basic education

Department:
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CIVIL TECHNOLOGY

GUIDELINES FOR PRACTICAL ASSESSMENT TASKS

2015

These guidelines consist of 29 pages and a 1-page annexure.

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SECTION 1

1. INTRODUCTION

The 16 Curriculum and Assessment Policy Statement subjects which contain a practical component all include a Practical Assessment Task (PAT), i.e. a Practical or Performance Assessment Task. These subjects are:

- AGRICULTURE: Agricultural Management Practices, Agricultural Technology
- ARTS: Dance Studies, Design, Dramatic Arts, Music, Visual Arts
- SCIENCES: Computer Applications Technology, Information Technology
- SERVICES: Consumer Studies, Hospitality Studies, Tourism
- TECHNOLOGY: Civil Technology, Electrical Technology, Mechanical Technology and Engineering Graphics and Design.

A practical assessment task (PAT) mark is a compulsory component of the final promotion mark for all candidates offering subjects that have a practical component and counts 25% (100 marks) of the end-of-year examination mark. The PAT is implemented across the first three terms of the school year. This is broken down into different phases or a series of smaller activities that make up the PAT. The PAT allows for learners to be assessed on a regular basis during the school year and it also allows for the assessment of skills that cannot be assessed in a written format, e.g. test or examination. It is therefore important that schools ensure that all learners complete the practical assessment tasks within the stipulated period to ensure that learners are resulted at the end of the school year. The planning and execution of the PAT differs from subject to subject.

SECTION 2

2. GUIDELINES FOR THE TEACHER
(These guidelines must be clearly explained to the learners.)

2.1 The structure of the PAT for Civil Technology

Practical Assessment Tasks are designed to develop and demonstrate a learner's ability to integrate a variety of skills in order to solve a problem. The PAT also uses the technological process to guide the learner on the steps that need to be followed to arrive at a solution for the problem at hand.

The PAT is based on investigations, simulations and the application of skills, knowledge and principles acquired by the learners that will cover the technological process in the built environment.

2.2 Management of the PAT

The PAT should commence from the first term, as this is a lengthy and drawn out process and **CANNOT** be left to the last minute.

(a) All the components of the PAT (design portfolio, working drawings and model) should be completed and presented for assessment by the end of the third term before the commencement of the preparatory examination to allow sufficient time for the external moderation.

(b) During this phase, the teacher will do any final assessments that are outstanding. All learner portfolios, working drawings and models are kept safely until the moderation process is completed (both provincial and national moderation).

(c) **The internal moderator/HOD must conduct moderation of the PAT throughout the year.**

(d) It is imperative that the criteria are adhered to from the beginning, as this will form the basis for assessment.

(e) Teachers cannot penalise learners on points that are not included in the initial criteria.

(f) When learners are selected during moderation (face moderation), they may be required to showcase their skills and knowledge.

The communication of the design is a continuous process and the learner will continuously make changes to this part of the portfolio as the PAT progresses.

All teachers must design a pacesetter to indicate the completion dates for the different stages of the PAT. The teacher must manage this process to avoid crisis management and unnecessary stress nearer to the completion date of the PAT. This pacesetter must also be given to the learners.

The submission dates for the different sections of the PAT, as indicated in the pacesetter, should be given to learners in writing.

2.3 Administration of the PAT

The PAT should be based on real-life situations and completed under controlled conditions.

Teachers must set dates for the completion of the different phases of the PAT. In this manner learners can assess their progress. In instances where formal assessment tasks take place, it is the responsibility of the teacher to administer assessment tasks.

After studying the guidelines teachers must fully explain the requirements of the different stages of the PAT and the criteria, as indicated in the rubrics and mark schedules, to the learners. This will ensure that learners and teachers have a common understanding of the assessment tools and what is expected of the learners.

Teachers are requested to make copies of **SECTION 3 (INSTRUCTIONS TO THE LEARNER)** of this document **together with the assessment criteria of the PAT** and hand it to the learners no later than the **first week in February**.

The product/model should not leave the classroom/workshop and must be kept in a safe place at all times when learners are not working on it.

2.4 Assessment and moderation of the PAT

The PAT for Grade 12 is externally set and moderated, but internally assessed by the teacher and moderated by the internal moderator/HOD.

2.5 Assessment

Frequent developmental feedback is needed to guide and support to the learner to ensure that the learner is on the right track.

Both formal and informal assessment should be conducted on the different tasks that constitute the PAT. Informal assessment can be conducted by the learner himself or herself, by a peer group, or by the teacher. Formal assessment should always be conducted by the teacher and the results will be recorded.

The teacher must take the requirements of the assessment of all the components of the PAT into account and therefore plan the assessment programme of the PAT accordingly.

2.6 Moderation

During moderation of the PAT the design portfolio, working drawings and the model must be presented to the external moderator.

Where required the moderator should be able to call on the learner to explain the function and principles of operation and also request the learner to exhibit the skills acquired through the capability tasks for moderation purposes. The sequence of events of the technological process may also be requested from the learner.

SECTION 3

3. LEARNER GUIDELINES

Learner's name: _____

Time Allowed: 1st–3rd term

3.1 Instructions to the learner

- This practical assessment task counts 25% of your final promotion mark.
- All work produced by you must be your own effort.
- All sources used must be acknowledged.
- Use your discretion where dimensions and/or information have been excluded.
- Calculations should be clear and include units.
- Calculations should be rounded off to TWO digits.
- Drawings can be hand-drawn (use drawing instruments) or drawn on CAD. NO photocopies or scanned files of drawings are allowed.
- Photos may be used and may be in colour or greyscale. Scanned photos are allowed.
- SI units should be used.
- You are encouraged to use recycled materials in making the model.
- Changes during simulation of the product should be documented and included in the design portfolio.
- Your assignment and assessment instruments should be placed at the back of the design portfolio.
- The marking memorandum for the working drawings must be attached to your working drawings.
- Where available you may use electronic equipment, e.g. cellphones, cameras, digital cameras, etc. to document your progress.
- **The product/model should not leave the classroom/workshop and must be kept in a safe place at all times when you are not working on it.**

The practical assessment task (PAT) consists of a practical task to be completed over three terms. The PAT consists of a design portfolio, working drawings and a product/model.

Computer-aided drawings should be done under the supervision of the teacher.

NOTE: This year the PAT consists of ONE scenario that is COMPULSORY for all learners.

3.2 **Task**

Scenario

A newly-wed couple lives in a house consisting of an open-plan kitchen cum living room cum dining room, a bedroom, a bathroom and an attached single garage. Access to the attached garage is through a door in the house. They would like to add an additional room to their house. They are restricted in two ways. Firstly, they cannot extend sideways on the property as the building is built on the building line. Secondly, the existing foundation cannot resist the load of a new solid in situ concrete floor. Their only option is to extend upwards using a rib and block floor. They intend building an en suite bedroom on top of the garage

Specifications for the existing house:

- Open-plan kitchen cum living room cum dining room with an area of approximately 41 m².
- Bedroom area is approximately 20 m².
- Bathroom area is approximately 9 m².
- Single garage area is approximately 30 m².
- Total area of the ground floor should not be less than 100 m^2.
- There is a window in the bedroom, living room, kitchen, dining room, bathroom and garage.
- The kitchen is fitted with cupboards, a single-bowl sink and all modern electrical appliances.
- All rooms are fitted with lights and at least one switch socket outlet (power point).
- The design of the roof is left to your discretion.
- The site is on level ground with firm solid soil.
- Standard strip foundations were used.

Specifications for the first floor (extension):

- Total floor area of the first floor is approximately 30 m^2.
- The additional room will be an en suite bedroom.
- Rib and block floor will be used on top of the garage.
- A single flight of stairs in the garage will give access to the new additional room upstairs.
- Any type of staircase may be considered.
- Windows are placed in the bedroom and bathroom.
- The bedroom is fitted with a built-in cupboard.
- The bedroom is fitted with ceiling lights and switch socket outlets (power points).
- The bathroom is fitted with a ceiling light.

INSTRUCTIONS

The learner should use his/her discretion where details have been omitted.

3.2.1 Develop and compile a design portfolio by following the technological process.

The following should be part of the design portfolio:

- Cover page
- Table of contents
- Declaration of authenticity
- Problem statement/Situation
- Design brief
- Research
- Design and draw freehand at least THREE different options of a ground floor plan for the house as well as a floor plan for the extension. Show the internal dimensions of each room.
- Design and develop the chosen option of the en suite bedroom on top of the garage showing the garage with the interleading door from the house, the stairs as well as the rib and block floor.
- Develop a schedule to show the stages and timeframes for the making and planning of the scale model of the garage, the staircase and the rib and block floor.
- Develop a list of hand tools, power tools and equipment needed to build the walls, rib and block floor and staircase and plumbing requirements for the extension of the house.
- Calculate the number of bricks required for the extension to the house (only the external walls including beam filling), the volume of concrete needed for the floor slab as well as the quantities of cement, volume of stone and sand if the mix proportion is 1 **:** 2 **:** 4. Use the dimension paper (ANNEXURE A) for the calculation of materials.
- Evaluation of the product
- Bibliography/List of references
- Evidence of research, e.g. letters received, quotation of costs, Internet research, etc.

The learner's assignment and assessment instruments for the design portfolio, scale drawings and product/model must be included in the portfolio when presented for moderation.

3.2.2 Develop and draw the following drawings using the marking memorandum for the drawings as a guide:

- Ground floor plan of the existing house using an applicable scale
- First-floor plan of the extension to show the en suite bedroom to scale 1 **:** 50
- A vertical section through the existing house to scale 1 **:** 50. The cutting plane must pass through a window in the ground floor plan.
- A detailed sectional view to scale 1 **:** 20 through the rib and block floor between the supporting walls. The sectional view must show the cross section of the ribs and the holes (webs) of the hollow blocks as well as the supporting formwork in place. Show only a part of the walls above and below the rib and block floor.

NOTE: Use the correct colour coding as prescribed by the *National Building Regulations/SANS 10 400* for building drawings, as indicated in the marking memoranda.

Use the criteria in the marking memorandum as a guideline for your drawings. All drawings should preferably be drawn on A3 drawing paper and be provided with dimensions, labels, notes and scales. Drawings should also comply with the minimum requirements as stipulated in the *SANS 10 400 (National Building Regulations)* and *SANS/SABS 0143, Code of Practice for Building Drawings.*

3.2.3 Build a scale model of the garage and the rib and block floor. Show the following in the model:

- The supporting walls and complete floor with reinforcing and conduits for services in place
- The supporting formwork under the ribs and blocks
- The formwork around the well (opening) of the staircase
- The staircase from ground floor to first floor
- Half of the rib and block floor should be covered with concrete and the other half of the rib and block floor should show all other material in place

HINT: Hollow blocks can be made by cutting rebates in a piece of timber and then blocks can be cut to size and shape. Holes can be drilled into the blocks to show the hollows. Taking into consideration the latest developments in technology, polystyrene can also be used for hollow blocks. Standard galvanised wire can be used as reinforcement. (Recycled materials can be used.)

3.3 **Tools and Rubrics for Assessment and Moderation**

The assessment tools below will be used to assess the different sections of your PAT.
Use these instruments to assist you with the completion of your PAT.
0 (zero) will be awarded if no evidence is available for any criteria.

3.3.1 **Rubric for assessment of the design portfolio**

CRITERIA		**Level 4**	**Level 3**	**Level 2**	**Level 1**	**Level 0**
		80–100%	**50–79%**	**30–49%**	**1–29%**	**0%**
Presentation	**Cover page**	Six of the following done neatly: • Name of school • Name of learner • Name of teacher • Grade • Year • Appropriate title • Appropriate illustration	Five of the following done neatly: • Name of school • Name of learner • Name of teacher • Grade • Year • Appropriate title • Appropriate illustration	Four of the following done neatly: • Name of school • Name of learner • Name of teacher • Grade • Year • Appropriate title • Appropriate illustration	Template used. Fewer than four of the following done neatly: • Name of school • Name of learner • Name of teacher • Grade • Year • Appropriate title • Appropriate illustration	Not attempted
	Level x 1	**Level 4**	**Level 3**	**Level 2**	**Level 1**	**Level 0**
	Table of contents	All the following done correctly and neatly: • Sections • Subsections • Page numbers • Page numbers correspond with content	Three of the following done correctly and neatly: • Sections • Subsections • Page numbers • Page numbers correspond with content	Two of the following done correctly and neatly: • Sections • Subsections • Page numbers • Page numbers correspond with content	One of the following done correctly and neatly: • Sections • Subsections • Page numbers • Page numbers correspond with content	Not attempted
	Level x 1	**Level 4**	**Level 3**	**Level 2**	**Level 1**	**Level 0**
	Bibliography	Four of the following sources indicated correctly and neatly: • Minimum of four books • Magazines • Pamphlets • Personal interview • Websites	Three of the following sources indicated correctly and neatly: • Minimum of three books • Magazines • Pamphlets • Personal interview • Websites	Two of the following sources indicated correctly and neatly: • Minimum of two books • Magazines • Pamphlets • Personal interview • Websites	One of the following sources indicated correctly and neatly: • Minimum of two books • Magazines • Pamphlets • Personal interview • Website	Not attempted
	Level x 1	**Level 4**	**Level 3**	**Level 2**	**Level 1**	**Level 0**

CRITERIA		Level 4	Level 3	Level 2	Level 1	Level 0
		80–100%	50–79%	30–49%	1–29%	0%
Development of a design brief	Design brief	The design brief is EXTREMELY WELL formulated and defines the situation and need extremely well.	The design brief is WELL formulated and defines the situation and need well.	The design brief is VAGUELY formulated. The situation and need are not clearly defined.	The design brief is incomplete and/or VERY VAGUELY formulated.	Not attempted
	Level x 1	Level 4	Level 3	Level 2	Level 1	Level 0
	Specifications and constraints	More than adequate detailed specifications and constraints are listed to meet the requirements of the design.	Adequate specifications and constraints are listed to meet the requirements of the design.	An incomplete list of specifications and constraints are listed to meet the requirements of the design.	VERY FEW or NO specifications and constraints are listed.	Not attempted
	Level x 1	Level 4	Level 3	Level 2	Level 1	Level 0
Investigation and analysis of information	Investigation	Information is taken from MORE than FOUR sources and is extremely relevant, logic and extremely neatly indicated.	Information is taken from FOUR different sources and is relevant, logic and neatly indicated.	Information is taken from THREE different sources and is irrelevant and indicated untidily.	Information is taken from TWO different sources and is extremely irrelevant and indicated untidily.	Not attempted
	Level x 1	Level 4	Level 3	Level 2	Level 1	Level 0
	Analysis of information	Information is more than adequate and can be used extremely well to come up with an innovative design for the need/problem identified in the design brief.	Information is adequate and can be used well to solve the need/problem identified in the design brief.	Information is too little to solve the need/problem identified in the design brief.	Very little information which is irrelevant and serves no purpose in solving the need/problem identified in the design brief.	Not attempted
	Level x 1	Level 4	Level 3	Level 2	Level 1	Level 0

CRITERIA		Level 4	Level 3	Level 2	Level 1	Level 0
		80–100%	50–79%	30–49%	1–29%	0%
Generation of design ideas	**Generation of possible solutions**	Generates THREE or MORE excellent alternative, original and innovative design ideas to address the problem or need.	Generates THREE good alternative design ideas to address the problem or need.	Generates THREE alternative design ideas to address the problem or need. Design ideas show a lack of originality and innovation to address the problem or need.	TWO or fewer design ideas are generated. There is little difference between the different design ideas to address the problem or need.	Not attempted
	Level x 1	**Level 4**	**Level 3**	**Level 2**	**Level 1**	**Level 0**
	Descriptive notes and dimensions	Outstandingly good and clearly descriptive notes and dimensions regarding the ideas are given.	Well-reasoned descriptive notes and dimensions regarding the ideas are given.	Not all notes and dimensions regarding the ideas are relevant and descriptive enough.	Very few or no notes and dimensions regarding the design ideas are given.	Not attempted
	Level x 1	**Level 4**	**Level 3**	**Level 2**	**Level 1**	**Level 0**
	Motivation of preferred choice	Justifies the preferred option with clear reference to the design brief, specifications and constraints.	Well-reasoned choice of the final design with good reference to the design brief, specifications and constraints.	Limited reasoning for the final choice of the design with little reference to the design brief, specifications and constraints.	No or very limited motivation for the final choice of the design with little or no reference to the design brief, specifications and constraints.	Not attempted
	Level x 1	**Level 4**	**Level 3**	**Level 2**	**Level 1**	**Level 0**

CRITERIA		Level 4	Level 3	Level 2	Level 1	Level 0
		80–100%	50–79%	30–49%	1–29%	0%
Communication of ideas	**Development of preferred solution**	Final solution EXTREMELY WELL communicated. A very interesting solution which indicates the looks of the end product extremely well.	Final solution WELL communicated. A very interesting solution which indicates the looks of the end product well.	Final solution SATISFACTORILY communicated. An interesting solution which indicates the looks of the end product satisfactorily.	Final solution is SCRAPPILY communicated. A solution which does not resemble the end product or which is very difficult to interpret is developed.	Not attempted
	Level x 1	**Level 4**	**Level 3**	**Level 2**	**Level 1**	**Level 0**
	Detailed sketches, descriptive notes and dimensions	More than enough sketches, descriptive notes and dimensions are developed to draw the working drawing.	Adequate sketches, descriptive notes and dimensions are developed to draw the working drawing.	Inadequate sketches, descriptive notes and dimensions are developed to draw the working drawing.	No or very few sketches, descriptive notes and dimensions are developed to draw the working drawing.	Not attempted
	Level x 1	**Level 4**	**Level 3**	**Level 2**	**Level 1**	**Level 0**
	Working procedures and timeframes	Main steps in the manufacturing are clearly set out with clear timeframes providing excellent information to make the solution.	Main steps in the manufacturing are clearly set out with clear timeframes providing adequate information to make the solution.	Main steps in the manufacturing are clearly set out with clear timeframes providing inadequate information to make the solution.	Main steps in the manufacturing are not clearly set out with no clear timeframes providing very little information to make the solution.	Not attempted
	Level x 1	**Level 4**	**Level 3**	**Level 2**	**Level 1**	**Level 0**

CRITERIA		Level 4	Level 3	Level 2	Level 1	Level 0
		80–100%	50–79%	30–49%	1–29%	0%
Tools and equipment to build the actual extension	List of hand and power tools	MORE than ADEQUATE hand and power tools are correctly indicated in an orderly manner extremely neat under different headings.	ADEQUATE hand and power tools are correctly indicated in an orderly and neat manner under different headings.	FEWER than ADEQUATE hand and power tools are satisfactorily indicated in an orderly and neat manner under different headings.	EXTREMELY FEW hand and power tools are indicated in an untidy manner without different headings.	Not attempted
	Level x 1	Level 4	Level 3	Level 2	Level 1	Level 0
	List of equipment	MORE than ADEQUATE equipment items are correctly indicated in an orderly manner extremely neat under different headings.	ADEQUATE equipment items are correctly indicated in an orderly and neat manner under different headings.	FEWER than ADEQUATE equipment items are satisfactorily indicated in an orderly and neat manner under different headings.	EXTREMELY FEW equipment items are indicated in an untidy manner without different headings.	Not attempted
	Level x 1	Level 4	Level 3	Level 2	Level 1	Level 0
Calculation of quantities	Dimensions used	ALL the dimensions used to do the calculations are consistent with information provided.	A FEW of the dimensions used to do the calculations do not correlate with information provided.	MANY of the dimensions used to do the calculations do not correlate with information provided.	NONE of the dimensions used to do the calculations correlate with information provided.	Not attempted
	Level x 1	Level 4	Level 3	Level 2	Level 1	Level 0
	Use of dimension paper	Excellent understanding of the use of the dimension paper method to calculate the number of bricks for the walls, the beam filling and the concrete is demonstrated.	Good understanding of the use of the dimension paper method to calculate the number of bricks for the walls, the beam filling and the concrete is demonstrated.	A reasonable understanding of the use of the dimension paper method to calculate the number of bricks for the walls, the beam filling and the concrete is demonstrated.	No understanding of the use of the dimension paper method to calculate the number of bricks for the walls, the beam filling and the concrete is demonstrated.	Not attempted
	Level x 1	Level 4	Level 3	Level 2	Level 1	Level 0
	Correctness of answers and neatness of paper	All the answers are correct and are provided with units. Calculations are done extremely neatly.	The majority of the answers are correct and are provided with units. Calculations are done neatly.	A few of the answers are correct and are provided with units. Calculations are done reasonably neatly.	None of the answers are correct and no units are provided. Calculations shown are untidy.	Not attempted
	Level x 1	Level 4	Level 3	Level 2	Level 1	Level 0

CRITERIA		Level 4	Level 3	Level 2	Level 1	Level 0
		80–100%	50–79%	30–49%	1–29%	0%
Evaluation of product or model	Evaluation of product or model	Evaluate the product or model EXTREMELY COMPLETELY and comprehensively against ALL of the following: • The design brief, specifications and constraints • The user- and cost-effectiveness • The procedures, techniques and processes to indicate possible improvements • The appropriateness of the materials used	Evaluate the product or model COMPLETELY and comprehensively against THREE of the following: • The design brief, specifications and constraints • The user- and cost-effectiveness • The procedures, techniques and processes to indicate possible improvements • The appropriateness of the materials used	Evaluate the product or model SUPERFICIALLY against TWO of following: • The design brief, specifications and constraints • The user- and cost-effectiveness • The procedures, techniques and processes to indicate possible improvements • The appropriateness of the materials used	Shows LITTLE or NO evidence of an evaluation of the product or model against: • The design brief, specifications and constraints • The user- and cost-effectiveness • The procedures, techniques and processes to indicate possible improvements • The appropriateness of the materials used	Not attempted
	Level x 1	Level 4	Level 3	Level 2	Level 1	Level 0
Adherence to deadlines	Adherence to deadlines	Design portfolio submitted BEFORE or ON due date.	Design portfolio submitted ONE to THREE days late.	Design portfolio submitted FOUR to SIX days late.	Design portfolio submitted later than SEVEN or MORE days.	Not attempted
	Level x 1	Level 4	Level 3	Level 2	Level 1	Level 0

The assessment tools below will be used to assess the working drawings of your PAT. Use these instruments as a checklist to assist you with the completion of your PAT.

3.3.2 **Recording sheet for the design portfolio**
Assess all the components indicated below.

Learner name: _____ **Grade:12**_____

Place this recording sheet in the design portfolio of the learner

TERM 1					
Assessment criteria	**Design process**	**Submission date**	**Level**	**Level obtained**	**Total mark per section**
Development of design brief	Design brief		4		
	Specifications and constraints		4		
Investigation and analysis of information	Investigation by means of different sources		4		
	Analysis of information		4		
Generation of design ideas	Generation of possible solutions		4		
	Descriptive notes and dimensions		4		
	Motivation of the preferred option		4		
Communication of ideas	Development of the preferred solution		4		
	Detailed sketches, descriptive notes and dimensions		4		
	Working procedures and timeframes		4		
List of tools, equipment and materials	List of hand and power tools		4		
	List of equipment		4		
Calculation of quantities	Correct dimensions used		4		
	Use of dimension paper		4		
	Correctness of answers and neatness		4		
				Total for TERM 1 out of 60:	
				Converted total for TERM 1 out of 25:	
TERM 3					
Evaluation of product	Evaluate the scale model by means of questions against the set criteria		4		
Presentation	Cover page		4		
	Table of content		4		
	Bibliography		4		
Adherence to deadlines	Final submission of design portfolio		4		
				Total for TERM 3 out of 20:	
				Grand total of design portfolio out of 80:	
				Converted total out of 25:	

3.3.3 **Marking memorandum for the working drawings**
Assess all the components indicated below.

Learner's name: _____ Grade: 12_____

SCALE DRAWINGS	TERM 2 ASSESSMENT CRITERIA	MARK ALLOCATION			LEARNER MARK
		Good	Average	Poor/ Not done	
FLOOR PLAN OF GROUND FLOOR	Correctness of: outside and inside walls; position and correct drawing symbols for doors, windows and staircase	8–10	4–7	0–3	
	Drawing symbols for the kitchen: built-in kitchen cupboards; single-bowl sink; modern electrical appliances	4–5	2–3	0–1	
	Electrical drawing symbols: fluorescent lights; wall-mounted light; ceiling lights; switch socket outlets; light switches	4–5	2–3	0–1	
	Drawing symbols and abbreviations for bathroom: washbasin; water closet; shower; bath	3–4	2	0–1	
	Correct dimensioning – three horizontal and three vertical	4–5	2–3	0–1	
	Accuracy of scale	3	2	0–	
	Labels (at least six)	3–4	2	0–1	
	Title and scale	2	1	0	
	Neatness and line quality	2	1	0	
	SUBTOTAL	**40**			
FLOOR PLAN OF FIRST FLOOR	Correctness of: outside and inside walls; position and correct drawing symbols of doors, windows, built-in cupboards in bedroom and staircase	5–6	2–4	0–1	
	Electrical drawing symbols: ceiling lights; switch socket outlets; light switches	3–4	2	0–	
	Drawing symbols and abbreviations for bathroom: washbasin; water-closet; shower; bath	3–4	2	0–1	
	Correct dimensioning – three horizontal and three vertical	3–4	2	0–1	
	Correct colour coding used on first-floor plan	2	1	0	
	Accuracy of scale	3	2	0–1	
	Labels (at least six)	3	2	0–1	
	Title and scale	2	1	0	
	Neatness and line quality	2	1	0	
	SUBTOTAL	**30**			
VERTICAL SECTION OF EXISTING DWELLING BEFORE ALTERATIONS	Correctness of substructure: foundation; foundation wall; back filling; undisturbed earth; hardcore filling; DPC; floor slab; screed	8–10	4–7	0–3	
	Correctness of superstructure: walls; beam filling; window	4–5	2–3	0–1	
	Roof construction: wall plate, tie beam, rafter, king post, struts, purlins; roof covering; fascia board; gutter and down pipe	8–0	4–7	0–3	
	Correct colour coding used on vertical section	4–5	2–3	0–1	
	Accuracy of scale	3	2	0–1	
	Labels with dimensions (at least six)	3	2	0–1	
	Title and scale	2	1	0	
	Neatness and line quality	2	1	0	
	SUBTOTAL	**40**			

SCALE DRAWINGS	TERM 2 ASSESSMENT CRITERIA	MARK ALLOCATION			LEARNER MARK
		Good	Average	Poor/ Not done	
SECTIONAL VIEW THROUGH THE RIB AND BLOCK FLOOR	Service conduits	2	1	0	
	Screed for floor	2	1	0	
	Skirting and quadrant	2	1	0	
	Supporting walls above and below rib and block floor	4–5	2–3	0–1	
	Recess in walls to house ribs	3	2	0–1	
	Ribs	3–4	2	0–1	
	Hollow blocks	3–4	2	0–1	
	Reinforcement	2	1	0	
	Concrete	2	1	0	
	Formwork/Support of floor during construction (Bearer, adjustable prop and sole piece) x 2	4–5	2–3	0–1	
	Labels with dimensions (at least three)	3	2	0–1	
	Correct colour coding used on sectional view	2	1	0	
	Accuracy of scale	2	1	0	
	Print title and scale	2	1	0	
	SUBTOTAL:	**40**			
	TOTAL:	**150**			
	CONVERT TO:	**25**			

3.3.4 **Rubric for assessment of the final product/model**

NOTE: 'Not presented' or 'Not attempted' will receive a 0 (zero) mark.

CRITERIA		**Level 4**	**Level 3**	**Level 2**	**Level 1**	**Level 0**
		80–100%	**50–79%**	**30–49%**	**1–29%**	**0%**
Manufacturing and joining competency for:	**Supporting walls, floor with reinforcing and conduits**	Demonstrate an OUTSTANDING HIGH LEVEL of skill and competence to correctly manufacture and join these parts of the model.	Demonstrate a HIGH LEVEL of skill and competence to correctly manufacture and join these parts of the model.	Demonstrate a SATISFACTORY LEVEL of skill and competence to correctly manufacture and join these parts of the model.	Demonstrate an UNACCEPTABLE LEVEL of skill and competence to correctly manufacture and join these parts of the model.	Not attempted
	Level x 1	**Level 4**	**Level 3**	**Level 2**	**Level 1**	**Level 0**
	Supporting formwork under the ribs and blocks	Demonstrate an OUTSTANDING HIGH LEVEL of skill and competence to correctly manufacture and join the parts of the supporting formwork.	Demonstrate a HIGH LEVEL of skill and competence to correctly manufacture and join the parts of the supporting formwork.	Demonstrate a SATISFACTORY LEVEL of skill and competence to correctly manufacture and join the parts of the supporting formwork.	Demonstrate an UNACCEPTABLE LEVEL of skill and competence to correctly manufacture and join the parts of the supporting formwork.	Not attempted
	Level x 1	**Level 4**	**Level 3**	**Level 2**	**Level 1**	**Level 0**
	Formwork around the opening of the staircase	Demonstrate an OUTSTANDING HIGH LEVEL of skill and competence to correctly manufacture and join the parts of the formwork around the opening of the staircase.	Demonstrate a HIGH LEVEL of skill and competence to correctly manufacture and join the parts of the formwork around the opening of the staircase.	Demonstrate a SATISFACTORY LEVEL of skill and competence to correctly manufacture and join the parts of the formwork around the opening of the staircase.	Demonstrate an UNACCEPTABLE LEVEL of skill and competence to correctly manufacture and join the parts of the formwork around the opening of the staircase.	Not attempted
	Level x 1	**Level 4**	**Level 3**	**Level 2**	**Level 1**	**Level 0**
	Staircase from ground to first floor	Demonstrate an OUTSTANDING HIGH LEVEL of skill and competence to correctly manufacture and join the parts of the staircase.	Demonstrate a HIGH LEVEL of skill and competence to correctly manufacture and join the parts of the staircase.	Demonstrate a SATISFACTORY LEVEL of skill and competence to correctly manufacture and join the parts of the staircase.	Demonstrate an UNACCEPTABLE LEVEL of skill and competence to correctly manufacture and join the parts of the staircase.	Not attempted
	Level x 1	**Level 4**	**Level 3**	**Level 2**	**Level 1**	**Level 0**
	Half of rib and block floor covered with concrete and other half uncovered to show other material used	Demonstrate an OUTSTANDING HIGH LEVEL of skill and competence to correctly manufacture and cast the concrete on one half of the rib and block floor.	Demonstrate a HIGH LEVEL of skill and competence to correctly manufacture and cast the concrete on one half of the rib and block floor.	Demonstrate a SATISFACTORY LEVEL of skill and competence to correctly manufacture and cast the concrete on one half of the rib and block floor.	Demonstrate an UNACCEPTABLE LEVEL of skill and competence to correctly manufacture and cast the concrete on one half of the rib and block floor.	Not attempted
	Level x 1	**Level 4**	**Level 3**	**Level 2**	**Level 1**	**Level 0**

CRITERIA		Level 4	Level 3	Level 2	Level 1	Level 0
		80–100%	50–79%	30–49%	1–29%	0%
Modelling of product/model	**Scale model**	The scale model is an EXCEPTIONALLY GOOD representation of the real product and all parts are in VERY GOOD proportion.	The scale model is a GOOD representation of the real product and most of the parts are in GOOD proportion.	The scale model is a SATISFACTORY representation of the real product and most of the parts are in ACCEPTABLE proportion.	The scale model is a POOR representation of the real product and most of the parts are in POOR proportion.	Not attempted
	Level x 1	**Level 4**	**Level 3**	**Level 2**	**Level 1**	**Level 0**
	Appearance	Appearance is EXCEPTIONALLY impressive with NO easily observable defects.	Appearance is IMPRESSIVE with VERY MINOR easily observable defects.	Appearance is ACCEPTABLE with MINOR easily observable defects.	Appearance is UNACCEPTABLE with MANY easily observable defects in an incomplete model.	Not attempted
	Level x 1	**Level 4**	**Level 3**	**Level 2**	**Level 1**	**Level 0**
	Craftsmanship	Craftsmanship of OUTSTANDING HIGH quality is observed.	Craftsmanship of HIGH quality is observed.	Craftsmanship of SATISFACTORY quality is observed.	Craftsmanship of POOR quality is observed.	Not attempted
	Level x 1	**Level 4**	**Level 3**	**Level 2**	**Level 1**	**Level 0**
	Surface finishing	The surface finishing is of an OUTSTANDING HIGH quality with no obvious defects.	The surface finishing is of HIGH quality with VERY FEW obvious defects.	The surface finishing is of SATISFACTORY quality with EASILY observable defects.	The surface finishing is of POOR quality with MANY easily observable defects.	Not attempted
	Level x 1	**Level 4**	**Level 3**	**Level 2**	**Level 1**	**Level 0**
	Innovation and creativity	The modelled product shows OUTSTANDING HIGH AND EXCEPTIONALLY IMPRESSIVE proof of innovation and creativity.	The modelled product shows GOOD AND IMPRESSIVE proof of innovation and creativity.	The modelled product shows LITTLE proof of innovation and creativity.	The modelled product shows NO or VERY LITTLE proof of innovation and creativity.	Not attempted
	Level x 1	**Level 4**	**Level 3**	**Level 2**	**Level 1**	**Level 0**

3.4 Examples of Mark Sheets

3.4.1 MARK SHEET FOR THE DESIGN PORTFOLIO

MARK SHEET FOR THE DESIGN PORTFOLIO													
NAME OF LEARNER		CRITERIA											
		Presentation	Development of design brief	Investigation and analysis information	Generation of design ideas	Communication of ideas	List of tools, equipment and materials	Calculations of quantities	Evaluation of product or model	Adherence to deadlines	TOTAL: 60 (15 x 4)	TOTAL: 100%	TOTAL: 25
		12	8	8	12	12	8	12	4	4	80	100	25
1.													
2.													
3.													
4.													
5.													
6.													
7.													
8.													
9.													
10.													
									TOTAL MARKS ON THIS PAGE				
									GROUP AVERAGE				

3.4.2 **MARK SHEET FOR WORKING DRAWINGS**

MARK SHEET FOR THE WORKING DRAWINGS OF FLOOR PLANS, VERTICAL SECTION OF DWELLING AND SECTIONAL VIEW OF THE RIB AND BLOCK FLOOR									
	NAME OF LEARNER		CRITERIA						
			FLOOR PLAN OF GROUND FLOOR	FLOOR PLAN OF FIRST FLOOR	VERTICAL SECTION OF DWELLING	SECTIONAL VIEW OF RIB AND BLOCK FLOOR	TOTAL: 100	TOTAL: 100 %	TOTAL: 25
			40	30	40	40	150	100	25
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
							TOTAL MARKS ON THIS PAGE		
							GROUP AVERAGE		

_____ _____

Signature (Teacher) Date

_____ _____

Signature (Moderator) Date

SCHOOL STAMP

3.4.3 **MARK SHEET FOR THE FINAL PRODUCT/MODEL**

MARK SHEET FOR THE FINAL PRODUCT/MODEL														
NAME OF LEARNER		CRITERIA												
		Manufacturing and joining of:					Modelling of the model/product					TOTAL: 40 (10 x 4)	TOTAL: 100%	TOTAL: 50
		Walls, floors with reinforcing and conduits	Formwork under the ribs and blocks	Formwork around the opening of staircase	Staircase from ground to first floor	Rib and block floor covered with concrete	Scale model	Appearance	Craftsman-ship	Surface finishing	Innovation and creativity			
		4	4	4	4	4	4	4	4	4	4	40	100	50
1.														
2.														
3.														
4.														
5.														
6.														
7.														
8.														
9.														
10.														

_____ _____

Signature (Teacher) Date

SCHOOL STAMP

_____ _____

Signature (Moderator) Date

3.4.4 **COMPOSITE MARK SHEET**

COMPOSITE MARK SHEET						
PARTICULARS OF LEARNER			DESIGN PORTFOLIO	FINAL PRODUCT		TOTAL
				WORKING DRAWINGS	MODEL	
No.	EXAMINATION NUMBER	FULL NAME	25	25	50	100
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
			TOTAL MARKS ON THIS PAGE			
			GROUP AVERAGE (LAST PAGE)			

Signature (Teacher) Date

Signature (Moderator) Date

SCHOOL STAMP

3.5 **Absence/Non-submission of task (What are the consequences?)**

The absence of a Practical Assessment Task will be dealt with in accordance with the regulations as stipulated in the *National Policy on Protocol for Assessment Grades R–12*, page 6, chapter 3, paragraphs 7 and 8.

The *National Protocol for Assessment Grades R–12*, chapter 3, paragraph 8, subsection (4) clearly states that the absence of a Practical Assessment Task mark will result in the candidate, registered for that particular subject, receiving an incomplete result.

3.6 **Requirements for presentation**

The following should be presented by the candidate for assessment and moderation:

- A complete design portfolio
- All scale drawings
- A completed model
- The candidate's name and class must be clearly indicated on all components of the PAT

The following documents should be presented by the teacher for moderation:

- Mark sheets for the design portfolio indicating all candidates' marks (one composite mark sheet comprising all candidates' names and marks for the particular aspect that was assessed)
- Mark sheets for the working drawings of floor plans, vertical section of dwelling and sectional view of the rib and block floor (one composite mark sheet comprising all candidates' names and marks for the particular aspect that was assessed)
- Mark sheet for the final product/model (one composite mark sheet comprising all candidates' names and marks for the particular aspect that was assessed)
- A composite mark sheet (one composite mark sheet comprising all candidates' names and marks for all aspects that was assessed)

3.7 **Recommended timeframes for the completion of the PAT**

Term 1:

Design portfolio

- Problem statement/Situation
- Design brief
- Research
- Generate THREE ideas to address the problem/situation
- Develop the chosen idea/choice
- Planning – show stages and timeframes for the making and planning of the scale model of the garage and the rib and block floor
- List of tools and equipment needed to build the walls, rib and block floor and staircase and plumbing requirements for the extension to the house
- Calculation of the number of bricks required for the extension to the house (only the external walls), the volume of concrete needed for the floor slab as well as the quantities of cement, stone and sand if the mixing proportion is 1 **:** 2 **:** 4
- Use the dimension paper (ANNEXURE A) for the calculations.

Term 2:

Working drawings

- All drawings as indicated on the marking memorandum.
- **NOTE:** Use the criteria on the marking memo for drawings as a guide when preparing your drawings.

Product/Model

- Manufacturing and assembling of parts

Design portfolio

- Changes which occur during the manufacturing of the product should be documented in the design portfolio.

Term 3:

Design portfolio

- Cover page
- Table of contents
- Declaration of authenticity
- Evaluation of the product
- Bibliography/List of references

Product/model

- Manufacturing and final assembling of parts

3.8 **Declaration of Authenticity**

NAME OF THE SCHOOL: .....

NAME OF LEARNER: .....

NAME OF TEACHER: .....

SCHOOL STAMP

I hereby declare that the Practical Assessment Task submitted for assessment is my own, original work and has not been submitted for moderation previously.

_____ _____

SIGNATURE OF LEARNER **DATE**

As far as I know, the above declaration by the candidate is true and I accept that the work offered is his or her own.

_____ _____

SIGNATURE OF TEACHER **DATE**

SECTION 4

4. LIST OF RESOURCES

4.1 Textbooks
4.2 Pamphlets/Brochures
4.3 Internet
4.4 Visit to industry where rib and block floors are being/were installed
4.5 Visit to hardware stores
4.6 Basic electrical machines for cutting and drilling material
4.7 Basic hand tools
4.8 Timber/Polystyrene
4.9 River sand
4.10 Cement
4.11 Water
4.12 Mesh
4.13 Tubes for conduits
4.14 Hardware

The candidate is at liberty to use any material(s) that may assist him/her in the making of the model and he/she may use any method to obtain information for the design portfolio.

HOW TO COMPILE A BIBLIOGRAPHY/LIST OF REFERENCES

Common tips
All sources have to be arranged alphabetically.
Note where the full stops (.), commas (,), colons (:), etc. are placed when writing down the source.
Titles are always underlined if handwritten and in italics/cursive when typed.

Book with one author:
Surname, Initials or Name. Year. Title. Place: Publisher.
Example: Barker, BJ. 1993. *The South African Book of House Plans*. Cape Town: Struik Publishers.

Magazine article:
Surname of journalist, Name or Initials. Year of publication. Heading, name of magazine: date, page references.
Example: Blockey, ZP. 2014. *'*Solving rib and block problems'*. Building Miracles*: 10 January 2014, pages 45–59.

Newspaper report:
Surname of journalist, Name or Initials. Year of publication. Newspaper heading, name of newspaper and date: page references.
Example: Meranti, A. 2014. 'New building material for houses'. *Housing Today*: 14 January 2014, page 4.

Personal interviews:
Surname of interviewee, Name or Initials. Job description, Name of institution. Subject of interview, date of interview, contact number, city or town.
Example: Isando, P. Civil Technology Teacher, Foundation Secondary School. *Compilation of a design portfolio*, 4 February 2015, 061 357 9631. Beam Filling Heights.

Website:
Title, Website <electronic address> [date downloaded].
Example: *Free house plans* <http://eziniearticles.com> [15 February 2015].

SECTION 5

5. CONCLUSION

On completion of the practical assessment task learners should be able to demonstrate their understanding of the industry, enhance their knowledge, skills, values and reasoning abilities as well as establish connections to life outside the classroom and address real world challenges. The PAT furthermore develops learner's life skills and provides opportunities for learners to engage in their own learning.

ANNEXURE A: DIMENSION PAPER

A	B	C	D