

# Building Materials and Construction

S.E. Sem. III [CIVIL/CONE]

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## EVALUATION SYSTEM

	Time	Marks
<b>Theory Exam</b>	3 Hrs.	100
<b>Practical</b>	–	–
<b>Oral</b>	–	25
<b>Term Work</b>	–	25

## SYLLABUS

1. Classification of materials, requirements of building materials and products: functional, aesthetical and economical.  
Study of properties of materials–physical, mechanical, chemical, biological and other like durability, reliability, compatibility and economic characteristics.  
Types of structures–framed, load bearing and composite structures. Suitability and economic aspects of each type.
  2. Stone-types, its properties, quarrying, milling and surface finishing, preservative treatments.  
Structural clay products–bricks, roofing tiles, ceramic tiles, raw materials and manufacturing process.  
Concrete blocks, flooring tiles, paver blocks-raw materials and manufacturing process.  
Binder material : lime, cement : physical properties and manufacturing process, plaster of paris.  
Mortar and concrete – ingredients, preparation and uses.  
Masonry construction – classification and bonding in stone, brick and concrete blocks.
  3. **Glass** – types and uses.
  4. **Timber** : varieties, defects in timber, preservative treatments and wood composites.
  5. **Metal and alloys** : Ferrous and non-ferrous metals and alloys, aluminium, tin, zinc, nickel, types and uses anti-corrosive treatment.
  6. Floors and roofs. Types of floors, floor finishes and suitability. Types of roofs, wooden and steel trusses, roof covering and drainage.
  7. Paints and varnishes, types, constituents and uses.
  8. **Staircase** : types, size and location, layout, design considerations.
  9. **Formwork** : materials used, design considerations, slip form shuttering, centering and staging, scaffolding.
  10. **Building services** : Air conditioning, systems of heating, air conditioning, ventilation, construction requirements  
**Fire Fighting** : fire hazards, resisting materials, fire alarm system, fire extinguishers, fire loads, precautions.  
**Lifts** : passenger handling capacity and accessories.  
**Acoustics and sound insulation** : Characteristics of sound, reflection and absorption coefficient, acoustical defects, design and material.  
**Plumbing** : requirement and basics in design, water supply system, waste water system, materials  
**Damp-proofing and water proofing** : materials and methods.
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**References :**

1. Building construction (*S. P. Bindra and S.P. Arora*) – Dhapat Rai & Sons, Delhi
2. Building drawing (*M.G.Shah, C.M. Kale, S.Y.Patki*) – Tata McGraw Hill, Delhi
3. Services in building complex (*V. K. Jain*) – Khanna Publishers
4. Material of construction (*D. N. Ghose*), Tata McGraw Hill, Delhi
5. Architectural materials science (*D. Anapetor*) – Mir Publishers
6. IS codes of different materials, BIS publications
7. Introduction to engineering materials (*B. K. Agrawal*), Tata McGraw Hill New Delhi.
8. Engineering materials (*Rangwala*) – Charotar Publications
9. Engineering materials (*P. Surendrasingh*) – Vani Education Books New Delhi
10. Building construction (*Rangwala*) – Charotar Publications

