

**GAUTENG DEPARTMENT OF EDUCATION
SENIOR CERTIFICATE EXAMINATION**

BRICKLAYING AND PLASTERING SG

**Possible Answers
Feb / Mar 2006**

QUESTION 1

1.1

- It is able to withstand a driving rain and prevents it from penetrating the inner wall surface.
- It gives better thermal insulation, keeping the building warm in winter and cool in summer.
- There is no need for external rendering.
- Enables the use of cheaper and alternative materials for the inner construction
- It has a higher sound insulation as compared to standard brickwall 5x2=(10)

1.2

- Asphalt
- Slate
- Lead 3x2=(6)

1.3

Precast piles are cast and cured before driving. 'In-situ' piles are cast into an opening already formed. 3x2=(6)

1.4

Set is the term used to show the distance a pile penetrates after each blow. (3)

1.5

Cube test for strength of concrete
Slump test for workability of concrete 3x2=(6)

1.6

- Water
- Sand
- Stones
- Cement (4)

1.7

- The direction of the wind in relation to the fire outlet
- The shape of the building
- The closeness of the trees or other buildings
- The position of door
- The slope of the roof (10)

- 1.8
- North pole
 - Elevations
 - Scale
 - Ground plan
 - Drainage system
 - Dimensions
 - Water supply
 - Concrete foundation
 - Specifications
 - Damp-proof Course
- 10x1=(10)

- 1.9
- Preparation
 - Mixing and Grinding
 - Burning
 - Grinding
 - Packing
- 5x2=(10)
[65]

QUESTION 2

- 2.1
- All connections are tightened where required
 - All ties installed to the building
 - Base plates on firm ground
 - Scaffold boards for traps
 - Access points and ladders
 - Toe boards and guard rails
- (12)

DRAWING ON PAGE 7

- 2.2
- Accuracy
 - Labelling
 - Linework and neatness
- (20)
[32]

QUESTION 3

- 3.1
- 3.1.1 The sand and cement ^{is} carefully measured off.
First the sand is spread out on a platform made of half bricks.
Next the cement is distributed evenly over the sand.
The dry mix is thoroughly mixed until the whole mass has attained an even grey colour.
The mix is then shovelled to form a dam into which the water is poured.
Careful mixing follows.
- (6)
- 3.1.2 Clean the wall and remove all loose mortar.
Roughen the wall.
Distemper it.
Rake out joints not over 6 mm depth.
Apply rendering / first coat.
Leave it to set.
Float smoothly with steel trowelling
- (7)

3.2 Draw neat sketches of the following types of jointing and pointing:

DRAWINGS ON PAGE 8

- | | | |
|-------|------------------------------|-------------|
| 3.2.1 | Flush pointing | (3) |
| 3.2.2 | Weather jointing | (3) |
| 3.2.3 | Half-round recessed jointing | (3) |
| 3.2.4 | Square recessed jointing | (3) |
| | | [25] |

QUESTION 4

DRAWING ON PAGE 9

- | | | |
|-----|--|-------------|
| 4.1 | Overall impression | (7) |
| | Bonding | (4) |
| | Brickforce | (3) |
| | Isometric | (3) |
| | Measurements | (4) |
| | Linework and neatness | (2) |
| | | (23) |
| 4.2 | A centre is a wood member or a frame which is used as a temporary support for an arch during its construction. | (3) |
| 4.3 | Segmental arch | |
| | Semicircular arch | |
| | Semielliptical arch | 3x2=(6) |
| 4.4 | Crown | |
| | Key brick | |
| | Voussoirs | |
| | Intrados | |
| | Extrados | |
| | Haunch | |
| | Span | |
| | Rise | |
| | Springing line | |
| | Depth/Face | (10) |
| | | [42] |

QUESTION 5

5.1 Give the standard abbreviations for the following components on a sewage plan:

5.1.1	G	(2)
5.1.2	I.E.	(2)
5.1.3	V.P	(2)
5.1.4	W.W.P	(2)
5.1.5	S.W.P	(2)

DRAWING ON PAGE 10

5.2 Overall impression
 Drainpipes
 Covers
 Concrete work
 Brickwork

(20)

5.3 The sewer must be laid in a straight line.
 There must be no sharp bends.
 Inspection Eye must be installed at each connection.
 It should be self cleansing.
 Ventilation pipe should be installed at the highest point.
 It should be air and water tight.
 It should not be laid underneath a building as far as possible.
 Cleaning Eye must be installed at every branching of pipes.

8x2=(16)
[46]

QUESTION 6

6.1 **DRAWING ON PAGE 11**

Overall impression
 Truss detail
 Roof cover detail
 Rainwater goods
 Eave detail
 Ceiling detail
 External wall
 Scale

(6)
 (6)
 (4)
 (4)
 (6)
 (6)
 (6)
 (2)
[40]

QUESTION 7

7.1 Area of brickwork

$$\begin{aligned}
 \text{Area of long walls} &= 2(l \times h) \\
 &= 2(8,0\text{m} \times 2,8\text{m}) \\
 &= 44,8\text{m}^2 \\
 \text{Area of short walls} &= 2(l \times h) \\
 &= 2(3,5\text{m} \times 2,8\text{m}) \\
 &= 19,94\text{m}^2 \\
 \text{Total area of external walls} &= \text{Area of long walls} + \text{Area of short walls} \\
 &= 44,8\text{m}^2 + 19,94\text{m}^2 \\
 &= 64,74 \text{ m}^2
 \end{aligned}$$

Area of Openings
Window A + Window B

$$\begin{aligned}
 &= 2(l \times h) \\
 &= 2(1,5\text{m} \times 1,0\text{m}) \\
 &= 3,0\text{m}^2
 \end{aligned}$$

Window C

$$\begin{aligned}
 &= (l \times h) \\
 &= (1,0\text{m} \times 1,0\text{m}) \\
 &= 1,0\text{m}^2
 \end{aligned}$$

Window D

$$\begin{aligned}
 &= (l \times h) \\
 &= (3,0\text{m} \times 1,0\text{m}) \\
 &= 3,0\text{m}^2
 \end{aligned}$$

Tip-up door

$$\begin{aligned}
 &= (l \times h) \\
 &= (2,5\text{m} \times 2,1\text{m}) \\
 &= 5,25\text{m}^2
 \end{aligned}$$

External doors

$$\begin{aligned}
 &= (l \times h) \\
 &= (0,85\text{m} \times 2,0\text{m}) \\
 &= 3,4\text{m}^2
 \end{aligned}$$

Total area of openings

$$\begin{aligned}
 &= 3\text{m}^2 + 1\text{m}^2 + 5,25\text{m}^2 + 3,4\text{m}^2 \\
 &= 15,65\text{m}^2
 \end{aligned}$$

Total area of brickwork

$$\begin{aligned}
 &= \text{Area of walls} - \text{Area of openings} \\
 &= 64,74\text{m}^2 - 15,65\text{m}^2 \\
 &= 49,09 \text{ m}^2
 \end{aligned}$$

Given 110 bricks per metre square

No. of bricks

$$\begin{aligned}
 &= \text{Area} \times 110/\text{m}^2 \\
 &= 49,09 \text{ m}^2 \times 110/\text{m}^2 \\
 &= 5\,399,9 \\
 &= 5400 \text{ bricks}
 \end{aligned}$$

Area of internal walls

A

$$\begin{aligned}
 &= (l \times h) \\
 &= (3,56\text{m} \times 2,8\text{m}) \\
 &= 9,968\text{m}^2
 \end{aligned}$$

Given 55 bricks per metre square for
half brickwall

No. of bricks

$$\begin{aligned}
 &= \text{Area} \times 55/\text{m}^2 \\
 &= 9,97 \text{ m}^2 \times 55/\text{m}^2 \\
 &= 548,24 \\
 &= 549 \text{ bricks}
 \end{aligned}$$

$$\begin{aligned} \text{Total No. of bricks} &= 5400 + 549 \\ &= 5949 \end{aligned}$$

7.2 Given $0,54 \text{ m}^3$ per 1000 bricks

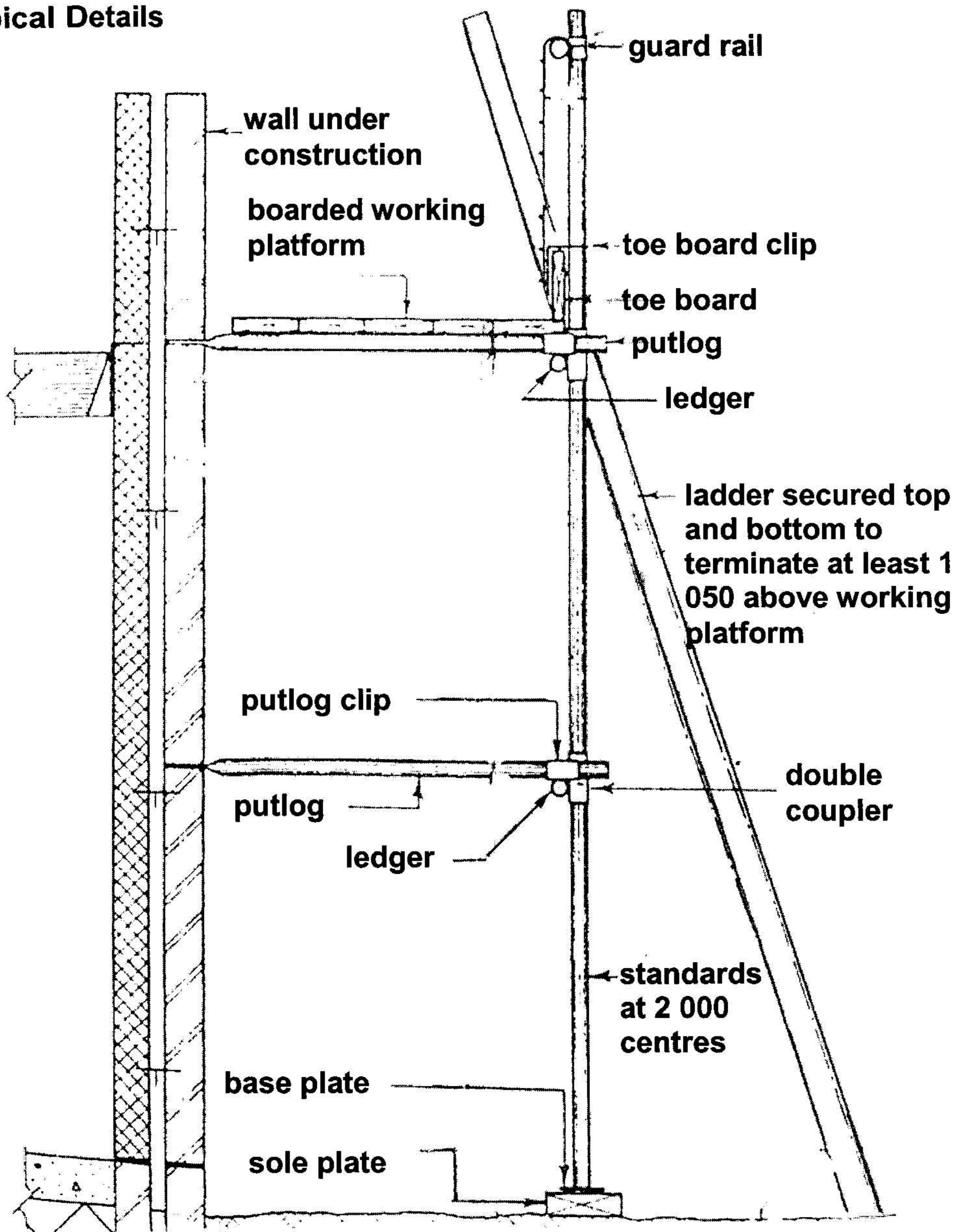
$$\begin{aligned} &= 5949/1000 \\ &= 5,949 \\ &= 5,949 \times 0,54 \\ &= 3,2 \text{ m}^3 \end{aligned}$$

7.3 Given 1 pocket per 200 bricks

$$\begin{aligned} &= 5949/200 \\ &= 29,745 \\ &= 30 \text{ pockets} \end{aligned}$$

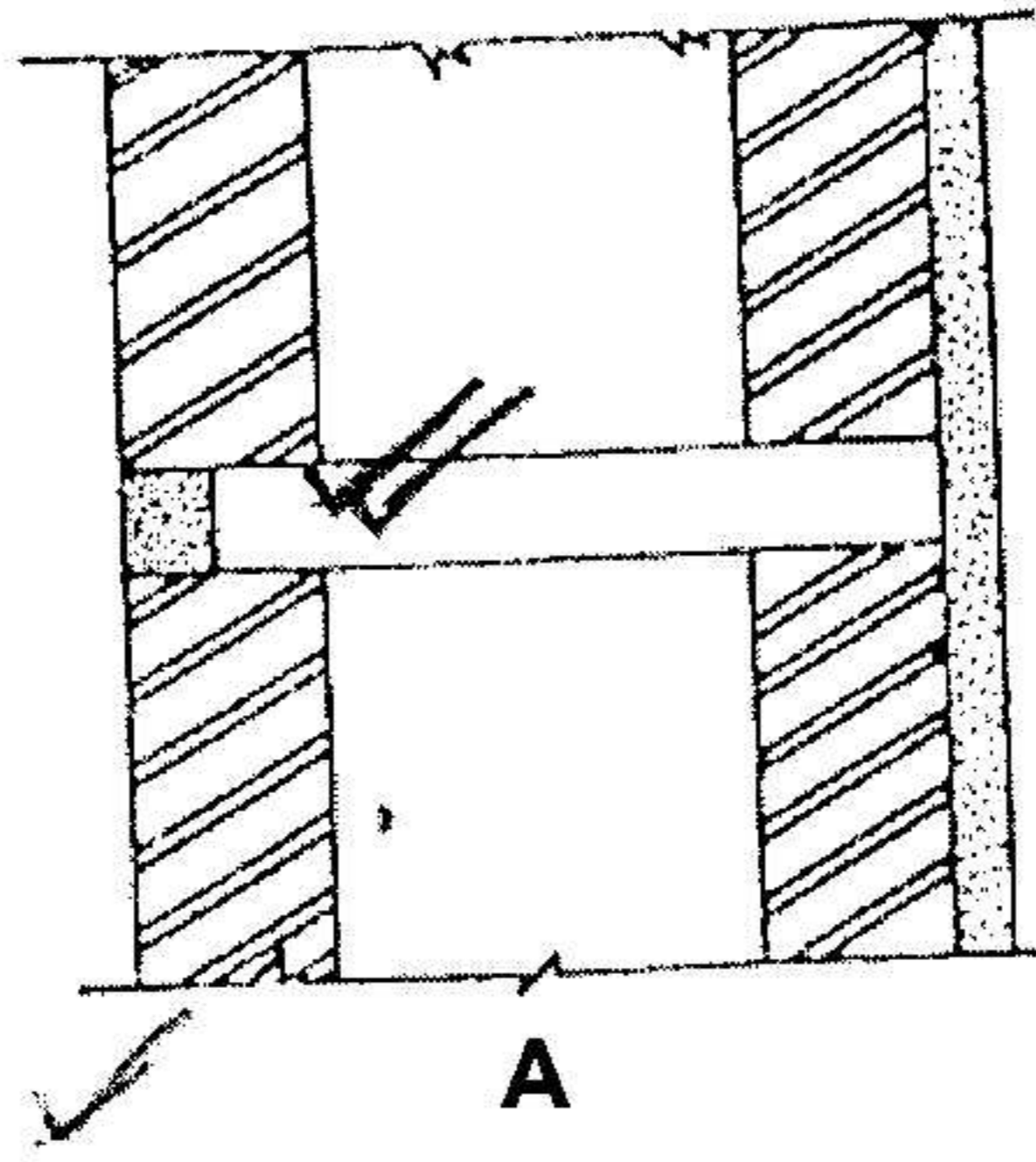
[50]

Typical Details



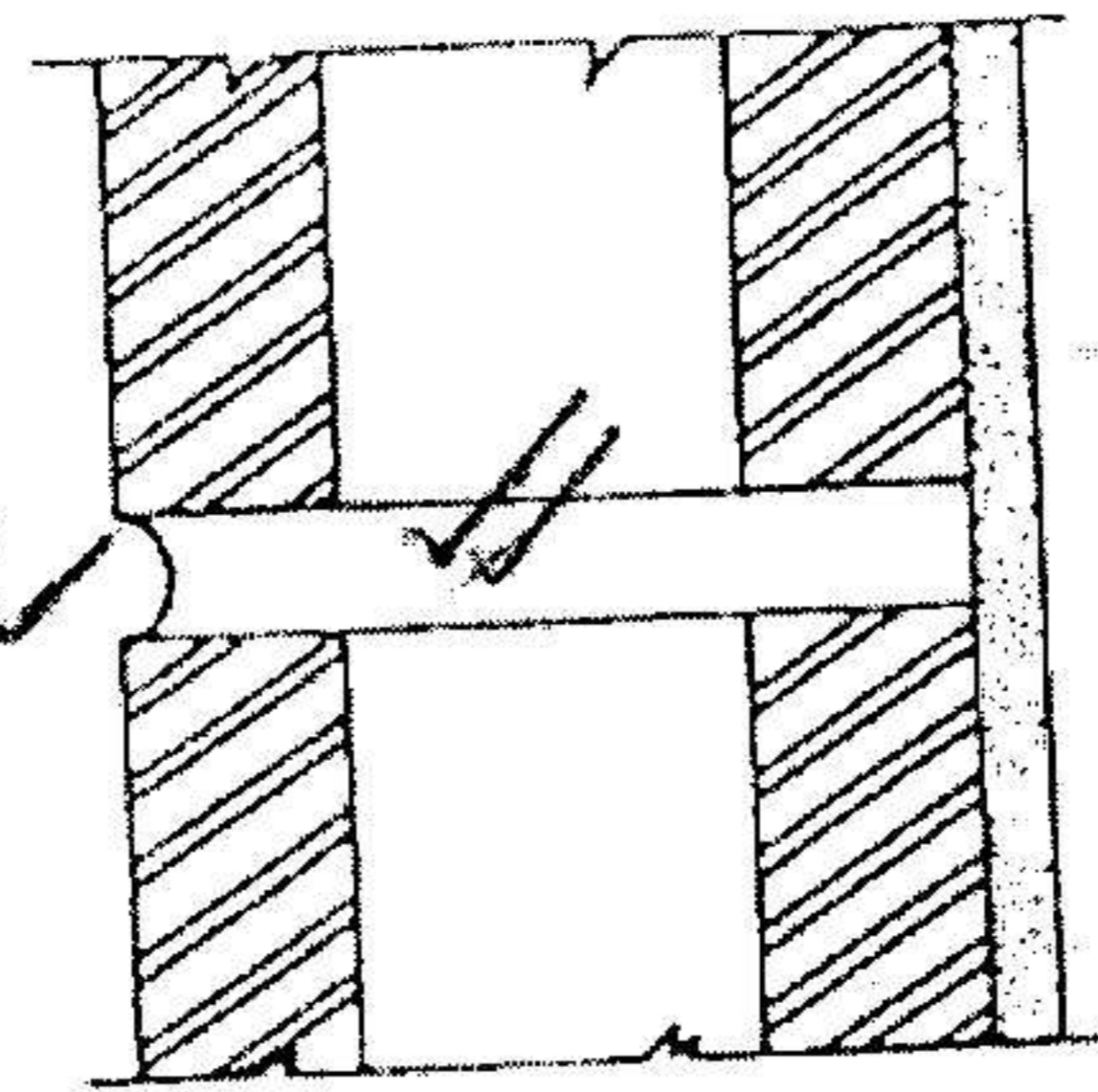
Q 2.2

Flush pointing is used to obtain a generally sand-faced effect to concrete block walls



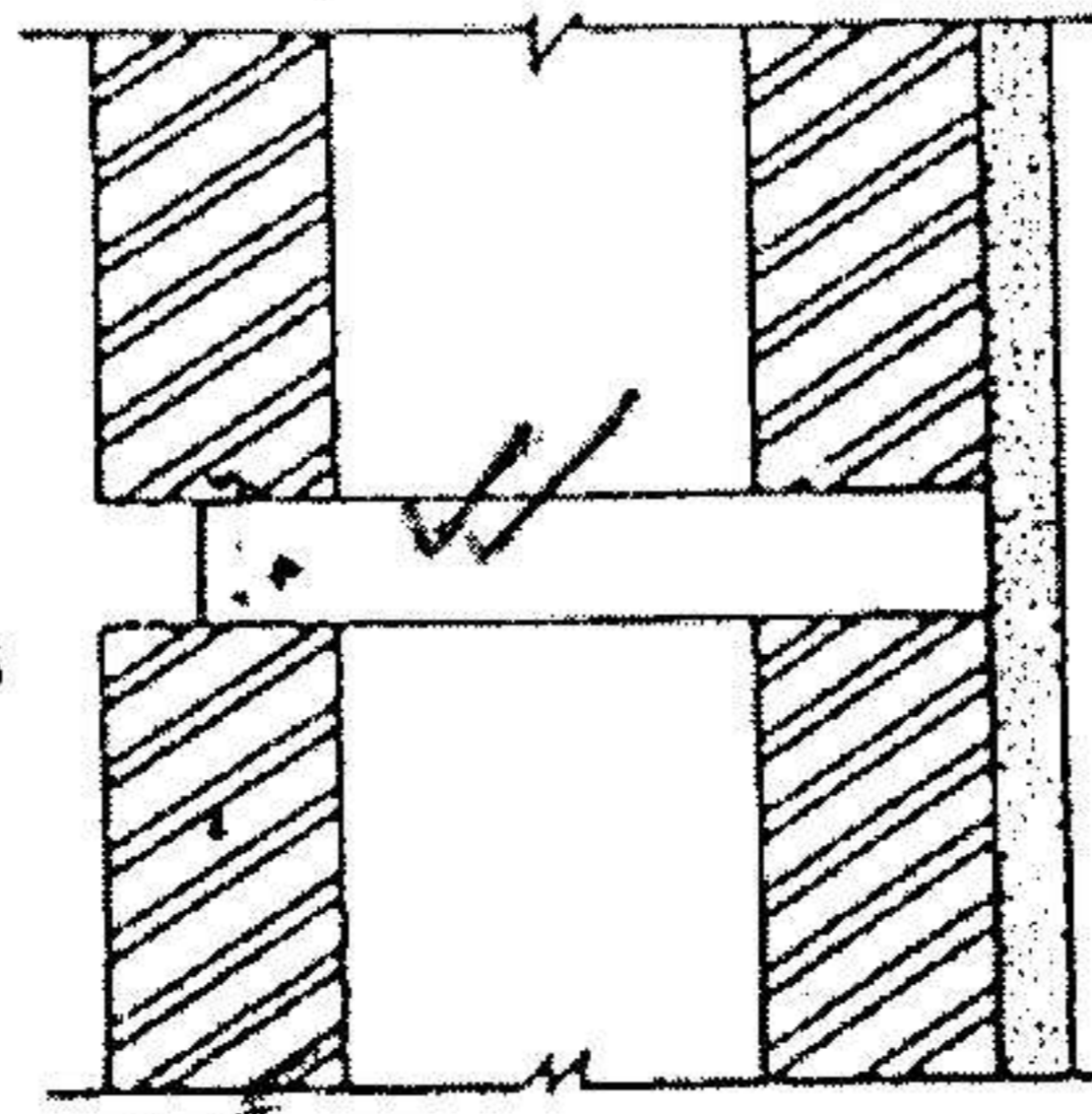
A Flush pointing

Used for decorative treatment



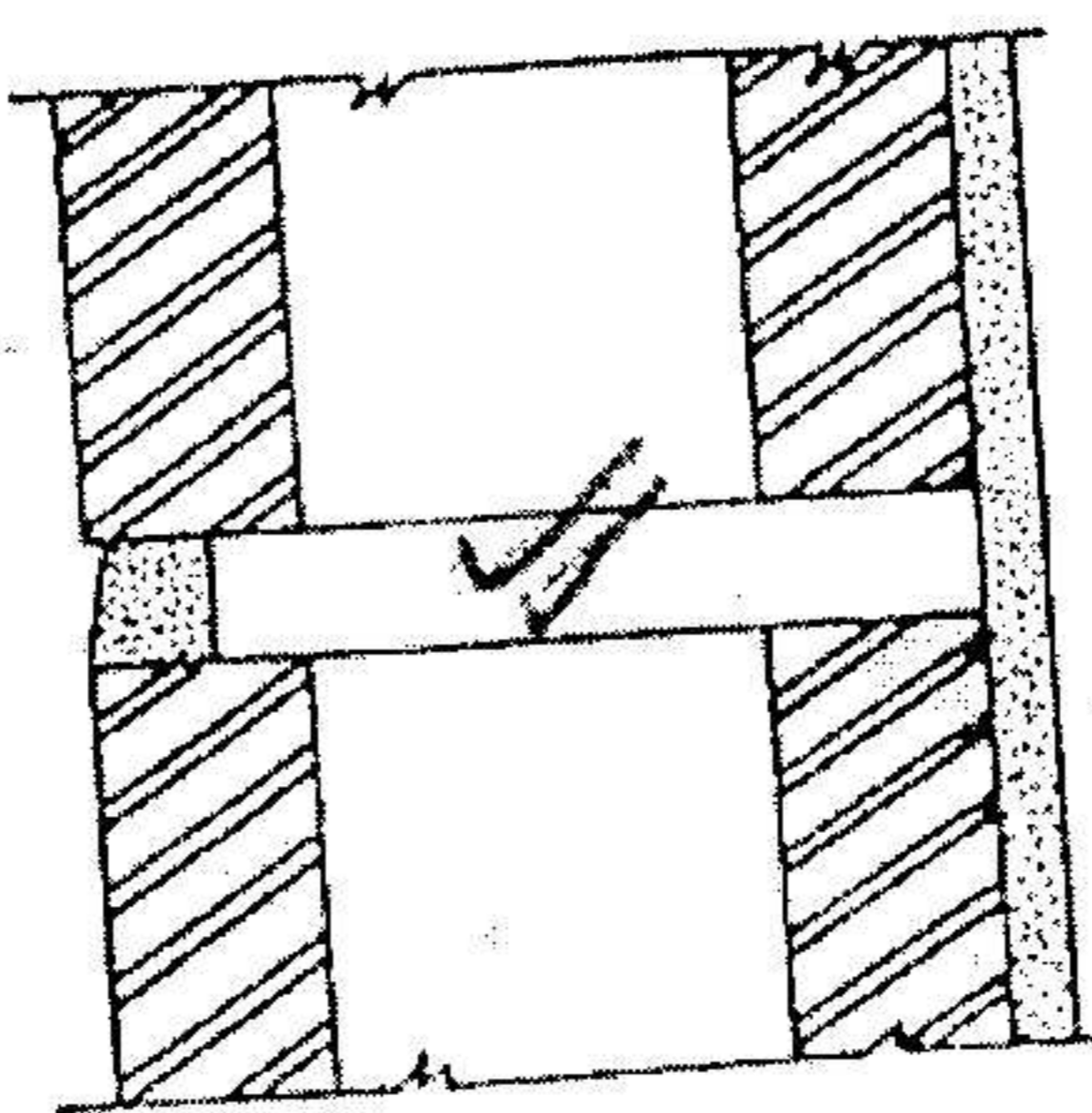
B Half round recessed jointing

Confined to blocks of comparatively regular shape with sharp arises



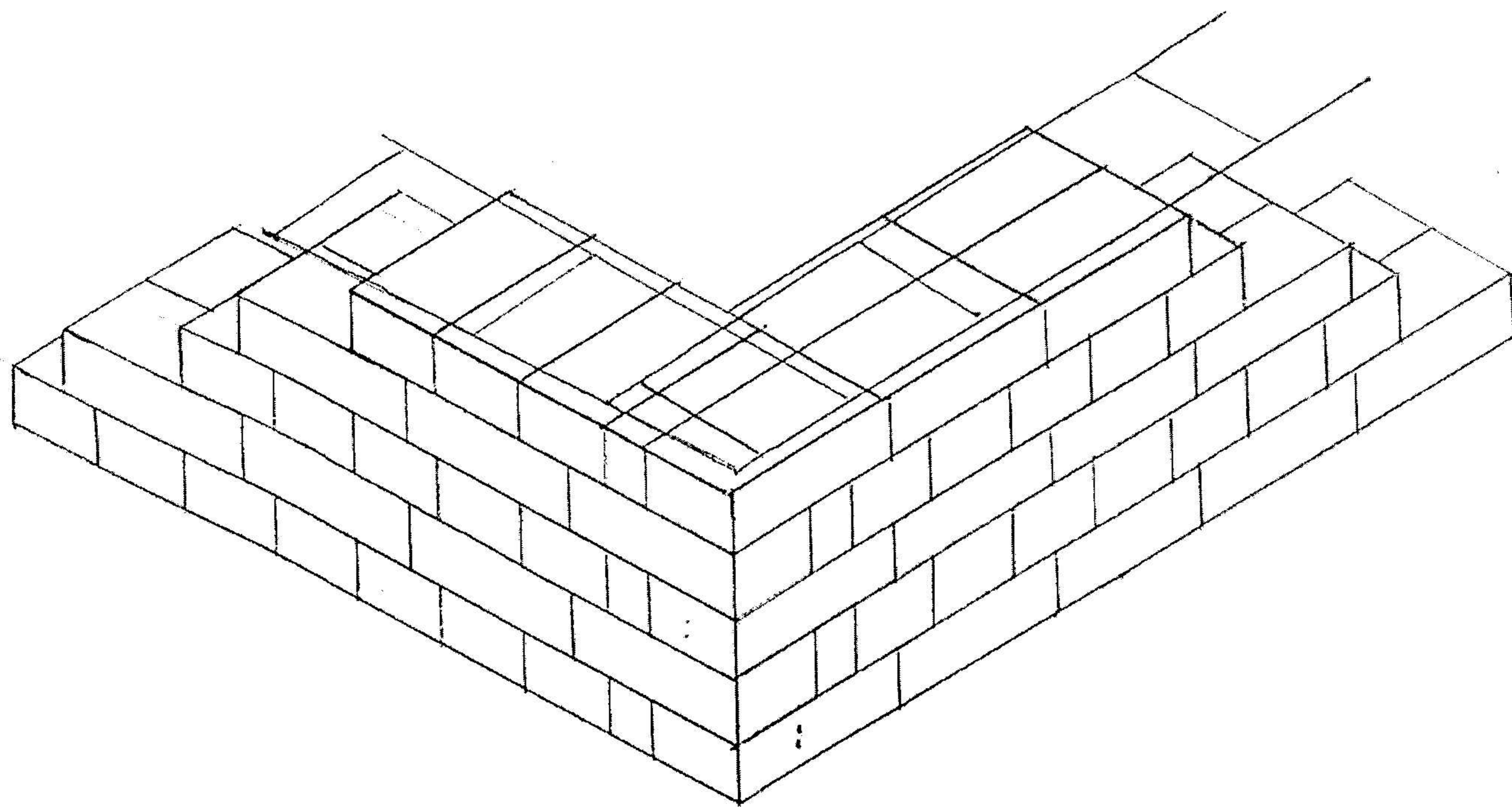
C Square recessed jointing

Weather pointing is used to prevent moisture penetrating the wall

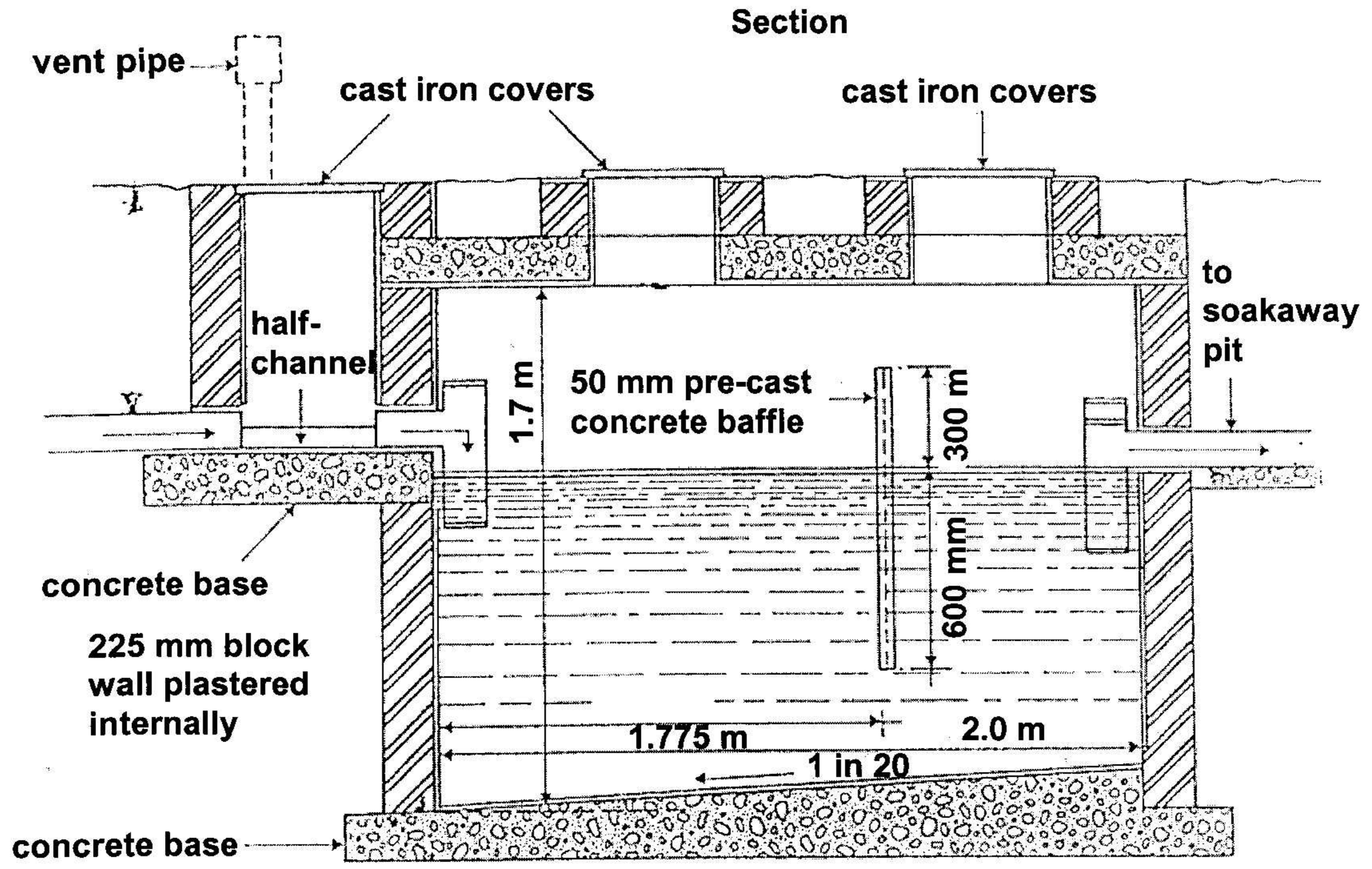


C Weather pointing

Q 3.2

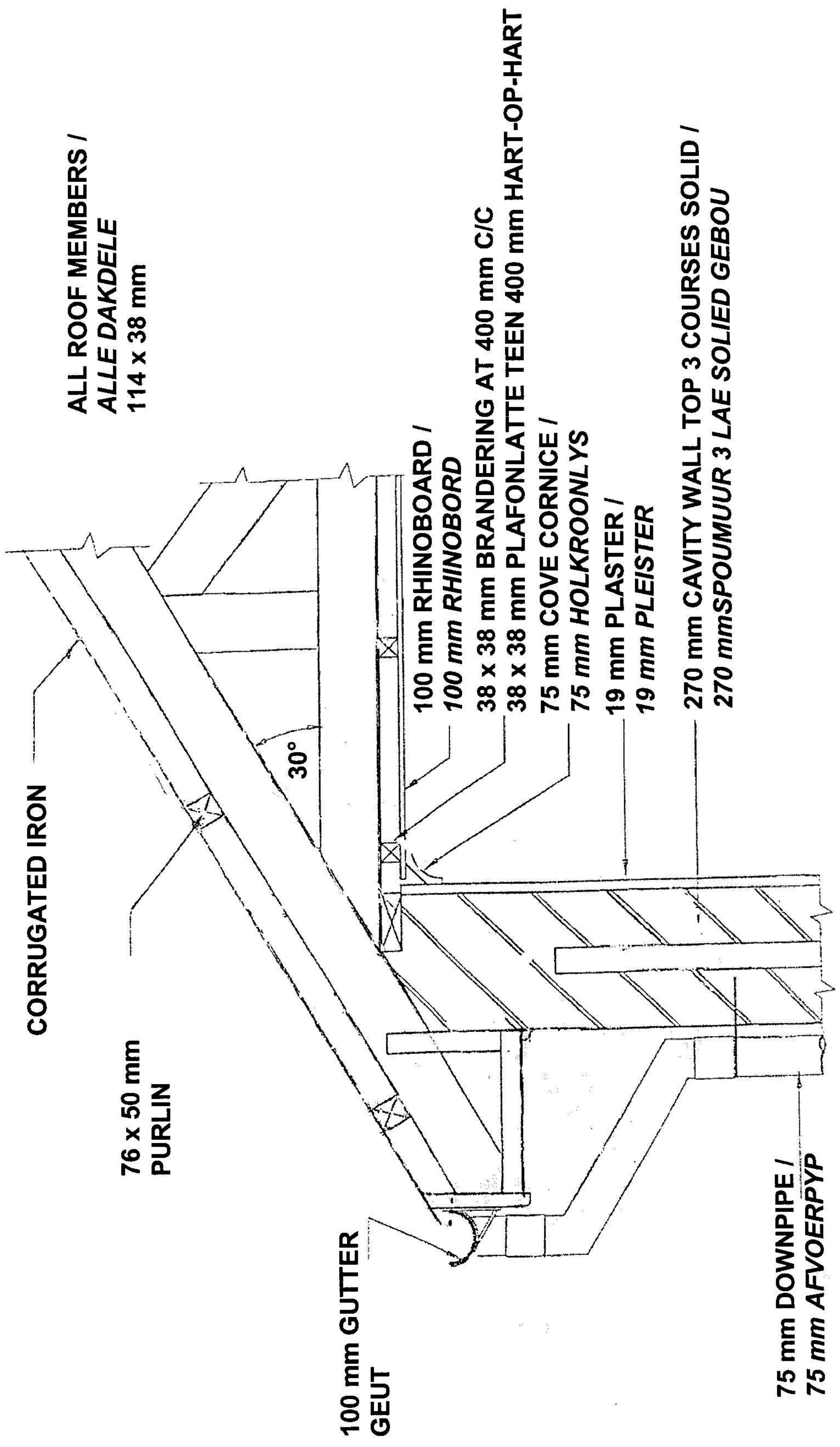


Q 4.1



Q 5.2

QUESTION 6



SCALE 1:10
SKAAL 1:10

SECTION THROUGH ROOF
DEURSNEE DEUR DAK