



**higher education
& training**

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATE (VOCATIONAL)

**CARPENTRY AND ROOF WORK
NQF LEVEL 3**

NOVEMBER 2011

(12030333)

**21 November (X-Paper)
09:00 – 12:00**

This question paper consists of 5 pages.

<p>TIME: 3 HOURS MARKS: 100</p>

INSTRUCTIONS AND INFORMATION

1. Answer ALL the questions.
 2. Read ALL the questions carefully.
 3. ALL questions must be clearly shown.
 4. ALL work you do not want to be marked must be clearly crossed out.
 5. Start each question on a NEW page.
 6. Rule off across the page on completion of each question.
 7. All the abbreviations and symbols must comply with the latest National Building regulations and all relevant SANS (SABS) codes.
 8. Number the answers according to the numbering system used in this question paper.
 9. Write neatly and legibly.
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QUESTION 1: HIPPED ROOFS

- 1.1 Good quality workmanship is a factor that affects the stability of a roof. List any other FOUR factors that also affect the stability of a roof. (4)
- 1.2 In Carpentry and Roof Work, two methods of roof design are used. Name each method and give a brief explanation of each one. (4)
- 1.3 Explain in your own words what a Prefabricated roof truss is, and give TWO advantages of this type of roof truss. (4)
- 1.4 What purpose does a Girder Truss serve on a Hipped roof? (2)
- 1.5 Explain how the additional members in a Hipped roof end stabilise the roof? (2)
- 1.6 Why is it better to use a prefabricated hipped roof from a Rational design that meets the regulated national standards? (2)
- 1.7 On a Hipped Roof, we have triangulated ends. What are the TWO functions of these triangulated ends? (2)
- 1.8 Give an explanation of the following terms commonly used in roof construction:
- 1.8.1 Apex (2)
 - 1.8.2 Bottom chord (2)
 - 1.8.3 Node (2)
 - 1.8.4 Pitch (2)
 - 1.8.5 Member (2)

[30]

QUESTION 2: ERECTING AN L- SHAPED ROOF

- 2.1 Mention THREE important reasons for having a roof on a building. (3)
- 2.2 Describe what a Roof Truss is. (2)
- 2.3 Name the TWO types of loads that a roof structure has to withstand and give an example of each one. (4)
- 2.4 Why It is not possible to build an L-Shaped roof without a Rational Design. (2)
- 2.5 State the reason why the slope of a Valley gutter is lower than the slope of the intersecting roofs. (2)
- 2.6 List the THREE types of valley gutters that are commonly used on South African roofs. (3)
- 2.7 Write down the Formula that is used to calculate the gradient of the Pitch and the Valley of an L-Shaped roof. (2)
- 2.8 In carpentry, what does the phrase ' to tack a nail ' mean? (1)
- 2.9 Supply TWO reasons why a valley gutter should be properly constructed. (2)
- 2.10 Complete the table below by providing the correct wall plate sizes for the given roof spans.

SPAN	WALL PLATE
2.10.1 Span less than 10m	
2.10.2 Span between 10m and 15m	
2.10.3 Span between 15m and 20m	

(3 x 1) (3)

- 2.11 Mention TWO functions of a Wall Plate. (2)
- 2.12 State TWO characteristics or features of a Category D roof. (2)
- 2.13 What type of joint is formed when two pieces of timber are each cut at an angle of 45°, and then joined together to form a 90° corner? Give an example of where this type of joint could be used. (2)

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QUESTION 3: INSPECTION OF ROOF STRUCTURES

- 3.1 Define the following construction personnel:
- 3.1.1 A Competent person (2)
 - 3.1.2 A Professional Engineer (2)
 - 3.1.3 An Artisan (2)
 - 3.1.4 A Roof Erector (2)
- 3.2 Name TWO South African National Standards (SANS) which regulate timber roof construction. (2)
- 3.3 Justify the needs for proper roof inspections. (2)
- 3.4 List THREE possible negative consequences of poor or no roof inspections. (3)
- [15]**

QUESTION 4: HOW TO COVER A ROOF

- 4.1 Why is it not permissible to change the specified roofing material without the written consent of the roof designer? (2)
- 4.2 What must be done in order to change the roof covering material once the roof frame has been built? (2)
- 4.3 List THREE parts of a roof which are vulnerable to wind damage. (2)
- 4.4 Identify any TWO methods of preventing a roof from being blown off. (2)
- 4.5 List any FOUR roof-covering materials used in South Africa. (4)
- 4.6 Give a brief explanation of the term 'roof cladding'. (2)
- 4.7 What causes white rust, commonly found on galvanized roofing sheets? (2)
- 4.8 List any THREE tools that can be used when fixing zinc-roofing sheets. (3)
- 4.9 Where would a 'welt' be incorporated when using sheet- metal roofing? (2)
- 4.10 What is the purpose of the thick waterproof plastic that is placed under the battens before laying the roof tiles? (2)
- 4.11 Mention TWO important properties of the material used as good roof covering. (2)
- [25]**

TOTAL: 100