South African Council for the Architectural Profession

PROFESSIONAL PRACTICE EXAMINATION
MAY 2023

PAPER 1

- Candidates are required to answer **ALL** the questions.
- Questions must be answered in **SEQUENCE**. Ensure that your answers are clearly **NUMBERED**.
- This is a **CLOSED BOOK** paper. No notes, supplementary documents or online referencing is permitted.
- All answers must be **in your OWN words** where appropriate.
- Candidates must take note of the mark allocation of each question in order to provide enough information in their answer.
- Where answers are duplicated between candidates, plagiarised, or copied, **ZERO** marks will be granted.
- Take note that duplicated, plagiarised and/or copied answers may be subject to further investigation, penalties and/or disciplinary action.

- Total marks for paper one – **150 marks**
- Pass mark – a minimum of **50%** in each of the two papers.
- Time allocation – **3 hours**

QUESTION 1 – *Definitions* *10 marks*

1.1	What is the name of the entity that is responsible for promoting and maintaining the local standards for the construction industry? (2 marks)	(2)
1.2	In your own words, provide the definition of "Continuing Professional Development (CPD)" when used in the context of a SACAP. (2 marks)	(2)
1.3	Provide the definition of a “bill of quantities” when used in the context of a building contract. (2 marks)	(2)
1.4	Provide the definition of a “**french drain**.” (2 marks)	(2)
1.5	Provide the definition of a “**habitable room.”** (2 marks)	(2)

QUESTION 2 – *Multiple Choice* *20 mark*

2.1	For which of the following two reasons could the council (SACAP) cancel the registration of a registered professional?		(4)
	Select TWO (2) from the following list *(2 mark each)*		
	A	Providing false information on your registration form	
	B	Being registered at another council	
	C	Failure to pay annual fees within 30 days from invoice	
	D	Under review for professional misconduct	
	E	Being declared insolvent for not performing your duties as an architectural professional with skill	
2.2	True or False: The council can only launch an investigation of improper conduct if someone has lodged a complaint against an architectural professional		(2)
	Select ONE (1) from the following list *(2 marks)*		
	A	True	
	B	False	
2.3	Which of the following is NOT required to form part of the written agreement that all registered persons must enter into with their client before undertaking professional work according to the Code of Conduct for Registered Persons – Board Notice 7 of 2021		(2)
	Select ONE (1) from the following list *(2 marks)*		
	A	Method of fee calculation	
	B	Allocation of limitation of responsibilities	
	C	Scope of services to be provided	
	D	Method of payment	
	E	Terms for termination of the agreement	
2.4	Which of the following institutes are not Architecture related:		(2)
	Select ONE (1) from the following list *(2 marks)*		
	A	SAID	
	B	CESA	
	C	SAIAT	
	D	SAIBD	
	E	FACE	
2.5	According to the latest South African Council for the Architectural Profession (SACAP) Guideline Professional Fees – Board Notice 307 of 2022, which TWO of the following statements does NOT apply to a project that consists of several repeated buildings built on the same site.		(4)

	Select ONE (2) from the following list *(4 marks)*		
	A	If the same design is repeated, the full fee will apply to the prototype building's design	
	B	The reduced fee is only applicable to the repeat buildings, not floors that repeat within the same building	
	C	Where the same design is repeated on a site the fee can be reduced by 35%	
	D	The fees for stages 1 to 4 will be reduced by 35% for all of the buildings	
	E	Full fees apply to stages 5 and 6 on all repeat buildings	
2.6	According to the latest South African Council for the Architectural Profession (SACAP) Guideline Professional Fees – Board Notice 307 of 2022, what percentage fee should you be charging for architectural services provided with respect to the following instances:		
	2.6.1	<u>alterations</u> to an existing building?	(2)
		Select ONE (1) from the following list *(2 marks)*	
	A	100%	
	B	120%	
	C	130%	
	D	140%	
	E	150%	
	2.6.2	<u>addition</u> to an existing building?	(2)
		Select ONE (1) from the following list *(2 marks)*	
	A	100%	
	B	120%	
	C	130%	
	D	140%	
	E	150%	
	2.6.3	<u>restoration of a heritage building</u>?	(2)
		Select ONE (1) from the following list *(2 marks)*	
	A	100%	
	B	120%	
	C	130%	
	D	140%	
	E	150%	

Mr and Mrs Nkosi, a young couple has bought a 400 square meter stand in the Jackalberry Lifestyle Estate. They contacted you to provide a quote for the design of their dream home. The plan to spend no more than R2,124,000.00 (excluding VAT and professional fees) on the construction of their home.		
3.1	Using the following extract for a medium complexity building from the current SACAP Guideline for Professional Fees (Board Notice 307 of 2022), calculate the project cost-based fees to provide the standard (full) scope of architectural services for this project based on the budget of R 2,124,000.00 *(excluding VAT and professional fees)*.	(12)
	Present your calculation by providing the information required in the following table *(mark allocations are indicated)*:	

TABLE 2: Medium Complexity

MEDIUM COMPLEXITY					
Cost Bracket	Value of works		Primary Fee	Plus, secondary fee	
	From	To		Add %	On balance over
	A	B	C	D	E
1	1.00	200 000.00	12 240.00	18.91%	1.00
2	200 001.00	650 000.00	50 067.17	18.18%	200 001.00
3	650 001.00	2 000 000.00	131 870.39	13.41%	650 001.00
4	2 000 001.00	4 000 000.00	312 886.84	11.69%	2 000 001.00
5	4 000 001.00	6 500 000.00	546 673.78	11.38%	4 000 001.00
6	6 500 001.00	13 000 000.00	831 246.74	9.88%	6 500 001.00
7	13 000 001.00	40 000 000.00	1 473 440.14	9.56%	13 000 001.00
8	40 000 001.00	130 000 000.00	4 052 809.42	9.55%	40 000 001.00
9	130 000 001.00	260 000 000.00	12 645 330.47	8.94%	130 000 001.00
10	260 000 001.00	520 000 000.00	24 255 571.57	8.73%	260 000 001.00
11	520 000 001.00	1 040 000 000.00	46 946 264.55	8.51%	520 000 001.00
12	1 040 000 001.00		91 173 895.32	7.86%	1 040 000 001.00

PROJECT COST-BASED FEES FOR ARCHITECTURAL SERVICES				mark
TOTAL FEES (excl. VAT)				*(2)*
VAT				*(1)*
TOTAL FEES (incl. VAT)				*(2)*
APPORTIONMENT OF PROJECT COST-BASED FEES FOR ARCHITECTURAL SERVICES PER WORK STAGE				
STAGE	*FEE (excl. VAT)*	*mark*	*FEE (incl. VAT)*	*mark*
1.		*(0.5)*		*(0.5)*
2.		*(0.5)*		*(0.5)*
3.		*(0.5)*		*(0.5)*
4.1.		*(0.5)*		*(0.5)*

4.2.		*(0.5)*		*(0.5)*
5.		*(0.5)*		*(0.5)*
6.		*(0.5)*		*(0.5)*

After explaining to Mr Nkosi that your fees are calculated based on the current SACAP Guideline for Professional Fees (Board Notice 307 of 2022). He obtained the fee guidelines from the SACAP website to familiarise himself with the document. He asks why the fees are calculated based on the "Medium Complexity Projects" and not "Low Complexity Project"			
3.2	In your own words explain to Mr Nkosi why the calculation is done based on the Medium and not Low complexity fee scale as per the following complexity factors Identification of work for the Architectural Profession: - Board Notice 27 of 2021 (3 marks each – 9 marks total)		
	3.2.1	Structure	(3)
	3.2.2	Urban context	(3)
	3.2.3	Building services	(3)

QUESTION 4 - *Case Study + Fee Calculation* *15 marks*

Mr Mufasa Jones has approached you to take over the architectural professional services on his Lion's Pride Hotel. Another Architecture firm, Wall-E Designs were appointed for stages 1 – 3, but do not have the capacity to complete the project. The original budget for the project was R100,350,000.00 (excluding VAT and professional fees) for the construction of his hotel, it has however increased during the design development stage to R125,550,000.00 (excluding VAT and professional fees)		
4.1	Based on the fees calculated below, indicated what your fee would be for the remaining stages 4.1 – 6. Using the following extract for a high complexity building from the current SACAP Guideline for Professional Fees (Board Notice 307 of 2022), calculate the project cost-based fees to provide architectural services for stages 4 -6 for this project based on the new budget of R 125,550,000.00 *(excluding VAT and professional fees)*. Note that you will be taking over as the new architectural professional	(10)
	Present your calculation by providing the information required in the following table *(mark allocations are indicated)*:	

8	40 000 001.00	130 000 000.00	4 715 284,00	11,12%	40 000 001.00

PROJECT COST-BASED FEES CALCULAGTED BY WALL-E DESIGNS FOR ARCHITECTURAL SERVICES BUDGET R100,350,000.00	
TOTAL FEES (excl. VAT)	R11,426,203.89
VAT	R1,713,930.58
TOTAL FEES (incl. VAT)	R13,140,134.47

APPORTIONMENT OF PROJECT COST-BASED FEES FOR ARCHITECTURAL SERVICES PER WORK STAGE			
STAGE	*FEE (excl. VAT)*		*FEE (incl. VAT)*
1	R228 524,08		R262 802,69
2	R1 713 930,58		R1 971 020,17
3	R2 285 240,78		R2 628 026,89
4.1	R1 142 620,39		R1 314 013,45
4.2.	R2 285 240,78		R2 628 026,89
5.	R3 427 861,17		R3 942 040,34
6.	R342 786,12		R394 204,03

TABLE 3: High Complexity

HIGH COMPLEXITY					
Cost Bracket	Value of works		Primary Fee	Plus, secondary fee	
	From	To		Add %	On balance over
	A	B	C	D	E
1	1.00	200 000.00	14 249,82	22,02%	1.00
2	200 001.00	650 000.00	58 288,24	21,17%	200 001.00
3	650 001.00	2 000 000.00	153 523,63	15,61%	650 001.00
4	2 000 001.00	4 000 000.00	364 263,10	13,61%	2 000 001.00
5	4 000 001.00	6 500 000.00	636 438,07	13,25%	4 000 001.00
6	6 500 001.00	13 000 000.00	967 738,13	11,51%	6 500 001.00
7	13 000 001.00	40 000 000.00	1 715 380,21	11,12%	13 000 001.00
8	40 000 001.00	130 000 000.00	4 715 284,00	11,12%	40 000 001.00
9	130 000 001.00	260 000 000.00	14 721 703,95	10,39%	130 000 001.00
10	260 000 001.00	520 000 000.00	28 238 356,02	10,16%	260 000 001.00
11	520 000 001.00	1 040 000 000.00	54 654 882,62	9,90%	520 000 001.00
12	1 040 000 001.00		106 144 722,59	9,16%	1 040 000 001.00

PROJECT COST-BASED FEES FOR YOUR ARCHITECTURAL SERVICE BUDGET: R125,550,000.00		*mark*
TOTAL PROJECT FEES (excl. VAT)		*(1)*

YOUR TOTAL FEES		*(2)*
VAT		*(1)*
TOTAL FEES (incl. VAT)		*(1)*

APPORTIONMENT OF PROJECT COST-BASED FEES FOR ARCHITECTURAL SERVICES PER WORK STAGE				
STAGE	*FEE (excl. VAT)*	*mark*	*FEE (incl. VAT)*	*mark*
4.1.		*(1)*		*(1)*
4.2.		*(0.5)*		*(0.5)*
5.		*(0.5)*		*(0.5)*
6.		*(0.5)*		*(0.5)*

	As the budget for the Lion's Pride Hotel has increased from R100,350,000.00 to R125,550,000.00 the architectural professional fees will be adjusted based on the new budget as per the SACAP Guideline for Professional Fees (Board Notice 307 of 2022)		
	4.2.1	In your own words explain to Mr Jones why the fees will be adjusted to align with the new budget.	(3)
	4.2.2	Which architectural professional or firm will be eligible to receive the additional fees that are due for stages 1-3 based on the new budget?	(2)

QUESTION 5 - *Case Study* *32 marks*

You were appointed by Mrs Sarabi Sinclair to design a twelve-bedroom lodge in a private game reserve just outside the Kruger National Park.		
You have completed stages 1 to 4a and have set a meeting with Mrs Sinclair to get her signature on the relevant council submission drawings and documents. During the meeting, the client claims that they did not sign off on the design development drawings, and that she still wanted to make changes to the design.		
5.1	Mrs Sinclair threatens to lay a complaint against you for continuing with council submission drawings without her approval. Based on the SACAP Code of Professional Conduct – Board Notice 7 of 2021, do you believe she has a valid claim? (3 marks)	(3)
5.2	In your own words describe what systems you would put in place to ensure that this kind of misunderstanding/conflict does not occur in the future? (2 marks per system – 4 marks total)	(4)

5.3	If Mrs Sinclair did sign off on the previous stages and decide to make changes to the design after Stage 3 has been completed and finalized, how would you propose charging for changes to the concept design, Stage 2? (2 marks)		(2)
Once you have resolved the issues raised by Mrs Sinclair and updated the design as per her request, you go ahead and finalize the plans for submission. You submit all the relevant drawings and documentation to the local authority.			
The local authority takes eight weeks before they give you any feedback. Part of their feedback indicates that further Environmental studies will be required before they can sign off on the proposed design. You are in the process of contacting potential environmental specialists to assist with these studies when Mrs Sinclair calls you. She is upset with the fact that her plans have not yet been approved			
5.4	Mrs Sinclair once again threatens to lay a complaint against you at SACAP for not preforming you work within a reasonable time. According to the SACAP Code of Professional Conduct – Board Notice 7 of 2021, what is your responsibility as the appointed professional once it becomes clear that there are issues that may affect the project. (3 marks)		(3)
5.5	Who would be responsible for the appointment of an environmental specialist in this instance? (2 marks)		(2)
5.6	Mrs Sinclair indicates that she was under the impression that once the plans are submitted it is a mere formality before she can start construction. In your own words explain the following to her:		
	5.6.1	The local authority indicated that other departments need to sign off on the design, e.g., water and sanitation or fire. (3 marks)	(3)
	5.6.2	There are some comments and corrections listed by the local authority that needs to be attended to by the architectural professional before the council will approve the plans (3 marks)	(3)
	5.6.3	Can an Architectural Professional guarantee that a client's building plans will be approved by the local authority? (3 marks)	(3)
5.7	Once the plans are approved by the local authority, you prepare the relevant drawings and documents to start the tender process.		(3)
	Mrs Sinclair is unhappy with the fact that her personal information is reflected on the title block of the drawings included in the tender documents, based on the Code of Conduct and POPI Act. What system would you put in place to ensure that the POPI Act is adhered to.		

5.8	As part of the tender process, you advise the client that a Health and Safety officer should form part of the professional team during construction.		
	5.8.1	Provide two ways in which a health and safety officer could be appointed on a construction project (4 marks)	(4)
	5.8.2	Even though you have explained to Mrs Sinclair the importance of appointing a Construction Health and Safety Officer, she refuses comply, as she feels it is a waste of money. According to the SACAP Code of Professional Conduct – Board Notice 7 of 2021, what is your responsibility as architectural professional if a client or employer refuses to listen to your professional advice?	(2)

QUESTION 6 - *Case Study* *14 marks*

A high school student, Ed Cummings is planning to study to become a Professional Architectural Draughtsperson once he finishes high school. He has approached you to discuss how he should go about obtaining the relevant qualifications.		
6.1	Ed is worried that he might not be able to qualify for a bursary to assist in the payment of his tuition fees. He asks that you explain what the process would be if he was to register as an apprentice once he finishes high school. (3 marks)	(3)
6.2	How many months of practical training and monthly training records is required from a Candidate Architectural Draughtsperson for them to register to write the SACAP Professional Practice Exam? (2 marks)	(2)
6.3	If you are struggling to get a mentor to sign off on your monthly training records, what alternative is SACAP offering to the standard 2-year monthly training record method in order to qualify to write the Professional practice exams? (2 marks)	(2)
6.4	Ed asks what category of registration you will be and what your title will be according to the Architectural Profession Act No. 44 of 2000 and SACAP Code of Conduct for Registered Persons Board Notice 7 of 2021, once you pass your PPE exams and upgrade your registration.	(3)

	6.4.1	Category of Professional Registration (2 marks)	
	6.4.1	Title (1 mark)	
6.5	Explain to Ed what the Canberra Accord is and how it could potentially open doors for him in the future. (2 marks explanation, 2 marks own words explanation of benefit)		(4)

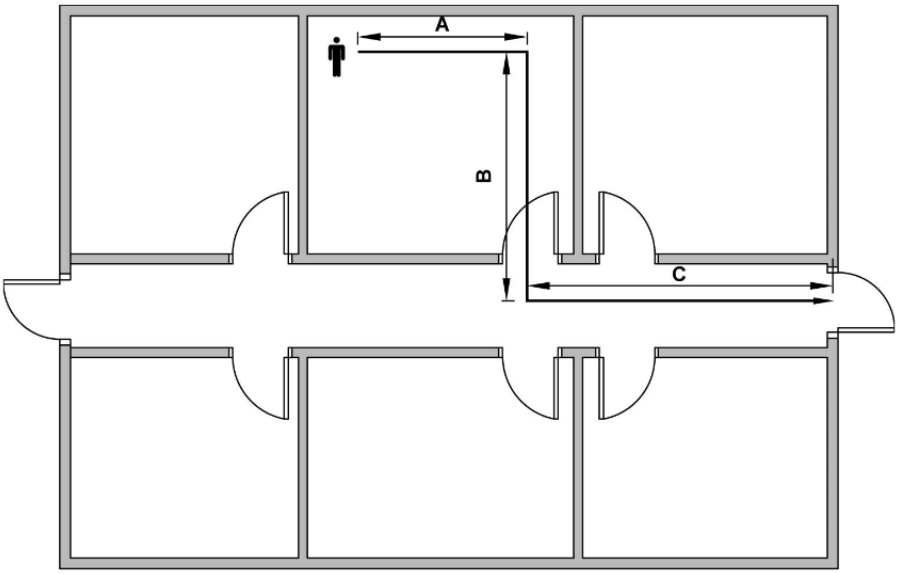
QUESTION 7 – Diagrams and Drawings *21 marks*

A high school student, Ed Cummings is planning to study to become a Professional Architectural Draughtsperson once he finishes high school. He has approached you to explain some architectural terms, drawings, and concepts to him.			
Ed asks that you explain the difference between the following drawings and what each of their purposes are when preparing drawings for local authority submissions (for 2 marks), also provide 3 items that must always be indicated on each of the relevant drawings (3 marks):			
7.1	7.1.1	Site development plan (SDP) (2 marks explanation, 3 marks check list)	(5)
	7.1.2	Site plan (2 marks explanation, 3 marks check list)	(5)
	7.1.3	Roof plan (2 marks explanation, 3 marks check list)	(5)
7.2	Ed asks that you explain what “Coverage” and “Floor Area Ratio” on the area schedule of council submission drawings refer to.		
	7.2.1	Coverage (3 marks)	(3)
	7.2.2	Floor Area Ratio (FAR) (3 marks)	(3)

QUESTION 8 – Diagrams and Drawings *17 marks*

Pick the correct answer pertaining to each of the diagrams or sketches below:

(2)



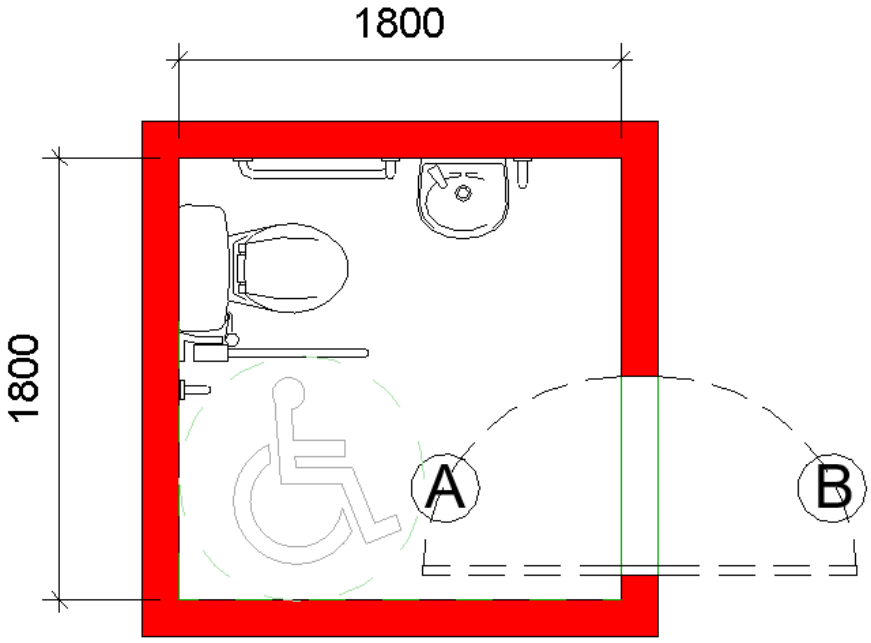
A + B + C = Travel Distance

What is the total maximum travel distance a person is allowed to have to run to reach an exit in case of an emergency in a three-storey building?

Select ONE (1) from the following list *(2 marks)*

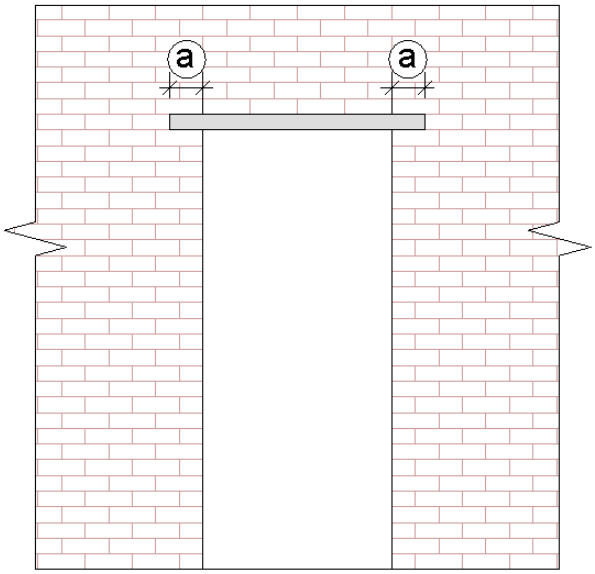
A	30m
B	45m
C	50m
D	75m
E	100m

8.2 (2)



	In which direction should the door open at a toilet facility for persons with disabilities?	
	Select ONE (1) from the following list *(2 marks)*	
	A Inward	
	B Outward	

8.3 (2)

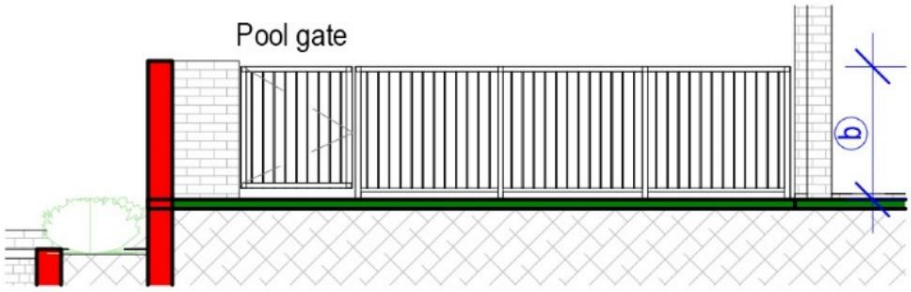


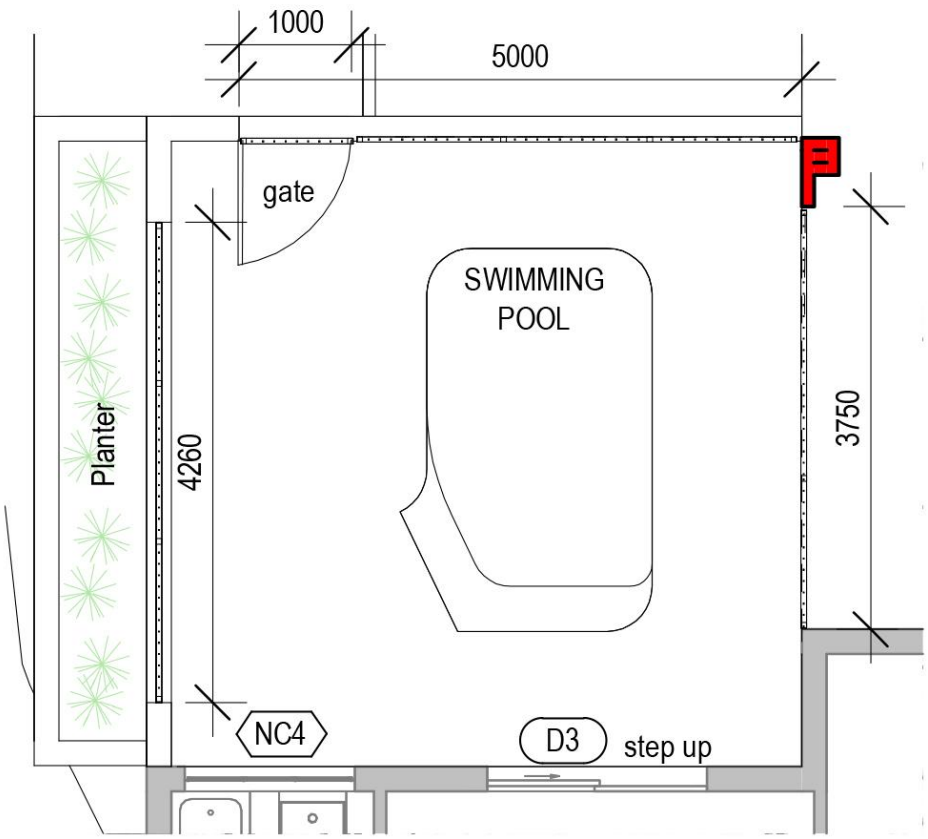
Select the minimum overhang (a) for a pre-stressed lintel built into a masonry wall from the measurements below:

Select ONE (1) from the following list *(2 marks)*

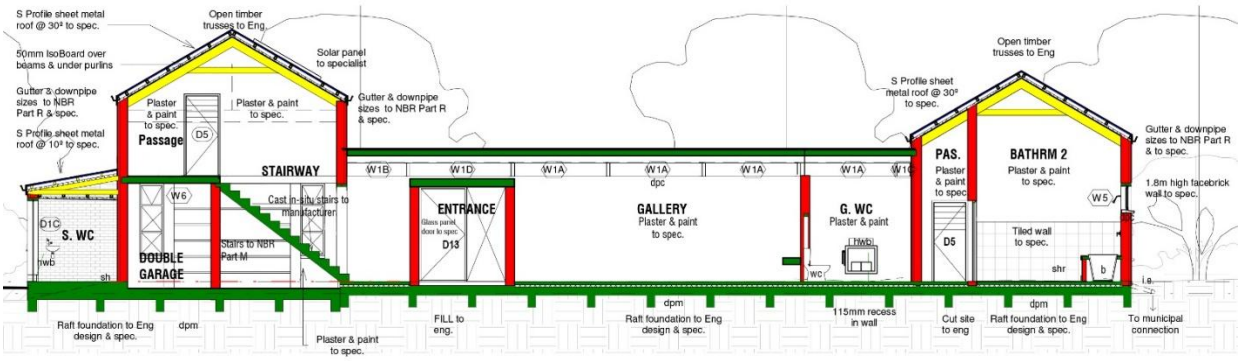
A	150mm
B	250mm
C	150mm
D	110mm
E	100mm

8.4

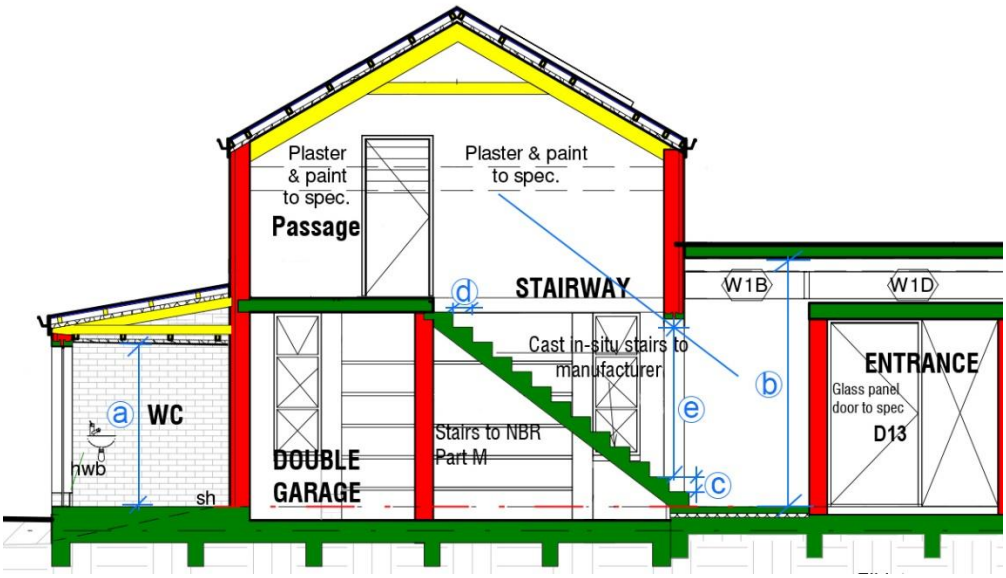




8.4.1	What is the minimum height (b) for a swimming pool fence?	(2)
	Select ONE (1) from the following list *(2 marks)*	
	A 900 mm	
	B 1000 mm	
	C 1100 mm	
	D 1200 mm	
	E 1250 mm	
8.4.2	What is wrong with the swimming pool gate? *(2 marks)*	(2)
8.4.3	Provide the swimming pool gate note required by council	(2)



8.5 (5)



Provide answers with regards to the missing measurements as highlighted in blue above:

8.5.1	a	What is the minimum ceiling height for a residential bathroom?
8.5.2	b	What is the minimum ceiling height for a residential living room?
8.5.3	c	What is the maximum riser height of stairs?
8.5.4	d	What is the minimum tread depth of stairs?
8.5.5	e	What is the minimum head room above a staircase?