basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

CIVIL TECHNOLOGY

GUIDELINES FOR PRACTICAL ASSESSMENT TASKS

2014

These guidelines consist of 27 pages and an annexure.

TABLE OF CONTENTS

This document consists of five sections:

SECTION A

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

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 makes use of the technological process to guide the learner on which steps 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 building environment.

The Practical Assessment Task consists of three components: the design portfolio and working drawings which each counts 25% of the PAT and the model which counts 50% of the PAT.

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.

i. 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.
ii. At this phase the teacher will do/complete the final and any outstanding assessment. All design portfolios, working drawings and models must be kept safely until the moderation process is completed (both Provincial and National moderation).
iii. **The internal moderator/HOD must conduct moderation of the PAT throughout the year.**
iv. It is imperative that the criteria are adhered to from the beginning, as this will form the basis for assessment.
v. Teachers cannot penalize learners on points, which are not included in the initial criteria.
vi. Upon selection, learners may be required to showcase skills and knowledge during moderation (face moderation).

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

Every teacher must design a pacesetter to indicate the completion dates for the different stages of the PAT, and manage this process in order 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.

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 different phases of the PAT. In this manner learners can assess their progress. Instances where formal assessment tasks take place, it is the responsibility of the teacher to administer assessment of the tasks.

After studying the guidelines teachers must explain in full/detail the requirements of the different stages of the PAT as well as the criteria as indicated in the rubrics and mark schedules. 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 B, the learner task 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.

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.

4.1 Assessment

Frequent developmental feedback is needed to guide and give support to the learner in ensuring 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 will be recorded.

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

4.2 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, principles of operation and also request the learner to exhibit the skills acquired through the capability tasks for moderation purposes. The sequence of events according to the technological process may also be requested from the learner.

SECTION B

INSTRUCTIONS TO THE LEARNER

Department of Basic Education

Grade 12 National Senior Certificate

2014 Practical Assessment Task

Time Allowed: 1st – 3rd term

Learner's name: _____

Instructions to the learner:

- This practical assessment task counts 25% (100) of your final promotion mark (400).
- All work produced by you must be your own effort.
- All sources used must be acknowledged.
- Use your own discretion where dimensions and/or details have been omitted.
- 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 by using CAD. No photo copies or scanned information of drawings will be allowed.
- Photos are allowed and can be in colour or grey scale. Scanned photos are allowed.
- SI units should be used.
- You are encouraged to use recycled materials.
- Changes during simulation of the product should be documented and included in the design portfolio.
- The learner's assignment and assessment instruments should be placed at the back of the design portfolio.
- The learner memorandum for the working drawings must be placed with the working drawings.
- Where available learners may use electronic equipment, e.g. cell phones, cameras, digital cameras, etc. to document their progress.
- **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.**

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's PAT consists of ONE scenario with three options. Choose any ONE of the three options to develop your PAT.

Example of a timeframe for the completion of the PAT

Term one:
Design portfolio

- Problem statement/Situation
- Design brief
- Research
- Generate ideas to address the problem/situation
- Develop the chosen idea/choice
- Planning
- List of materials needed to:
  - **Option one:**
    Build the actual dry wall that is installed between the bathroom and bedroom, including the door.
  - **Option two:**
    Make the actual roof with the roof covering
  - **Option three:**
    Make a working model of a low-pressure solar geyser for the bathroom.
- List of tools and equipment needed to:
  - **Option one:**
    Build the actual dry wall that is installed between the bathroom and bedroom including the door.
  - **Option two:**
    Make the actual roof with the roof covering
  - **Option three:**
    Make a working model of a low-pressure solar geyser for the bathroom.
- **Options one, two and three:**
  Use dimension paper (ANNEXURE A) to calculate the length of the cornice and cover strips as well as the number of ceiling boards required for the bathroom.

Term two:
Working drawings

- All drawings as indicated on the memorandum for option ONE, TWO or THREE.
- **NOTE:** use the criteria on the marking memo for option 1, 2 and 3 as a guide when preparing your drawings.

Product/model

- Manufacturing and assembling of parts

Design portfolio

- Documentation of changes in the design portfolio which occur during the manufacturing of the product

Term three:
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

SCENARIO

A house with internal measurements of 10 000 mm by 6 000 mm has been built years ago without a bathroom. The house consists of a bedroom and an open-plan kitchen with a lounge. The new owner wants to construct a bathroom (en suite) inside the bedroom. The wall between the bedroom and the bathroom will be a dry wall construction with a door. The building has a roof with a hipped end on the left-hand side and a gabled end on the right-hand side. The hipped and gable ends of the roof is on the shorter walls of the building. Hot water supply will be obtained from a solar geyser which will be mounted on the roof.

1. SPECIFICATIONS

- The inside measurements of the bedroom that must be divided to include the bathroom is 6 000 mm by 5 000 mm.
- The floor area of the bathroom is 12 m^2.
- Two windows should be installed in the bathroom.
- The bathroom must be fitted with the following:
  - Shower
  - Wash basin
  - Water closet
  - Bath
  - A built-in cupboard for toiletries and towels

2. INSTRUCTIONS

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

- Generate at least THREE ideas of the complete house to show the location of the bedroom with the bathroom which will solve the problem/situation by using sketches with explanatory notes.

Option one:

- Choose ONE of the three ideas and develop the chosen idea by drawing a detailed floor plan of the bedroom with the bathroom showing the dry wall and part of the house.
- Show the stages and time frames for the making of the simulated bedroom and bathroom with the dry wall as well as part of the house.
- List the tools, equipment and materials needed to build the actual dry wall that is installed between the bathroom and bedroom including a door.

Option two:

- Choose ONE of the three ideas and develop for the chosen idea the layout of the roof as well as detailed drawings showing all roof detail.
- Show the stages and time frames for the making of the simulated complete roof with roof covering on one half of the roof.
- List the tools, equipment and materials needed to make the actual roof with roof covering on one half of the roof.

Option three:

- Choose ONE of the three ideas and develop for the chosen idea a solar hot water system as well as detailed drawings of the solar geyser.
- Show the stages and time frames for the making of the simulated working model of a low pressure solar geyser for the bathroom.
- List the tools, equipment and materials needed to make a scale model of a working low pressure solar geyser.

Option one, two and three:

- Calculation of the length of the cornice and cover strips as well as the number of ceiling boards required for the bathroom. Use dimension paper (BYLAE A) for the calculations.
- Evaluation of the product.
- Bibliography/List of references.
- Evidence of research: e.g. letters received quotation of costs, Internet research, etc.
- Learner's assignment and assessment instruments for the design portfolio, working drawings and product/model.

2.2 Draw the final working drawings for the option chosen by you.

OPTION 1: Bedroom with bathroom and dry-wall construction

Design and draw to a suitable scale:

(A) The floor plan of the bedroom and bathroom with dry wall and part of the rest of the house. The bedroom has a built-in cupboard. The bathroom has the following facilities:

- Shower
- Wash basin
- Water closet
- Bath
- A built-in cupboard for toiletries and towels
  (Refer to memorandum as guide for your drawings.)

AND

(B) A site plan showing the house, sewerage layout and the roof. The sewerage connection at the street and all other relevant information that should appear on a site plan should be shown.
(Refer to memorandum as guide for your drawings)

(Use the correct colour coding as prescribed by the National Building Regulations/SANS 10 400 for the colouring of A and B)

AND

(C) A front view of the dry wall showing the door opening, construction detail and part of the cladding. Part of the cornice, skirting board and quadrant should also be shown. Use dashed lines to show hidden details behind the cladding.
(Refer to memorandum as guide for your drawings.)

AND MAKE

(D) A scale model of the bedroom and bathroom with the dry wall as well as part of the rest of the house.

The scale model must include the following:

- The walls, windows, doors and floor covering of the bedroom and bathroom.
- The built-in cupboard in the bedroom.
- The shower, wash hand basin, water closet, bath and built-in cupboard in the bathroom.
- Dry wall with door.
- Cladding of the dry wall on the inside of the bedroom.
- A method showing how the joints of the cladding material, e.g. gypsum board are concealed.
- The skirting and quadrant in the bedroom.

NOTE: No roof or ceilings must be shown.

OPTION 2: Roof layout

Design and draw to a suitable scale:

(A) The floor plan of the bedroom and bathroom with dry wall and part of the rest of the house. The bedroom has a built-in cupboard.
The bathroom has the following facilities:

- Shower
- Wash basin
- Water closet
- Bath
- A built-in cupboard for toiletries and towels

(Refer to memorandum as guide for your drawings.)

AND

(B) A site plan showing the house, sewerage lay out and the roof. The sewerage connection at the street and all other relevant information that should appear on a site plan should be shown.
(Refer to memorandum as guide for your drawings.)
(Use the correct colour coding as prescribed by the National Building Regulations/SANS 10 400 for the colouring of A and B.)

AND

(C) A line diagram of the top view showing the layout of the roof trusses for the building. The inside measurements of the building are 10 000 mm by 6 000 mm. The building has a roof with a hipped end on the left-hand side and a gabled end on the right-hand side. The hipped and gable end of the roof is on the shorter walls of the building. The eaves overhang is 500 mm and the verge overhang is 300 mm.
(Refer to memorandum as guide for your drawings)

AND MAKE

(D) A scale model of the complete layout of the roof.

The scale model must include the following:

- Part of the load bearing walls to carry the roof structure
- The wall plates
- The roof trusses with purlins or battens
- Beam filling
- Fascia boards and barge boards
- Roof covering only on one half of the roof so that the roof construction details are visible on the other half of the roof.
- Hip ridge plate at one corner

OPTION 3: Solar geyser

Design and draw to a suitable scale:

(A) The floor plan of the bedroom and bathroom with dry wall and part of the rest of the house. The bedroom has a built-in cupboard.
The bathroom has the following facilities:

- Shower
- Wash basin
- Water closet
- Bath
- A built-in cupboard for toiletries and towels

(Refer to memorandum as guide for your drawings.)

AND

(B) A site plan showing the house, sewerage lay out and the roof. The sewerage connection at the street and all other relevant information that should appear on a site plan should be shown.
(Refer to memorandum as guide for your drawings)
(Use the correct colour coding as prescribed by the National Building Regulations/SANS 10 400 for the colouring of A and B.)

AND

(C) A line diagram of the layout of a solar hot water system showing the solar geyser/storage tank, electrical geyser, valves and pipe work for the house.

AND MAKE

(D) A scale model of a low-pressure solar geyser for the bathroom and kitchen. The scale model of the solar geyser must be made so that hot water can be delivered. The latest technology of solar geysers must be applied in the design and making of the model. All installations must comply with SANS requirements.

The scale model must include:

- A storage tank
- A drip tray
- A sun collector
- All the relevant piping
- All pressure control and safety valves

NOTE:

All learners must draw the floor plan of the proposed bathroom and bedroom and part of the house as well as the complete site plan.

Use the criteria in the memorandum for the chosen option 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 Regulation) and SANS/SABS 0143, Code of Practice for building drawings.

SECTION C
ASSESSMENT TOOLS

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.

1. Memorandum for the working drawings of the bedroom with bathroom and dry wall construction with part of the house (Option ONE).

Assess all the components indicated below.

Learner name: _____

SCALE DRAWINGS	CRITERIA	MARK ALLOCATION			LEARNER MARK
		Good	Average	Poor/ Not done	
FLOOR PLAN OF BEDROOM, BATHROOM AND PART OF THE HOUSE	Wall thickness correctly drawn	3-4	2	0-1	
	Dry wall correctly drawn	3	2	0-1	
	Doors correctly positioned and drawn	3	2	0-1	
	Windows correctly positioned and drawn	3	2	0-1	
	Drawing symbols for built-in cupboards and North point indicated correctly	3	2	0-1	
	Drawing symbols and abbreviations for sanitary fitments (4x2)	6-8	3-5	0-2	
	Floor finish to bedroom and bathroom	2	1	0	
	Floor area of bedroom and bathroom correct according to measurements	2	1	0	
	Correct colour coding used on floor plan	2	1	0	
	Correct dimensioning (three horizontal and three vertical)	5-6	3-4	0-2	
	Application of scale/accuracy	3-4	2	0-1	
	Labels/Notes in title panel (at least six)	4-5	2-3	0-1	
	Title and scale	2	1	0	
	Neatness and line work	3	2	0-1	
SUBTOTAL		**50**			
SITE PLAN	Boundary lines and building lines	2	1	0	
	House and roof – correct placing and measurements	3	2	0-1	
	Sewerage layout with manholes	3	2	0-1	
	Site numbers and street name	2	1	0	
	Correct colour code use in site plan	2	1	0	
	Drawing symbol for North point	2	1	0	
	Correct dimensioning (all relevant measurements)	3	2	0-1	
	Application of scale/accuracy	2	1	0	
	Labels/Notes in title panel (at least six)	2	1	0	
	Title and scale	2	1	0	
	Neatness and line work	2	1	0	
SUBTOTAL		**25**			
FRONT VIEW OF DRY WALL	Top and bottom rails	2	1	0	
	Vertical rails	2	1	0	
	Intermediate rails	2	1	0	
	Construction around door opening	2	1	0	
	Cladding	2	1	0	
	Cornices, skirting and quadrant	3	2	0-1	
	Correct dimensions (at least four)	2	1	0	
	Application of scale/accuracy	2	1	0	
	Labels/Notes in title panel (at least six)	3	2	0-1	
	Title and scale	2	1	0	
	Neatness and line work	3	2	0-1	
SUBTOTAL		**25**			
TOTAL		**100**			

2. Memorandum for the working drawings of the roof layout (Option TWO)

Assess all the components indicated below.

Learner name: _____

SCALE DRAWINGS	CRITERIA	MARK ALLOCATION			LEARNER MARK
		Good	Average	Poor/ Not done	
FLOOR PLAN OF BEDROOM, BATHROOM AND PART OF THE HOUSE	Wall thickness correctly drawn	3-4	2	0-1	
	Dry wall correctly drawn	3	2	0-1	
	Doors correctly positioned and drawn	3	2	0-1	
	Windows correctly positioned and drawn	3	2	0-1	
	Drawing symbols for built-in cupboards and North point indicated correctly	3	2	0-1	
	Drawing symbols and abbreviations for sanitary fitments (4x2)	6-8	3-5	0-2	
	Floor finish to bedroom and bathroom	2	1	0	
	Floor area of bedroom and bathroom correct according to measurements	2	1	0	
	Correct colour coding used on floor plan	2	1	0	
	Correct dimensioning (three horizontal and three vertical)	5-6	3-4	0-2	
	Application of scale/accuracy	3-4	2	0-1	
	Labels/Notes in title panel (at least six)	4-5	2-3	0-1	
	Title and scale	2	1	0	
	Neatness and line work	3	2	0-1	
SUBTOTAL		**50**			
SITE PLAN	Boundary lines and building lines	2	1	0	
	House and roof – correct placing and measurements	3	2	0-1	
	Sewerage layout with manholes	3	2	0-1	
	Site numbers and street name	2	1	0	
	Correct colour code use in site plan	2	1	0	
	Drawing symbol for North point	2	1	0	
	Correct dimensioning (all relevant measurements)	3	2	0-1	
	Application of scale/accuracy	2	1	0	
	Labels/Notes in title panel (at least six)	2	1	0	
	Title and scale	2	1	0	
	Neatness and line work	2	1	0	
SUBTOTAL		**25**			
PLAN LAYOUT OF THE ROOF	Top view showing the external walls	2	1	0	
	Hipped end: half truss	2	1	0	
	Hipped end: hip rafters	2	1	0	
	Hipped end: jack rafters	2	1	0	
	Full trusses	2	1	0	
	Roof overhang on four sides	2	1	0	
	Fascia boards and barge boards	2	1	0	
	Dimensions for spacing of trusses	2	1	0	
	Application of scale/accuracy	2	1	0	
	Labels/Notes in title panel (at least eight)	3	2	0-1	
	Title and scale	2	1	0	
	Neatness and line work	2	1	0	
SUBTOTAL		**25**			
TOTAL		**100**			

3. Memorandum for the working drawings of the solar hot water system. (Option THREE).

Assess all the components indicated below.

Learner name: _____

SCALE DRAWINGS	CRITERIA	MARK ALLOCATION			LEARNER MARK
		Good	Average	Poor/ Not done	
FLOOR PLAN OF BEDROOM, BATHROOM AND PART OF THE HOUSE	Wall thickness correctly drawn	3-4	2	0-1	
	Dry wall correctly drawn	3	2	0-1	
	Doors correctly positioned and drawn	3	2	0-1	
	Windows correctly positioned and drawn	3	2	0-1	
	Drawing symbols for built-in cupboards and North point indicated correctly	3	2	0-1	
	Drawing symbols and abbreviations for sanitary fitments (4x2)	6-8	3-5	0-2	
	Floor finish to bedroom and bathroom	2	1	0	
	Floor area of bedroom and bathroom correct according to measurements	2	1	0	
	Correct colour coding used on floor plan	2	1	0	
	Correct dimensioning (three horizontal and three vertical)	5-6	3-4	0-2	
	Application of scale/accuracy	3-4	2	0-1	
	Labels/Notes in title panel (at least six)	4-5	2-3	0-1	
	Title and scale	2	1	0	
	Neatness and line work	3	2	0-1	
SUBTOTAL		**50**			
SITE PLAN	Boundary lines and building lines	2	1	0	
	House and roof – correct placing and measurements	3	2	0-1	
	Sewerage layout with manholes	3	2	0-1	
	Site numbers and street name	2	1	0	
	Correct colour code use in site plan	2	1	0	
	Drawing symbol for North point	2	1	0	
	Correct dimensioning (all relevant measurements)	3	2	0-1	
	Application of scale/accuracy	2	1	0	
	Labels/Notes in title panel (at least six)	2	1	0	
	Title and scale	2	1	0	
	Neatness and line work	2	1	0	
SUBTOTAL		**25**			
DRAWING OF THE SOLAR GEYSER SYSTEM	Roof	2	1	0	
	Location of solar geyser/collector	2	1	0	
	Electrical geyser/storage tank	2	1	0	
	Drip tray	2	1	0	
	Inlet pipe, outlet pipe and overflow pipe	3	2	0-1	
	Pressure control and safety valves.	2	1	0	
	North point	2	1	0	
	Labels/Notes in title panel (at least eight)	3-4	2	0-1	
	Application of scale/accuracy	2	1	0	
	Title and scale	2	1	0	
	Neatness and line work	2	1	0	
SUBTOTAL		**25**			
TOTAL		**100**			

4. Rubric for assessment of the design portfolio

CRITERIA	4	3	2	1
	80 -100%	**50 –79%**	**30 – 49%**	**0 – 29%**
Presentation	MORE information from the list below extremely neatly presented. Name Register class Year 20... Appropriate cover illustration Appropriate title Index All sections Page numbers References and sources	EIGHT to NINE from the list below neatly presented. Name Register class Year 20... Appropriate cover illustration Appropriate title Index All sections Page numbers References and sources	SIX to SEVEN from the list below neatly presented. Name Register class Year 20... Appropriate cover illustration Appropriate title Index All sections Page numbers References and sources	Not done. FIVE and LESS from the list below neatly presented. Name Register class Year 20... Appropriate cover illustration Appropriate title Index All sections Page numbers References and sources
Weighting in marks: Level x 1	**4**	**3**	**2**	**1**
Development of a design brief	The design brief is EXTREMELY WELL formulated and defines the situation and need extremely well. More than adequate detailed specifications and constraints are listed to meet the requirements of the design.	The design brief is WELL formulated and define the situation and need well. Adequate specifications and constraints are listed to meet the requirements of the design.	The design brief is VAGUELY formulated. The situation and need are not clearly defined. An incomplete list of specifications and constraints are listed to meet the requirements of the design.	Not done. The design brief is incomplete and/or VERY VAGUELY formulated. VERY FEW or NO specifications and constraints are listed.
Weighting in marks: Level x 1	**4**	**3**	**2**	**1**
Investigation and analysis of information	Information is taken from MORE than FOUR sources and is extremely relevant, logic and extremely neatly indicated. 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 taken from FOUR different sources and is relevant, logic and neatly indicated. Information is adequate and can be used well to solve the need/problem identified in the design brief.	Information is taken from THREE different sources and is irrelevant and untidy indicated. Information is too little to solve the need/problem identified in the design brief.	Not done. Information is taken from TWO different sources and is extremely irrelevant and untidy indicated. Information is very little and irrelevant and is of no purpose to solve the need/problem identified in the design brief.
Weighting in marks: Level x 2	**4**	**3**	**2**	**1**

CRITERIA	4	3	2	1
	80 -100%	**50 – 79%**	**30 – 49%**	**0 – 29%**
Generation of design ideas	Generates at least THREE excellent alternative, original and innovative design ideas to address the problem or need. Outstanding good and clearly descriptive notes regarding the ideas are indicated. Justify the preferred option with clear reference to the design brief, specifications and constraints.	Generates at least THREE good alternatives, design ideas to address the problem or need. Well-reasoned descriptive notes regarding the ideas are indicated. Well-reasoned choice of the final design with good reference to the design brief, specifications and constraints. .	Generates at least 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. Not all notes regarding the ideas are relevant and descriptive enough. Limited reasoning for the final choice of the design with little reference to the design brief, specifications and constraints. . .	Not done. TWO or less design ideas are generated Little differences between the different design ideas to address the problem or need. Very little or no notes regarding the design ideas are indicated. None or very little motivation for the final choice of the design with little or no reference to the design brief, specifications and constraints.
Weighting in marks: Level x 2	**4**	**3**	**2**	**1**
Communication of ideas	Final solution EXTREMELY WELL communicated. A very interesting solution which indicated extremely well the looks of the end product. More than enough sketches and dimensions are developed to draw the working drawing. Descriptive notes, working procedures and timeframes provides excellent information to make the solution.	Final solution WELL communicated. A very interesting solution which indicated well the looks of the end product. Adequate sketches and dimensions are developed to draw the working drawing. Descriptive notes, working procedures and timeframes provides adequate information to make the solution.	Final solution SATISFACTORY communicated. An interesting solution which indicated satisfactory the looks of the end product. Inadequate sketches and dimensions are developed to draw the working drawing. Descriptive notes, working procedures and timeframes provides inadequate information to make the solution.	Not done. Final solution SCRAPPY communicated. A solution which do not indicate the looks of the end product or which is very difficult to interpret is developed. No or very little sketches and dimensions are developed to draw the working drawing. Descriptive notes, working procedures and timeframes are not done or provide very little information to make the solution.
Weighting in marks: Level x 2	**4**	**3**	**2**	**1**

CRITERIA	4	3	2	1
	80 -100%	50 – 79%	30 – 49%	0 – 29%
List of tools, equipment and materials	MORE than ADEQUATE tools, equipment and materials are correctly indicated in an orderly manner extremely neat under different headings.	ADEQUATE tools, equipment and materials are correctly indicated in an orderly and neat manner under different headings.	LESS than ADEQUATE tools, equipment and materials are satisfactorily indicated in an orderly and neat manner under different headings.	Not done. EXTREMELY FEW tools, equipment and materials are indicated in an untidy manner without different headings.
Weighting in marks: Level x 2	4	3	2	1
Calculation of quantities	ALL the dimensions used to do the calculations are consistent with information provided. Excellent understanding of the use of the dimension paper to calculate quantities are demonstrated. All the answers are correct and are provided with units. Calculations are done extremely neat.	FEW of the dimensions used to do the calculations do not correlate with information provided. Good understanding of the use of the dimension paper to calculate quantities are demonstrated. The majority of the answers is correct and is provided with units. Calculations are neatly done.	MANY of the dimensions used to do the calculations do not correlate with information provided. Reasonable understanding of the use of the dimension paper to calculate quantities are demonstrated. FEW of the answers are correct and are provided with units. Calculations are reasonably neatly done.	Not done. ALL of the dimensions used to do the calculations do not correlate with information provided. Show no understanding of the use of the dimension paper to calculate quantities are demonstrated. None of the answers is correct and no units are provided. Calculations show messy.
Weighting in marks: Level x 2	4	3	2	1
Evaluation of product or model	Evaluate the product or model MORE than ADEQUATE 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.	Evaluate the product or model ADEQUATE 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.	Evaluate the product or model SUPERFICIALLY 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 done. 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.
Weighting in marks: Level x 2	4	3	2	1
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 SEVEN OR MORE days late.
Weighting in marks: Level x 1	4	3	2	1

5. Rubric for assessment of the final product/model

CRITERIA	4	3	2	1
	80 -100%	50 – 79%	30 – 49%	0 – 29%
Fitness for purpose	The product/model EXCELLENTLY fulfils the purpose for which it was designed and has an outstanding level of functionality. . It shows a very high level of innovation that is appropriate to the design brief.	The product/model ADEQUATELY fulfils the purpose for which it was designed and has an outstanding level of functionality. . It shows some innovation that is appropriate to the design brief.	The product/model SATISFACTORILY fulfils the purpose for which it was designed and has an outstanding level of functionality. . It shows limited innovation for the identified need or problem.	Not presented. The product is incomplete and DOES NOT fulfil the identified need or problem. The solution shows no innovation for the identified need or problem.
Weighting in marks: Level x 1	**4**	**3**	**2**	**1**
Manufacturing competency	Demonstrate an OUTSTANDING HIGH LEVEL of skill and competence to correctly and safely use a wide range of materials, tools, equipment and machines under supervision of the educator.	Demonstrate a HIGH LEVEL of skill and competence to correctly and safely use a range of materials, tools, equipment and machines under supervision of the educator.	Demonstrate a SATISFACTORY LEVEL of skill and competence to correctly and safely use appropriate materials, tools, equipment and machines under supervision of the educator.	Not done. Demonstrate a LACK of skill and competence to correctly and safely use appropriate materials, tools, equipment and machines under supervision of the educator. Pays little attention to safety.
Weighting in marks: Level x 2	**4**	**3**	**2**	**1**
Joining	A VERY HIGH LEVEL of skill/competence is noted in the manufacturing and joining of parts of the model.	A HIGH LEVEL of skill/competence is noted in the manufacturing and joining of parts of the model.	A SATISFACTORY LEVEL of skill/competence is noted in the manufacturing and joining of parts of the model.	Not done. An UNACCEPTABLE LEVEL of skill/competence is noted in the manufacturing and joining of parts of the model.
Weighting in marks: Level x 2	**4**	**3**	**2**	**1**

CRITERIA	4	3	2	1
	80 -100%	**50 – 79%**	**30 – 49%**	**0 – 29%**
Management of process	Shows OUTSTANDING ABILITY to adapt and modify the design when difficulties arise. Adapts procedures to minimize waste. Manage waste of material and time outstandingly well. Product completed with very little assistance from the educator.	Shows ADEQUATE ABILITY to adapt and modify the design when difficulties arise. Plan adequate to minimize waste. Manage waste of material and time well. Product completed with little assistance from the educator.	Shows SATISFACTORILY ABILITY to adapt and make use of alternative methods to proceed when difficulties arise. Plan satisfactorily to minimize waste of material. Manage time satisfactorily. Product completed with a lot of assistance from the educator.	Not done. Makes NO attempt to overcome problems. Shows no proper planning resulting in the waste of lots of material and time. Model completed with the continuous assistance from the educator.
Weighting in marks: Level x 2	**4**	**3**	**2**	**1**
Modelling of product	The scale model is an EXCEPTIONAL WELL representation of the real product. Appearance is exceptional impressive with NO easily observable defects. Craftsmanship of a very high quality is observed. The surface finishing is of an outstanding quality with no obvious defects. The modelled product shows exceptional impresive proof of innovation and creativity.	The scale model is a GOOD representation of the real product. Appearance shows very little observable defects. Craftsmanship of a high quality is observed. The surface finishing is of a good quality with a very few defects. The modelled product shows good proof of innovation and creativity.	The scale model is a SATISFACTORY representation of the real product. Appearance shows little observable defects. Craftsmanship of a satisfactory quality is observed. The surface finishing is of a satisfactory quality with easily observed defects. The modelled product shows little proof of innovation and creativity.	Not done. The scale model is a POOR representation of the real product. Product is incomplete. Appearance shows many observable defects. Craftsmanship of a poor quality is observed. No or very poor surface finishing with a many easily observed defects. The modelled product shows no or very little proof of innovation and creativity.
Weighting in marks: Level x 3	**4**	**3**	**2**	**1**

SECTION D

1. 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 previously submitted for moderation.

_____ _____

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/her own.

_____ _____

SIGNATURE OF TEACHER **DATE**

SECTION E
EXAMPLES OF MARK SHEETS

MARK SHEET FOR THE DESIGN PORTFOLIO													
NAME OF LEARNER		CRITERIA											
		Presentation	Development of design brief	Investigation and analyses 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	TOTAL: 100%	TOTAL: 25
		4	4	8	8	8	8	8	8	4	60	100	25
1.													
2.													
3.													
4.													
5.													
6.													
7.													
8.													
9.													
10.													

TOTAL MARKS ON THIS PAGE		
GROUP AVERAGE		

_____ _____
Signature of (teacher) Date

_____ _____
Signature of (Moderator) Datum

SCHOOL STAMP

MARK SHEET FOR THE WORKING DRAWINGS OF THE BATHROOM AND DRY WALL (OPTION ONE)							
NAME OF LEARNER		CRITERIA					
		FLOOR PLAN	SITE PLAN	FRONT VIEW OF DRY WALL	TOTAL: 100	TOTAL: 100 %	TOTAL: 25
		50	25	25	100	100	25
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
				TOTAL MARKS ON THIS PAGE			
				GROUP AVERAGE			

Signature of (Teacher) _____ Date _____

Signature of (Moderator) _____ Date _____

SCHOOL STAMP

MARK SHEET FOR THE WORKING DRAWINGS OF THE EN- SUITE AND ROOF LAYOUT (OPTION TWO)							
NAME OF LEARNER		CRITERIA					
		FLOOR PLAN	SITE PLAN	ROOF LAYOUT	TOTAL: 100	TOTAL: 100 %	TOTAL: 25
		50	25	25	100	100	25
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
			TOTAL MARKS ON THIS PAGE				
			GROUP AVERAGE				

_____ _____
Signature of (Teacher) Date

_____ _____
Signature of (Moderator) Date

SCHOOL STAMP

MARK SHEET FOR THE WORKING DRAWINGS OF THE EN- SUITE AND SOLAR GEYSER (OPTION THREE)							
NAME OF LEARNER		CRITERIA					
		FLOOR PLAN	SITE PLAN	SOLAR GEYSER SYSTEM	TOTAL: 100	TOTAL: 100 %	TOTAL: 25
		50	25	25	100	100	25
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
			TOTAL MARKS ON THIS PAGE				
			GROUP AVERAGE				

Signature of (Teacher) _____ Date _____

Signature of (Moderator) _____ Date _____

SCHOOL STAMP

MARK SHEET FOR THE FINAL PRODUCT/MODEL									
NAME OF LEARNER		CRITERIA							
		FITNESS FOR PURPOSE	MANUFACTURING COMPETENCY	JOINING	MANAGEMENT OF PROCESS	MODELLING THE PRODUCT	TOTAL: 40	TOTAL: 100%	TOTAL: 50
		4	8	8	8	12	40	100	50
1.									
2.									
3.									
4.									
5.									
6.									
7.									
8.									
9.									
10.									

TOTAL MARKS ON THIS PAGE	
GROUP AVERAGE	

_____ _____
Signature of (Teacher) Date

SCHOOL STAMP

_____ _____
Signature of (Moderator) Date

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.						
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10.						
			TOTAL MARKS ON THIS PAGE			
			GROUP AVERAGE (LAST PAGE)			

_____ Signature (Teacher)

_____ Date

SCHOOL STAMP

_____ Signature (Moderator)

_____ Date

ANNEXURE A

DIMENSION PAPER

A	B	C	D