtures except those that are integral parts of the appliances themselves.
BRANCH CIRCUIT, GENERAL PURPOSE	A branch circuit that supplies a number of outlets for lighting and/or appliance.
BRANCH CIRCUIT, INDIVIDUAL	A branch circuit that supplies only one utilization equipment.
BUNCHED	Cables are said to be bunched when two or more are either contained within a single conduit, duct, ducting, or trunking or, if not enclosed, are not separated from each other.
CABLE	PVC insulated copper cables having copper cross section of 1 mm^2 and above. A length of single insulated conductor (solid or stranded), or two or more such conductors, each provided with its own insulation. The insulated conductor or conductors may or may not be provided with an overall mechanical protective covering.
CELING ROSE	A ceiling rose is used for terminating the point wiring for a Light or a Fan in the ceiling. It has brass terminals in which incoming cables are terminated using brass screws on the terminals and the outgoing flexible cables get connection through the screw connections.
CIRCUIT	An assembly of electrical equipment supplied from the same origin and protected against overcurrent by the same protective device.
SUB CIRCUIT, FINAL CIRCUIT	An outgoing circuit connected to one way of a distribution board or a fuse board and intended to supply electrical energy, to one or more points, to current using appliances without the intervention of a further distribution fuse board other than a one-way board. It includes all branches and extensions derived from that particular way in the distribution board or fuse board.

CIRCUIT BREAKER	A device designed to open and close a circuit by non-automatic means and to open the circuit automatically on a predetermined overcurrent, without injury to itself when properly applied within its rating.
CIRCUIT BREAKER	A device used to break a circuit during over current or short circuit condition. An LV Circuit Breaker is used in a low voltage distribution system and an HV Circuit Breaker is used in a high voltage distribution system.
CORD, FLEXIBLE CABLE	A flexible cable having large number of strands of conductors of small cross-sectional area with a soft PVC insulation. Two flexible cords twisted together may be termed as twin flexible cord. However, some flexible cords are made following the style of a twin core PVC insulated copper cables but much soft and flexible.
CUTOUT	Any appliance for automatically interrupting the transmission of energy through a conductor when the current rises above some predetermined value. A cutout contains a part for holding either fuse wire (rectangular cross section type) or a part for holding tubular fuse (cylindrical body rectangular cross section type). (see FUSE)
DB	Distribution Board. This may be the box where the main incoming cable enters and terminates from the main service feed connection. The SDBs get feed from a DB.
DEMAND FACTOR	The ratio of the maximum demand of a system, or part of a system, to the total connected load of the system or the part of the system under consideration.
DUCT	A closed passageway formed underground or in a structure and intended to receive one or more cables which may be drawn in.
EARTH	The conductive mass of the earth, whose electric potential at any point is conventionally taken as zero.
EARTH ELECTRODE	A metal plate, pipe or other conductor electrically connected to the general mass of the earth.
EARTH LEAD WIRE	The final conductor by which the connection to the earth electrode is made.

EARTH CONTINUITY CONDUCTOR (ECC)	The conductor, including any clamp, connecting to the earthing lead or to each other, those parts of an installation which are required to be earthed. It may be in whole or in part the metal conduit or the metal sheath or armour of the cables, or the special continuity conductor of a cable or flexible cord incorporating such a conductor. ECCs of appropriate size must run from an MDB to its DBs, from a DB to its corresponding SDBs, from an SDB to the Switch Boards under this SDB, from an SDB to the BDBs if there are any, from a BDB to the Switch Boards under this BDB, from an SDB or a BDB to the Sockets under this SDB or BDB.
EDB	Emergency Distribution Board. This may be the box where the main incoming cable from the Emergency or Standby Generator Panel enters and. The ESDBs get feed from a EDB.
EFDB	Emergency Floor Distribution Board located in each of the floors of a multistoried building. The EDBs get feed from EFDB.
ENGINEER-IN-CHARGE	An engineer responsible for implementation/execution of the work of a building or a project. Such an engineer is expected to have significant knowledge in Electrical Engineering, Electrical Construction, Measurement, Codes and Practices of such work and availability of different materials needed for the construction.
FDB	Floor Distribution Board located in each of the floors of a multistoried building. The DBs get feed from FDB.
FUSE	A device that, by the fusion of one or more of its specially designed and proportioned components, opens the circuit in which it is inserted when the current through it exceeds a given value for a sufficient time. Fuse is generally made of fusible wires of appropriate ratings which is either mounted inside glass tubes or porcelain tubes or on a two terminal cutout.
FUSE SWITCH	A composite unit, comprising a switch with the fuse contained in, or mounted on, the moving member of the switch.
LIGHTING FITTING	A device for supporting or containing a lamp or lamps (for example, fluorescent or incandescent) together with any holder, shade, or reflector; for example, a bracket, a pendant with ceiling rose, or a portable unit.

INSULATION	Suitable non-conducting material, enclosing, surrounding or supporting a conductor. Usually PVC, polymer, specially treated rubber.
LIVE	Electrically charged so as to have a potential different from that of earth. Also known as ALIVE.
LUMINAIRE	A complete light fitting consisting of lamp, holder, starting gears, reflectors, housing and mounting accessories.
LT / LV and HT/ HV	LT or LV in this document indicates 230 Volt single phase and 400 volt 3 phase. HT or HV in this document indicates 11 kV Line to line 3 phase system.
MDB	Main Distribution Board. This is the distribution box where the main incoming cable enters and terminates from the main service feed connection of a large building. The FDBs get feed from MDB.
OVER-CURRENT	A current exceeding the rated current. For conductors, the rated value is the nominal current carrying capacity.
PANEL BOARD	A single panel or a group of panel units designed for assembly in the form of a single panel including buses, automatic overcurrent devices, and with or without switches for the control of light, heat, or power circuits, designed to be placed in a cabinet or cutout box placed in or against a wall or partition and accessible only from the front.
PLUG	A device carrying metallic contacts in the form of pins intended for engagement with corresponding socket contacts and arranged for attachment to a flexible cord or cable. A plug may contain tubular fuse inside it although some plugs do not contain fuse.
POINT (in wiring)	A termination of the fixed wiring intended for the connection of current using equipment e.g., a Light, a fan, an exhaust fan.
SDB	Sub- Distribution Board located in the same floor of a building and connected to the DB. The BDBs get feed from SDB.
SERVICE	The conductors and equipment required for delivering energy from the electric supply system to the wiring system of the premises served.

SWITCH	A manually operated device for closing and opening or for changing the connection of a circuit. A 5A SPST switch is used for the control of a Light or Fan point. A 5A SPDT switch is also used for the control of a Light or Fan point.
SWITCHBOARD	An assemblage of switchgear with or without instruments; the term, however, does not apply to a group of local switches on a final sub-circuit where each switch has its own insulating base.
SWITCHGEAR	Main switches cutouts or fuses, conductors and other apparatus in connection therewith, used for the purpose of controlling or protecting electrical circuits or machines or other current using appliances.

Voltage Ratings: Nominal voltage in Bangladesh and Code specified upper limit of nominal voltage

1.1.4 Voltage Ratings

- The **nominal voltage** in Bangladesh is **230** volts AC single phase and **400** volts AC 3 phase.
- Code specified **upper limit** of nominal voltage is **240** V AC to earth and **415** V AC between conductors.

Q?

Thanks!