Construction and the Built Environment – Unit 1

1.2 The Built Environment Life Cycle (2 of 2)

3. CONSTRUCTION

The construction stage of the built environment life cycle is the period during which all necessary materials, equipment, and workforce are assembled on-site to carry out the production tasks. This stage can take various forms:

- **New build** – A completely new building or structure is constructed from foundation to completion.
- **Alteration**, **conversion** or **renovation** – Existing buildings and structures are modified or upgraded.
- **Infrastructure project** – Including the construction of paths, roads, and bridges.
- Laying **foundations** and **drainage** systems.
- Installation of the necessary **mechanical**, **electrical**, **gas,** and **communication services**.

4. OPERATION AND MAINTENANCE

Operation refers to the management of a built environment to ensure suitable and safe conditions for occupants and their activities. This phase of the life cycle is when the building or structure fulfils its intended function, whether as a home, a workplace, or a type of infrastructure.

Maintenance involves the repair or prevention of decay, deterioration, and damage caused by weather, ageing, or general use, ensuring the building retains a good appearance and operates efficiently. Maintenance must be carried out regularly and may include:

- **Planned and preventive maintenance** – Performed to keep everything in working order or extend the building's lifespan.
- **Cyclical maintenance** – Involves replacing elements of a building as part of a 'cycle of work'.
- **Emergency or reactive maintenance** – Conducted when a building is damaged or a fault occurs.

5. DEMOLITION

When a building or structure reaches the end of its useful life, it must be taken down, and the materials removed or safely disposed of, allowing the site to be repurposed or reused.

A **pre-demolition plan** is a legal requirement before any demolition work is undertaken and includes details of:

- hazardous materials, such as asbestos, that must be removed
- live utilities (electricity, gas, water, and sewage) that need to be disconnected
- the location of structures and load-bearing party walls
- site conditions and constraints, such as existing building structure, proximity to residential areas, or busy roads
- the use of explosives and manual or mechanical demolition methods.

Demolition **procedures** include:

- securing the site by erecting a perimeter fence with clear signage
- disconnecting live utilities (gas, water, electricity, and telecommunications)
- removing hazardous materials
- conducting a "soft strip" to remove non-structural elements
- dismantling the building's superstructure
- implementing dust suppression measures
- finally, removing the slab and foundations.

6. DISPOSAL, REUSE OR RECYCLING

The demolition of a building or structure generates a significant amount of waste material that must be disposed of, reused, or recycled.

In the past, much of this waste was transported directly to landfill. However, there is now a greater focus on sustainable options, such as reusing or recycling materials either on-site or by transporting them to recycling centres.