higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE (VOCATIONAL)

CARPENTRY AND ROOF WORK
NQF LEVEL 4

22 November 2024

This marking guideline consists of 6 pages.

Copyright reserved

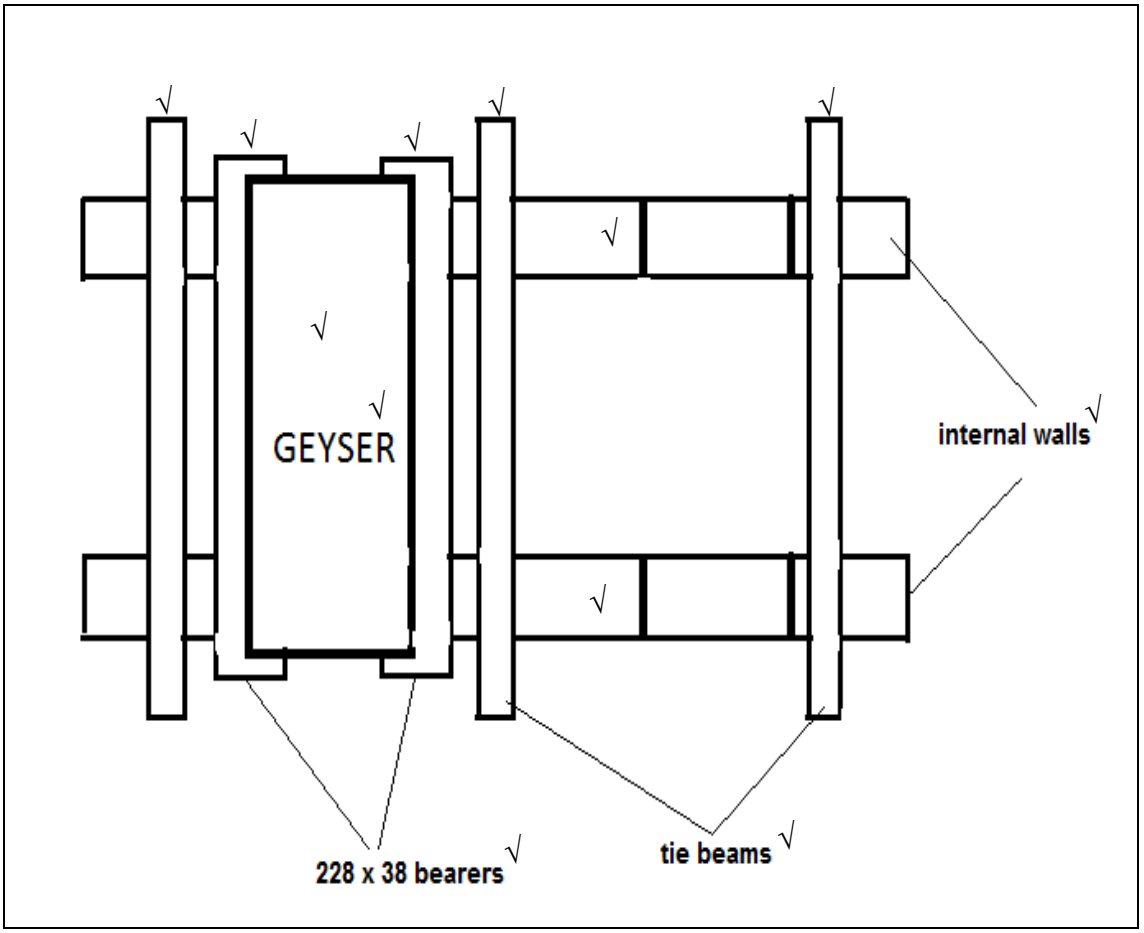
QUESTION 1

1.1 The carpenter would be able to determine the following factors:
- the available space
- the truss spacing
- the type of truss
- the distance to the taps (Any 3 × 1) (3)

1.2
- The truss spacing in a corrugated iron roof is greater than the truss spacing in a tiled roof.
- Stronger members would prevent possible sagging of the deck. (2)

1.3
1.3.1 staggered nailing
1.3.2 heat loss or additional piping
1.3.3 webs
1.3.4 8 meters
(4 × 1) (4)

1.4



(12 x ½) (6)
[15]

QUESTION 2

2.1 Prefabricated, lightweight buildings are prone to movement by strong winds✓ A ceiling would strengthen the building and prevent movement✓ in the same way that a Masonite back stabilises a cupboard. (2)

2.2
- Mark a level datum line about 300 mm down from the top of the wall around the walls of the room
- Make a mark 20 mm from the corner of the wall parallel to the tie beams
- From this mark, mark off intervals of 450 mm to the end of the wall
- Repeat the same process on the opposite wall
- Measure the length of the gypsum ceiling boards to determine the point where the ends of the boards will meet
- Mark off this measurement on the walls at 90° to the tie beams to show where a double row of battens should be fixed (6)

2.3
- Keep the batten flush against the line
- Drive the nail in the centre of the batten to prevent splitting
- Leave a bit of the nail head exposed to simplify levelling (3)

2.4
- Ceiling boards:
  8.4 × 4.8 = 40.32 √
  40.32 ÷ 4.32 (3.6 × 1.2) = 9.3√
  10 ceiling boards are required ✓✓
- Cornice:
  8.4 × 2 = 16.8 √
  4.8 × 2 = 9.6 √
  9.6 + 16.8 = 26.4√
  26.4 ÷ 3 = 8.8√
  9 lengths of cornices are needed ✓
- Brandering/battens:
  4800 ÷ 400 = 12 +1 √
  13 branderings + 1 √ for the double brandering where the boards join
  Total of 14 rows of brandering × 8.4 = 117.6 √
  117.6 ÷ 3.6 = 32.66 √
  33 lengths of brandering/battens are needed. ✓
- Cover strips:
  8.4 ÷ 1.2 = 7 – 1 = 6 √
  6 × 4.8 = 28.8 √
  28.8 ÷ 3 = 9.6 √
  10 strips √
  + cross cover strips where boards join
  8.4 ÷ 3 = 2.8 = 3 strips √
  Total cover strips = 13 √ (4 × 3) (12)

2.5 Ceiling insulation improves the thermal comfort in a room✓and it also reduces the transfer of noise from one room to another.✓ (2)

2.6
- Use 9 mm × 44 mm timber to construct a mitred frame✓ 10 mm smaller than the trapdoor opening✓
- Screw the frame securely through the ceiling board into the trimmers and bottom chords✓ (3)

2.7
- It comes in rolls that cover large areas.
- Light in weight.
- Acts as an active fire barrier (Any relevant 2 × 1) (2)

[30]

QUESTION 3

3.1
- The material used for a suspended timber floor is more expensive (solid timber compared to concrete)
- A suspended timber floor takes longer to construct resulting in additional labour costs
- Highly paid and experienced skilled tradesman are required to do the work

(Any 2 × 1) (2)

3.2 3.2.1 There should be enough space for ventilation

3.2.2 The joists must be able to support the floorboards without bending or deflecting

3.2.3 The floor must be designed to carry the loads placed on it

(3 × 1) (3)

3.3
- Laminated beams are stronger
- They can span greater widths
- Not prone to warping
- Laminated beams are available in longer lengths (Any 3 × 1) (3)

3.4 3.4.1 C
3.4.2 A
3.4.3 D
3.4.4 C
3.4.5 C

(5 × 1) (5)

3.5 The upper third of the joist is in compression✓ while the lower third is in tension.✓ Drilling in these areas will weaken the joist.✓ (3)

3.6 The three lines indicate: a datum line
the height of the floor
the thickness of the floor boards (3)

3.7
- Oval flooring nails√
- Cut flooring nails√ (1)

[20]

QUESTION 4

4.1 The door schedule will indicate in which way the door should swing √ and the type of door to be installed.√ (2 × ½) (1)

4.2
- The doorframe could be out of square
- The doorframe could be out of plumb
- Bowed jambs
- Misaligned jambs (Any 3 × 1) (3)

4.3
- Fit the door into the doorframe
- Mark the position of the hinges on the door and doorframe
- Chisel out the recesses for the hinges on the door and doorframe
- Screw the hinges to the door
- Screw the hinged door to the doorframe
- Ease the door for a neat fit
- Fit the lock and handles
- Do a final quality check to determine whether the door swings freely and the lock works smoothly (8)

4.4 A bevel would reduce the chances of the door jamming against the doorframe✓ and becoming hinge bound.✓ (2)

4.5
4.5.1 The key turns the dead bolt, locking or unlocking the door
4.5.2 The spindle turns the latch bolt to open or keep the door closed
(2 × 1) (2)

4.6
4.6.1 The jamb of the doorframe
4.6.2 Hollow core doors
4.6.3 Not influenced by the lock because mortise locks are reversible
4.6.4 A block plane
(4)

[20]

QUESTION 5

5.1 5.1.1 Mark a datum line and locate the appropriate locations.

- After identifying the position of the appliances, windows and doors, a horizontal datum line must be marked around the wall√ approximately 1 meter above the floor where the kitchen units will be installed. √
- Determine the cabinet height by measuring from the lowest√ point of the floor to the highest point.√
- Take multiple measurements√ to find the highest point on each side of the wall.√
- Mark the required height for the units on the wall at the floor's highest point √ and transfer this mark around the wall, keeping it parallel to the datum line.√
- Draw lines around the wall √ to indicate the positions of the units based on the datum line.√ (10 × ½) (5)

5.1.2 Fit, level and finish off the cabinets and shelfs.

- Install and level the tall base units first to establish the height for the other wall units. ✓
- Secure wall units by levelling them and attaching them to timber battens using corner fixing plates or appropriate fixtures. ✓
- Fit and level the plinth or adjustable feet. ✓
- Start positioning the units from the corner and ensure they are level. ✓
- Join the cabinets together. ✓
- Install open shelving. ✓
- Place the worktop in position and join the corners. ✓
- Cut out the top for the sink and fit the sink. ✓
- Cut out the hole for the stove and fit the stove. ✓
- Install filler pieces snugly within any gaps. ✓ (10 × 1) (10)

[15]

TOTAL: 100

Copyright reserved