

ORIENTATIN COURSE FOR MASON SYLLABUS

1. Familiarization with Good working practices

a) **Reading simple working drawings and sketch:** - Mason has to deal with different types of building drawings and sketches. Primarily mason has to deal with lay out plans from which mason should be able to transfer the drawing lines on the ground.

- Familiarization with the different technical terms used in the drawing like central line, cutting plane line, cross section, elevation, plan, side etc. Along with this introduction to various components of building like foundation, plinth, D.P.C., Flooring, superstructure, columns, beams, parapet, roof, projections, lintels etc.
- Introduction to the various signs and symbols used in drawings.
- Introduction to the various notes, instructions written on drawings.

b) **Earth work in excavation:** - A good mason should be able to instruct the labor for execution work. He should have been knowledge to judge the compaction of soil strata by use of hand rammers.

- Introduction to timbering of trenches.

Knowledge Acquired- The candidate must be able to

1. Carry out steps for setting out building foundation.
2. Mark centerline excavation and other lines.
3. Transfer building line on to foundation concrete
4. Understand the general language of drawings including signs and symbols.
5. Check the soil strata for compaction.

c) Laying of P.C.C., R.C.C. and D.P.C. for various parts of a building:-

- Basic knowledge of plain cement concrete and reinforced cement concrete.
- Knowledge of basic field tests like slump test.
- Properties of concrete ingredients, different mixes of concrete
- Water cement ratio
- Preparation of surface for laying of cement concrete.
- Use of vibrator while concreting, hammer sound test
- Expansion joints in R.C.C. structures
- Importance of curing and various methods used for curing.
- Workability of concrete.

d) Brick work in various parts of building:-

- Identification of different materials used in the brick masonry work.
- Knowledge of various field tests to judge the quality of bricks, sand and cement like, wash test to check the sand, to check the bricks quality tests like sound test, visual test for color and shape, knowledge of jugging the internal structure of bricks etc.
- Various bonds used in the masonry work like English bond, Flemish bond.
- Joints in old and new brick work. Joint should be properly field and should be off uniform thickness. There should be no projections and alignment should be proper. Use of strips for equal thickness of joints in vertical and horizontal lines. Tolerable limits of joint thickness.
- Erection and checking of scaffolding, precautions to be taken while erecting scaffolding.

Knowledge acquired: - The candidate should be able to

1. Define P.C.C., R.C.C. and D.P.C.

2. List out materials, tools and equipments used in concreting operations.
3. State quantity requirements for brickwork and concreting.
4. State water cements ratio and its impotents.
5. Describe methods of laying, compacting and spreading of cement concrete.
6. State importance of curing and time period of curing.
7. State the slump test.
8. Explain fundamental terms used in brick work and concreting.
9. State the different types of bonds used in brickwork.
10. State the field tests of various materials used for brickwork and concreting.

e) Plastering and pointing:-

- Preparation of surface, before starting plastering or pointing surface should be prepared for these works, while preparing surface joints should be raked to sufficient depth to hold the motor old plaster, mud and other substances should be removed with wire brushes from the surface.
- Curing the surface.
- Appliances cement slurry.
- Completion of work in line and plumb by means of aluminum strips and plumb.
- Special care at corners edges.

Knowledge acquired: - Candidate should be able to

1. Define pointing and plastering
2. Explain steps involved in pointing and plastering.
3. State list of materials quantity required and field testing of materials.

4. Methods of surface finishing by strips and floats of wood and aluminum.
5. Knowledge of different proportions of cement and sand to be used for different works.

2.(i) Introduction to various tools and equipments and their uses

- In construction work, various types of tools and equipments are used. It is important for a mason to have good knowledge these tools and equipments. So that he may able to use these tools and equipments effectively and safely.
- Storage of tool equipments.
- Various types of tools and equipments used by a mason are - trowels are used for mixing and spreading of mortar and concrete. Strings for line and alignment, plumb for checking the vertical surfaces, Water level for checking the horizontal levels, brick hammer for cutting the bricks in different sizes; sledgehammer and wedges are used for excavation of soft rocks and boulders, spade and pick-axe for excavation of soft soil and tapered edge of pick-axe for excavation of hard soils. Hand rammers are used for compaction of loose soils. Boning rods for excavation of long trenches concrete mixtures are used for mixing concretes and mortar, Weigh batchers are used for measuring the weight of different materials used in concrete and mortar, for compaction of concrete vibrators are used, Vibrators are of two types - Plate vibrators and Needle vibrators. Similarly, tools and equipments used for plastering and pointing are a trowel wooden and steel floats, wooden and steel strips, wire brushes for cleaning of surfaces etc.

2 (ii) Care and maintenance of tools

- Proper care and maintenance of these tools should be taken. After every days use tools should be washed and cleaned.
- Vibrators and mixture machines should be serviced periodically; oil levels and water levels in the engines of these machines should be checked before commencement of work.
- Before wrapping the tapes should be cleaned with a cloth.

- Spades pick-axes, chisels and other cutting tools should be sharpen as per requirement.
- Handles of a tool should be checked for tightness. Loose handles may cause injuries to the workers.

Knowledge acquired: - Candidate should be able to

1. List out the tools and equipments for mason's work.
2. State the shape and size of tools.
3. Use of tools and equipments with correctness.
4. Maintenance of tools and equipments.
5. Storage of tools and equipments.

3. Safety precautions

Safety of the human being is of utmost importance. One must observe the standard rules and safety measures to guard one self and others while on work. Various safety equipments used by a mason are:-

- Gloves - while working with cement concrete or cement mortars. It is all ways advisable to wear gloves.
- Goggles - To protect the eyes from accident goggle should be used.
- Gumshoes - mason has to walk over fresh concrete. Therefore, to protect the feet one must use Gumshoes.
- Helmets - Cause of most deaths during an accident is head injury. While on work, one must wear helmet.
- Do not touch electrical cutters, vibratos and other electrical equipments with wet hands under wet conditions.
- In deep excavations, timbering of trenches should be done to support the soft soil.
- Do not smoke while working near inflammables materials.
- Check the scaffolding before climbing on it.
- Check the formwork and shuttering before laying concretes.
- Identification of first aid medicines and knowledge of first aid.

Knowledge acquired: - Candidate should understand

1. General safety rules while working.
2. Plain construction work to avoid accidents.
3. Adopt safety measures to protect construction materials like cement and other materials.
4. Keep tools and equipments update to avoid accidents.
5. Identify first aid medicines and should be able to provide first aid to injured persons.

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