



**WRE 214:**

# **Building Construction**

## **Syllabus for Building Constructio:**

- 1.Introduction
2. Earth work (Excavations, Filling)
3. Brick works
4. Stone work
5. Concrete works (Mixing, Transporting, Casting, Finishing)
6. Form work
7. Foundations and piles
8. Water proofing of boiling

**9. Arches**

**10. Lintels and sills**

**11. Columns and piers**

**12. Beams and girders**

**13. Floors and slabs**

**14. Stairs**

**15. Finishing's**

**16. Door and windows**

**17. Details of steel and wooden**

**18. The stages of constructing dams.**

**19. Selected topics**

## **LEARNING OUTCOMES:**

On completion of the course, the student should be ready to work as a site engineer on exciting infrastructure projects when he studies the syllables of this course in Building Construction .The student will learn on-the-job with their employer and in work environments. Advance your building and construction leadership skills and use their industry experience to become a licensed builder.

## LEARN NEW SKILLS

### What is the importance of studying building construction?

- Building construction is main subject for civil engineers as well as contractors. This subject provide knowledge of several subject.
- Sub surface soil strata investigation.
- Construct different types of shallow foundation.
- Complete many types of masonry.
- Construct various structural and non-structural building components.

- Create many temporary works for new and existing buildings.
- Apply special treatments like water resistance, thermal and acoustical insulation construction.
- Select appropriate method of construction.
- Causes of failure and helpful methods for foundations.
- The green buildings and suggest how to convert existing building in to green building.

# Why we should study Construction of building

*There are many reasons to study Construction of buildings some of these reasons are:*

- 1. The job market is strong.** This is a fantastic time to join the construction industry as there is currently a absence of skilled workers. There is expected to be more available job over the coming years, too.
- 2. New houses are in demand.** There is also an increased demand for new build homes. The number of new houses built in recent years has risen dramatically and that won't slow down any time soon.

**3. You can earn as you learn.** Why not become one of them and combine your work with studying?

**4. You can earn decent money.** The salaries on offer in the construction industry are quite well-paid – particularly once you finish an trainee, and especially if you tried to develop yourself.

**5. Work your way up.** The construction industry provides sufficient opportunity to progress up the career ladder, if you choose to.

**6. Be your own boss.** Many construction workers have decided instead to set up their own business. If you're confident enough to take on the challenge and manage your own workload, then the potential rewards are endless.

**7. It's a fulfilling career.** Imagine working on the new construction buildings. Usually these buildings will be around for decades, perhaps hundreds of years, and you'll be able to say 'I helped create that'.

**8. It's a hands-on job.** Speak to someone in construction about their job and they'll often say they just could not work in an office. This industry is perfect with someone who likes to be on the move and get their hands dirty.



**9. You won't get bored.** Working in construction involves working indoors, outdoors, with your hands, with tools, on the ground, high up...I think you get the idea: there is so much variety within the construction industry.

**10. You're able to travel.** You won't be confined to just one place in this job. The skills you will pick up allow you to travel absolutely anywhere in the world.

# What is the basics of building construction?

The following are the various steps involved in the construction of the building :

## 1.Cleaning and Levelling of the site:

The site needs to be cleaned and levelled before further processes. Sometimes the site may not need levelling. All of this depends on the planning of construction.

## 2. Earthwork and PCC:

Excavation is the digging of trenches in the ground for making it ready for the foundation substructure of the building. After excavating the ground, a layer of PCC (Plain cement concrete) is laid in the dug portion before placing the reinforcements for the foundation.

### **3. Foundation Works:**

Foundation is the lowermost part of the building that is contacted with the soil. It transfers the load on the building from the superstructure to the soil and needs to be extremely strong to handle the load. The reinforcement for the foundation is then prepared after excavation and concreting is done. The level of the base of foundations should be checked before pouring the concrete. The earth filling is done in the excavated portions after the concrete foundations stabilize.

### **4. Plinth beam and slab:**

Once the foundation is built, the ground beam reinforcements are prepared and then concrete is done. Later masonry is done above the ground beam and concreting of plinth beam is done above that. The void between the foundation and plinth level is filled with compacted soil.

## 5. Superstructure – Column

After the plinth slab is cured then the main structure for the house is started. The columns are brought up and the frame for further construction is prepared.

## 6. Masonry

The walls are later prepared with different materials such as bricks, concrete blocks, fly ash bricks etc. according to the prepared drawing. Masonry work is carried out with cement mortar. Cement mortar is a mixture of cement & sand. Then holes are laid for doors and windows during the masonry work.

## **7. Lintel over door window gaps**

Lintels are prepared with reinforcement and concreting to support the masonry work over the doors and windows.

## **8. Upper floor slab with beam or Roof structure**

The masonry work is completed. Then the slab for upper floor is prepared with the beams resting on the concrete columns. The reinforcements for beams and slabs are assembled and then in a single day, the concrete is poured. Later curing is done.

## **9. Door window framing and fixations**

Once, the covering is prepared with walls and structure, the door and window frames are installed. Later the doors and window panels are fixed without finishes.

## **10. Sanitary and electrical works**

The electric and plumbing cables and pipes are installed in the walls and slabs such that they are concealed and not visible after the finishing work is done. The cables and pipes are left out protruding such that later they can be finished with the electric fitting and plumbing fixtures.

## **11. Exterior finishing**

The exterior plastering and painting are also started once the superstructure is ready. Water proofing is also done to prevent weather effect. Cladding can also be done to enhance the elevation of the house.

## **12. Walkway and roof finishing**

Waterproofing is done on the walkway and usually, terrazzo tiles are applied on the slabs to keep prevent passage of heat.

### **13. Internal finishing**

The walls are plastered and the flooring is levelled and tiling is done. Later on, the walls are painted and tiled.

### **14. Wood work and Fixture fittings**

Once the construction process is done. The furniture work is started. Side by side, electric lights, switch boards and other electric fixtures are fitted. And plumbing fittings are complete in the bathrooms and kitchen areas too.

Interior decoration is the last step in completing the house with proper furnishing and fabric use.

## Questions of Lecture one

**Q1/On completion of the course of the building construction what the student should be ready to work(outcomes of the course) ?**

**Q2/What is the importance of studying building construction?**

**Q3/Why we should study Construction of building?**

**Q4/What is the basics of building construction?**