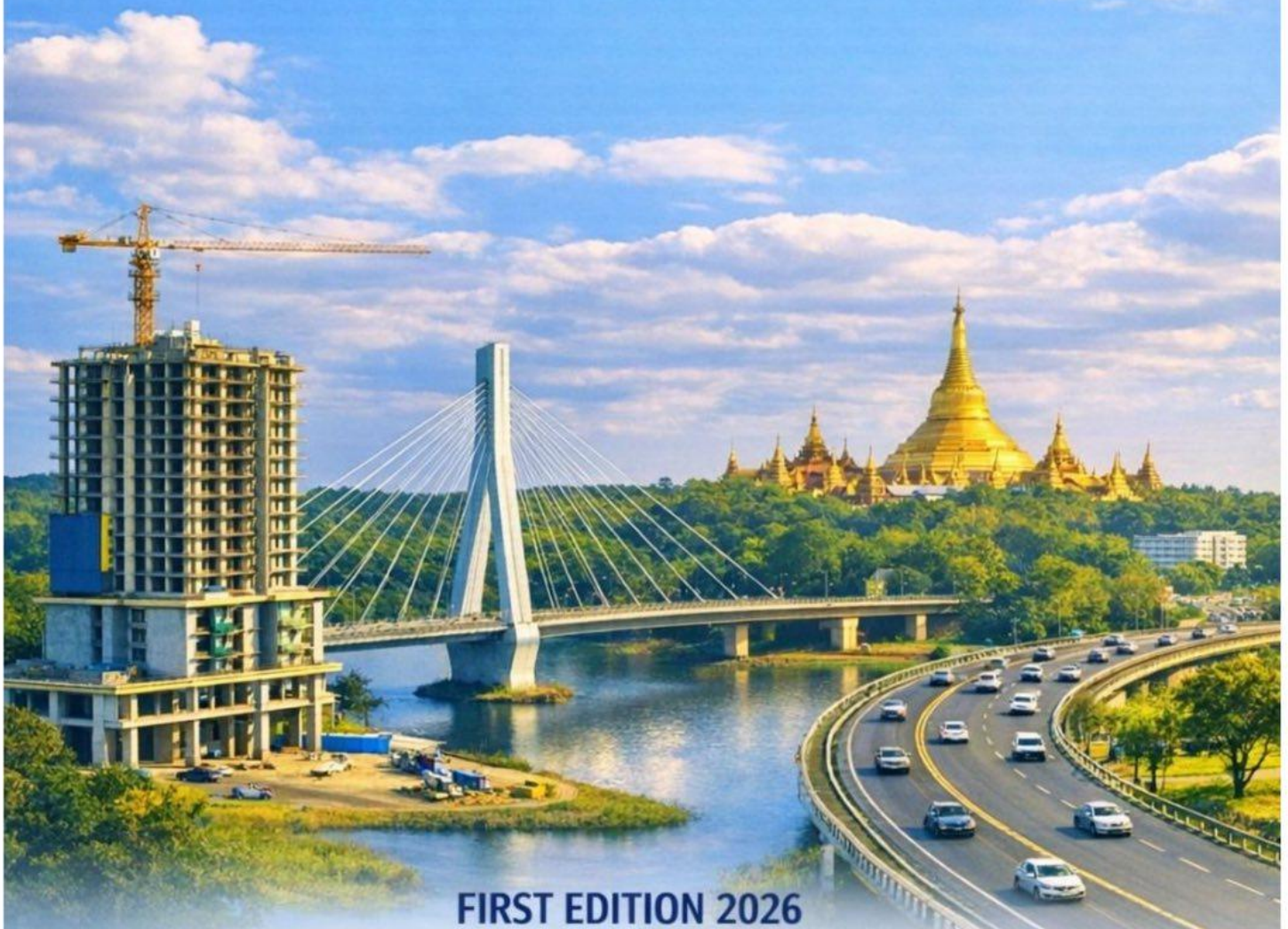
ASEAN Civil Engineering

Information Exchange

Civil Engineering in Myanmar



FIRST EDITION 2026

Prepared and Distributed by Myanmar Engineering Council

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FOREWORD

- The civil engineering profession is at the forefront of ASEAN's infrastructure and technological advancements, playing a crucial role in development across the region.
- In recognition of this, the **ASEAN Civil Engineering Information Exchange Template** has been created as a comprehensive platform to promote collaboration, professional mobility, and harmonized standards among ASEAN member states.
- This document contains excerpts from the Myanmar's Civil Engineering Laws & Regulations, the Bachelor of Engineering (Civil) Curriculum, the Manual and code of practice of Civil engineering Specializations, Codes and Standards issued by Ministry of Constructions., requirements for Building Permit Application, the general information of Construction Industry in Myanmar, a sample Project Management case Study, and other related information.
- As ASEAN continues to integrate economically, the need for a common framework that supports mutual recognition, and collaboration is more vital than ever. Information is a vital resource for comparative analysis, research work, regional data Bank, report preparation, policy formulation and the like.
- With gratitude to all contributors, we look forward to the continued growth and success of this initiative, benefiting engineers, industries, and economies alike.
- We are deeply grateful to all the contributors for their hard work, dedication, and expertise.
- This project stands as a testament to what can be achieved when professionals from various sectors come together with a shared vision of promoting best practices, enhancing standards, and fostering cooperation.

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Federation of Engineering Institution of Asia and the Pacific

ASEAN Civil Engineering Information Exchange Framework in Myanmar

Section 1: Education

1. Educational Institutions:

- List of recognized universities and colleges offering civil engineering programs.

There are 35 Higher Educational Institutions offering the 5-year Bachelor of Civil Engineering (BE - Civil) degree program accredited by the Central Accord Board organized by Directorate of Advanced Science & Technology under Ministry of Science and Technology (MOST). The list of Higher Educational Institutions offering the (BE- Civil) degree programs are as follows:

List of universities/colleges/institutes that award a Bachelor of Engineering (Civil)

(1) List of Polytechnic University

No	University/College	Email/Address
1.	Naypyitaw State Polytechnic University	admin@nspu.edu.mm Naypyitaw, Myanmar.
2.	Polytechnic University (Maubin)	Tumaubin.2024@gmail.com Maubin Township, Ayeyarwaddy Region, Myanmar.
3.	Polytechnic University (Lashio)	Tutashio2018@gmail.com Lashio Township, Northen Shan State, Myanmar.
4.	Polytechnic University (Myeik)	Myeik, Taninthayi Region, Myanmar.
5.	Polytechnic University (Kyaingtong)	admindept@pukt.edu.mm Kyaing Tong Township, Eastern of Shan State, Myanmar.

6.	Polytechnic University (Banmaw)	banmawtu@gmail.com Banmaw Townhsip, Myanmar.
7.	Polytechnic University (Panglong)	Pupanglong2025@gmail.com Loilem District, Shan State, Myanmar.
8.	Polytechnic University (Dawei)	info@pudawei.edu.mm Dawei, Tanintharyi Region, Myanmar.

(2) List of Technological Universities

No	Technological Universities	Email/Address
1.	Yangon Technological University (YTU)	Registrar.ytu@gmail.com Insein, Yangon, Myanmar.
2.	Mandalay Technological University (MTU)	Mtu.rector.mdy@gmail.com Mandalay, Myanmar.
3.	West Yangon Technological University (WYTU)	info@wytu.edu.mm Hlaing Thar Yar Township, Yangon, Myanmar.
4.	Myanmar Institute of Information Technology (MIIT)	Chanmyathazi Township, Mandalay, Myanmar.
5.	Thanlyin Technological University (TTU)	contact@tuthanlyin.edu.mm Thanlyin Township, Yangon Division, Myanmar.
6.	Technological University (Hmawbi)	tuhmawbi@gmail.com Hmawbi Township, Yangon, Myanmar.
7.	Technological University (Mandalay)	tumdyobo@gmail.com Mandalay, Myanmar.
8.	Pyay Technological University (PTU)	ptu.pyay.2019@gmail.com ptu.siman.2019@gmail.com Pyay Township, Myanmar.
10.	Myanmar Aerospace Engineering University (MAEU)	info@maeu.edu.mm Meiktila, Mandalay Division, Myanmar.
11.	Technological University (Pathein)	ptuntu@gmail.com Pathein Township, Ayeyarwady Region, Myanmar.

12.	Technological University (Hinthata)	hinthadatu@gmail.com Hinthata Township, Myanmar.
13.	Technological University (Kyaukse)	rector@kyauksetu.edu.mm Kyaukse, Myanmar.
14.	Technological University (Toungoo)	tutaungoo@gmail.com Taungoo Township, Myanmar.
15.	Technological University (Sagaing)	sagaingtu2019@gmail.com Sagaing Division, Myanmar.
16.	Technological University (Mawlamyaing)	mlmtu001@gmail.com Mawlamyaing, Myanmar.
17.	Technological University (Magway)	tumg2020@gmail.com Magway, Myanmar.
18.	Technological University (Monywa)	tumonywa2024@gmail.com Monywa, Myanmar.
19.	Technological University (Meiktila)	info@tumeiktila.edu.mm Meiktila, Myanmar.
20.	Technological University (Pakokku)	kutu001@gmail.com Pakokku, Myanmar.
21.	Technological University (Yamethin)	tu2018.yamethin@gmail.com Yamethin, Myanmar.
22.	Technological University (Taunggyi)	tu.taunggyi@gmail.com Taunggyi, Myanmar.
23.	Technological University (Hpa-an)	hpa.antu08@gmail.com Hpa-an, Kayin State, Myanmar.
24.	Technological University (Myitkyina)	admin@tumka.edu.mm rector@tumka.edu.mm Myitkyina, Kachin State, Myanmar.
25.	Technological University (Loikaw)	tu.loikaw@gmail.com Loikaw, Kayar State, Myanmar.
26.	Technological University (Kalay)	tukalay@moe.edu.mm Kayar State, Myanmar.
27.	Technological University (Sittwe)	www.tusittwe.edu.mm Rakhine State, Myanmar.

(3) List of colleges that award Bachelor of Technology (Civil) in Myanmar recognized and catered by Directorate of under Ministry of Science and Technology (MOST) and Department of Technical and Vocational Education (DTVE).

Government Technological Colleges

No	Colleges	Email/Address
1.	Government Technological College (Southdagon)	gtcsdg@dtve.org South Dagon Township, Yangon, Myanmar.
2.	Government Technological College (Shwebo)	Shwe Bo Township, Sagaing Division, Myanmar.
3.	Government Technological College (Mandalay)	gtcmdy@dtve.org Patheingyi Township, Mandalay Division, Myanmar.
4.	Government Technological College (Kyaukphyu)	gtikyaukphyu@gmail.com gtikpu@dtve.org Kyaukphyu, Myanmar.

(4) List of Government Technical Institutes

No	Institutes	Email/Address
1.	Government Technical Institute (Putao)	gtipto@dtve.org Putao, Myanmar.
2.	Government Technical Institute (Hakha)	gtihka@dtve.org Hakha, Myanmar.
3.	Government Technical Institute (Loikaw)	gtilkw@dtve.org Loikaw, Myanmar.
4.	Government Technical Institute (Thantwe)	gtitte@dtve.org Thantwe, Myanmar.
5.	Government Technical Institute (Mawlamyaing)	gtimle@dtve.org Mawlamyaing Township, Mon State.
6.	Government Technical Institute (Kyaukpadaung)	gtikpg@dtve.org Kyaukpadaung Township, Myanmar.
7.	Government Technical Institute (Kyaukse)	gtikse@dtve.org Kyaukse, Myanmar.
8.	Government Technical Institute (Pyinoolwin)	gtipon@dtve.org Pyinoolwin, Myanmar.
9.	Government Technical Institute (Magway)	gtimgy@dtve.org Magway Division, Myanmar.

10.	Government Technical Institute (Gangaw)	gtiggwe@gtve.org Gangaw, Myanmar.
11.	Government Technical Institute (Chauk)	gtichk@dtve.org Magway Division, Myanmar.
12.	Government Technical Institute (Yenangyaung)	gtiyng@dtve.org Yenangyaung, Myanmar.
13.	Government Technical Institute (Thayet)	gtityt@dtve.org Thayet, Myanmar.
14.	Government Technical Institute (Letpadan)	gtilpn@dtve.org Letpadan, Bago Division, Myanmar.
15.	Government Technical Institute (Wakhema)	gtiwka@dtve.org Wakhema Township, Ayeyarwaddy Division, Myanmar.
16.	Government Technical Institute (Laputta)	gtilpa@dtve.org Laputta, Myanmar.
17.	Government Technical Institute (kyaiklat)	gtikyaiklat@dtve.org Kyaiklat, Myanmar.
18.	Government Technical Institute (Kantbalu)	gtikbu@dtve.org Kantbalu, Myanmar.
19.	Government Technical Institute (Khamti)	gtikti@dtve.org Khamti, Myanmar.
20.	Government Technical Institute (Shwepyithar)	gtispr@dtve.org Shwe Pyi Thar Townhsip, Yangon, Myanmar.
21.	Government Technical Institute (Insein)	gtiisn@dtve.org Insein Township, Yangon, Myanmar.
22.	Government Technical Institute (Thanlyin)	gtitly@dtve.org Thanlyin Township,
23.	Government Technical Institute (Naypyitaw)	www.gtinaypyitaw.edu.mm Naypyitaw, Myanmar.
24.	Government Technical Institute (Myingyan)	gtimgn@dtve.org Myingyan, Myanmar.
25.	Government Technical Institute (Mohnyin)	Mohnyin, Myanmar.
26.	Government Technical Institute (Bago)	Bago Division, Myanmar.
27.	Government Technical Institute (Taungoo)	Taungoo, Myanmar.
28.	Government Technical Institute (Meiktila)	Meiktila Township, Myanmar.

29.	Government Technical Institute (Dawei)	gtidwi@dtve.org Dawei, Myanmar.
30.	Government Technical Institute (Hpa-an)	Hpa-an, Kayin State, Myanmar.
31.	Government Technical Institute (Taunggyi)	gtitaunggyi@dtve.org Taunggyi, Myanmar.
32.	Government Technical Institute (Yamethin)	Yamethin, Myanmar.

- Accreditation bodies and criteria.

a) Engineering Education Accreditation Committee (EEAC) affiliated with Myanmar Engineering Council (MEngC) provides accreditation services primarily to the Technological Universities and Colleges in Myanmar. Its primary function is to evaluate academic programs based on established criteria prescribed by EEAC in terms of EEAC accreditation manual and guidelines to ensure quality and continuous quality improvement in the respective institutions.

b) EEAC is a nonprofit organization that plays a crucial role in Engineering Education. It is responsible for accrediting Universities and Colleges in Myanmar ensuring that they meet the National Standards set by MEngC and meet the standards set by International Education Alliance (IEA).

c) The numbers of Institutions which received the National standards are (5) TUs and which obtained the Washington Accord (WA) level standards in provisional stage are (7) up to 2026.
(See Website - **https://myanmarengc-eeac.org/manual-and-guideline/**)

2. Curriculum Overview:

- Core subjects and electives in Civil Engineering.

Department of Civil Engineering
KG+12 (5 Year) New Curriculum starting from (2024-25)

Bachelor of Engineering (Civil) Degree Programme							
Sr No	**Course Year**	**Course Code**	**Course Name**	**Periods per Week**			**Credit Point**
				Lecture Hour	**Practical Hour**	**Tutorial Hour**	
1st Semester							
1	First Year	M 11001	Myanmar	3	0	1	3
2	First Year	E 11001	English I	2	1	1	3
3	First Year	ECh 11001	Engineering Chemistry	3	2	1	4
4	First Year	EM 11001	Engineering Mathematics I	3	0	1	3
5	First Year	CE 11011	Basic Engineering Drawing (EF)	1	3	0	3
		Total		12	6	4	16
2nd Semester							
1	First Year	E 21011	English II	2	1	1	3
2	First Year	EPh 11001	Engineering Physics	3	2	1	4
3	First Year	EM 12002	Engineering Mathematics II	3	0	1	3
4	First Year	WS 21012	Workshop Practice	2	2	0	3
5	First Year	CE 12012	Civil Engineering Drawing (Core)	1	4	0	3
		Total		11	9	3	16
3rd Semester							
1	Second Year	CE 22011	English III	2	1	1	3
2	Second Year	EG 21001	Engineering Geology for Civil Engineers I	2	1	0	2
3	Second Year	EM 21003	Engineering Mathematics III	3	0	1	3
4	Second Year	EP 21013	Principles of Electrical Engineering	2	1	1	3
5	Second Year	ME 21015	Engineering Mechanics (Statics)	3	0	1	3
6	Second Year	CE 21002	Building Materials & Construction (EF)	3	1	1	3
		Total		15	4	5	17

4th Semester							
1	Second Year	EG 31001	Engineering Geology for Civil Engineers II	2	1	0	2
2	Second Year	EM 22004	Engineering Mathematics IV	3	0	1	3
3	Second Year	CE 091	Programming Language	2	2	0	3
4	Second Year	CE 22001	Surveying (EF)	3	2	1	4
5	Second Year	CE 22003	Mechanics of Materials (EF)	4	1	2	5
		Total		14	6	4	17
5th Semester							
1	Third Year	EM 31005	Engineering Mathematics V	3	0	1	3
2	Third Year	CE 31011	Photogrammetry, Astronomy, Remote Sensing and GIS (Core)	2	1	1	3
3	Third Year	CE 31013	Theory of Structures I (EF)	4	0	2	4
4	Third Year	CE 31006	Fluid Mechanics	4	1	2	5
		Total		13	2	6	15
5	Third Year		Project-based Learning	0	0	0	2
6th Semester							
1	Third Year	EM 32006	Engineering Mathematics VI	3	0	1	3
2	Third Year	CE 32042	Engineering Economic (Core)	2	0	1	3
3	Third Year	CE 32023	Theory of Structures II (Core)	2	0	1	2
4	Third Year	CE 32026	Engineering Hydrology (EF)	2	0	1	2
5	Third Year	CE 32005	Geotechnical Engineering I (EF)	4	2	2	4
6	Third Year	CE 32007	Transportation Engineering (EF)	4	0	1	3
		Total		17	2	7	17
7th Semester							
1	Fourth Year	HSS 41011	Humanities and Social Sciences I	3	0	0	3
2	Fourth Year	CE 41032	Construction Engineering and Management (Core)	2	0	2	3
3	Fourth Year	CE 41014	Design of Concrete Structures (Core)	4	0	2	4
4	Fourth Year	CE 41015	Geotechnical Engineering II (Core)	3	1	1	3
5	Fourth Year	CE 41036	Hydraulic Engineering (Core)	3	2	1	4
		Total		15	3	7	17

8th Semester							
1	Fourth Year	HSS 42011	Humanities and Social Sciences II	3	0	0	3
2	Fourth Year	CE 42052	Elective I (Core)	3	0	1	3
3	Fourth Year	CE 42062	Contracts, Specifications and Estimation (Core)	3	0	3	4
4	Fourth Year	CE 42024	Design of Steel Structures (Core)	4	0	2	4
5	Fourth Year	CE 42008	Environmental Engineering (Core)	3	2	2	4
		Total		16	2	8	18
9th Semester							
1	Fifth Year	HSS 51003	Humanities and Social Sciences III	3	0	0	3
2	Fifth Year	CE 51xxx	Elective II (Core)	3	0	1	3
3	Fifth Year	CE 51xxx	Elective III (Core)	3	0	1	3
4	Fifth Year	CE 51071	Research Methodology and Statistical Analysis	2	1	1	3
5	Fifth Year	CE 51039	Integrated Design Project (Core)	0	0	0	6
		Total		11	1	3	18
6	Fifth Year			0	0	0	4
10th Semester							
1	Fifth Year	CE 520xxx	Elective IV (Core)	3	0	1	3
2	Fifth Year	CE 52081	Initial Professional Development (Core)	2	0	0	2
3	Fifth Year	CE 52049	Graduation Thesis (Core)	0	20	0	12
		Total		5	20	1	16

- Duration and structure of programs (Bachelor's, Master's, Ph.D.)

a) Overview of engineering education in Myanmar

Engineering education in Myanmar is administered primarily by the Ministry of Science and Technology, which oversees engineering universities and technological institutions across the country. These institutions provide structured academic programs designed to produce qualified engineering professionals capable of supporting national infrastructure development and industrial growth. Engineering programs are offered at several public engineering universities, including institutions such as Yangon Technological University and Mandalay Technological University, among others. These universities provide undergraduate and postgraduate education in various engineering disciplines, including

Civil Engineering. The civil engineering curriculum is designed to integrate theoretical knowledge, laboratory practice, field training, and engineering design experience to ensure graduates are well prepared for professional practice.

b) Duration and structure of engineering programs

Engineering education in Myanmar follows a structured academic pathway consisting of undergraduate and postgraduate programs.

c) Bachelor's Degree in civil engineering

The Bachelor of Engineering (B.E) in Civil Engineering is the primary academic qualification required to enter the engineering profession. The typical duration of the bachelor's program is **five years** in Myanmar Technological Universities. The program structure generally includes:

- **Foundation Studies:** Mathematics, Physics, Chemistry, and Engineering Drawing.
- **Basic Engineering Courses:** Engineering Mechanics, Engineering Mathematics, Computer Applications, and Basic Engineering Principles.
- **Core Civil Engineering Subjects:** Structural Analysis, Strength of Materials, Fluid Mechanics, Surveying, and Engineering Materials.
- **Specialized Civil Engineering Courses:** Structural Engineering, Geotechnical Engineering, Transportation Engineering, Environmental Engineering, and Water Resources Engineering.
- **Laboratory and Practical Training:**

  i. Material testing laboratories
  ii. Fluid mechanics laboratory
  iii. Structural Engineering laboratory
  iv. Water Resources Engineering laboratory
  v. Soil mechanics laboratory
  vi. Water & Sanitation laboratory
  vii. Photogrammetric laboratory
  viii. Surveying field practice
  ix. Field work training for respective subjects

- **Final Year Project:** A comprehensive engineering design or research project completed during the final year. This program provides students with fundamental knowledge and technical competencies necessary for civil engineering best practices.
- **Internship Training:** Each and every standard has to complete the 8-week continuous internship training in the relevant projects, companies and industries.

d) Master's Degree in civil engineering

The master's degree in civil engineering is a postgraduate program intended to provide advanced knowledge and specialization in selected fields of civil engineering. The typical duration of the master's program is **two years**.

program generally includes:

- Advanced coursework in specialized engineering subjects
- Research methodology and analytical techniques
- Independent research leading to a **master's thesis**

The Master's program aims to enhance professional competence and develop research capability in advanced engineering fields.

e) Doctor of Philosophy (Ph.D.) in civil engineering

The Doctor of Philosophy (Ph.D.) in Civil Engineering represents the highest academic qualification in the engineering education system in Myanmar. The typical duration of a Ph.D. program ranges from **three to five years**, depending on the research scope and capability of the candidate. There are two options for Ph.D students. The first one is course work (1 year) and thesis (at least 2 to 4 years). Another one is purely research works including preparation of a preliminary research report (1 year) and preparation of a dissertation (2 to 4 years).

The Ph.D. program focuses primarily on research and includes:

- Advanced research in specialized areas of civil engineering
- Independent investigation and original contribution to knowledge
- Preparation and submission of **a doctoral thesis or a doctoral dissertation**

- Oral seminars and defense of the research in front of an academic examination board

The Ph.D. program aims to produce highly qualified researchers and academic professionals capable of contributing to engineering innovation and technological developments.

f) Professional pathway for engineers

Graduates of civil engineering programs may pursue professional careers in government agencies, construction industries, consulting firms, and infrastructure development projects. Professional registration and certification may be obtained through the national regulatory body such as the Myanmar Engineering Council (MEngC). Myanmar Engineering Council issues licenses for engineers such as P.E, R.S.E and R.E through written examinations and oral tests.

Continuous professional development and practical experience are essential components for engineers seeking professional recognition and participation in regional professional frameworks such as the ASEAN engineering community.

3. Continuing Education:

- Requirements for professional development.

Civil Engineers in Myanmar are encouraged to participate in Continuing Professional Development (CPD) activities to maintain and enhance their professional competence and technical knowledge. Such professional development activities support engineers in keeping up to date with evolving engineering technologies, standards, and professional practices. Participation in CPD activities may also be considered as part of the requirements for maintaining professional registration and renewing engineering licenses.

- Approved courses and training programs.

Approved continuing education activities may include technical training courses, professional workshops, seminars, conferences, and other relevant training programs related to civil engineering practice. These programs are typically organized or recognized by relevant engineering organizations, academic institutions, or professional bodies. The

purpose of these programs is to strengthen technical expertise, improve professional skills, and promote the adoption of current engineering standards and best practices.

Section 2: Licensure and Regulatory Laws

1. Licensing Authorities:

- Name and contact details of national licensing bodies.

The national licensing body for Civil Engineers in the Myanmar is the MEngC (Myanmar Engineering Council). MEngC is responsible for regulating and supervising the practice of civil engineers to ensure that professionals meet the required standards of competence and ethics.

No. (5A), Kha Yae Pin Road, Lanmadaw Township (11131), Yangon, Myanmar
General Secretary: +9512316897, Registrar: +9512316893, Office +9512316883,
Fax: +9512316901

- Website links for reference.

- Email: headquarters@myanmarengc.org
- Website: http://www.myanmarengc.org

2. Licensure Requirements:

To become a licensed Civil Engineer (Citizen) in the Myanmar, the applicant must meet the following key requirements:

- Educational qualifications.

The applicant must have a degree or diploma from a MEngC-recognized institution.
(ACPECC Website, see- https://acpecc.org/documents)

- Examination and Viva Vocy requirements.

- membership in a professional body –
- registration with the relevant ministry or any other institution
- absence of criminal record
- taking of an oath
- subscription to a professional indemnity insurance (including any minimum specification) - place of origin/citizenship/residency requirement

- continuing professional development (CPD)
- others (please specify)

- Documentary Requirements

- Application Form
- Birth Certificate
- Official Transcript of Education Records
- Marriage Certificate
- Payment for examination fee

- Experience and educational requirements.

Category of Certification	Prerequisite
Apprentice Technician Certificate (A.T.C)	A.G.T.I Diploma
Apprentice Graduate Technician Certificate (A.G.T.C)	B.Tech.
Registered Technician Certificate (R.T.C)	A.G.T.I Diploma + 2 Years Experience
Registered Graduate Technician Certificate (R.G.T.C)	B.Tech. + 2 Years Experiences
Apprentice Engineer Certificate (A.E.C)	B. E or equivalent
Registered Engineer Certificate (R.E.C)	B. E+6 years (OR) B.Tech. +8 years (OR) A.G.T.I + 10 years.
Registered Senior Engineer Certificate (R.S.E)	R.E.C +2 years (OR) B. E+10 years (OR) B. Tech+12 years (OR) A.G.T.I +15 years
Certificate of Registered Engineering Professional (P.E)	R.S.E + 1year (OR) B.E (OR) equivalent + 15 years
ASEAN Chartered Professional Engineer Certificate (A.C.P.E)	Relevant work experience and PE licensing in an ASEAN member country.
Registered Limited Engineer Certificate (R.L.E) *Foreign engineers who works under Myanmar citizen PE in a project can apply	B.E (or) B.E equivalent certificate
Registered Limited Professional Engineer (R.L.P.E)	B.E (or) B.E equivalent certificate, P.E certificate (or) P.E equivalent certificate

*Foreign engineers who works together with Myanmar Citizen PE can apply	
Registered Foreign Professional Engineer Certificate (R.F.P.E) *ACPE certified foreign engineers who works together with Myanmar Citizen PE can apply	B.E (or) B.E equivalent certificate, P.E certificate (or) P.E equivalent certificate, A.C.P.E Certificate

- Renewal processes and continuing education requirements.

a) The duration of all licenses issued by MEngC is two years.

b) Certified person has to submit a formal application for the recertification before 60 days of the expiry of the present certificate.

c) Upon receipt of request for the recertification, Registration Office arranges for the recertification before expiry. The certified person has to pass through all evaluation requirements as per the requirements for the recertification.

d) CRO verifies that the engineer has met the required CPD hours and activities. In some cases, MEngC conduct an interview to assess ongoing competence.

e) MEngC decides whether to recertify the engineer based on submitted documentation and any evaluations.

f) Once the certified person fulfils the requirements of recertification, the same is processed as per the details given in Section 7 for preparation and granting of certificate.

3. Regulatory Laws

- Key Regulations Governing Civil Engineering Practice

Civil engineering practice in Myanmar is regulated through national laws, technical regulations, and engineering standards established by the relevant authorities. Civil engineers engaged in the planning, design, construction, and supervision of infrastructure projects—including buildings, roads, bridges, and water-related structures—are required to comply with applicable building codes, engineering standards, and safety regulations.

These regulatory frameworks are intended to ensure structural safety, technical quality, environmental protection, and the safeguarding of public welfare in all civil engineering activities. (See Myanmar Engineering Council Law and Regulations in following website.)

Website – www.myanmarengc.com

- Ethical standards and professional conduct guidelines.

Civil engineers are required to uphold professional ethics and maintain high standards of professional conduct in the practice of engineering. This includes performing duties with integrity, accountability, and professional competence, while ensuring that engineering judgments are based on sound technical principles. Engineers must avoid conflicts of interest, provide accurate and reliable professional information, and undertake only those services for which they are properly qualified. In addition, civil engineers are expected to prioritize public safety and welfare, maintain professional independence, and pursue continuous professional development to remain aligned with evolving engineering standards and best practices. MEngC has published manuals and code of conducts of ethics and disciplines for all engineers.

Section 3: Codes & Standards Utilization

1. International Standards:

- List of relevant international standards.

In the civil engineering sector, internationally recognized standards are widely utilized to ensure structural safety, quality assurance, and alignment with global engineering practices. These standards provide technical guidance for the planning, design, construction, testing, and maintenance of infrastructure and building projects.

Commonly, our country applied international standards include those issued by the following organizations:

- International Organization for Standardization (ISO)
- American Society of Civil Engineers (ASCE)
- American Concrete Institute (ACI)
- ASTM International (ASTM)
- India Standard (IS)

- Adoption and adaptation of international standards in local practice.

These international standards provide comprehensive technical frameworks covering:

- Structural design of buildings, bridges, and infrastructure
- Design loads including wind, seismic, and environmental loads
- Concrete and steel structural design practices
- Construction materials specifications and testing procedures
- Quality management and safety requirements in construction projects

In our country, international standards are either **directly adopted** or **adapted into national codes**.

2. National Standards:

- Overview of national standards for civil engineering.

National standards are developed to regulate civil engineering practices within a specific country and ensure that construction activities comply with national safety, legal, and environmental requirements. Our country has a national standard code. It is designated of MNBC 2025 (Myanmar National Building Code-2025) for all construction works. S.O.P issued by relevant Ministries of Myanmar.

These standards generally provide guidelines and regulatory requirements for:

- Structural design and building safety regulations
- Construction materials specifications
- Geotechnical investigation and foundation design
- Building permit and approval procedures
- Construction quality control and inspection processes

- Key differences between national and international standards.

National standards are typically derived from international codes but are modified to address **local engineering conditions**. Differences between national and international standards may arise due to several factors, including:

- Local building regulations and legal frameworks
- Seismic risk, cyclone exposure, and flood conditions
- Soil characteristics and geotechnical conditions
- Availability of local construction materials
- National infrastructure policies and development priorities

Therefore, national standards serve as a **localized regulatory framework** while maintaining compatibility with international engineering practices. Myanmar also has already published and started applying the Myanmar National Building Code 2025.

(See Website – **https://myanmarengc.com/**)

3. Implementation and Compliance:

The implementation of engineering codes and standards is a critical component of civil engineering practice. Effective implementation ensures that all stages of a construction project—from design to completion—comply with established technical requirements.

a) Engineering Design Compliance

During the design stage, engineers are required to apply applicable codes and standards when preparing structural calculations, design drawings, and technical specifications. All structural components must be designed in accordance with recognized engineering standards to ensure safety and performance.

b) Construction and Quality Control

During construction, compliance with standards is ensured through:

- Proper selection of construction materials that meet approved specifications
- Site supervision and technical monitoring by qualified engineers
- Laboratory testing of materials such as concrete, steel, and aggregates
- Continuous quality control and documentation of construction activities

c) Inspection, Approval, and Certification

Compliance verification is typically conducted through formal inspection and review processes. These may include:

- Structural inspection during and after construction
- Material testing and verification
- Engineering review and certification by qualified professionals
- Final inspection and regulatory approval by competent authorities

Upon successful verification, the relevant regulatory bodies or engineering authorities may issue **approval certificates, compliance reports, or occupancy permits**, confirming that the project satisfies the applicable engineering codes and standards.

Section 4: Local Laws on Permits

1. Permit Requirements:

Civil engineering projects must comply with local laws and regulations to ensure public safety, structural integrity, and proper urban development. Before commencing any construction activity, developers, contractors, and engineers are required to obtain appropriate permits from the relevant authorities.

- Types of permits required for various civil engineering activities.

The following permits are commonly required for civil engineering and construction activities:

a) **Building Construction Permit**
   This permit is required before constructing residential, commercial, or industrial buildings. It ensures that the building design complies with applicable structural, safety, and zoning regulations.

b) **Land Development Permit**
   This permit is required for land development activities such as housing developments, subdivision of land, site preparation, and infrastructure development.

c) **Infrastructure Construction Permit**
   This permit is required for the construction of public infrastructure such as roads, bridges, drainage systems, and other civil engineering structures.

d) **Environmental Clearance Permit**
   Large-scale construction projects may require environmental approval based on an Environmental Impact Assessment (EIA) and social impact assessment (SIA) to ensure that the project does not negatively affect the environment.

e) **Demolition Permit**
   This permit is required before demolishing existing buildings or structures to ensure that the demolition process is carried out safely and in accordance with regulations.

- Application process and necessary documentation.

To obtain construction permits, applicants must submit the required documents to the relevant authorities. The typical application process includes:

- Submission of a completed permit application form
- Architectural drawings and structural design drawings
- Structural calculation reports prepared by qualified engineers
- Site plan and land ownership documents
- Soil investigation or geotechnical reports
- Environmental Impact Assessment (EIA) report (if required)
- Certification by licensed civil engineers or professional engineers
- Payment of the applicable permit application fees

The authorities review the submitted documents to ensure compliance with local regulations and technical standards before issuing the permit.

2. Authority Contacts:

- Contact information for local permitting authorities.

Permits for civil engineering projects are generally issued by government agencies and municipal authorities responsible for construction regulation, urban planning, and infrastructure development.

Relevant Authorities

The following authorities are typically responsible for issuing construction permits and enforcing building regulations:

- Ministry of Construction
- Department of Urban and Housing Development
- High-Rise and Public Building Project Committee
- Yangon City Development Committee
- Mandalay City Development Committee
- Naypyitaw City Development Committee
- Respective Development Committee of Regions and States

These authorities are responsible for:

- Reviewing and approving building permit applications
- Enforcing construction and building regulations
- Supervising urban planning and land development
- Conducting construction inspections and monitoring compliance with engineering standards

- Online resources for permit applications and guidelines.

Applicants may obtain information and guidance regarding permits through various online resources provided by government agencies. These resources typically include:

- Official government websites providing regulatory information
- Municipal authority service portals for permit applications
- Construction guidelines and regulatory publications
- Downloadable permit application forms and technical documentation

These online platforms help applicants understand regulatory requirements and facilitate the permit application process.

3. Compliance and Inspections:

Compliance with local laws and engineering standards is essential to ensure that construction projects are carried out safely and according to approved plans.

- Procedures for ensuring compliance with local laws.

To ensure compliance with local regulations, the following measures are typically implemented:

- Construction must follow the approved design drawings and building codes
- Only certified and approved construction materials should be used
- Construction activities should be supervised by qualified civil engineers/ EIET (External Inspection and Expert Team)
- Quality control procedures should be implemented throughout the construction process
- Safety regulations and environmental protection requirements must be followed

- Inspection requirements and processes.

Construction projects are subject to inspections at different stages to ensure compliance with engineering standards and regulations.

a) **Pre-Construction Inspection**
   Authorities review the construction plans, drawings, and permits before construction begins.
b) **Foundation Inspection (Geotechnical Inspection)**
   Inspection of foundation work, reinforcement placement, and structural base preparation.
c) **Structural Inspection (Super-Structure Inspection)**
   Inspection of structural elements such as columns, beams, slabs, and load-bearing components during construction.
d) **Final Inspection (Finishing Processes Inspection)**
   Upon completion of the project, authorities conduct a final inspection to verify structural safety and compliance with approved plans.

After successful inspections, the relevant authority may issue a **Completion Certificate** or **Occupancy Permit**, allowing the building or infrastructure to be used legally.

Section 5: Laws & Regulations of States and Regions in Myanmar on permits

There are seven States governments and eight regions governments in Myanmar according to 2008 Union Constitution. They have their regional rules and regulations for construction industries issued by State and Region governments. These rules and regulations vary depending on the nature of the forests, mountains, rivers, streams, water and land use in the respective local areas. Therefore, the C.I.D laws of the Union government, totally influence states and divisions laws and regulations. All the relevant stakeholders in the Construction Industry of Myanmar have to follow the above-mentioned laws promptly.

1. Overview of State and Divisional Regulatory Framework

In Myanmar, civil engineering and construction activities are governed not only by Union laws but also by **state and regional (divisional) regulations**. These local regulations are implemented by State and Regional Governments and respective municipal authorities to manage urban development, land use, and construction activities.

Each State and Region has its own administrative bodies responsible for issuing permits, enforcing building regulations, and ensuring compliance with local development plans.

Key local authorities include:

- State and Regional Governments
- Yangon City Development Committee (YCDC)
- Mandalay City Development Committee (MCDC)
- Naypyitaw City Development Committee (NCDC)
- Township Development Affairs Organizations (DAO)

These authorities regulate construction activities within their jurisdictions in accordance with local laws and policies.

All procedures for permits must be carried out as described in Section- 4.

2. Key Considerations for Engineers

Civil engineers working in Myanmar must consider the following when dealing with state and divisional laws:

- Understanding local regulations and administrative procedures
- Coordinating with municipal authorities and regulatory bodies
- Ensuring timely submission of required documents
- Maintaining compliance with both national and local regulations
- Engaging licensed professionals for design and supervision

Engineers must also be aware that requirements may vary between regions such as Yangon Region, Mandalay Region, and other states, depending on local development policies and administrative systems.

State and divisional laws in Myanmar play a critical role in regulating civil engineering and construction activities. Engineers must comply with local permit requirements, follow proper application procedures, and ensure adherence to all regulatory standards to successfully implement engineering projects.

Section 6: Mutual Recognition Arrangements (MRAs) Compliance

1. Mutual Recognition Agreements (MRAs):

- Overview of MRAs applicable to civil engineering within ASEAN

Within the ASEAN region, Mutual Recognition Arrangements (MRAs) have been established to facilitate the recognition of professional qualifications and competencies of engineers among ASEAN Member States. The primary objective of these arrangements is to promote mobility of engineering professionals and to allow qualified engineers to practice across borders within the ASEAN region. For civil engineering professionals, the MRA framework allows engineers who meet specific qualifications and professional experience requirements to be recognized under the regional professional registry system. One of the key mechanisms supporting this initiative is the registration of engineers as **ASEAN Chartered Professional Engineers (ACPE)** under the ASEAN framework.

The recognition and coordination of these professional engineers are administered through organizations such as:

- ASEAN Chartered Professional Engineer Coordinating Committee (ACPECC)
- ASEAN Engineers Register (AER)

These frameworks help ensure that civil engineers who meet the required standards of education, professional experience, and ethical practices are recognized within the ASEAN engineering community.

- Processes for recognition of qualifications and licensure across member states

Under the ASEAN MRA framework, civil engineers may obtain professional recognition in other ASEAN Member States through a structured process. The general procedures include:

a) The engineer must first be registered as a **Professional Engineer** in their home country through the relevant national regulatory body.

b) The candidate must meet the professional competency requirements, including academic qualifications, engineering experience, and continuing professional development.
c) The engineer may then apply for registration as an **ASEAN Chartered Professional Engineer (ACPE)** through the National Monitoring Committee in their home country.
d) Once approved and listed in the ASEAN register, the engineer may apply for recognition in another ASEAN Member State as a **Registered Foreign Professional Engineer (RFPE)** or equivalent category.
e) The engineer must comply with the local laws, regulations, and professional requirements of the host country and may be required to collaborate with locally licensed engineers when undertaking professional projects and works.

This process promotes professional mobility while maintaining regulatory oversight and professional standards within each member state.

2. Harmonization Efforts:

- Ongoing efforts to harmonize standards, codes, and regulations.

ASEAN Member States are continuously working toward harmonizing engineering standards, codes, and regulatory frameworks to support the effective implementation of MRAs. These efforts aim to reduce regulatory differences and improve compatibility of engineering practices across the region.

Key harmonization initiatives include:

- Aligning engineering education standards among universities and accreditation bodies
- Standardizing professional competency requirements for engineers
- Promoting the adoption of internationally recognized engineering codes and standards
- Strengthening accreditation and professional certification systems
- Enhancing regulatory cooperation among national engineering authorities

These efforts contribute to strengthening regional integration and improving the quality and consistency of engineering services within ASEAN.

- Platforms for collaboration and information exchange.

To support regional cooperation and implementation of MRAs, several platforms have been established to facilitate collaboration and information sharing among engineering organizations within ASEAN. Important platforms include:

- ASEAN Federation of Engineering Organizations (AFEO)
- ASEAN Chartered Professional Engineer Coordinating Committee (ACPECC)
- ASEAN Civil Engineering Information Exchange

These platforms provide opportunities for:

- Exchange of engineering knowledge and best practices
- Professional training and capacity development programs
- Regional conferences and technical discussions
- Collaboration on engineering policies and regulatory development

Through these collaborative mechanisms, ASEAN continues to strengthen professional recognition frameworks and promote the mobility of civil engineering professionals across the region.

Section 7: Safety Standards & Practices

1. Occupational Safety and Health:

- Key Safety Standards Applicable to Engineering Work.

In Myanmar, engineering and construction activities must comply with Occupational Safety and Health (OSH) regulations to ensure the safety and well-being of engineers, workers, and the public. These safety standards are designed to minimize workplace hazards and prevent accidents during engineering and construction operations.

The enforcement and regulation of workplace safety are mainly overseen by the following authorities:

- Ministry of Labour
- Factories and General Labour Laws Inspection Department

Key safety standards commonly applied in engineering and construction projects include:

- Compliance with construction site safety regulations
- Safe operation of electrical and mechanical equipment
- Use of Personal Protective Equipment (PPE) such as safety helmets, gloves, boots, and harnesses
- Proper handling and storage of construction materials and machinery
- Hazard identification and risk assessment procedures
- Implementation of emergency preparedness and response plans

These safety standards help reduce workplace accidents, injuries, and potential risks in engineering environments.

- Best practices for ensuring workplace safety.

To maintain a safe working environment on engineering and construction sites, several best practices should be implemented:

- Preparation of a comprehensive **site safety management plan**
- Conducting regular **risk assessments and hazard identification**
- Mandatory use of appropriate **Personal Protective Equipment (PPE)**
- Routine inspection and maintenance of construction equipment and machinery

- Appointment of qualified **site safety officers** or supervisors
- Clear emergency procedures for fire, accidents, and structural hazards
- Proper safety signage and restricted access to hazardous areas

These practices help establish a strong safety culture and reduce the likelihood of workplace incidents.

- Safety training requirements.

Safety training is an essential component of workplace safety management. Engineers, technicians, and construction workers are required to undergo appropriate safety training before engaging in engineering work.

Common safety training programs include:

- Workplace hazard awareness training
- Construction site safety training
- Fire safety and emergency response training
- Safe operation of equipment and machinery
- First aid and accident response training

Regular safety training improves workers' awareness of potential hazards and ensures that they are properly prepared to respond to emergency situations.

- Safety Reference

Engineers in Myanmar uphold international safety standards and, at the same time, comply with the Myanmar National Building Code (MNBC) 2025, thereby ensuring both global alignment and national regulatory adherence.

See Website – www.myanmareng.com

2. Incident Reporting:

- Procedures for reporting and documenting safety incidents.

When a safety incident or workplace accident occurs, it must be reported and documented according to established procedures. Proper incident reporting ensures that accidents are investigated and corrective measures are implemented.

The typical incident reporting procedure includes:

- Immediate notification to the site supervisor or project manager.
- Recording the incident using a formal **incident report form**.
- Conducting an accident investigation to determine the cause.
- Performing a **root cause analysis** to identify contributing factors.
- Implementing corrective and preventive actions to avoid recurrence.

Accurate documentation of incidents is essential for improving workplace safety and ensuring compliance with safety regulations.

- Contact information for relevant safety authorities.

In cases of serious workplace accidents or safety violations, the relevant government authorities must be notified. The main authorities responsible for workplace safety oversight in Myanmar include:

- Ministry of Labour
- Factories and General Labour Laws Inspection Department
- Myanmar Engineering Council

These authorities are responsible for:

- Enforcing workplace safety regulations
- Investigating workplace accidents and safety violations
- Providing guidance on occupational safety and labour protection

Through compliance with these safety standards and reporting procedures, engineering professionals can contribute to maintaining a safe and responsible working environment in Myanmar.

Section 8: Environmental Regulations

1. Environmental Impact:

- Regulations concerning the environmental impact of engineering projects

In Myanmar, engineering and construction projects must comply with national environmental laws and regulations to ensure that development activities do not cause significant harm to the environment. Environmental protection measures are particularly important for large infrastructure, construction, and engineering projects.

Environmental regulations are mainly administered and enforced by the following authorities:

- Ministry of Natural Resources and Environmental Conservation (MONREC)
- Environmental Conservation Department (ECD)

These authorities are responsible for regulating the environmental impacts of engineering activities such as:

- Land development and construction projects
- Infrastructure development (roads, bridges, and buildings)
- Industrial and energy-related engineering projects
- Waste management and pollution control

Engineering projects must ensure compliance with environmental regulations related to:

- Air pollution control
- Water quality protection
- Noise and vibration management
- Waste disposal and hazardous materials management
- Protection of natural ecosystems and surrounding communities

Compliance with these regulations helps minimize environmental damage and supports responsible engineering development.

- Procedures for conducting environmental impact assessments (EIA)

For large-scale engineering projects, an **Environmental Impact Assessment (EIA)** is required before project approval. The EIA process evaluates potential environmental impacts and proposes mitigation measures.

The general EIA procedure includes the following steps:

- **Project Screening**
  Determining whether the project requires an Initial Environmental Examination (IEE) or a full Environmental Impact Assessment.
- **Scoping**
  Identifying key environmental issues and determining the scope of the environmental study.
- **Environmental Study and Data Collection**
  Conducting field surveys and collecting environmental data related to air quality, water resources, soil conditions, and ecological systems.
- **Impact Assessment and Mitigation Measures**
  Evaluating potential environmental impacts and proposing measures to reduce or prevent environmental damage.
- **Preparation of the EIA Report**
  Preparing a comprehensive report that outlines the findings and recommended environmental management measures.
- **Review and Approval**
  Submitting the report to the relevant authority for review and approval before the project can proceed.

2. Sustainable Practices:

- Guidelines for implementing sustainable and eco-friendly practices in engineering

To support sustainable development, engineers in Myanmar are encouraged to adopt environmentally responsible and sustainable practices in their projects.

Key sustainable engineering practices include:

- Designing infrastructure that minimizes environmental impact
- Efficient use of natural resources such as water, energy, and construction materials

- Using environmentally friendly and sustainable construction materials where possible
- Reducing construction waste and promoting recycling and reuse of materials
- Implementing energy-efficient systems in buildings and infrastructure
- Protecting natural landscapes and minimizing land disturbance during construction
- Incorporating green infrastructure and environmentally sensitive design concepts

In addition, engineers should follow internationally recognized sustainability principles and environmental management systems where applicable. By adopting these sustainable practices, engineers contribute to environmental protection, resource conservation, and long-term sustainable development in Myanmar.

Section 9: Technology & Innovation (Civil Engineering)

1. Emerging Technologies:

- Overview of emerging technologies in civil engineering.

In the field of civil engineering, technological advancements are increasingly transforming the way infrastructure projects are planned, designed, and constructed. Emerging technologies contribute to improving project efficiency, enhancing construction quality, and reducing time and costs.

Some of the key emerging technologies currently influencing civil engineering practice include:

- **Building Information Modeling (BIM)**
  BIM is widely used for digital design and construction management through 3D modeling, allowing better coordination among engineers, architects, and project stakeholders.
- **Geographic Information System (GIS)**
  GIS technology is used for spatial data analysis, infrastructure planning, urban development, and environmental assessment.
- **Smart Construction Technologies**
  Automation systems, sensor-based monitoring, and digital construction management platforms are increasingly applied to improve construction site productivity and safety.
- **Drone Technology**
  Drones are used for surveying, mapping, and construction site monitoring, enabling faster and more accurate data collection.
- **Sustainable and Green Construction Technologies**
  Modern civil engineering practices are increasingly focusing on environmentally sustainable solutions such as energy-efficient buildings, eco-friendly construction materials, and green infrastructure design.

- Adoption and Integration of New Technologies into Practice.

In Myanmar, civil engineering practices are gradually adopting modern technologies, particularly in large-scale infrastructure and construction projects. The integration of new technologies into engineering practice is supported through various approaches, including:

- Utilization of advanced engineering software tools
- Adoption of digital design and modeling systems
- Application of modern construction management technologies
- Technical training programs for engineering professionals
- Alignment with international engineering standards and technological guidelines

These initiatives contribute to improving the efficiency, accuracy, and overall quality of engineering projects.

2. Research and Development:

- Key Research Institutions and Areas of Ongoing Research.

Research and development in civil engineering in Myanmar are primarily conducted by engineering universities and academic research institutions.

Some of the key research institutions include:

- Yangon Technological University
- Mandalay Technological University
- Ministry of Science and Technology
- Ministry of Construction

Major research areas in civil engineering include:

- Structural engineering and earthquake-resistant design
- Geotechnical engineering and foundation engineering
- Water resources and hydraulic engineering
- Environmental engineering and sustainable infrastructure
- Transportation engineering and urban infrastructure development

These research activities support the development of infrastructure and promote sustainable engineering practices in Myanmar.

- Funding opportunities and collaboration platforms for innovation.

Funding and collaboration opportunities for civil engineering research and innovation are available through several institutions and platforms.

Key sources include:

- Research funding programs supported by the Ministry of Science and Technology
- Professional collaboration initiatives organized by the Myanmar Engineering Council
- Joint research projects between universities and international research institutions
- Participation in international engineering conferences and academic research networks

These collaboration platforms facilitate knowledge exchange, technology transfer, and the advancement of engineering innovation.

Section 10: Professional Networking & Associations

1. Professional Associations:

- National and Regional Professional Associations.

In Myanmar, civil engineers can participate in various professional organizations that support professional development, technical collaboration, and knowledge sharing. These associations provide platforms for engineers to enhance their skills, stay updated with industry developments, and contribute to the advancement of the engineering profession.

Key national professional organizations include:

- Myanmar Engineering Council – The national regulatory body responsible for the registration and regulation of engineering professionals in Myanmar.
- Federation of Myanmar Engineering Societies – A professional association that promotes engineering knowledge, research, and collaboration among engineers in Myanmar.
- Federation of Engineering Institutions of Asia and the Pacific – A regional engineering organization that supports collaboration and professional exchange among engineers in Asia and the Pacific region.

These professional associations play an important role in promoting engineering standards, professional ethics, and technical development.

- Membership benefits and requirements.

Membership in professional engineering associations provides several benefits to civil engineers, including:

- Access to professional development programs and training opportunities
- Participation in technical seminars, conferences, and workshops
- Networking with engineering professionals and industry experts
- Access to engineering publications, technical resources, and research materials
- Opportunities to participate in national and international engineering initiatives

Membership requirements typically include:

- Possession of a recognized engineering degree from an accredited institution
- Relevant professional experience in engineering practice
- Registration or eligibility for registration with the Myanmar Engineering Council
- Compliance with professional codes of ethics and professional standards

2. Networking Opportunities:

- Conferences, seminars, and workshops

Professional networking opportunities for civil engineers in Myanmar are available through various conferences, seminars, and technical workshops organized by engineering institutions and professional organizations.

These events provide opportunities for engineers to:

- Learn about new technologies and engineering innovations
- Share research findings and technical experiences
- Discuss current challenges and solutions in engineering practice
- Develop professional relationships with engineers, researchers, and industry leaders

Many of these events are organized by institutions such as:

- Federation of Myanmar Engineering Societies
- Myanmar Engineering Council
- Yangon Technological University
- Mandalay Technological University
- Polytechnic University Naypyitaw
- Myanmar Earthquake Committee
- Universities, Colleges and Technical Institutions under MOST.

- Platforms for peer-to-peer networking and knowledge exchange

In addition to formal events, civil engineers in Myanmar also benefit from various platforms that facilitate peer-to-peer networking and knowledge exchange.

These platforms include:

- Professional engineering associations and technical committees
- Expanded ASEAN Engineering Information Exchange
- Academic conferences and university research collaborations
- Engineering seminars and continuing professional development programs
- Regional engineering forums and international engineering networks

Participation in these platforms helps engineers expand their professional networks, exchange technical knowledge, and contribute to the development of the engineering profession both nationally and internationally.

Section 11: Case Studies & Best Practices

1. Purpose

The very strong earthquake that struck on March on March 28, 2025 in Mandalay, caused enormous damages which include destruction of many infrastructures, e.g; Terminal building and the control tower of Nay Pyi Taw International Airport.

Therefore, it is necessary to inspect and recommend the existing condition and strength of Nay Pyi Taw International Airport Terminal Building so that it can be retrofitted or renovated for normal functions.

2. Formation of an Inspection Team

The inspection team is organized as follows;

- Pro. Dr. Aung Kyaw Myat, PE (Structure), ACPE Team Leader
  President, Myanmar Engineering Council
- Engr. U Htay Oo, PE (Construction), ACPE Member
  Joint Secretary (2), Myanmar Engineering Council
- Engr. U Htin Aung, PE (Structure), ACPE Member
  Myanmar Earthquake Committee

3. Activities

- The inspection team Departed Yangon by air on the morning of (6-5-2025) and arrived Nay Pyi Taw airport on that day.
- Upon arrival at Nay Pyi Taw Airport, the inspection team commenced its task by the assistant of officials from Company.
- Inspections and tests were conducted the whole day and the team stopped overnight in Nay Pyi Taw.
- On (7-5-2025), the expect team checked the airport terminal building again and then flew back to Yangon in the evening.

4. Inspection, Testing and Finding

Date of Inspection : 5th May 2025

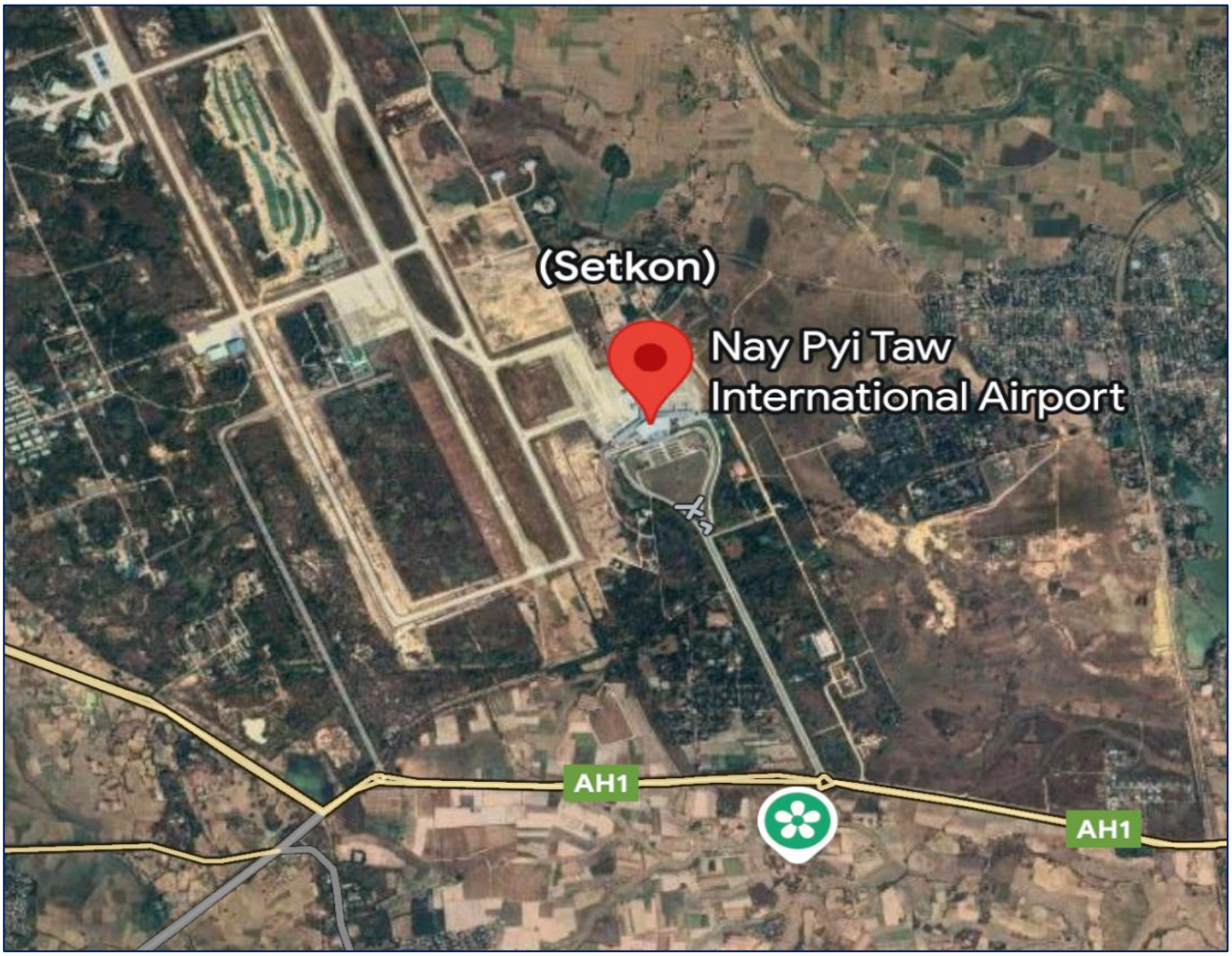
Time of Inspection : 9:00AM to 12:00PM

Building Description : Nay Pyi Taw International Airport (Terminal Building)

5. Building Information:

The airport was designed to eventually handle up to 3.5 million passengers annually. Nay Pyi Taw International Airport was designed by CPG Consultants Pte., Ltd. of Singapore. The company previously designed the annex to Yangon International Airport, as well as Singapore's Changi Airport and several airports in Vietnam and Laos. Asia World Company, a Myanmar corporation, began the Project of Nay Pyi Taw International Terminal Building around January 2009.

6. Building Location: 19*36'54"N, 96*12'46"E



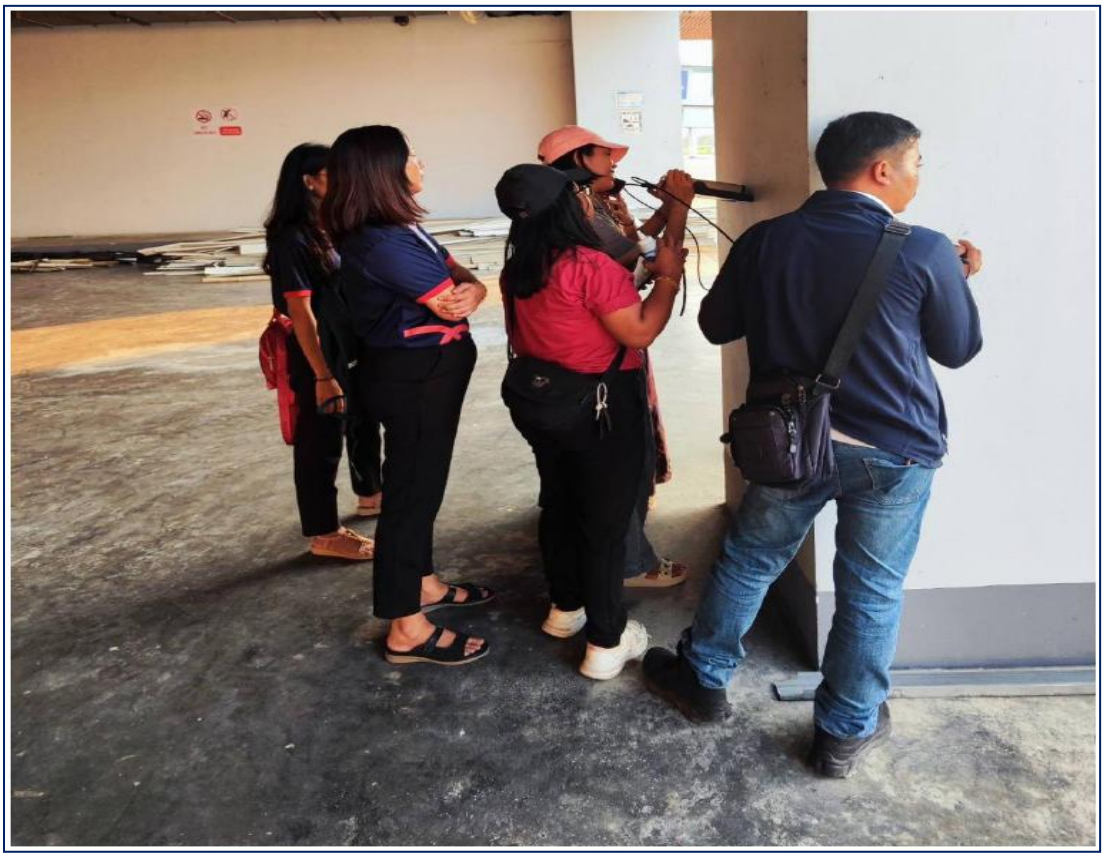
7. Structural Defect Identification and Inspection

Driveway Column (CC5)

Spoiling of bottom column concrete cover and identify concrete strength.

Driveway Column (CC5)
Spoiling of column concrete cover and identify concrete strength.

Airside Column (C3)
Identify Column concrete strength.



8. Structural Column Concrete Strength Inspection

Column Concrete Strength Verification with Ultrasonic Pulse Velocity (UPV) Measurement & Rebound Test Results

Sr No	Location	UPV Measurement(m/s)			Avg; UPV(m/s)	$E=V^2\varphi$ (Mpa) (φ=2400kg/m^3)	$E=4700\sqrt{f'c}$,fcu=$(E/4700)^2$ (Mpa)	Rebound Test (fcu)(Mpa)	Design Grade (fcu)(Mpa)
		1	2	3					
1	CC5(EDW)								
	1st Place	3880	3887	3887	3884.67				
	2nd Place	3774	3770	3773	3772.33				
					3828.50	**35177.79**	**56**	**44**	**25**
2	EC3(EDW)								
	1st Place	3583	3564	3595	3580.67				
	2nd Place	3436	3467	3425	3442.67				
					3511.67	**29596.38**	**40**	**40**	**25**
3	C3(Airside-Terminal)								
	1st Place	3700	3695	3704	3699.67				
					3699.67	**32850.14**	**49**	**51**	**30**
4	C29(Airside-Terminal)								
	1st Place	3293	3313	3293	3299.67				
	2nd Place	3414	3389	3407	3403.33				
					3351.50	**26958.13**	**33**	**40**	**30**
5	C9(Airside-Terminal)								
	1st Place	3334	3327	3324	3328.33				
					3328.33	**26586.67**	**32**	**42**	**30**
6	Tower(Control Tower)								
	1st Place	4433	4252	5896	4860.33				
	2nd Place	3943	3342	4325	3870.00				
					4365.17	**45731.2**	**95**	**50**	**45**

9. Identify Apron Slab Movement

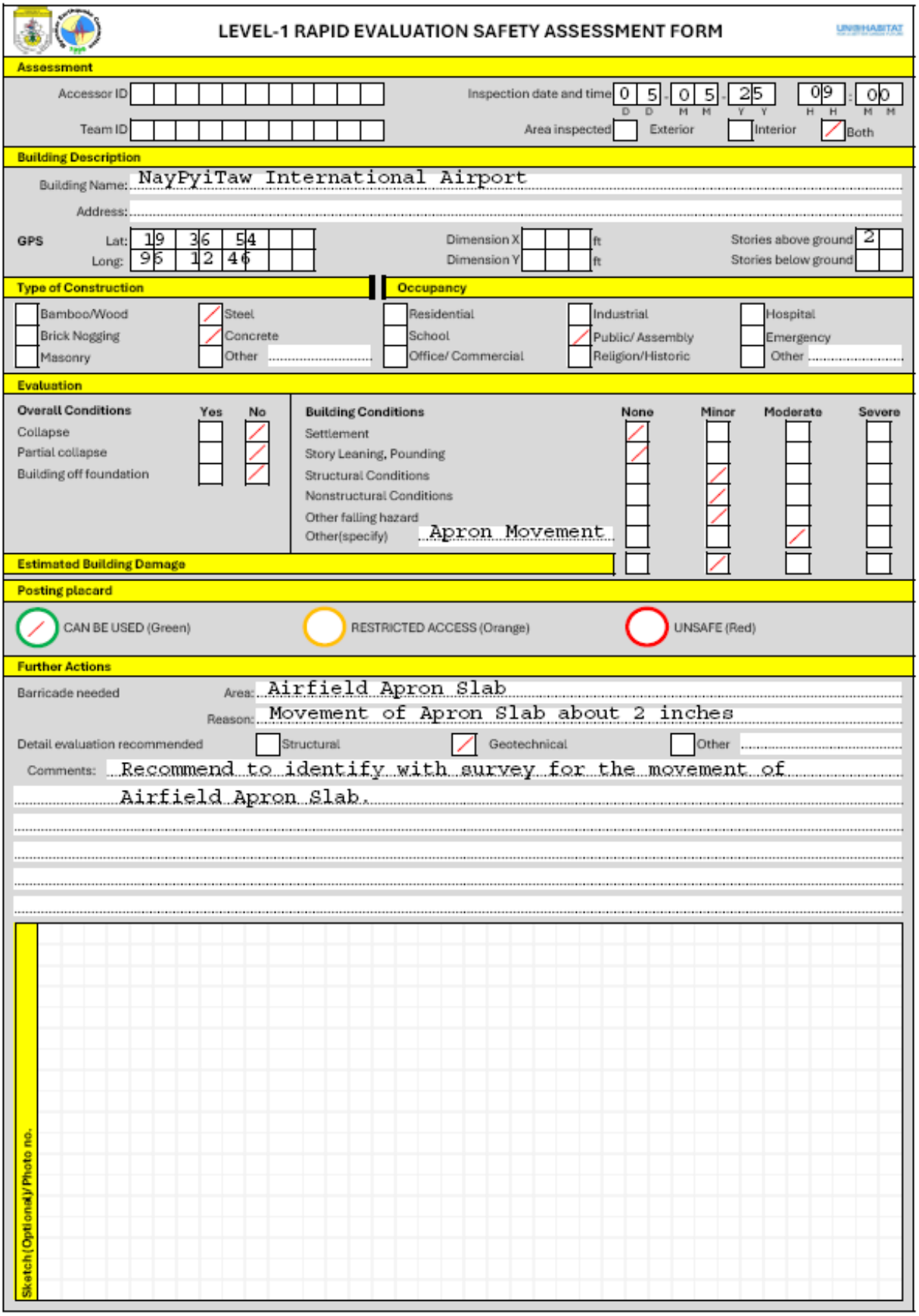
Identify Apron Rigid Pavement Movement, resultant in Depression of Drain Grading Cover about 2 inches.

10. Identify Non-Structural Ceiling Defects

Identify Non-Structural Brick Wall Defects

Identify Non-Structural Ceiling Defects

11. Level-1 Rapid Evaluation Safety Assessment Form



LEVEL-1 RAPID EVALUATION SAFETY ASSESSMENT FORM

UN-HABITAT

Assessment

Accessor ID:

Team ID:

Inspection date and time: 05 (D D) - 05 (M M) - 25 (Y Y) 09 (H H) : 00 (M M)

Area inspected: [ ] Exterior [ ] Interior [/] Both

Building Description

Building Name: NayPyiTaw International Airport

Address:

GPS Lat: 19 36 54

Long: 96 12 46

Dimension X: ft

Dimension Y: ft

Stories above ground: 2

Stories below ground:

Type of Construction

- [ ] Bamboo/Wood
- [ ] Brick Nogging
- [ ] Masonry
- [/] Steel
- [/] Concrete
- [ ] Other

Occupancy

- [ ] Residential
- [ ] School
- [ ] Office/ Commercial
- [ ] Industrial
- [/] Public/ Assembly
- [ ] Religion/Historic
- [ ] Hospital
- [ ] Emergency
- [ ] Other

Evaluation

Overall Conditions	Yes	No
Collapse	[ ]	[/]
Partial collapse	[ ]	[/]
Building off foundation	[ ]	[/]

Building Conditions	None	Minor	Moderate	Severe
Settlement	[/]	[ ]	[ ]	[ ]
Story Leaning, Pounding	[/]	[ ]	[ ]	[ ]
Structural Conditions	[ ]	[/]	[ ]	[ ]
Nonstructural Conditions	[ ]	[/]	[ ]	[ ]
Other falling hazard	[ ]	[/]	[ ]	[ ]
Other(specify) Apron Movement	[ ]	[ ]	[/]	[ ]
Estimated Building Damage	[ ]	[/]	[ ]	[ ]

Posting placard

- [/] CAN BE USED (Green)
- [ ] RESTRICTED ACCESS (Orange)
- [ ] UNSAFE (Red)

Further Actions

Barricade needed — Area: Airfield Apron Slab

Reason: Movement of Apron Slab about 2 inches

Detail evaluation recommended: [ ] Structural [/] Geotechnical [ ] Other

Comments: Recommend to identify with survey for the movement of Airfield Apron Slab.

Sketch (Optional) / Photo no.

12. Conclusion and Recommendation (Terminal Building)

The Non-structural components of Ground floor and First floor ceiling and some specific locations of brick wall are damaged. There is No Major Structural Defect nor No obvious structural problem were identified during inspection and the inspection team recommended as **Blue Card (CAN BE USED)** for the terminal building of Nay Pyi Taw International Airport. Airfield Apron Slab have small movement about 2 inches and further investigation with survey team should be done and renovated normally.

CAN BE USED

No Restrictions on Access

This structure has been inspected as indicated below:

- Light or no damage
- No obvious structural problems were found
- But the building might be damaged and still unsafe
- Aftershocks may cause more damaged that may change this assessment

The following items have generally not been inspected:

- Utilities (electrical, gas, water, sanitary facilities, etc.)
- Secondary elements (ceilings, windows, fittings, etc.)

Report any unsafe condition to local authorities; reinspection may be required

Building Name & Address: International Airport Nay Pyi Taw

This building has been subject to a rapid assessment:

☐ Exterior Only

☒ Exterior & Interior

Assessor ID:

Date: 05/05/25 Time: 09:00AM

Inspector comments Airfield Apron Slab Movement to further investigate with survey team.

DO NOT REMOVE THIS NOTICE

Section 12: Legal & Ethical Considerations

1. Legal Framework

- Overview of the Legal Framework Governing Civil Engineering Practice

In Myanmar, civil engineering practice is regulated through a combination of laws, professional regulations, and administrative procedures designed to ensure public safety, quality infrastructure, and responsible professional conduct.

The main regulatory authority responsible for the registration and regulation of engineering professionals is the Myanmar Engineering Council. This body oversees professional licensing, sets professional standards, and ensures that engineering practices comply with national regulations.

Key legal instruments and regulatory areas governing civil engineering practice include:

- Engineering professional registration and licensing requirements
- Building construction laws and municipal regulations
- Occupational safety and health regulations
- Environmental protection laws
- Construction contract laws and procurement regulations

Civil engineers are required to comply with the following legal obligations when undertaking engineering projects:

- Engineering design and supervision must be performed by licensed professional engineers.
- Construction projects must obtain appropriate building permits and regulatory approvals from relevant authorities.
- All projects must comply with applicable safety standards and environmental regulations.
- Engineering works must follow contractual obligations and national procurement procedures.

These legal frameworks ensure that infrastructure projects are implemented responsibly, safely, and in accordance with national development standards.

- Key Legal Considerations for Engineers Working in Different ASEAN Countries

Civil engineers working across ASEAN member states must understand and comply with the legal and regulatory requirements of the host country in which they practice.

Important legal considerations include:

- Engineering registration and licensing requirements in the host country
- Recognition of professional qualifications and certifications
- Compliance with local building codes and construction regulations
- Labour laws and occupational safety requirements
- Environmental regulations and sustainability policies

To facilitate professional mobility within ASEAN, regional cooperation frameworks have been established through organizations such as the ASEAN Federation of Engineering Organizations. These frameworks support Mutual Recognition Arrangements (MRAs) that allow engineers to obtain recognition of their qualifications across ASEAN member states.

2. Ethical Dilemmas

- Common Ethical Dilemmas Faced by Civil Engineers

Civil engineers may encounter various ethical challenges during the course of their professional practice. These dilemmas often arise when engineers must balance project requirements, financial constraints, and professional responsibilities.

Common ethical dilemmas include:

- Pressure to approve construction works that do not fully meet safety standards
- Requests to compromise on material quality to reduce project costs
- Conflicts of interest in project decision-making
- Pressure from clients or contractors to overlook technical deficiencies
- Situations where environmental impacts are minimized or ignored

In such situations, civil engineers must prioritize professional integrity and public safety over commercial or external pressures.

- Guidelines for Resolving Ethical Issues in a Professional Manner

To address ethical challenges effectively, civil engineers must follow established professional codes of ethics and professional standards.

Important ethical principles include:

- Prioritizing public safety, health, and welfare in all engineering decisions
- Performing professional duties with honesty, integrity, and transparency
- Maintaining professional competence and adherence to engineering standards
- Avoiding conflicts of interest in professional practice
- Supporting environmental protection and sustainable development

Civil engineers are expected to comply with professional ethical guidelines established by the Myanmar Engineering Council and other relevant professional bodies. Adherence to these ethical standards ensures responsible engineering practice and helps maintain public trust in the engineering profession.

Section 13: Support and Resources

1. Technical Support

- Contact information for technical support and assistance

In Myanmar, civil engineers can obtain technical support and professional assistance from various regulatory bodies, professional organizations, and academic institutions. These institutions provide guidance on engineering standards, technical practices, and professional development.

Key organizations providing technical support include:

- Myanmar Engineering Council – The national regulatory body responsible for the registration and regulation of engineering professionals and for providing guidance on engineering standards and professional practices.
- Federation of Myanmar Engineering Societies – A professional association that promotes technical knowledge sharing, professional networking, and engineering development.
- Naypyitaw Polytechnic University, Yangon Technological University and Mandalay Technological University – Leading engineering education universities that provide academic expertise, research collaboration, and technical consultation.
- Directorate of Research and Innovation, Ministry of Science and Technology – Leading public research center in Myanmar.

Civil engineers may seek technical advice, regulatory guidance, and professional support from these institutions when undertaking engineering projects.

- Online resources and help desks

Civil engineers can also access various online platforms that provide engineering standards, technical guidelines, and professional information.

Examples of available online resources include:

- Engineering standards and technical specifications
- Professional registration and licensing guidelines
- Engineering publications and research papers
- Professional training materials and continuing education resources

Some professional organizations and institutions also provide online inquiry services and technical help desks to assist engineers with regulatory and technical questions.

2. Educational Resources

- Access to online courses, textbooks, and journals

Civil engineers in Myanmar have access to a wide range of educational resources that support continuous learning and professional development. These resources help engineers stay updated with modern engineering practices, technologies, and research developments.

Educational resources include:

- Online civil engineering courses and professional certification programs
- Civil engineering textbooks and technical manuals
- Academic journals and engineering research publications
- Engineering manual standards and design guidelines

These resources support the enhancement of technical competence and professional knowledge among engineers.

- Libraries and repositories of technical documents and standards

Engineering students and professionals in Myanmar can access libraries and repositories that contain valuable technical documents, research publications, and engineering standards. Important sources include: National Library in Naypyitaw and Yangon central library, University of Yangon.

- Libraries at Naypyitaw Polytechnic University
- Libraries at Yangon Technological University
- Libraries at Mandalay Technological University
- Libraries at Myanmar Engineering Councial
- Engineering research centers and documentation units (DRI)
- Knowledge repositories maintained by professional engineering organizations (Fed.MES Library, etc.)

These libraries and repositories provide access to civil engineering research papers, technical reports, design manuals, and engineering standards that support professional practice and academic research.
