

THE PAPUA NEW GUINEA UNIVERSITY OF TECHNOLOGY  
THE DEPARTMENT OF ARCHITECTURE AND CONSTRUCTION MANAGEMENT  
SECOND SEMESTER EXAMINATION  
THIRD YEAR BACHELOR IN CONSTRUCTION MANAGEMENT  
CM320 – QUANTITY SURVEYING & ESTIMATING 4

Room: ST1  
Date: Friday 27<sup>th</sup> October, 2023  
DURATION: 3 Hours  
Time: 12:50pm – 16:00pm

Instructions to Candidates

1. You have 10 minutes to read the paper. Do not begin writing during this time.
2. Fill in the Attendance Slip with your name and student I.D. number now
3. There are five (5) pages to this exam paper including drawing attachment.
4. **There are only three (3) Questions** and you are to **answer all these questions.**
5. ALL ANSWERS MUST BE WRITTEN IN THE ANSWER BOOK (S) PROVIDED
6. Each question must be answered starting on a New Page.
7. Notes and Textbooks are not allowed in the Test Room.  
Only materials allowed and to be brought in by students are;
  - Calculators
  - Biro and Rulers

WRITE YOUR NAME AND IDENTIFICATION NUMBER CLEARLY ON THE FRONT PAGE. DO IT NOW!

TOTAL MARKS = 100 MARKS

**Question One****[50 marks]**

Bill, measure, and extend (Take off) the following quantities for each item. (Refer to Drawing attached)

- A. 2040 x 840 x 40mm solid core door fixed with CP deadlock set with furniture and 3 No 100mm brass butt hinges to timber door frames (D1).....**No**
- B. Metal, adjustable socket louvre frames with furniture, fixed to timber window frames.....**No**
- C. Clear louvre blades, 150 x 4mm thick, fixed to metal louvre frames.....**M**
- D. 0.4mm custom orb corrugated roofing sheet, 760mm wide, with two corrugation side laps and 75mm end laps, to slope exceeding 20 degrees and fixed with screws and washers, to timber roof framing.....**M<sup>2</sup>**
- E. 300mm girth zincalume ridge capping, with 75mm end laps, fixed with screws and plastic washers to timber roof framing.....**M**
- F. 200 x 200 x 4mm thick plain white ceramic floor tile, grout jointed to 4mm wide pointing, fixed with cement adhesive to horizontal concrete floor.....**M<sup>2</sup>**
- G. 100 x 100 x 4mm thick plain white ceramic skirting tile, grout jointed to 4mm wide pointing, fixed with cement adhesive to masonry block wall.....**M**
- H. Prepare and apply one coat masonry sealer and two coats masonry paint to internal and external masonry block walls.....**M<sup>2</sup>**
- I. Prepare, stop and apply one coat undercoat and two coats finishing coat to ceiling linings and soffit linings.....**M<sup>2</sup>**
- J. Prepare, stop, knot and apply two coats of varnish to 2040 x 840 x 40mm thick solid core doors.....**M<sup>2</sup>**

**[40 marks]****Question Two**

Compile the Unit Rates for the items in Question One.

**[10 marks]****Question Three**

Create and complete the Bill of Quantity for the items stated in Question One and Two.

END OF EXAM

DATA SHEET (pages 3 and 4)  
 Use these data to compile the Unit Rates.

Materials:	Cost:
NOTE: Delivery to site cost is inclusive of price of materials	
1. Price of solid core doors ex supplier	K250.00/no
a) Price of 100mm brass butt hinges (pair) with furniture ex supplier	K12.00/no
b) Price of CP deadlock set with furniture ex supplier	K105.00/no
2. Price of louvre frames (pair) with furniture ex supplier	K12.50/no
3. Price of louvre blades per Metre ex supplier	K5.60/m
4. Price of custom orb roofing sheet per Metre ex supplier	K20.50/m
a) Screws and washers to roofing sheet	K0.80/m <sup>2</sup>
b) Silicone to roofing sheet	K0.50/m <sup>2</sup>
5. Price of ridge capping, 2.40m standard length ex supplier	K15.60/standard length
a) Screws and washers to ridge cap	K0.50/m
b) Silicone to ridge cap	K0.25/m
6. Price of 200 x 200 x 4mm ceramic floor tile, 15 tiles per pack ex supplier	K20.00/pack
7. Price of 100 x 100 x 4mm ceramic wall tile, 20 tiles per pack ex supplier	K25.00/pack
a) Adhesive, 0.5 litres @ K25.50/10L	
b) Cement grout, 0.5kg @ K32.50/10kg	
8. Price of 4 Litres masonry sealer paint ex supplier	K150.00
9. Price of 4 Litres masonry paint ex supplier	K160.00
10. Price of 4 Litres undercoat paint ex supplier	K180.00
11. Price of 4 Litres finishing coat paint ex supplier	K200.00
12. Price of 4 Litres varnish ex supplier	K120.00
13. Price of 4 Litres resin ex supplier	K150.00
14. Price of putty @ K18.00/5kg ex supplier	
15. Sandpaper @ K25.00/100sheets ex supplier	
16. Wastage to all materials @ 10%	K1.50
17. Offload and stacking	
NOTE: Use this labour for all buildup of rates	
Labour: 1 x Tradesman @ K5.00/hr assisted by 2 x Labourers @ K3.60/hr	
<b>Outputs:</b>	
Fixing of solid core doors @ 90 minutes / No	
Fixing of louvre frames @ 30 minutes / No	
Fixing of louvre blades @ 15 minutes / M	
Fixing of roofing sheet @ 3.5m <sup>2</sup> / hr	
Fixing of ridge capping @ 4m / hr	
Fixing of 200 x 200 ceramic floor tile @ 1.3hr / 100 tiles	
Fixing of 100 x 100 ceramic wall tile @ 1.0hr / 100 tiles	
<b>Profit + on-cost: 10%</b>	

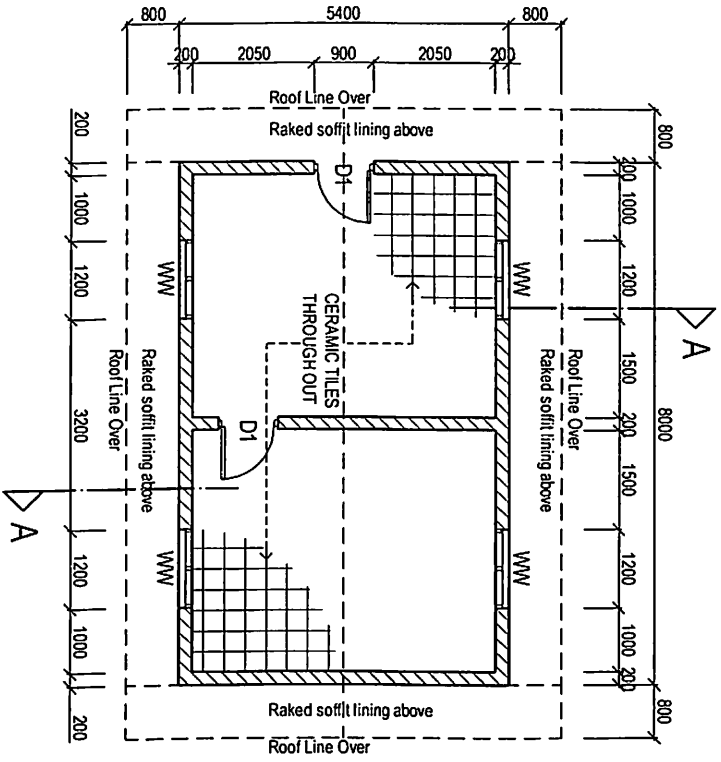
Painting Outputs for decoration and painting works

Table 1 Covering capabilities per 100m<sup>2</sup>

Material:	Surface:	Quantity required to cover 100m <sup>2</sup>
Masonry sealer	Masonry block walls	25 Litres
Masonry paint	Masonry block walls	29 Litres
Undercoat	Timber / Wood	7.2 Litres
Finishing coat	Timber / Wood	8.3 Litres
Varnish	Timber / Wood	7.0 Litres
Sandpaper	Preparation	8 sheets
Putty for stopping	Timber / Wood	2.5kg
Knotting (resin)	Timber / Wood	0.75 Litres

Table 2 Labour outputs per 100m<sup>2</sup>

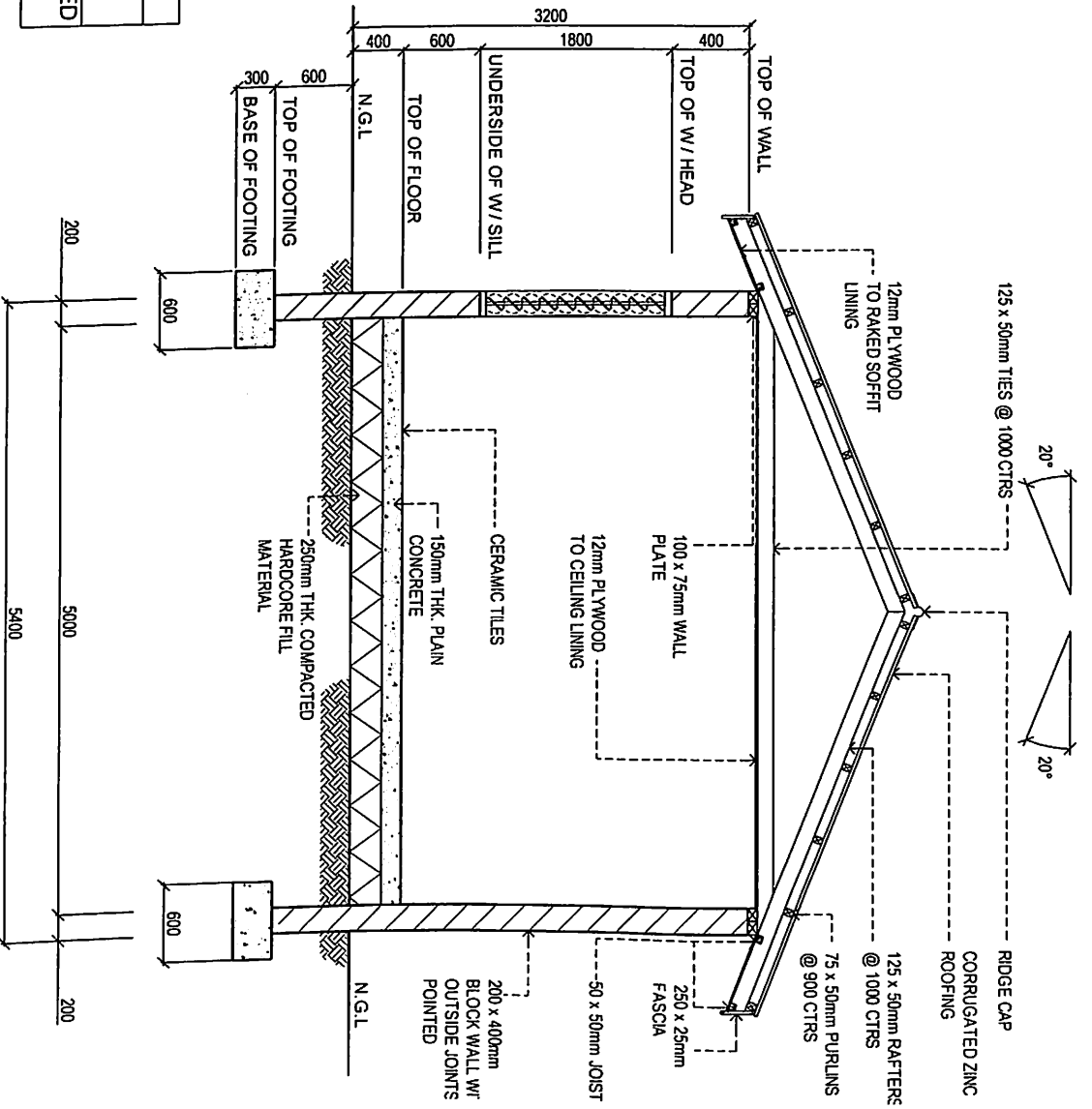
Operation and surfaces	Labour hour per 100m <sup>2</sup>
Rubbing down wood surface (preparation)	4.5
Rubbing down masonry wall (preparation)	5.5
Masonry sealer to masonry block walls	7.3
Masonry paint to masonry block walls	7.0
Undercoat to Timber / Wood	5.0
Finishing coat to Timber / Wood	4.5
Varnish to Timber / Wood	6.3
Stopping to Timber / Wood	6.0
Knotting to Timber / Wood	6.0



DOORS / WINDOW SCHEDULE	
D1	SOLID CORE DOOR IN 100 x 50mm HWD FRAME. DOOR OPENING IS 2100 x 900mm
WW	100 x 50mm (2 x BAY) WINDOW FRAMES FIXED TO THE WALL

# FLOOR PLAN

SCALE 1:100



# SECTION A-A

SCALE 1:50