EXAMINATIONS AND ASSESSMENT CHIEF DIRECTORATE
Home of Examinations and Assessment, Zone 6, Zwelitsha, 5600
REPUBLIC OF SOUTH AFRICA, Website: www.ecdoe.gov.za

2025 NSC CHIEF MARKER'S REPORT

SUBJECT	**ENGINEERING GRAPHICS AND DESIGN**		
QUESTION PAPER	**1X**	**2**	**3**
DURATION OF QUESTION PAPER	3	HOURS	
PROVINCE	EASTERN CAPE		
NAME OF THE INTERNAL MODERATOR	RP OLIVIER		
NAME OF THE CHIEF MARKER	L DLABA		
DATES OF MARKING	29 NOVEMBER - 12 DECEMBER 2025		
HEAD OF EXAMINATION:	EM MABONA		

SECTION 1: (General overview of Learner Performance in the question paper as a whole)

The overall performance in this examination was weak. Only a few candidates achieved Level 7, while about 35% scored Level 1. Most managed the easier questions but struggled with middle- and higher-order sections, with many leaving them blank.

A lack of proper drawing instruments affected accuracy, especially in projection. Many candidates also used incorrect line types, keeping construction lines too dark or confusing centre and hidden detail lines. This shows gaps in higher-order understanding and exam technique.

A clear pattern appeared: candidates started with Questions 1 and 4 because they were easier, while Questions 2 and 3 were often left for last or not completed. This reflects low confidence in difficult work and weak time management.

Many candidates could not finish the paper within the allocated time. Limited drawing-board practice between September and November slowed their working pace. Afternoon exam scheduling after morning papers may also have reduced preparation time.

Overall, the results show that many candidates were not fully prepared for the demands of the exam. Although there is slight improvement from previous years, consistent practice, stronger higher-order skills, and better exam strategies are still needed.

The next section highlights the areas where candidates struggled most, where easy marks were lost, and the challenging sections that even strong candidates found difficult.

SECTION 2: Comment on candidates' performance in individual questions

QUESTION 1
General comment on the performance of learners in the specific question. Was the question well answered or poorly answered?
Question 1 All candidates attempted this question. The level of difficulty was fair, and the format was familiar, as it followed the same style used in previous examinations. While most candidates managed the lower-order tasks, the middle- and higher-order sections were not well answered. A large number of candidates still struggle with calculations and freehand civil symbols. **Question 2** Many candidates did not attempt this question, and those who did largely repeated the given views without completing the required constructions. Candidates continue to struggle with polygons—especially the pentagon and rotated hexagon in this question. Overall, performance on this question was weak. **Question 3** Most candidates attempted this question and were able to identify the vanishing points. However, the rest of the drawing was poorly handled. The construction of an arch remains difficult, even for stronger candidates. **Question 4** All candidates attempted this question. Most were able to complete the floor plan, but many left out the elevation. In the sectional view, several candidates made an effort, but many omitted the roof details. This indicates that candidates have not yet mastered key Grade 12 content.

QUESTION 2

Why was the question poorly answered? Also provide specific examples, indicate common errors committed by learners in this question, and any misconceptions.

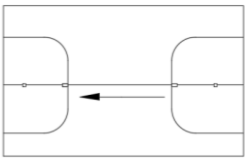
Question 1

The question was attempted by all learners. The lower-order components were generally well answered, the middle- and higher-order sections were poorly addressed.

Questions 1.1 – 1.6

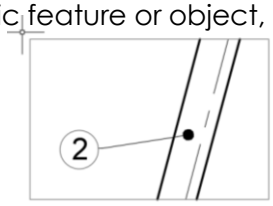
These questions were very easy and generally well answered.

Question 1.7
Candidates understood the concept but did not explain themselves fully. Many provided one-word responses instead of describing what the arrow is used to indicate.

Direction of gate opening 

Questions 1.8 – 1.10

These items were fair and of an acceptable difficulty level.

Question 1.11
Many candidates answered incorrectly because they misunderstood the purpose of the dot. They interpreted it as pointing to a specific feature or object, similar to Question 

1.10, instead of recognising that it indicates an area.

The **2** indicates to the road or driveway.

Question 1.13
Most candidates struggled with this question. They did not know the abbreviation for concrete. Afrikaans-speaking candidates also got it wrong, even though the abbreviation is identical in both languages. Answer: **CONC**

Question 1.15
As with Question 1.13, this item also proved difficult. A large number of candidates answered "Site plan," which was incorrect. This suggests that they were either taught incorrectly or did not understand the SANS colour conventions. Answer: **DRAINAGE INTALLATION DRAWING /PLAN /LAYOUT or ELEVATION**

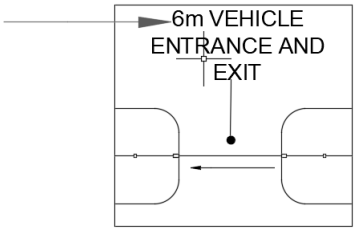
Questions 1.17 – 1.19

Although the questions were reasonable and similar to those often asked in past papers, many candidates still found them challenging. It is disappointing to see that the majority of learners do not know how to calculate perimeter, area, or determine the distance from one point to another.

1.17 21m (PQ to point S) + 2,5m (BL to borderline AB) + 3m (pavement to road)

Convert to millimetre: **21000 + 2500 + 3000 = 26500mm**

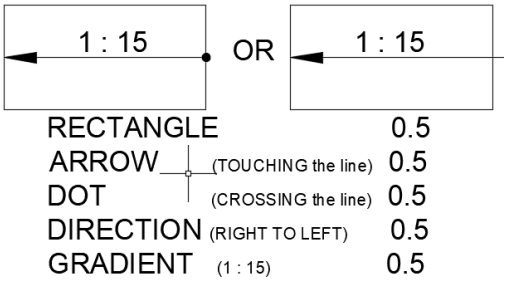
1.18 The addition of the perimeter was correct, but the candidate **forgot to subtract the 6 m** gate opening.



1.19 The majority of candidates still got this question wrong. They do not know how to calculate the square metres of a figure

Question 1.20

1.20a Candidates did not know how to draw the correct graphical symbol for a ramp. Many attempts lacked essential details—for example, the arrow did not touch the line, the dot was omitted, or the dot failed to intersect the line as required.

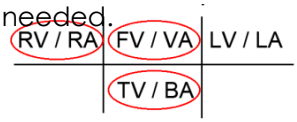


Question 2

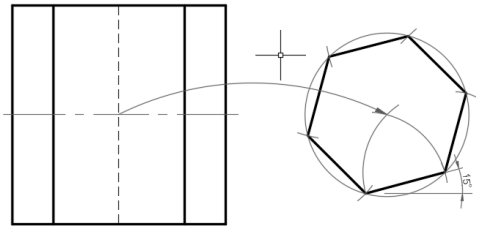
This question was difficult for many candidates. Most could only complete the two given views—the top view and an incomplete front view—and struggled with the right view. While many attempted the geometric shapes, more candidates were able to draw the pentagon (at a right angle) than the rotated hexagon. Even though incorrect rotation is penalized, the deductions do not heavily affect the final mark.

Good planning and correct placement on the page were important, and poor layout affected many candidates. The interpenetration curve in the front view was very challenging, and many did not attempt it. Candidates also battled to construct an accurate regular hexagon and pentagon, even though these skills are taught in Grade 10.

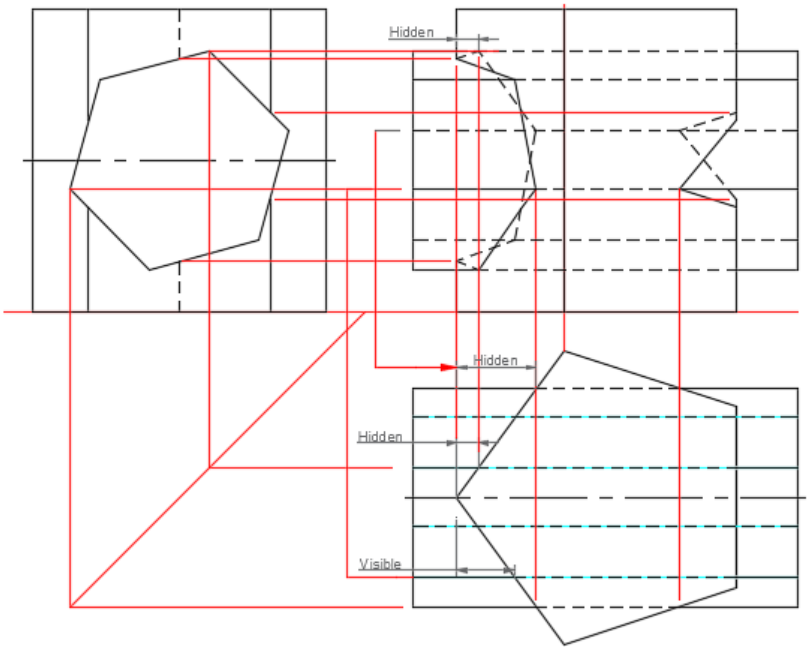
Correct first-angle orthographic projection is essential. Candidates should follow the required layout, sketch a quick planning diagram, and read each part of the question carefully to understand exactly what is needed.



Hint: Begin in the right view by constructing the hexagon first. Then project its centre point to the top view and use it as a starting and centralising reference to construct the pentagon.



To earn marks for a line, there must be visible evidence of how and from where the measurements were taken, especially when the drawing has dimension errors. Example: When the sides of a hexagon are too long or too short, or when a hexagon or pentagon is not drawn as a regular shape.



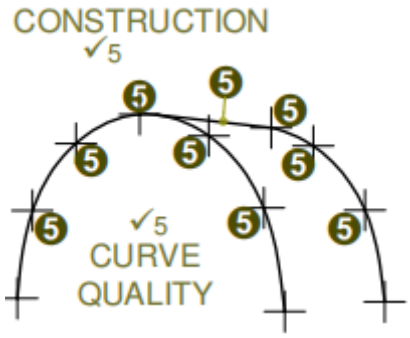
Question 3

Many candidates were able to complete the foundational requirements, such as identifying and constructing the vanishing points accurately. However, they struggled with several more complex elements, including:

- determining the correct position of the door opening and the splash pool,
- constructing the arch accurately, and
- drawing the roof with the required level of precision.

A recurring issue was that some candidates ignored the given information and instead created their own HL, GL, and SP, which resulted in inaccuracies throughout the drawing. The height line, an essential reference for constructing the perspective, was also not applied correctly by many candidates, particularly those who attempted the roof. Accuracy is of utmost importance in a drawing of this nature, and achieving it requires candidates to use proper drawing equipment.

The construction of the arch remains a significant challenge. To obtain full marks, a candidate must clearly indicate all the construction points to show how the final curve was achieved. A mark is allocated separately for the construction method and for the quality of the curve, as shown below.

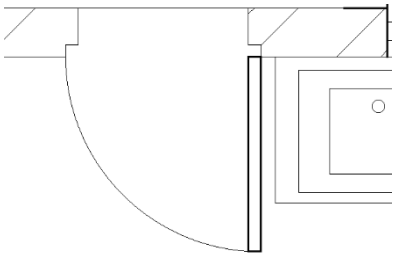


Question 4

Candidates must read each question carefully and use the data sheet together with the assessment criteria to guide their answers. The lack of exam practice is evident in common mistakes, especially in the elevation, where standard details are missing or drawn incorrectly lie the doors and window in the floor plan and elevation.

FLOOR PLAN

Begin by drawing **the doors**, using the information from both the datasheet and the given floor plan. Ensure the doors fit the openings correctly and pay close attention to the hinge position shown in the diagram.



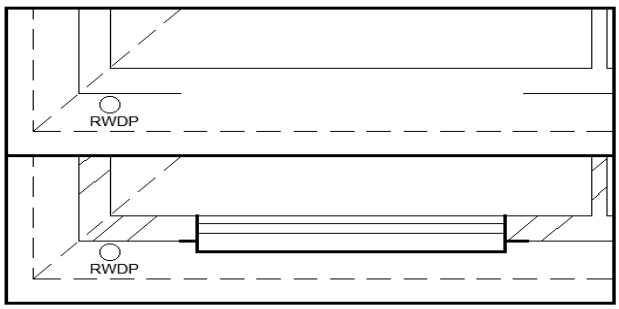
Door hinge point: Place the compass on the hinge end of the frame to draw the door swing and then mark the correct length of the door.

Door: A single line is acceptable for a 1:50 scale.

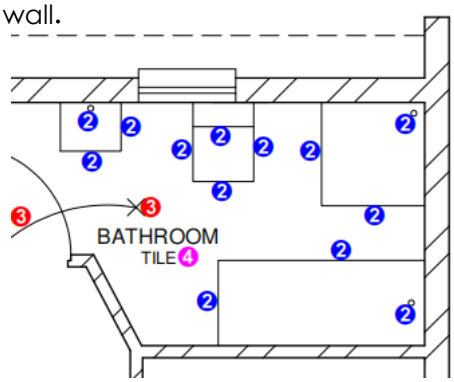
Door swing: Draw the swing arc using a compass

The windows should be drawn using the information provided in the door and window schedule, with additional reference details in the data sheet. Candidates must use the given dimensions and apply the correct scale (divide by 50) to determine the window size.

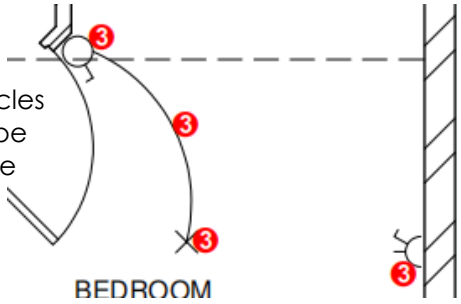
Important: The opening shown on the floor plan is larger than the actual window. Do not simply fill the entire gap. The window frame must be positioned in the centre of the wall, and the sill should project **1–2 mm** outside the wall at a 1:50 scale.



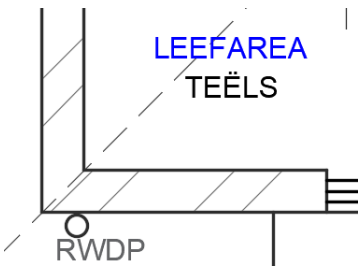
Fixtures shown in the drawing must not be copied. Candidates must use the given dimensions and draw each symbol to scale. Only the SANS 10143 symbols may be used. Place each symbol exactly where the corresponding letter indicates, and note that the rotation of the letter shows the correct orientation. Ensure that the back of each fixture is placed against the wall.



Electrical symbols may be drawn in neat freehand. The connecting wires must join the switches on the circles and connect to the symbols, and these wires should be drawn as arcs. Draw the symbols slightly away from the wall so that the full circles are visible. `

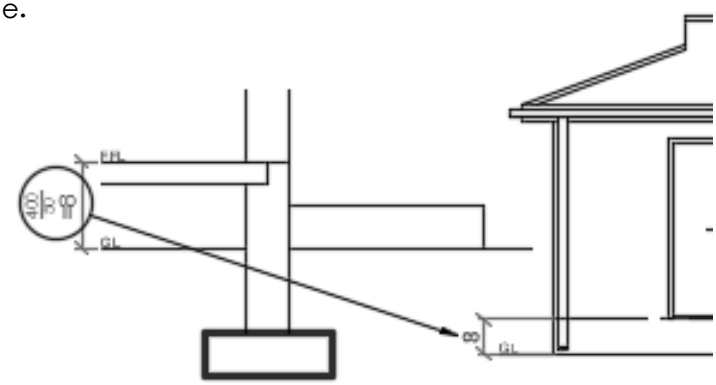


Labels must be written in capital letters and must match the size of the room designation, positioned directly below it. Most candidates omitted the labelling of the RWDP on both ends of the plan. It was clearly stated under the heading "Label the following."



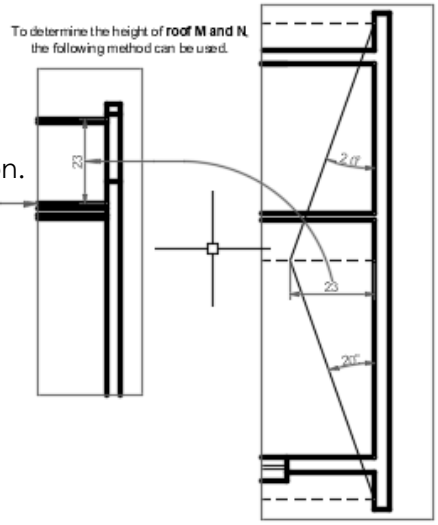
ELEVATION

Project the elevation walls from the floor plan. The ground line must extend beyond the width of the walls. Read the height of the finished floor level from the ground line, as shown in the schematic drawing titled **"Incomplete foundation, step and external wall detail"**, and calculate the scaled dimension at 1:50. The finished floor level must be drawn as a centre line.



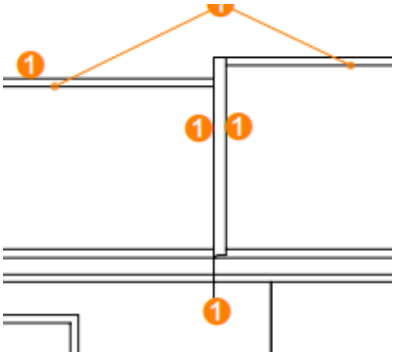
Candidates struggled with determining the roof heights, mainly because they used an incorrect method to calculate the heights that were not provided. This also indicates a lack of understanding of how to determine the heights of roof points **N** and **M**.

Method: Draw the 20° roof on the floor plan as shown in the diagram, and then use the measurement indicated as the height for roof **N** in the elevation.



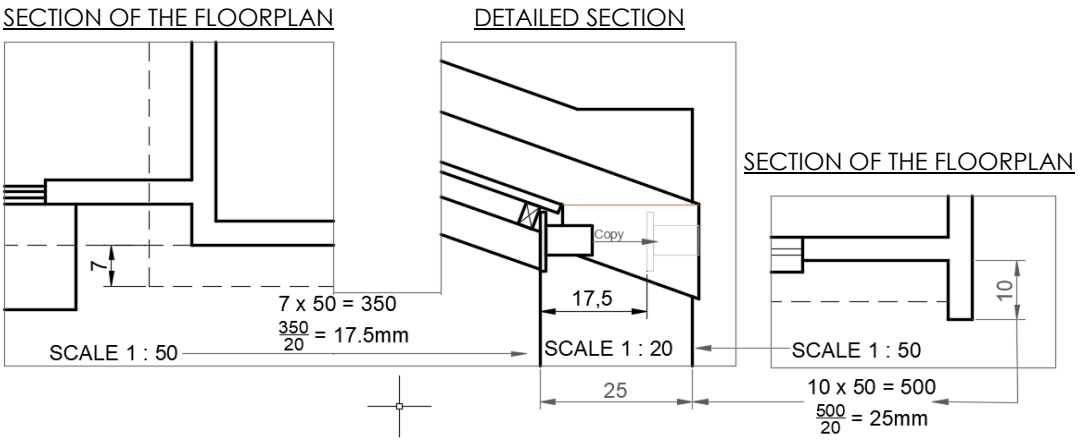
In addition, candidates lost marks for not drawing the gable wall to the correct height.

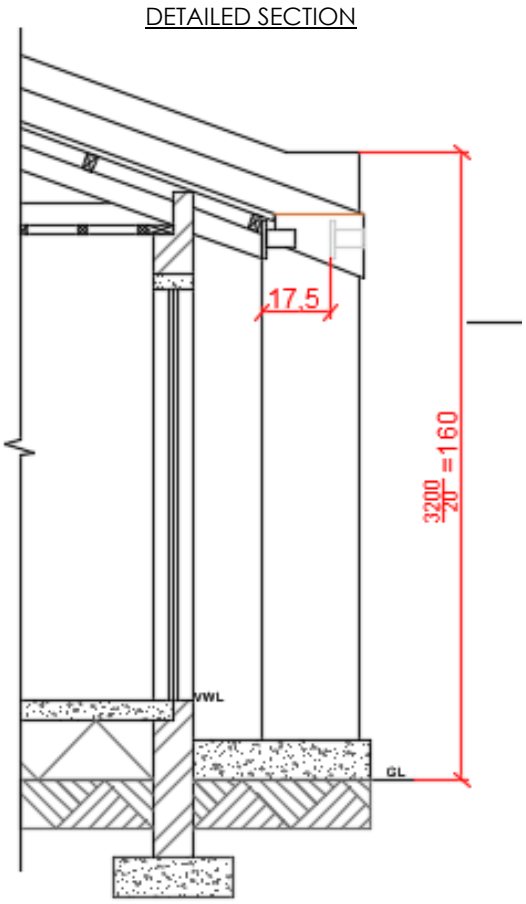
Candidates also lost a mark for not extending the barge board as indicated in the diagram.



DETAILED SECTION

The candidates performed well in the basic Grade 10 and 11 content. However, they struggled with the Grade 12 work, particularly the roof construction, measurements, and the required calculations. They first needed to obtain key dimensions from the floor plan, which many found challenging. The following diagram is provided to assist candidates in understanding how to transfer dimensions from one scale and view to another.





QUESTION 3

Provide suggestions for improvement in relation to Teaching and Learning.

Question 1

- Revise calculations and formula application more often. Many candidates still struggle with basic measurement and civil calculations. Include short weekly calculation exercises linked to drawings.
- Strengthen freehand symbol practice. Provide repeated practice of civil and mechanical symbols, ensuring candidates understand their meaning and correct proportions.
- Use mixed-order questions in class. Include lower-, middle-, and higher-order tasks in the same exercise so candidates learn to approach all difficulty levels with confidence.

Question 2

- Reinforce polygon construction techniques. Re-teach step-by-step methods for constructing pentagons and hexagons, including rotated shapes. Provide dedicated construction worksheets.
- Use slow, guided drawing sessions. Walk candidates through the right view and shape alignment process to improve accuracy.
- Encourage completion beyond the given views. Give practice tasks where the given views are incomplete, teaching candidates how to project and construct the missing views independently.
- Strengthen FAOP understanding in complex views. Include exercises focusing on projections and layout so candidates confidently extend given drawings.

Question 3

- Provide more regular perspective drawing practice. Candidates can find the vanishing points but cannot complete the rest of the drawing. Use simpler examples first, then increase difficulty.
- Teach arch construction step-by-step. Since even strong candidates struggle, demonstrate the arch method repeatedly and allow candidates to practise with different sizes and positions.
- Use visual aids and models. Real-life arch diagrams or 3D demonstrations can help candidates understand the curve formation better.

Question 4

- Focus on completing full civil drawings. Many candidates stop after the floor plan. Give more practice where elevation and section views must be completed together.
- Reinforce Grade 12 roof details. Spend more time teaching roof components, using enlarged examples and requiring candidates to redraw them repeatedly until mastered.
- Guide candidates in reading instructions carefully. Practise breaking down questions into smaller steps so candidates do not miss required details like roof elements.
- Strengthen projection and scaling skills. Teach candidates to transfer dimensions correctly from floor plans (scale 1:50) to sectional views (scale 1:20).

QUESTION 4

Describe any other specific observations relating to responses of learners and comments that are useful to teachers, subject advisors, teacher development etc.

The candidates' responses show that many still struggle with key Grade 12 drawing skills, especially in solids, perspective, and civil drawings. These weaknesses suggest gaps in preparation as well as a lack of structured support for teachers. A major concern is that **there are too few knowledgeable EGD subject advisors in the province**, which limits training, guidance, and moderation. As the subject grows in numbers, this shortage impacts results directly.

Candidates also do not get enough practice under time-controlled conditions. A Grade 12 solid geometry drawing should be completed in one period, and a civil drawing in 3–4 periods, yet most candidates cannot finish these tasks. This is clearly reflected in their exam performance.

Suggestions for Improvement (Question by Question)

Question 1 – Analytical

- Teach the content clearly and use regular class tests to check understanding.
- Use past papers to show learners how to approach analytical questions.
- Train candidates to use reading time effectively by identifying key information early.

Question 2 – Solids

- Practise single solids in various positions often.
- Use old exam papers to build confidence and strengthen projection and layout skills.

Question 3 – Perspective

- Provide frequent perspective exercises using past papers.
- Give step-by-step practice on vanishing points, height lines, and curve construction.

Question 4 – Civil

- Use real classroom structures (doors, windows, frames) to explain concepts.
- Reinforce the full civil drawing process: floor plan, elevation, section.

To improve EGD results in the province, schools need:

- More knowledgeable subject advisors to assist them
- Regular teacher support and training, and
- Updated teaching materials and proper drawing instruments so candidates can practise effectively.