

1933

Building Construction (1st Year): Technical School Examinations 1933

Department of Education: Technical Instruction Branch

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COURSE IN BUILDING.

(30)

AN ROINN OIDEACHAIS.

(Department of Education.)

BRAINSE AN CHEARD-OIDEACHAIS.

(Technical Instruction Branch.)

TECHNICAL SCHOOL EXAMINATIONS.

1933.

BUILDING CONSTRUCTION.

(First Year.)

Monday, May 15th—7 to 10 p.m.

Examiner—W. S. BLAIR, Esq.

Co-Examiner—F. W. SINCLAIR, Esq.

GENERAL INSTRUCTIONS.

You are carefully to enter on the Answer Book and Envelope supplied your Examination Number and the subject of examination, but you are not to write your name on either. No credit will be given for any Answer Book upon which your name is written, or upon which your Examination Number is not written.

You must not have with you any book, notes, or scribbling paper.

You are not allowed to write or make any marks upon your paper of questions.

You must not, under any circumstances whatever, speak to or communicate with another candidate; and no explanation of the subject of the examination may be asked for or given.

You must remain seated until your answer-book has been taken up, and then leave the examination-room quietly. You will not be permitted to leave before the expiration of twenty minutes from the commencement of the examination, and will not be re-admitted after having once left the room.

If you break any of these rules, or use any unfair means, you are liable to be dismissed from the examination, and your examination may be cancelled by the Department.

Three hours are allowed for this paper. Answer-books, unless previously given up, will be collected at 10 p.m.

INSTRUCTIONS.

Read the General Instructions on page 1.

- (a) Not more than six questions are to be attempted.
- (b) Answers must be written in ink; diagrams may be in pencil.
- (c) Small diagrams and sketches, to illustrate written descriptions, should be made upon squared paper.
- (d) Write the number of the question before the answer.
- (e) Equal values are assigned to the questions.

1. State the meaning of the following terms:—Struck joint; Closer; Tilting fillet; Lead flashing; Tusk tenon. Make sketches to illustrate your answer.

2. Draw an elevation and a vertical section of a ledged and braced door, 6ft. by 2ft. 6 ins. Show position of ledges and braces and a suitable type of joint between them. Indicate the hanging side. (Scale 1 inch to 1 foot.)

3. Draw, in outline, a king-post roof truss with 30° pitch and 25 feet span. Scale, one-eighth inch to one foot.

To a scale of $1\frac{1}{2}$ inches to 1 foot make the following detail drawings:—

- (a) The connection between king-post and tie beam showing foot of struts and iron stirrup with gib and cotter;
- (b) The connection between king-post and principal rafter with three-way strap; show also ridge board and common rafter. (Make common rafter 4 inches by 2 inches, ridge 9 inches by $1\frac{1}{2}$ inches, king-post out of 5 inches by 4 inches, principal rafter 5 inches by 4 inches, tie beam 10 inches by 5 inches.)

4. In the centre of one side of a room 12 feet long, a chimney breast, 3 feet 9 inches wide, projects 14 inches. Draw to a scale of $\frac{1}{2}$ inch to 1 foot a plan showing the arrangement of joists about the chimney breast. Name and dimension all the members.

5. Draw the horizontal section through one jamb of an internal doorway in a 10 inch concrete wall. Show $1\frac{1}{2}$ inches thick solid jamb lining, rebated both edges and finished both sides with $4\frac{1}{2}$ inch moulded architrave, with grounds for fixing and plaster finish to both faces. (Scale $1\frac{1}{2}$ inches to 1 foot.)

6. Draw to a scale of $\frac{3}{4}$ inch to 1 foot a vertical section through an 18 inch wall built in English bond. Show concrete foundation 12 inches thick, footings, damp proof course and four courses of the wall above ground level.

7. Make sketches of two brick walls each nine courses high, one in English bond, the other in Flemish bond. State for what purpose each bond is best suited.

8. What are the characteristics of a good brick? Describe any brick manufactured or in general use in your neighbourhood.

9. Name the materials used in the manufacture of concrete blocks; give their characteristics and the proportions in which they should be mixed.

10. To a scale of 1 inch to 1 foot draw the front elevation and a cross section of a coursed snecked rubble wall. The end of the wall to be finished with rock-faced quoins with drafted margins and the top finished with a weathered and throated coping.

11. Show by sketches the size and shape of plain tiles and pan tiles, and the provision on each for hanging and fixing them.

12. Two "couple" roofs meet in a valley over a 9 inch wall. The pitch is 30° , common rafters $4\frac{1}{2}$ inches by 2 inches, ceiling joists 5 inches by $1\frac{1}{2}$ inches, wall plate $4\frac{1}{2}$ inches by 3 inches, roof boarding 6 inches by $\frac{3}{4}$ inch.

Draw a section through the wall and valley showing lead V gutter and at least three courses of 16 inch by 8 inch slates laid to 3 inch lap. Show the slating "head nailed" on one side of the valley and "centre nailed" on the other. (Scale, 1 inch to 1 foot.)

13. A ceiling is to be finished "Lath, plaster, float and set," the setting coat to be gauged. Give the composition and proportions of each coat.

14. Describe the preparation of "Plasterers' putty" from the burning of the limestone to its use as gauged stuff for ceiling work.