

3.21.2 Drawing and Design Paper 2 (449/2)

DESIGN PROBLEM (40 marks)

Most carpenters face the challenge of fitting ceiling boards during construction or maintenance of buildings. Normally, two assistants are required to support the ceiling board when nailing. This creates congestion and is also expensive.

Design a stand that can be used to support the ceiling board when one person does the job, considering the following:

1. It should be easily moved around.
2. It should have provision for quick height adjustments.
3. It should have provision for fine height adjustments.
4. The top should be able to be swivelled horizontally.
5. The top should have provision for adjustment to accommodate different sizes of ceiling boards.

REQUIREMENTS

- (a) Make free-hand pictorial sketches of two possible designs of the stand. (8 marks)
- (b) Select **one** of the designs in (a) above and make a refined pictorial drawing. (14 marks)
- (c) Make detailed exploded sketches of the mechanism used in considerations (2), (3) and (5) above. (13 marks)
- (d) List **two** types of materials used in the stand. (1 mark)
- (e) List **four** methods that could be used in joining the parts, and state where each is applied. (4 marks)