
UNIVERSITI SAINS MALAYSIA

First Semester Examination
Academic Session 2008/2009

November 2008

RMG 336 – Quantity Surveying 1
(Ukur Bahan 1)

Duration: 3 hours
(Masa: 3 jam)

Please check that this examination paper consists of **TWENTY** pages of printed material before you begin the examination.

*Sila pastikan bahawa kertas peperiksaan ini mengandungi **DUA PULUH** muka surat yang tercetak sebelum anda memulakan peperiksaan ini.*

Students are allowed to answer all questions in English OR in Bahasa Malaysia.

Pelajar dibenarkan menjawab semua soalan dalam Bahasa Inggeris ATAU Bahasa Malaysia.

Answer **ALL** questions.

Jawab **SEMUA** soalan.

- 2 -

1. With reference to Electrical Installation Drawing (Drawing E1), you are required to produce Bill of Quantities (BQ) of electrical installation for one unit of ground floor office shop (Plot 1). Please ignore the veranda area.

Merujuk kepada Lukisan Pemasangan Elektrik (Lukisan E1), anda diminta untuk menyiapkan senarai kuantiti (BQ) untuk pemasangan elektrik bagi tingkat bawah kedai pejabat. Anda hanya perlu mengira untuk satu unit kedai pejabat sahaja (Plot 1). Sila abaikan kawasan beranda.

(100 marks/markah)

2. (a) Measure all the items connected with concreting works (in-situ concrete, formwork and reinforcement) for Roof Beam RB5 based on **Drawings X1, X2 and X3** and the following information:-

(i)	Concrete:	substructure	Grade 40
		superstructure	Grade 25
(ii)	Concrete cover:	substructure	40 mm
		superstructure	25 mm
(iii)	Dimensions of Column C1 and C2		400 x 400

- (b) The height of the beam from the floor is not indicated in the drawings given. Please state and elaborate the specific clauses in SMM2 which requires you to consider the height when measuring in-situ reinforced concrete beams.

- (a) *Ukur segala item yang berkaitan dengan kerja-kerja konkrit (konkrit in-situ, acuan dan tetulang) untuk Rasuk Bumbung RB5 berdasarkan Lukisan X1, X2 dan X3 dan maklumat berikut:-*

(i)	Konkrit:	substruktur	Gred 40
		superstruktur	Gred 25
(ii)	Lapisan Luar Konkrit:	substruktur	40 mm
		superstruktur	25 mm
(iii)	Dimensi Kolum C1 dan C2		400 x 400

- (b) *Ketinggian rasuk daripada lantai tidak diberikan dalam lukisan yang diberikan. Sila nyata dan huraikan klausa spesifik dalam SMM2 yang memerlukan anda ambilkira ketinggian apabila mengukur rasuk konkrit tetulang in-situ.*

(100 marks/markah)

...3/-

- 3 -

3. Write short notes on how the following works are to be treated in the tender document in accordance to SMM2. State the relevant clause/clauses.
- (a) The use of the Main Contractor's standing scaffolding, storage, temporary lighting and water.
 - (b) Works such as notices and fees to statutory authorities, clearing away and making good and maintaining temporary works.
 - (c) The client's own contractor will install the removable partition to ballroom. Will this work be included in the tender document? If so, in which section of the document?
 - (d) The client will nominate a supplier to supply ceramic floor tiles for Project ABC. In what manner shall the supply of ceramic floor tiles be reflected in the tender document?

Telitikan senarai kerja-kerja yang disenaraikan di bawah. Terangkan secara ringkas panduan yang digariskan dalam SMM2 untuk kerja-kerja di bawah. Nyatakan klausa yang berkaitan.

- (a) *Penggunaan "scaffolding" yang sediada, tempat penyimpanan, bekalan lampu dan air sementara.*
- (b) *Kerja-kerja seperti notis dan yuran kepada pihak berkuasa, pembersihan sampah pembinaan dan pembekalan kerja sementara.*
- (c) *Pihak klien mempunyai kontraktor sendiri yang akan memasang dinding sekatan di dewan utama. Adakah kerja ini termasuk di dalam dokumen tender? Sekiranya ya, kerja tersebut akan dimasukkan dalam bahagian apa?*
- (d) *Pihak klien akan menamakan seorang pembekal untuk membekalkan jubin seramik kepada Projek ABC. Bagaimanakah bekalan jubin seramik ini akan ditunjukkan dalam dokumen tender?*

(100 marks/markah)

- 4 -

4. (a) In accordance with Drawings R1, R2, R3, R4 and R5, measure all the items relating to roof coverings and rainwater goods.

Berpandukan kepada Lukisan R1, R2, R3, R4 dan R5, ukurkan item-item penutup bumbung dan kemudahan air hujan.

- (b) Attach a Query List into your answer script to explain any assumption you make, based on the given drawings.

Kepilkan "Query List" ke dalam kertas jawapan anda untuk menjelaskan apa-apa anggapan yang anda buat berdasarkan lukisan-lukisan yang diberikan.

(100 marks/markah)

5. In accordance with Drawings DW.1, DW.2, DW.3, DW.4, DW.5, DW.6, DW.7:-

- (a) Prepare the taking-off lists for the measurement of Doors and Windows items.

- (b) Describe the clauses relating to the Doors and Windows items in the Standard Method of Measurement 2 (SMM2) that you referred to for the preparation of your taking-off and discuss the principles for the measurement of these items.

Berdasarkan kepada Lukisan-Lukisan DW.1, DW.2, DW.3, DW.4, DW.5, DW.6, DW.7:-

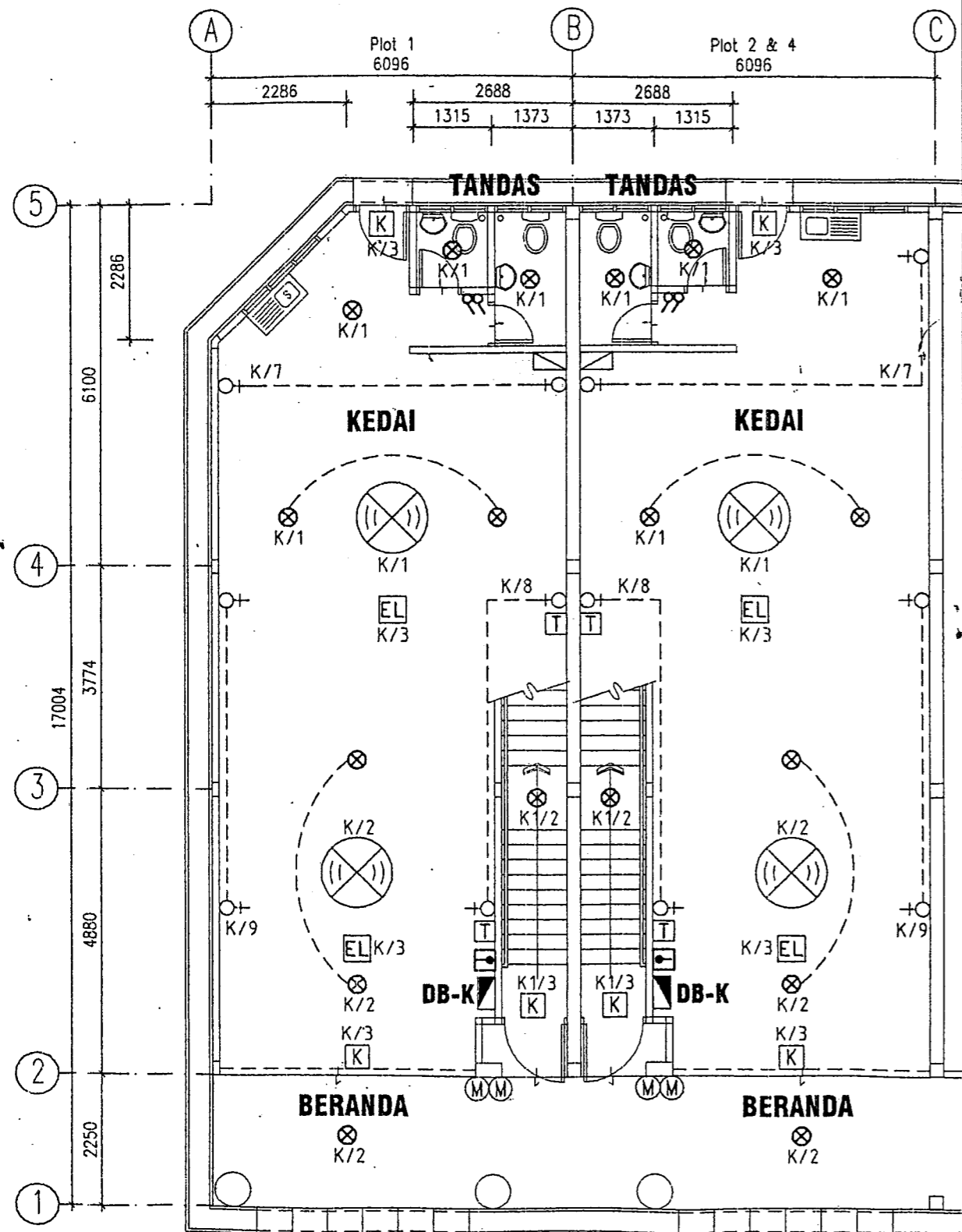
- (a) *Sediakan senarai 'taking-off' bagi pengukuran item Tingkap dan Pintu.*

- (b) *Jelaskan klausa-klausa yang berkaitan dengan Tingkap dan Pintu dalam Standard Method of Measurement (SMM2) yang anda rujuk dalam penyediaan 'taking-off', dan bincangkan prinsip-prinsip pengukuran item-item tersebut.*

(100 marks/markah)

....5/-

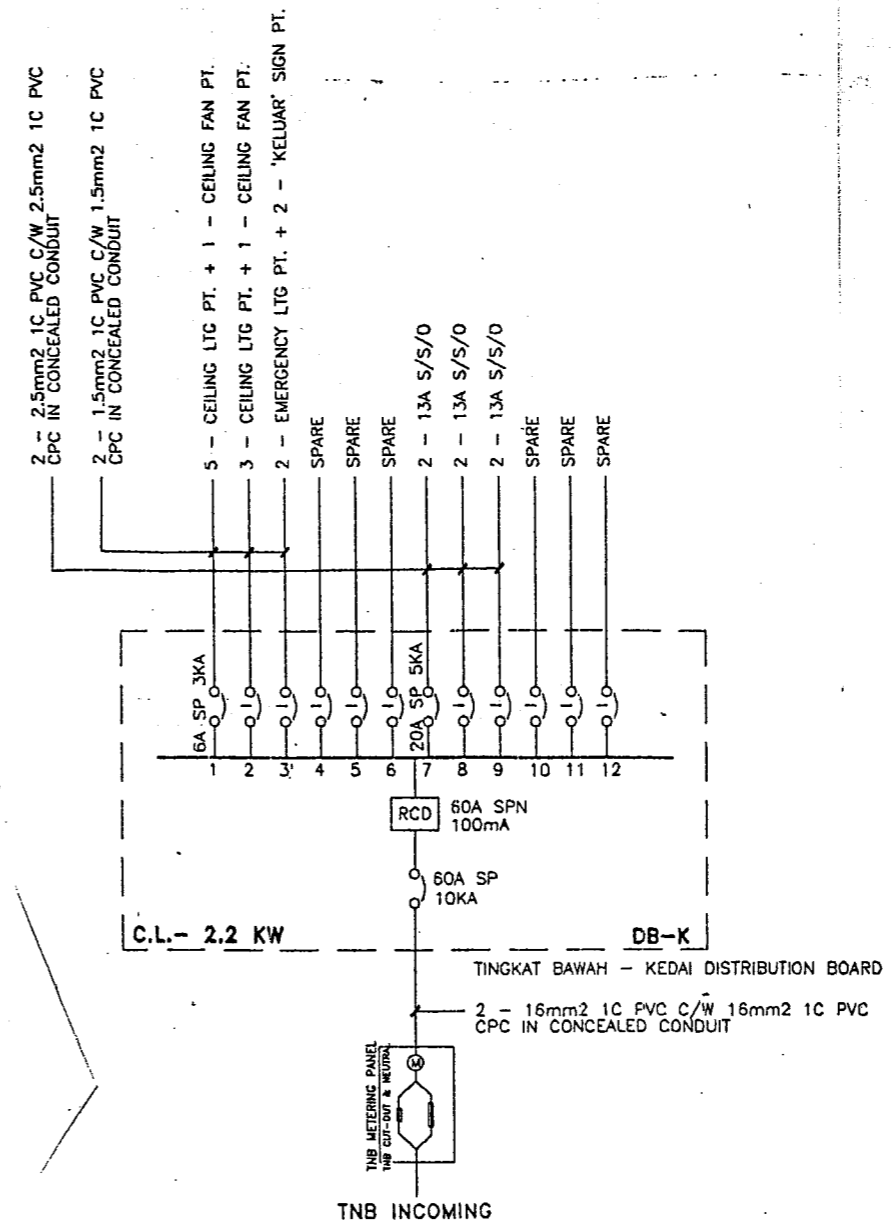
Question 1
(Soalan 1)



PELAN TINGKAT BAWAH

99

TITLE:
ELECTRICAL INSTALLATION
KEDAI PEJABAT 2 TINGKAT
- PELAN LANTAI TINGKAT BAWAH
- SCHEMATIC SINGLE LINE



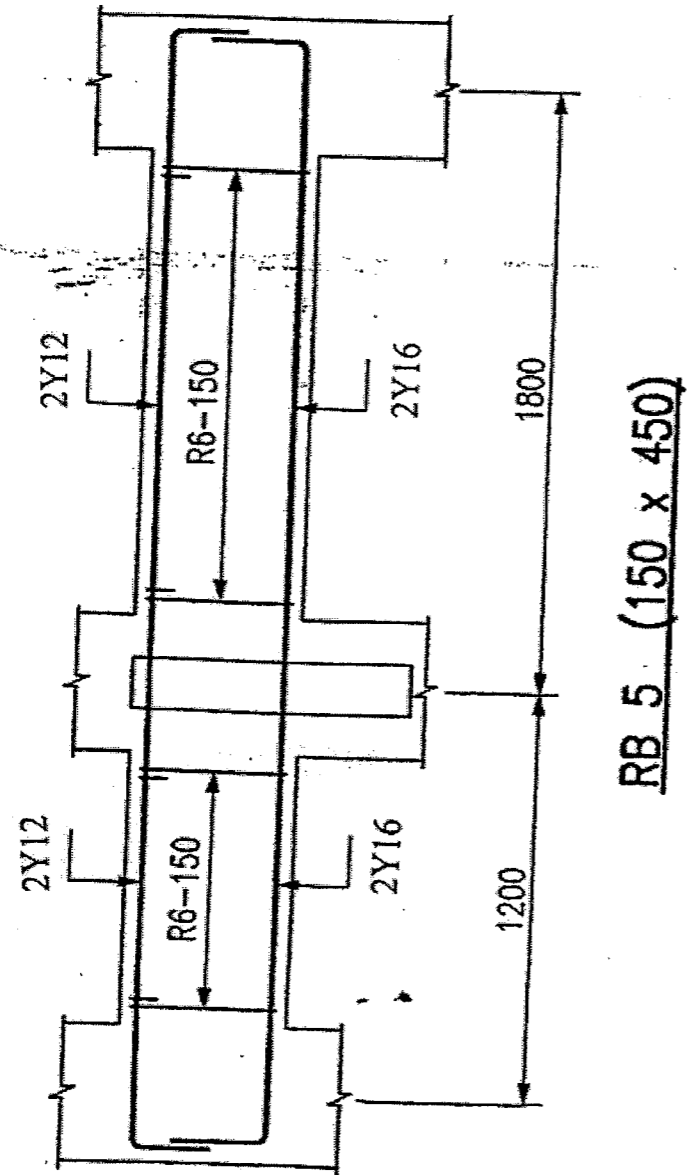
SCHEMATIC SINGLE LINE

LEGEND

SYMBOL	DESCRIPTION
	13A SWITCH SOCKET OUTLET PVC MOULDED TYPE AT 1' AFFL
	SURFACE MOUNTED PVC METAL CLAD DISTRIBUTION BOARD AT 6' AFFL
	TNB METERING PANEL AT 7' AFFL
	CEILING LIGHTING POINT
	SWITCH CONTROL CENTRE AT 5' AFFL
	5A SP LIGHTING SWITCH PVC MOULDED TYPE AT 5' AFFL
	10 PAIRS TELEPHONE DISTRIBUTION PANEL
	TELEPHONE POINT C/W PLUG-IN SOCKET OUTLET AT 3' AFFL
	CEILING FAN POINT C/W MOUNTING HOOK, FAN REGULATOR AT 5' AFFL

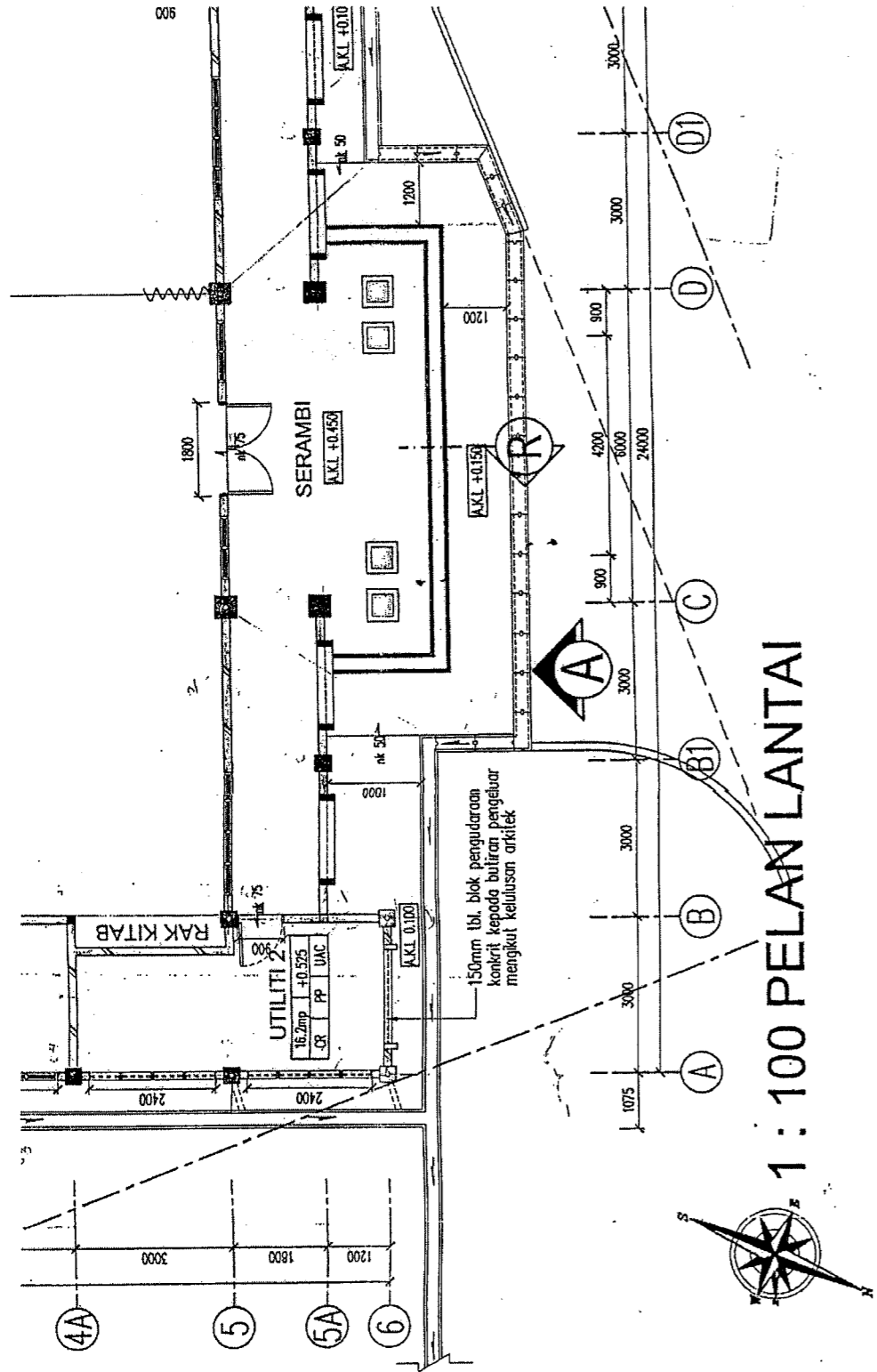
NOTE: 1. ALL HEIGHTS ARE FROM FINISHED FLOOR TO THE BOTTOM OF FIXTURES
2. AFFL = ABOVE FINISHED FLOOR LEVEL

Drawings X1 (Lukisan X1)

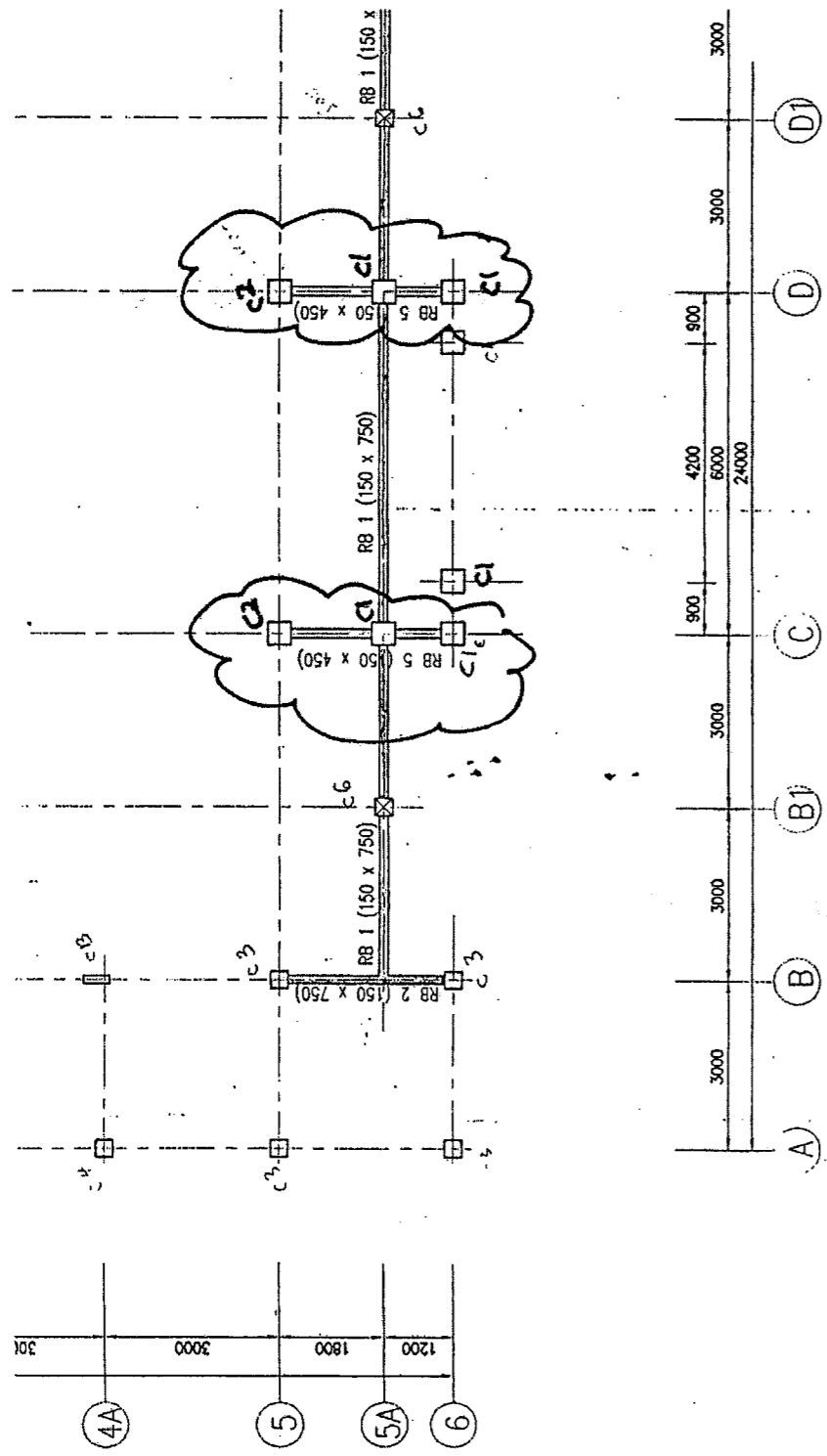


RB 5 (150 x 450)

Drawings X2 (Lukisan X2)



Drawings X3 (Lukisan X3)



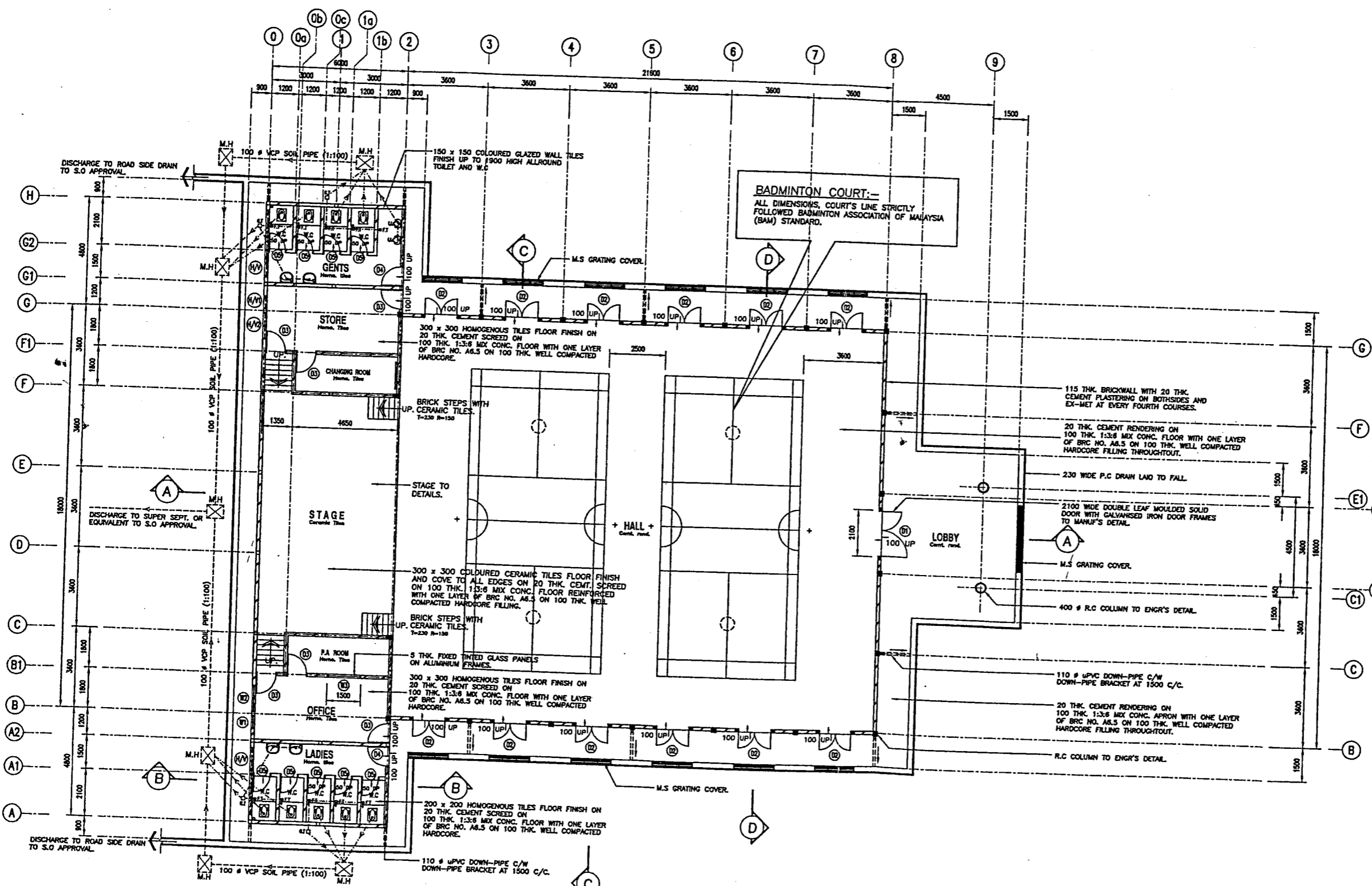
PELAN BUMBUNG

X3

Question 4
(Soalan 4)

DRAWING R1

[RMG 336]



GROUND FLOOR PLAN
1:100

ISSUE NO.	REVISION	BY	DATE
T	FOR TENDER		

NOTES:--

- FLOOR FINISHES
 - ☉ Cement Render
 - ☉ Homogenous Tile
- ALL BRICKWALL MUST USE CLAY BRICKS.

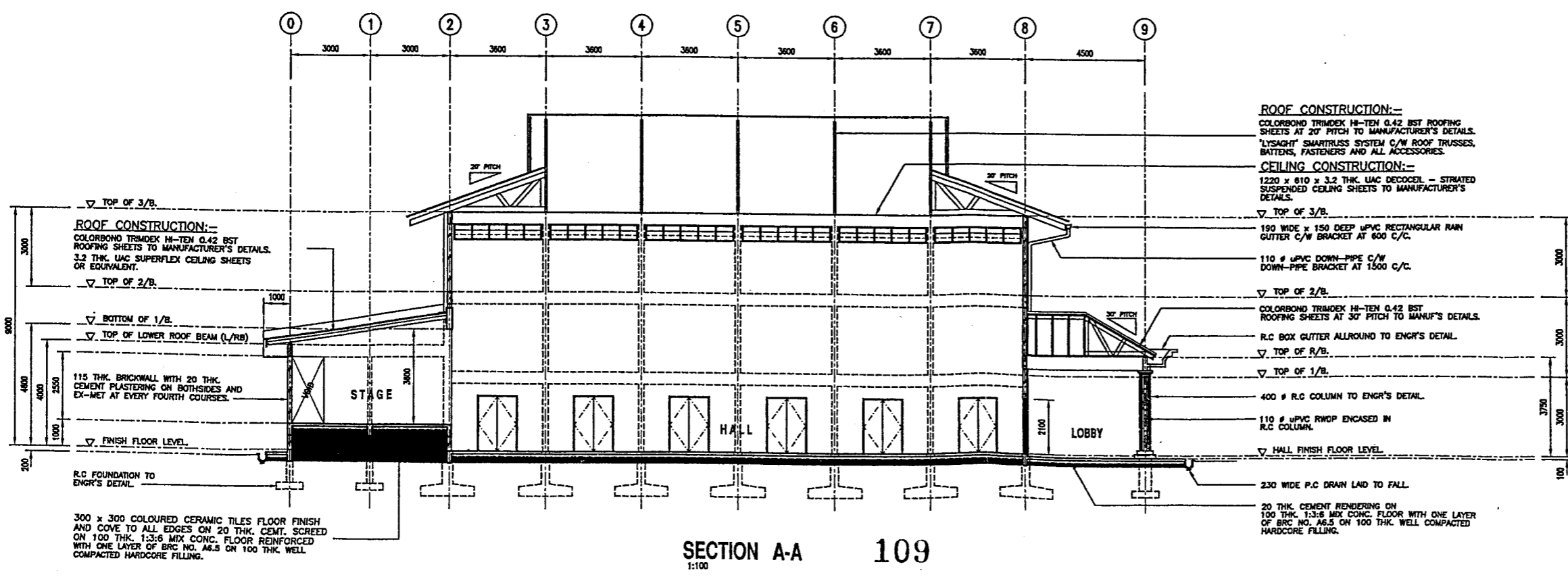
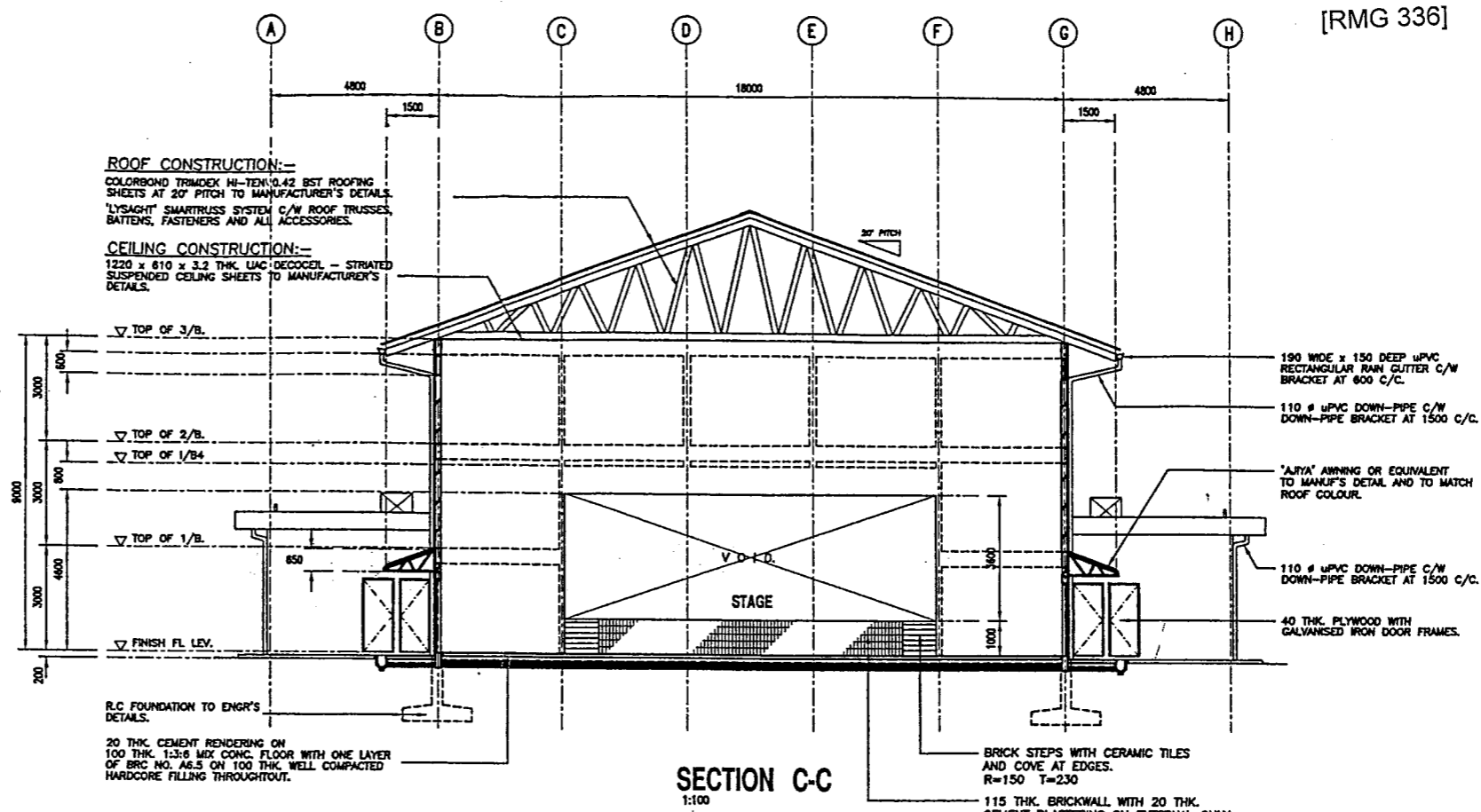
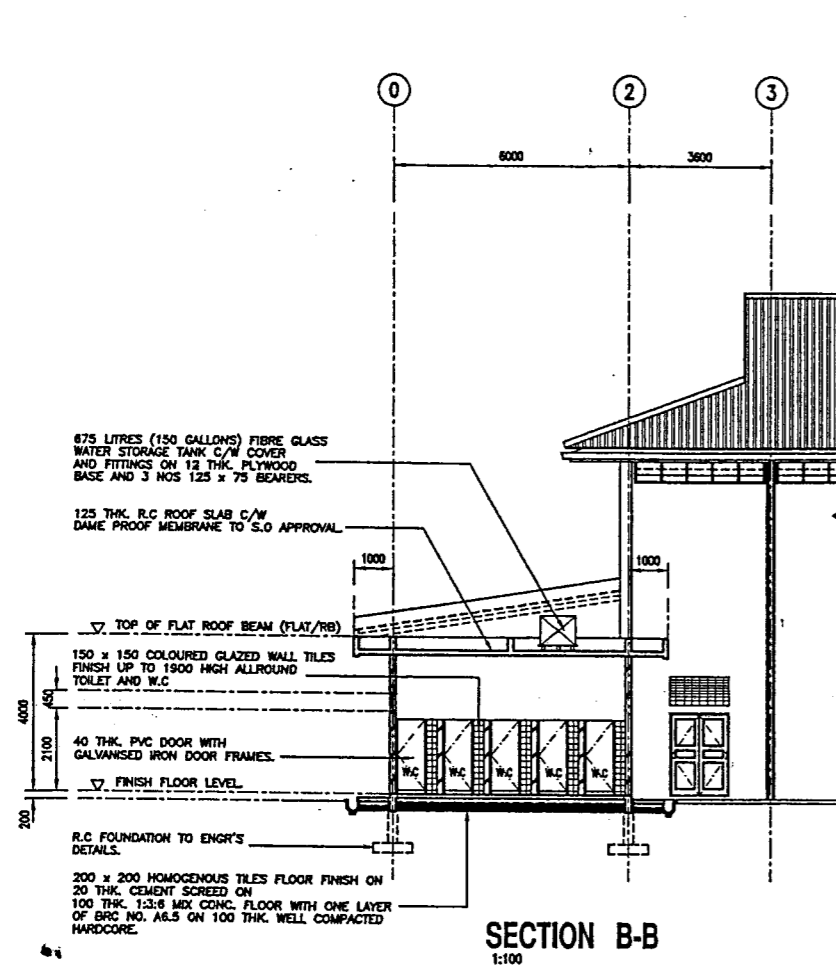
**CADANGAN PEMBINAAN
DEWAN ORANG RAMAI.
(TYPE 'A')**

GROUND FLOOR PLAN.

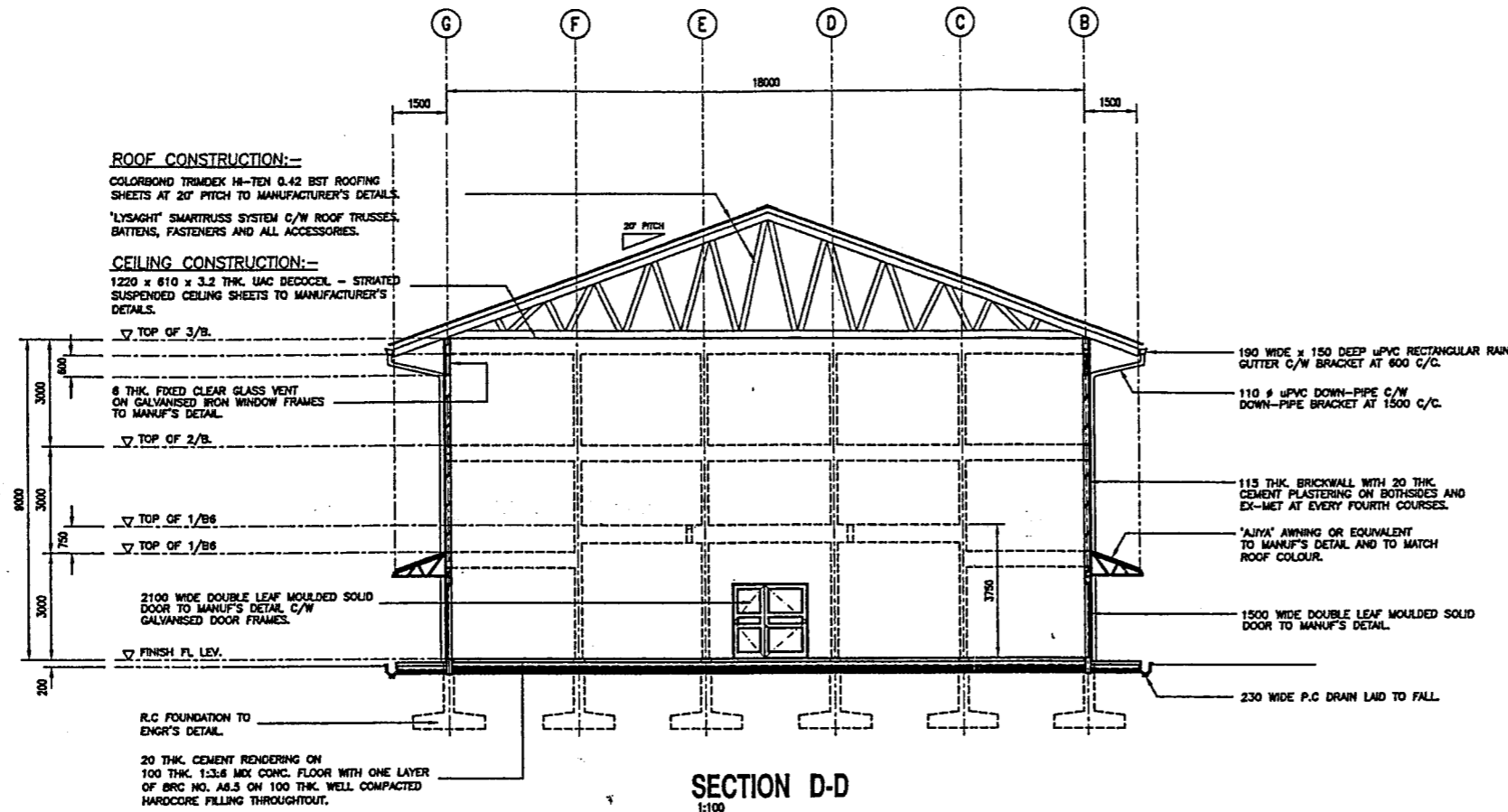
TANDATANGAN PEMILIK / OWNER'S SIGNATURE

TANDATANGAN JURUTERA / ENGINEER'S SIGNATURE

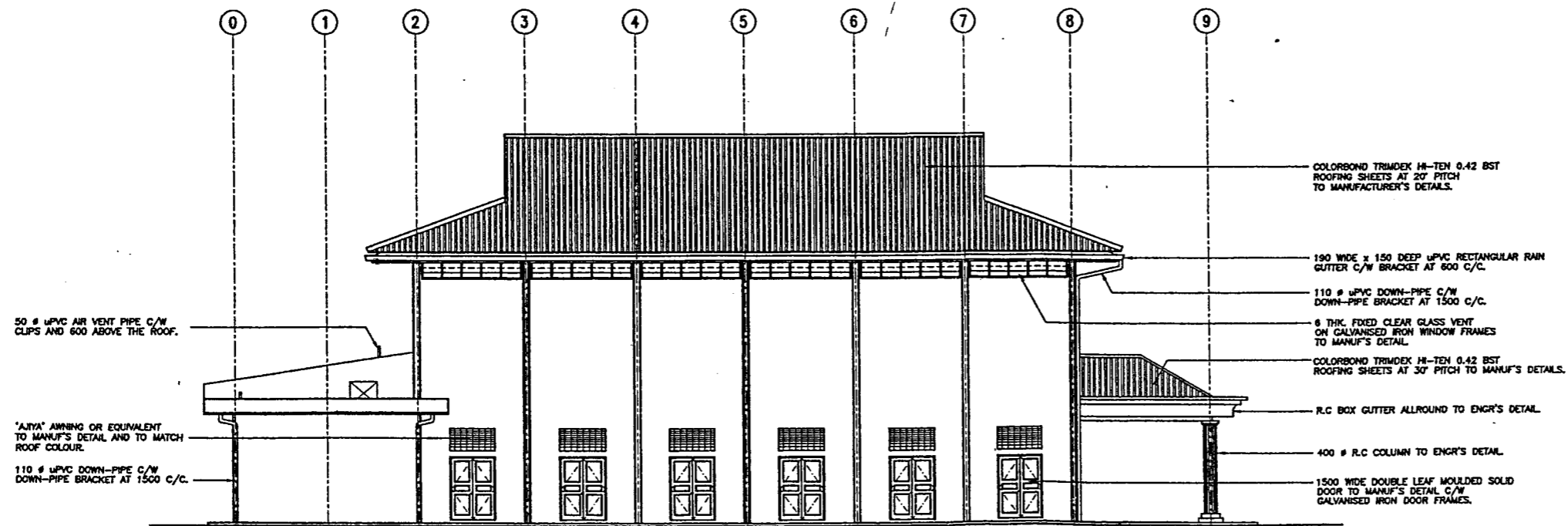
DESIGNED BY	HJ. NASIR	DATE	
DESIGN CHK'D BY		DATE	
DRAWN BY	ZAILAN	DATE	JAN. 06
DWG CHK'D BY	SANI	DATE	



PROJECT	
CADANGAN PEMBINAAN DEWAN ORANG RAMAI. (TYPE 'A')	
TAKUK / TITLE	
SECTIONS.	
TANDATANGH PEMILIK / OWNER'S SIGNATURE	
ISSUE FOR BID	ISSUE FOR APPROVAL
APPROVED FOR CONSTRUCTION DATE	PROJECT MANAGER
PENGURUS PROJEK / PROJECT MANAGER	
TANDATANGH JURUTERA / ENGINEER'S SIGNATURE	
DESIGNED BY	HJ. NASIR
DATE	
DESIGN CHK'D BY	ZAILAN
DATE	JAN. 06
DWG CHK'D BY	SANNI
DATE	
SCALE	1=100
JOB NO.	DRAWING NO.
BK/B/377/05/3-29	T



SECTION D-D
1:100



SIDE ELEVATION SIMILAR
1:100

ISSUE NO.	REVISION	BY	DATE
T	FOR TENDER		

CADANGAN PEMBINAAN
DEWAN ORANG RAMAI.
(TYPE 'A')

SECTION AND ELEVATION.

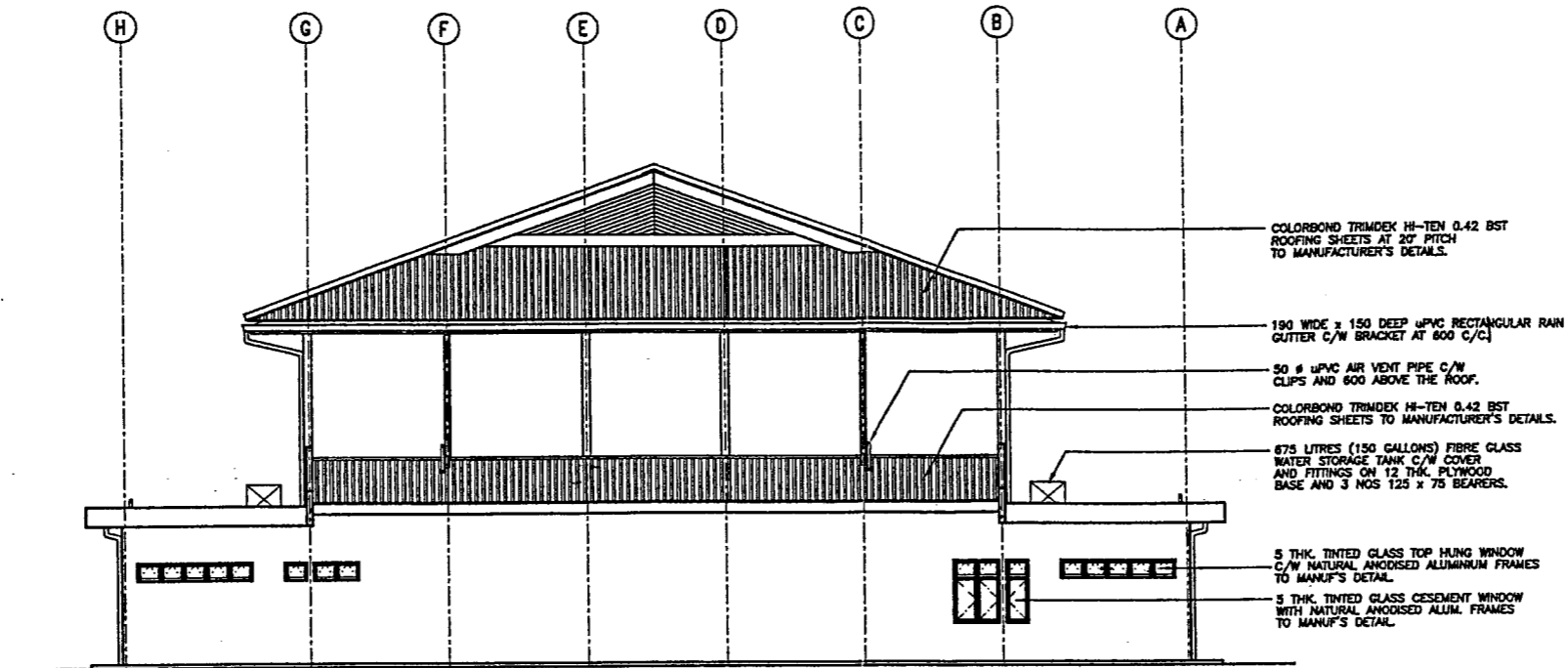
ISSUE FOR BID ISSUE FOR APPROVAL APPROVED FOR CONSTRUCTION DATE PROJECT MANAGER

TANDATANGAN JURUTERA / ENGINEER'S SIGNATURE

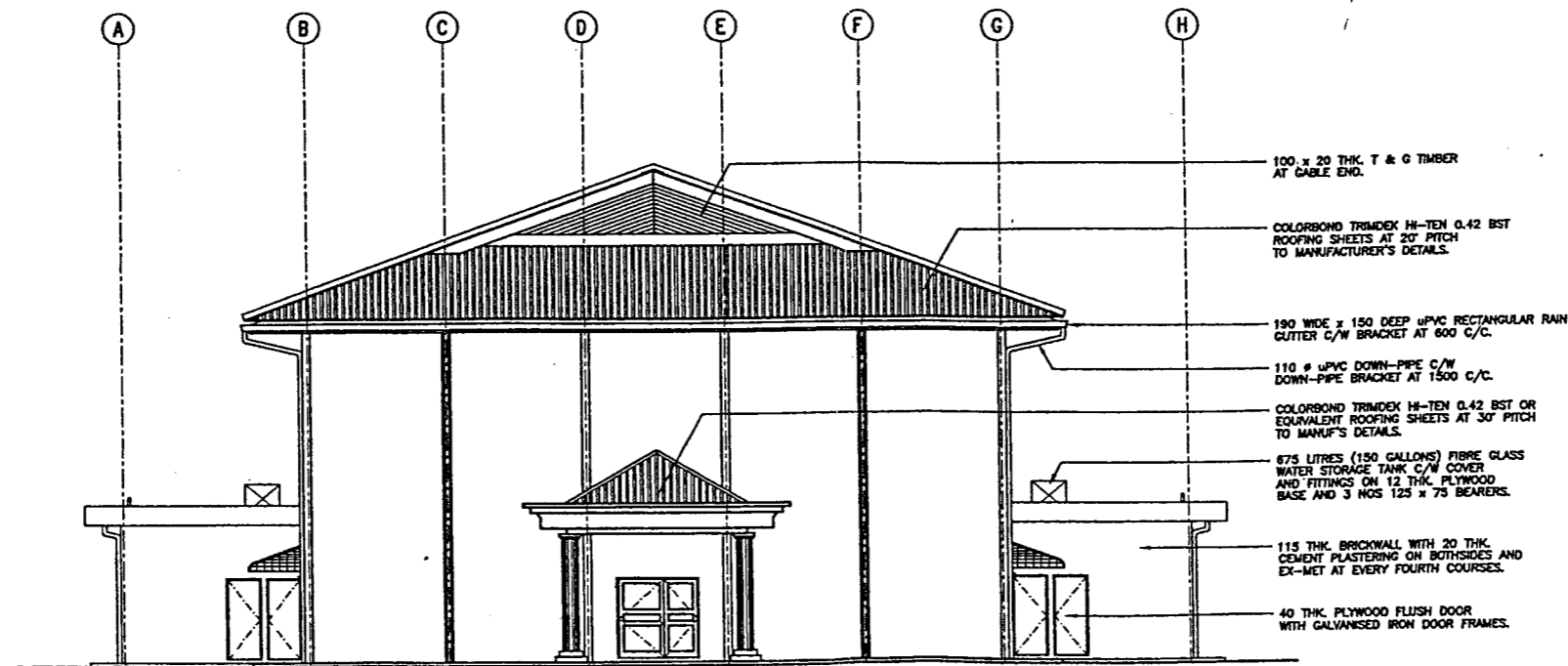
DESIGNED BY	HJ. NASIR -	DATE	
DESIGN CHK'D BY		DATE	
DRAWN BY	ZAILAN	DATE	JAN. 06
DWG CHK'D BY	SAINI	DATE	
SCALE	1=100		
JOB NO.		DRAWING NO.	
		ISSUE	

DRAWING R4

[RMG 336]



REAR ELEVATION
1:100



FRONT ELEVATION
1:100

113

ISSUE NO.	REVISION	BY	DATE
T	FOR TENDER		

DWG. NO.	REFERENCE DRAWINGS		
PROJECT			
CADANGAN PEMBINAAN DEWAN ORANG RAMAI. (TYPE 'A')			
TAAK / TITLE			
ELEVATIONS.			
TANDAZANGAN PEMILIK / OWNER'S SIGNATURE			
ISSUE FOR BID	ISSUE FOR APPROVAL	APPROVED FOR CONSTRUCTION DATE	PROJECT MANAGER
PENGURUS PROJEK / PROJECT MANAGER			
TANDAZANGAN JURUTERA / ENGINEER'S SIGNATURE			

CADANGAN PEMBINAAN DEWAN ORANG RAMAI. (TYPE 'A')

ELEVATIONS.

TANDAZANGAN PEMILIK / OWNER'S SIGNATURE

ISSUE FOR BID ISSUE FOR APPROVAL APPROVED FOR CONSTRUCTION DATE PROJECT MANAGER

PENGURUS PROJEK / PROJECT MANAGER

TANDAZANGAN JURUTERA / ENGINEER'S SIGNATURE

DESIGNED BY	HJ. NASIR	DATE	
DESIGN CHK'D BY		DATE	
DRAWN BY	ZALAN	DATE	JAN. 06
DWG CHK'D BY	SAINI	DATE	
SCALE	1=100		

DRAWING R5

[RMG 336]

ISSUE NO.	REVISION	BY	DATE
T	FOR TENDER	CHK'D	APP'D

DWG. NO.	REFERENCE DRAWINGS

CADANGAN PEMBINAAN
DEWAN ORANG RAMAI.
(TYPE 'A')

TASK / TITLE

ROOF PLAN.

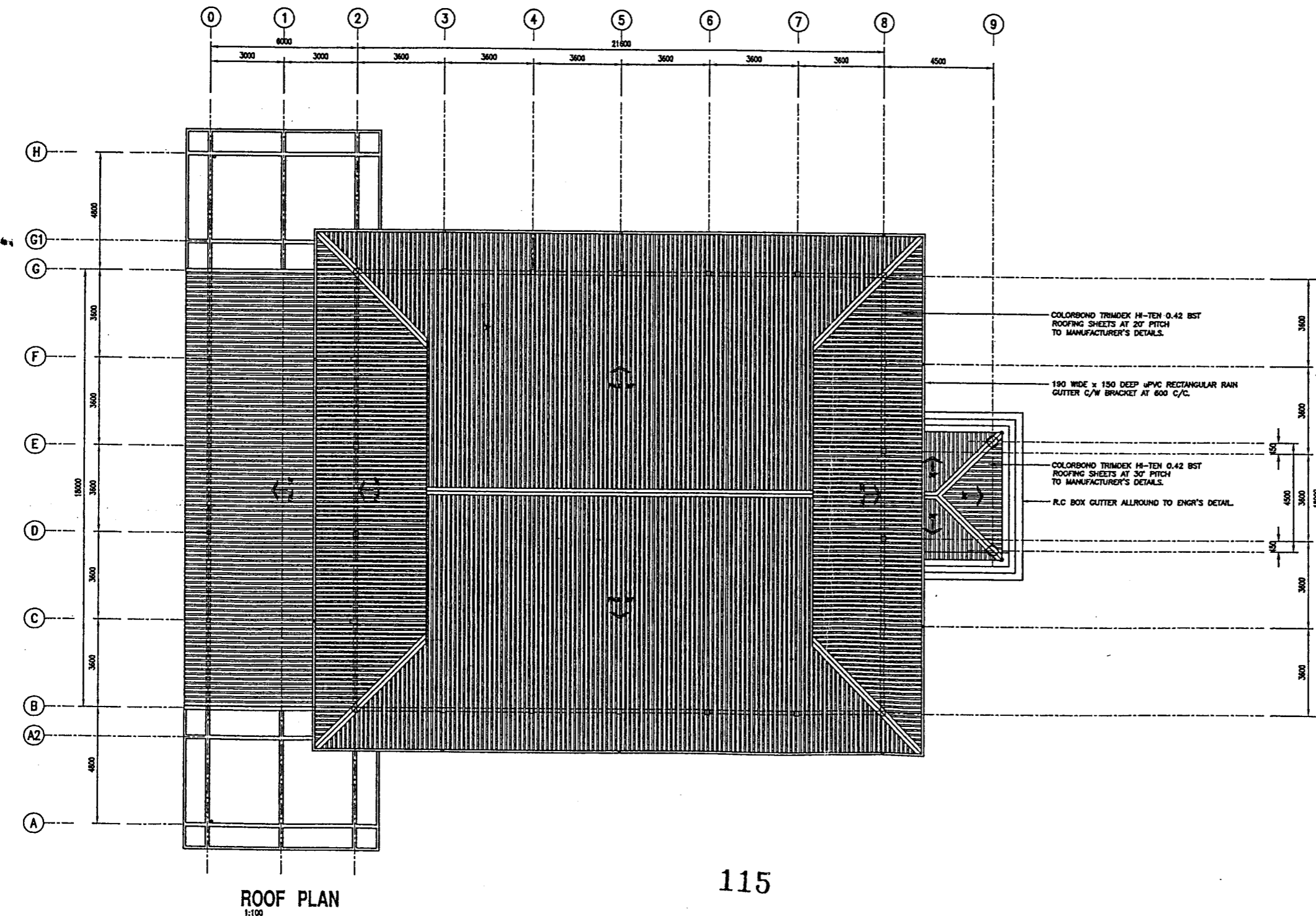
TANDATANGAN PEMLIK / OWNER'S SIGNATURE

ISSUE FOR BID	ISSUE FOR APPROVAL	APPROVED FOR CONSTRUCTION
		DATE
		PROJECT MANAGER

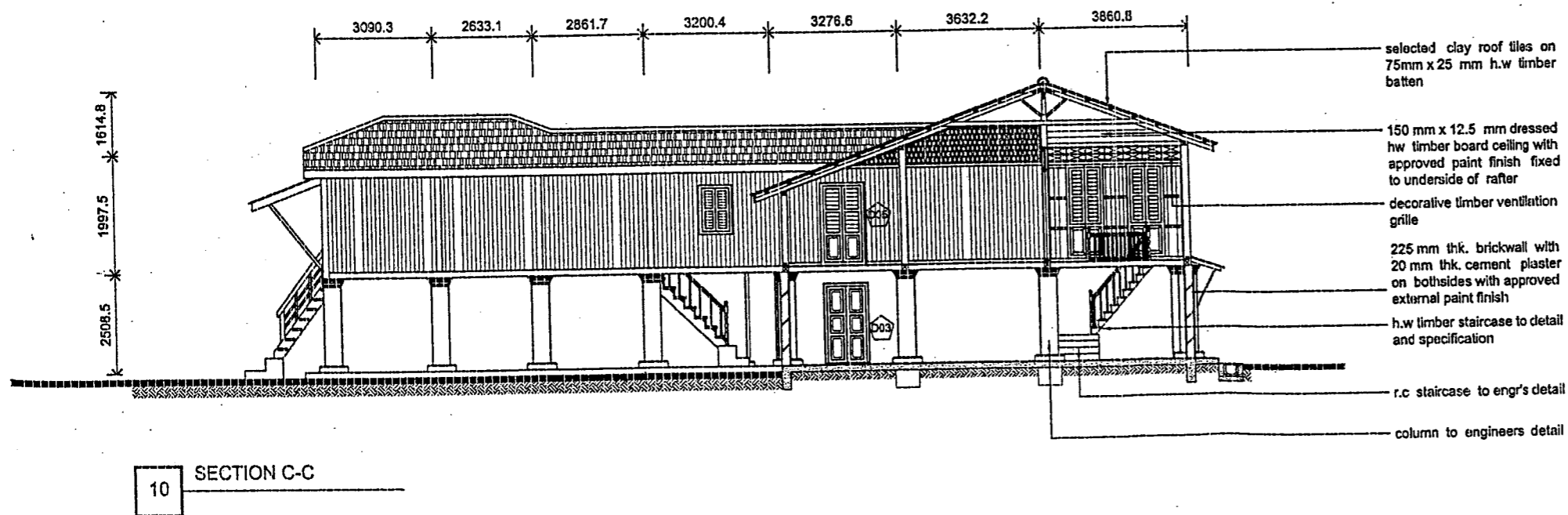
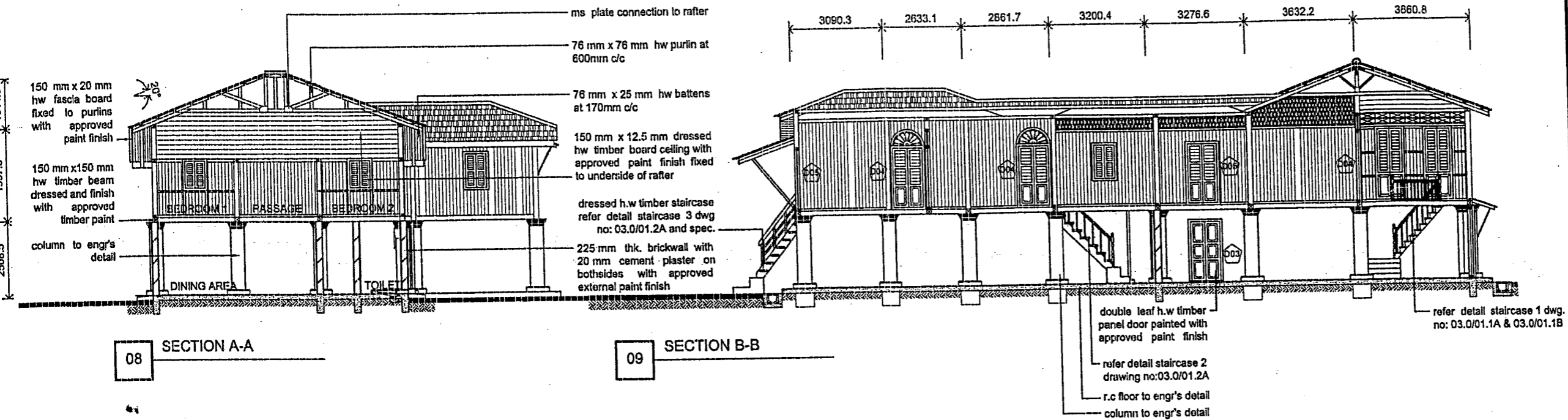
PENGURUS PROJEK / PROJECT MANAGER

TANDATANGAN JURUTERA / ENGINEER'S SIGNATURE

DESIGNED BY	HJ. NASIR	DATE	
DESIGN CHK'D BY		DATE	
DRAWN BY	ZAILAN	DATE	JAN. 06
DWG CHK'D BY	SANI	DATE	
SCALE	1=100		

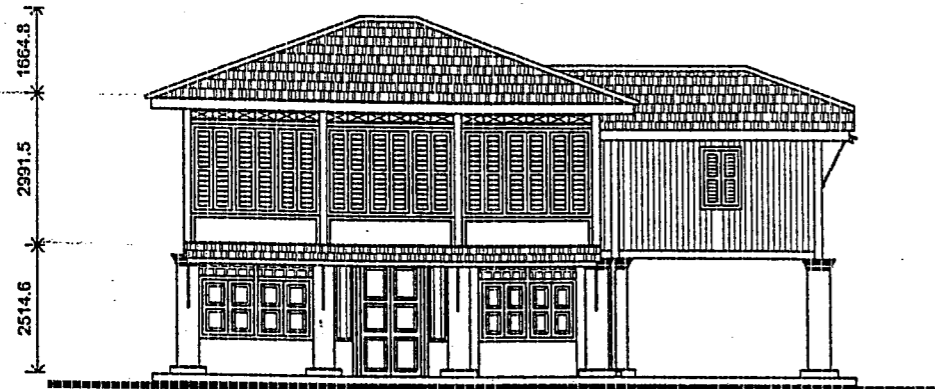


Question 5
(Soalan 5)

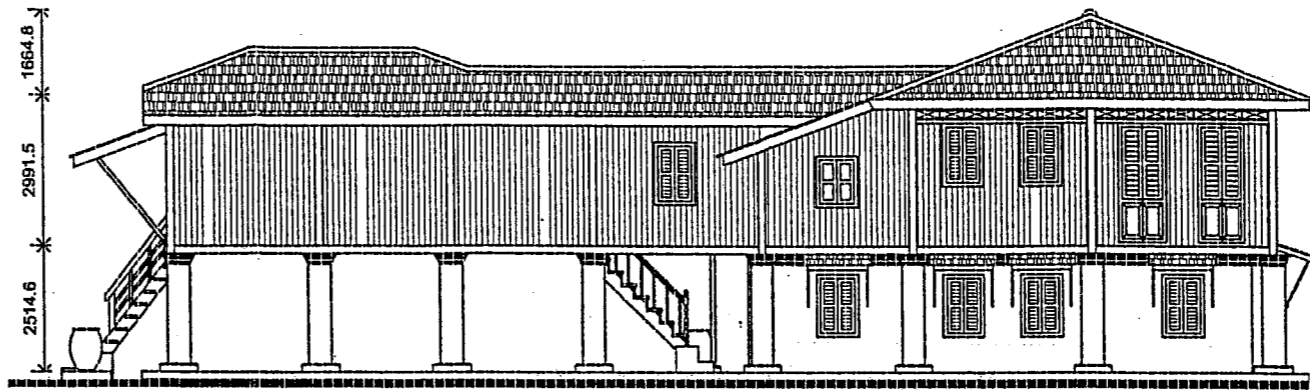


DRAWING NUMBER: DW/1

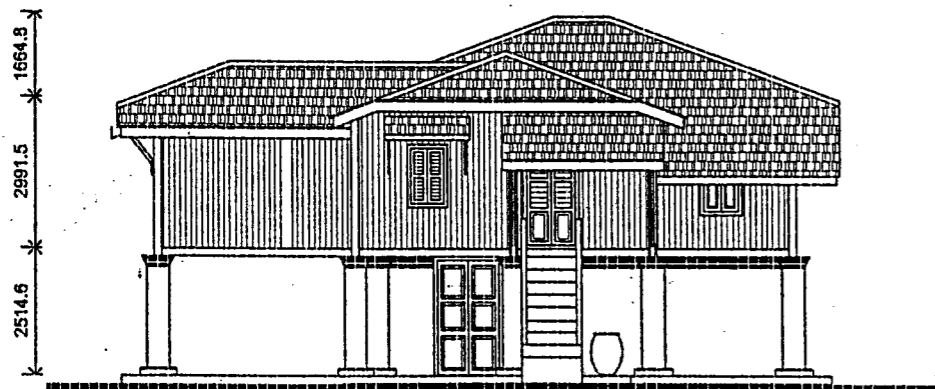
[RMG 336]



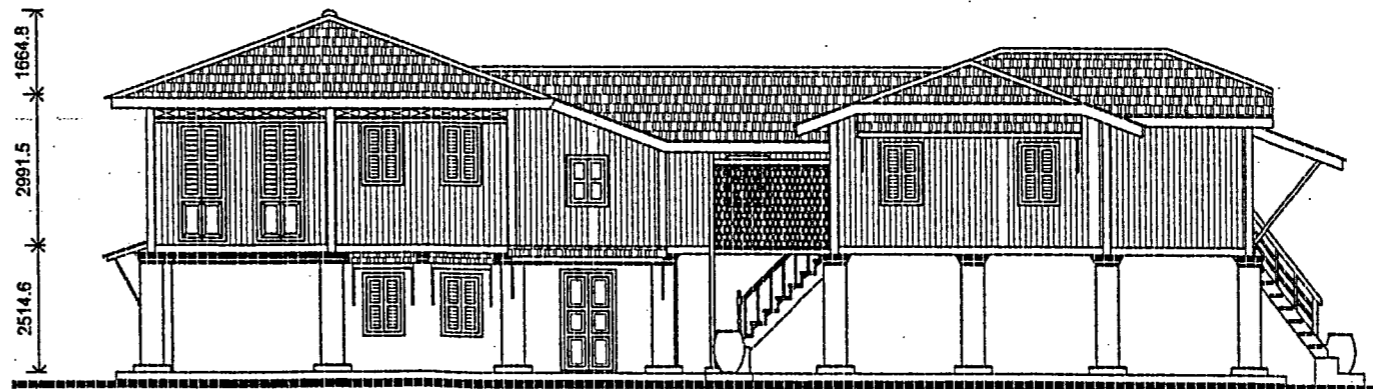
04 FRONT ELEVATION
Scale 1:75



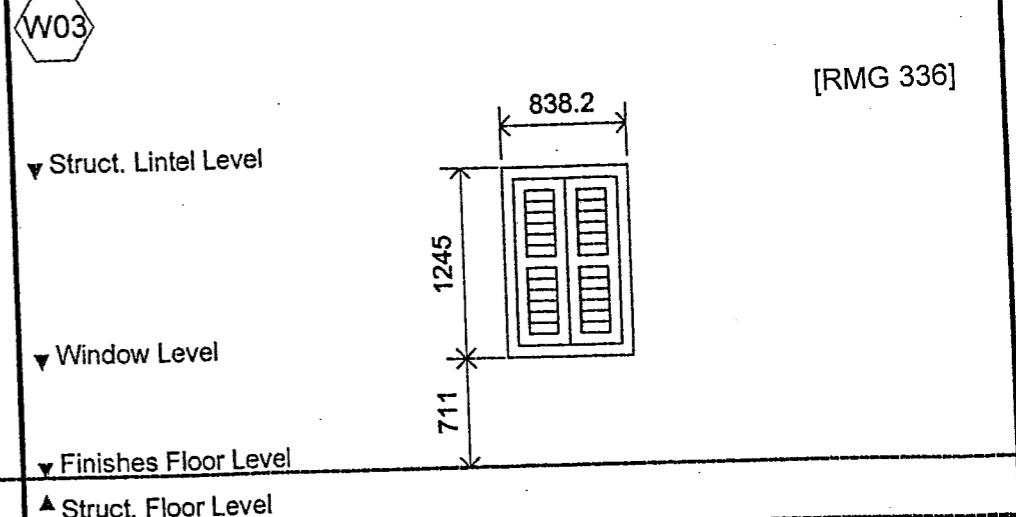
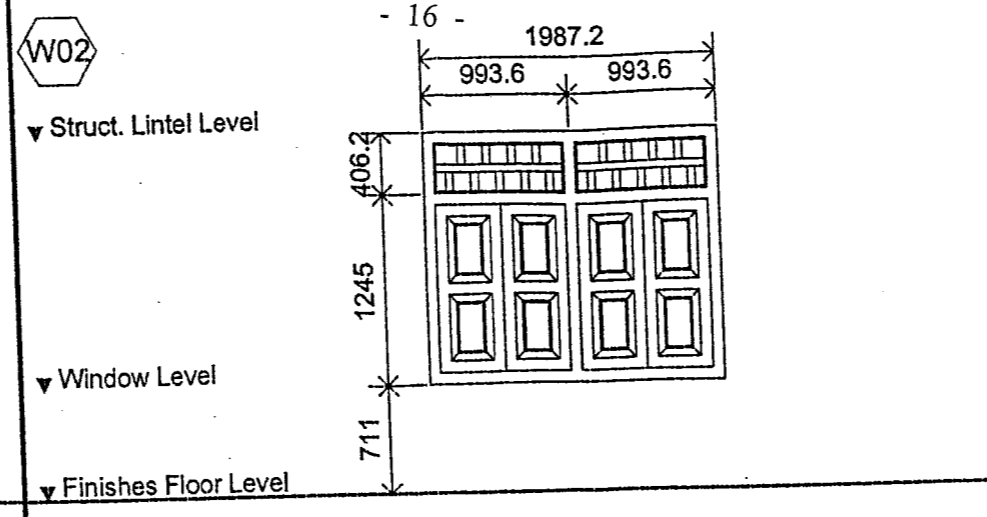
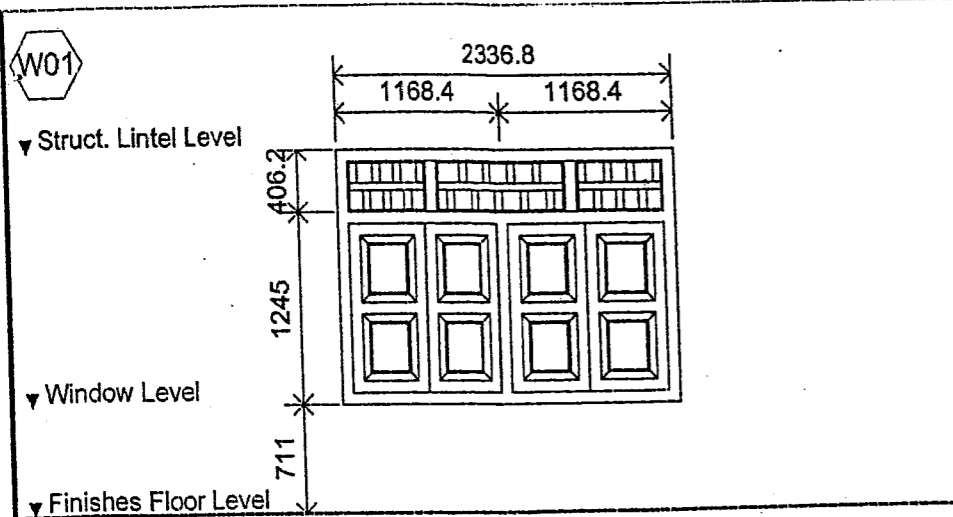
06 LEFT ELEVATION
Scale 1:75



05 REAR ELEVATION
Scale 1:75



07 RIGHT ELEVATION
Scale 1:75

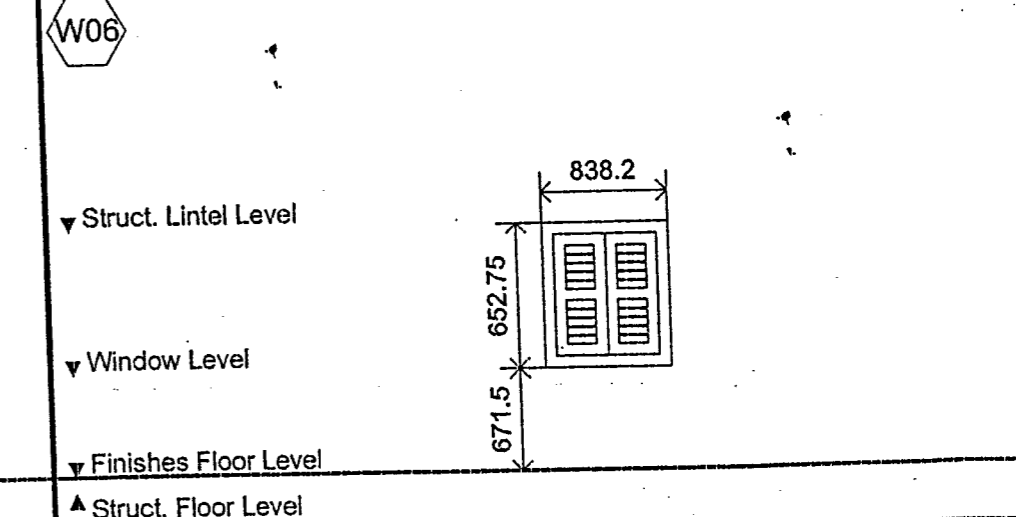
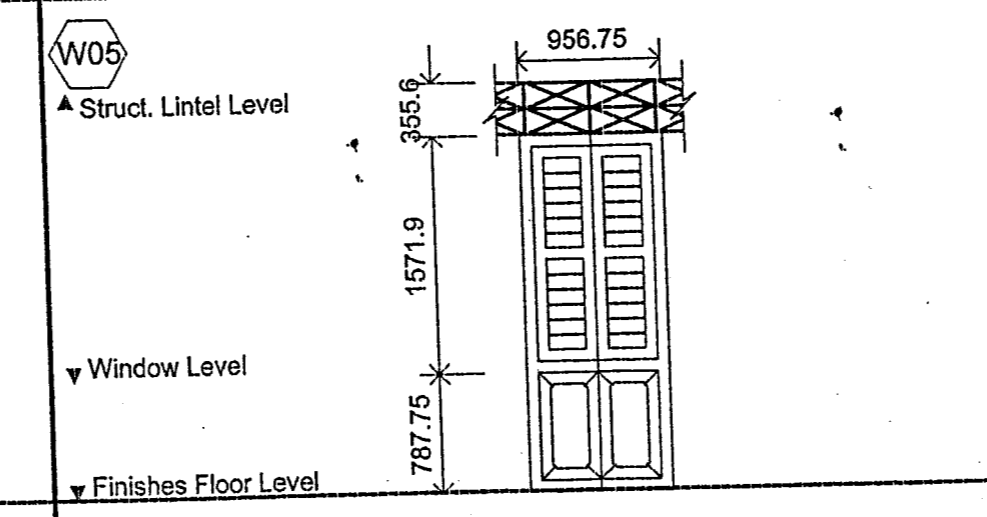
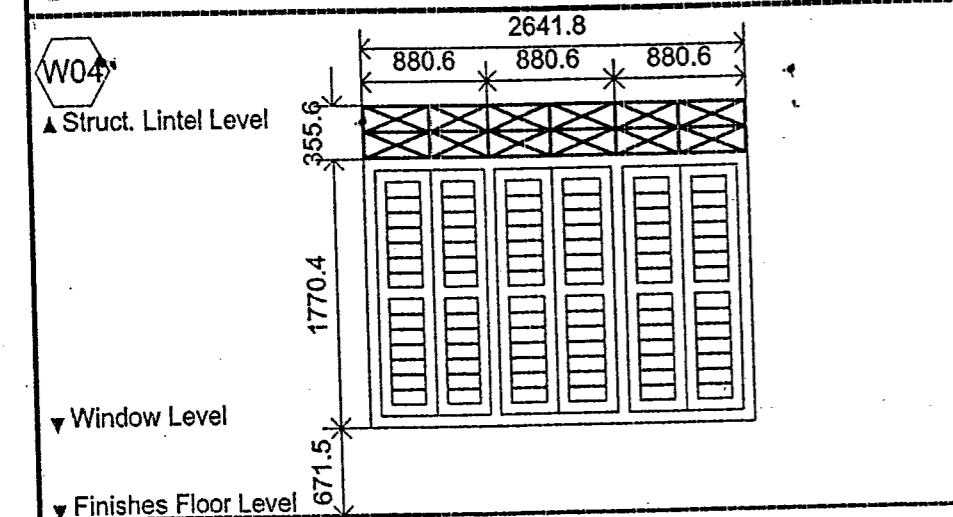


[RMG 336]

DESCRIPTION	2336.8 mm width x 1245 mm high (total length) double leaf h.w timber panel window with approved paint finish
LOCATION	QUANTITY
GROUND FLOOR	1
FIRST FLOOR	-
TOTAL	1

DESCRIPTION	1987.2 mm width x 1245 mm high (total length) double leaf h.w timber panel window with approved paint finish
LOCATION	QUANTITY
GROUND FLOOR	1
FIRST FLOOR	-
TOTAL	1

DESCRIPTION	838.2 mm width x 1245 mm high (total length) double leaf h.w timber panel louvres window with approved paint finish
LOCATION	QUANTITY
GROUND FLOOR	6
FIRST FLOOR	-
TOTAL	6



DESCRIPTION	2641.8 mm width x 1770.4 mm high (total length) double leaf h.w timber panel louvres window with approved paint finish
LOCATION	QUANTITY
GROUND FLOOR	-
FIRST FLOOR	3
TOTAL	3

DESCRIPTION	956.75 mm width x 1571.9 mm high (total length) double leaf h.w timber panel louvres window with approved paint finish
LOCATION	QUANTITY
GROUND FLOOR	-
FIRST FLOOR	4
TOTAL	4

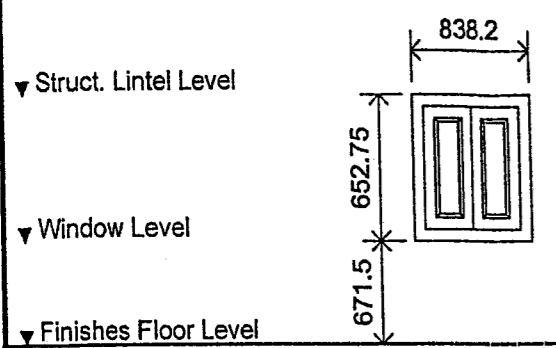
DESCRIPTION	838.2 mm width x 652.75 mm high (total length) double leaf h.w timber panel louvres window with approved paint finish
LOCATION	QUANTITY
GROUND FLOOR	-
FIRST FLOOR	6
TOTAL	6

DRAWING NUMBER: DW/3

FOR TENDER

W07

[RMG 336]

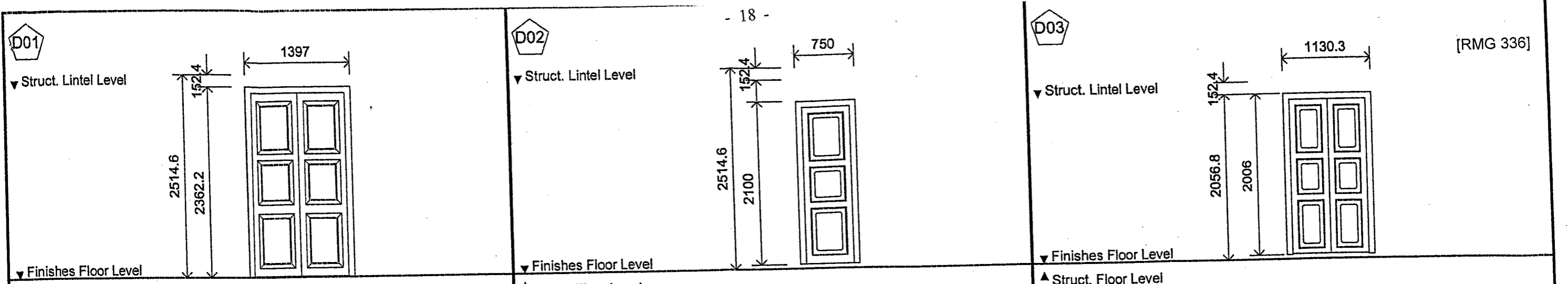


▼ Struct. Lintel Level					
▼ Window Level					
▼ Finishes Floor Level					
▲ Struct. Floor Level					
DESCRIPTION	838.2 mm width x 652.75 mm high (total length) double leaf h.w timber panel window with approved paint finish	DESCRIPTION		DESCRIPTION	
LOCATION	QUANTITY	LOCATION	QUANTITY	LOCATION	QUANTITY
GROUND FLOOR	-	GROUND FLOOR		GROUND FLOOR	
FIRST FLOOR	7	FIRST FLOOR		FIRST FLOOR	
TOTAL	7	TOTAL		TOTAL	

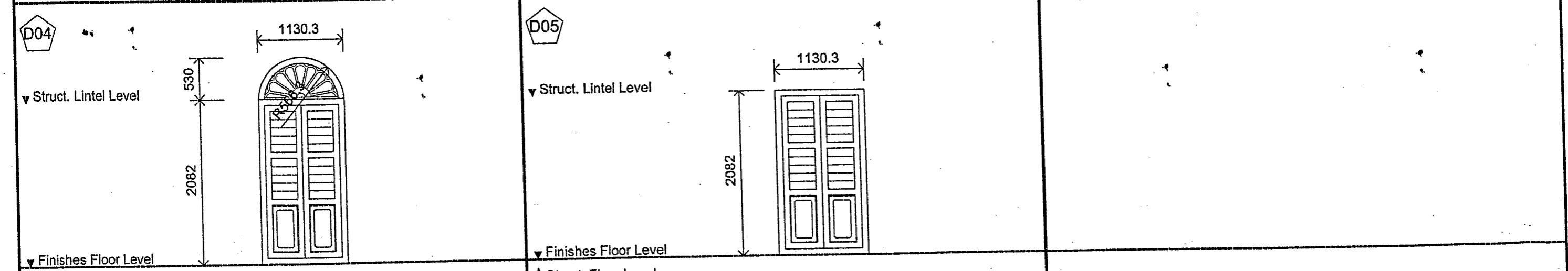
DESCRIPTION		DESCRIPTION		DESCRIPTION	
LOCATION	QUANTITY	LOCATION	QUANTITY	LOCATION	QUANTITY
GROUND FLOOR		GROUND FLOOR		GROUND FLOOR	
FIRST FLOOR		FIRST FLOOR		FIRST FLOOR	
TOTAL		TOTAL		TOTAL	

DRAWING NUMBER: DW/4

FOR TENDER

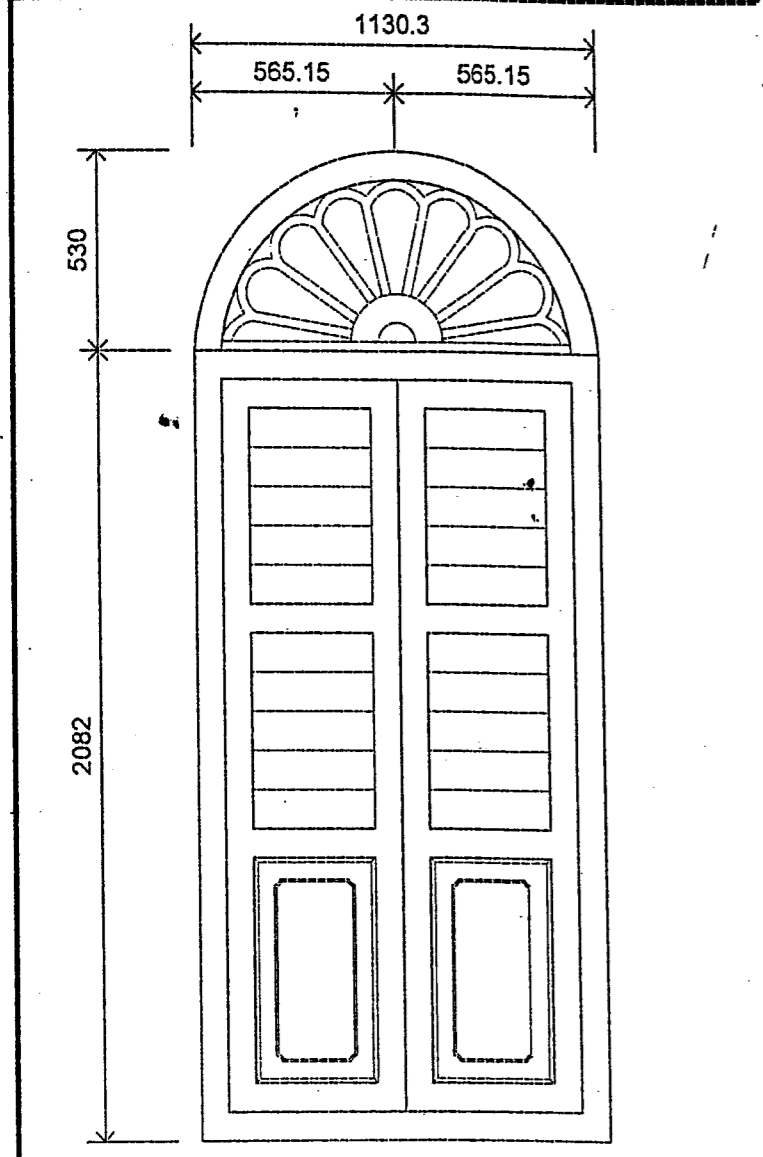
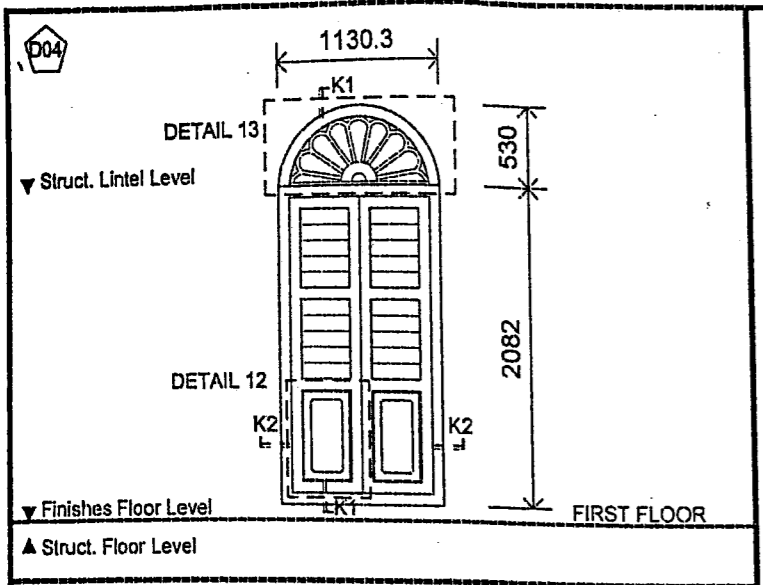


DESCRIPTION	1397 mm width x 2362.2 mm high double leaf hard wood timber panel door painted with approved paint finish	DESCRIPTION	750 mm width x 2100 mm high single leaf hard wood timber panel door painted with approved paint finish	DESCRIPTION	1130.3 mm width x 2006 mm high double leaf hard wood timber panel door painted with approved paint finish
LOCATION	QUANTITY	LOCATION	QUANTITY	LOCATION	QUANTITY
GROUND FLOOR	2	GROUND FLOOR	4	GROUND FLOOR	1
FIRST FLOOR	-	FIRST FLOOR	-	FIRST FLOOR	2
TOTAL	2	TOTAL	4	TOTAL	3

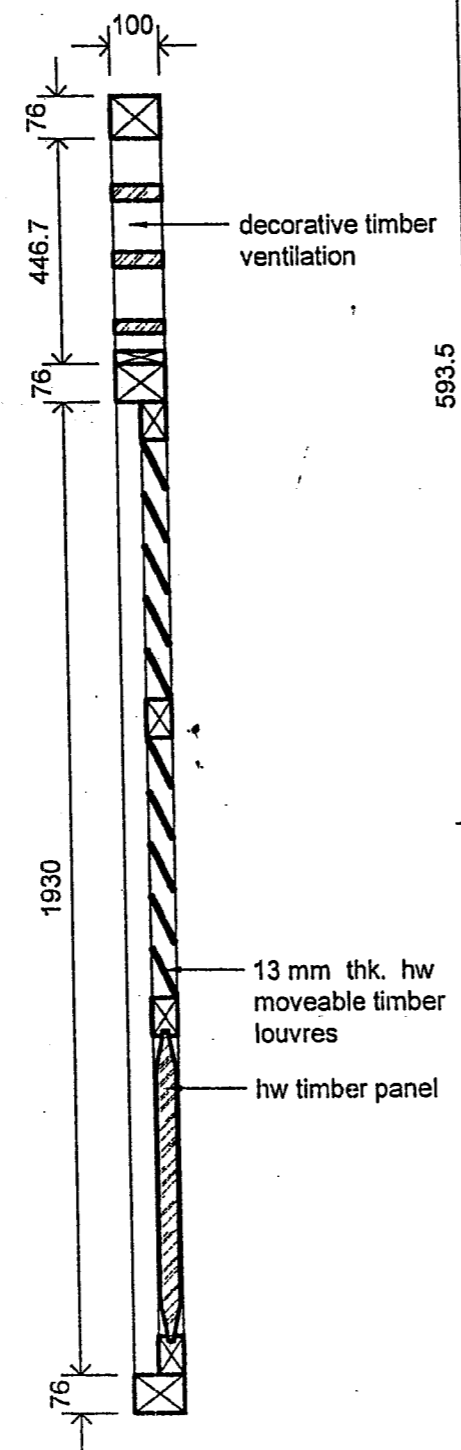


DESCRIPTION	1130.3 mm width x 2082 mm high double leaf hard wood timber panel door painted with approved paint finish	DESCRIPTION	1130.3 mm width x 2082 mm high double leaf hard wood timber panel door painted with approved paint finish	DESCRIPTION	
LOCATION	QUANTITY	LOCATION	QUANTITY	LOCATION	QUANTITY
GROUND FLOOR	-	GROUND FLOOR	-	GROUND FLOOR	
FIRST FLOOR	8	FIRST FLOOR	3	FIRST FLOOR	
TOTAL	8	TOTAL	3	TOTAL	

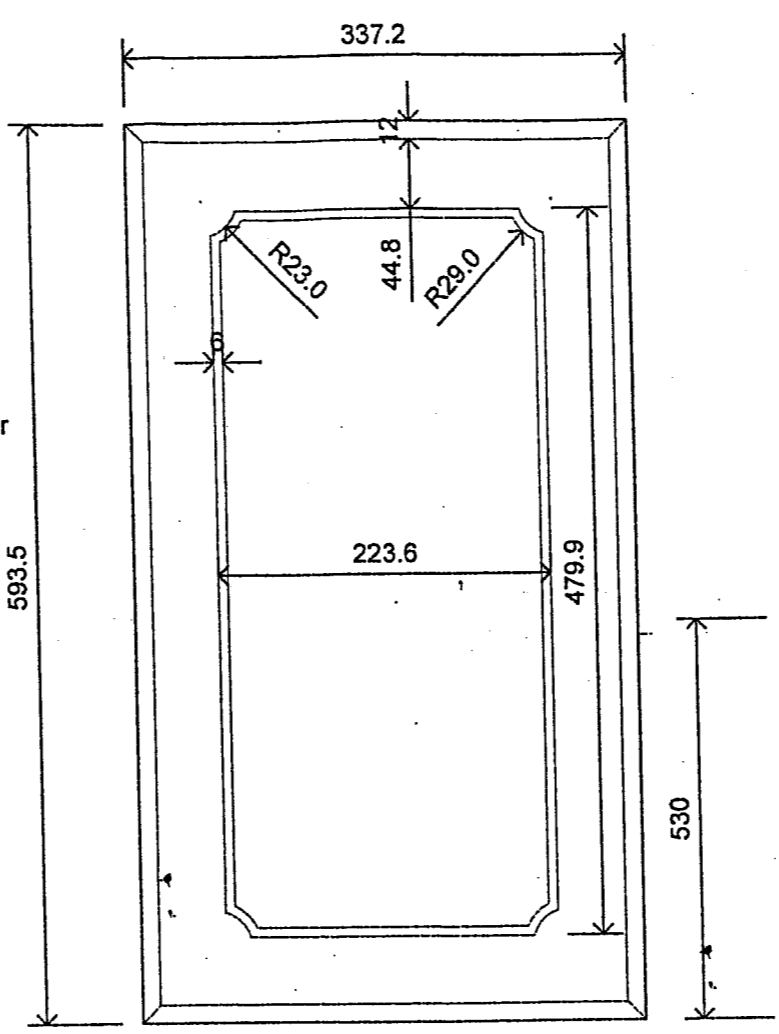
DRAWING NUMBER: DW/5 FOR TENDER



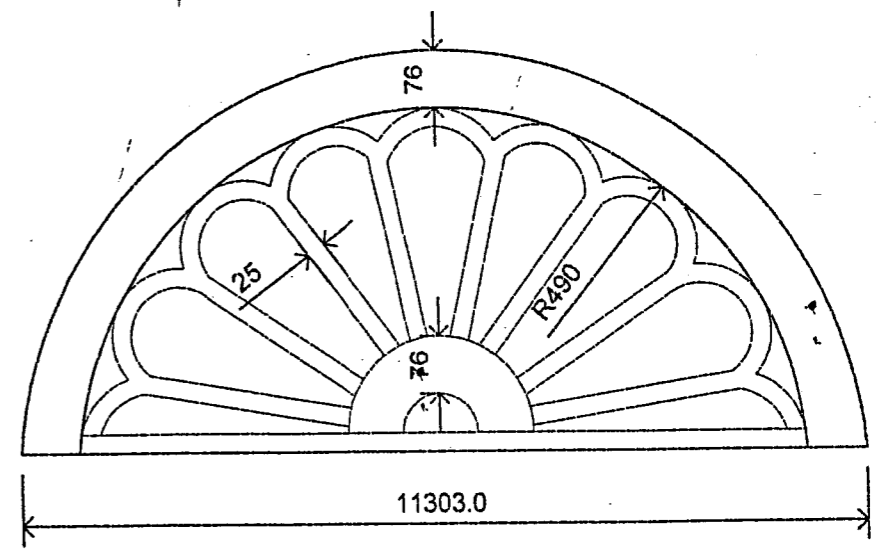
01 TYPICAL D04
Scale 1:20



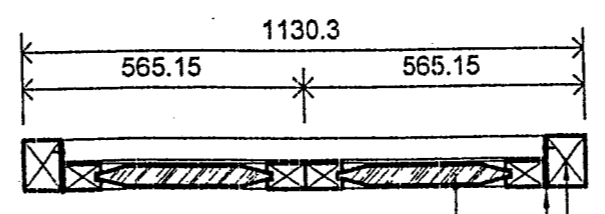
02 SECTION K1 - K1
Scale 1:15



04 DETAIL 12
Scale 1:5



05 DETAIL 13
Scale 1:10



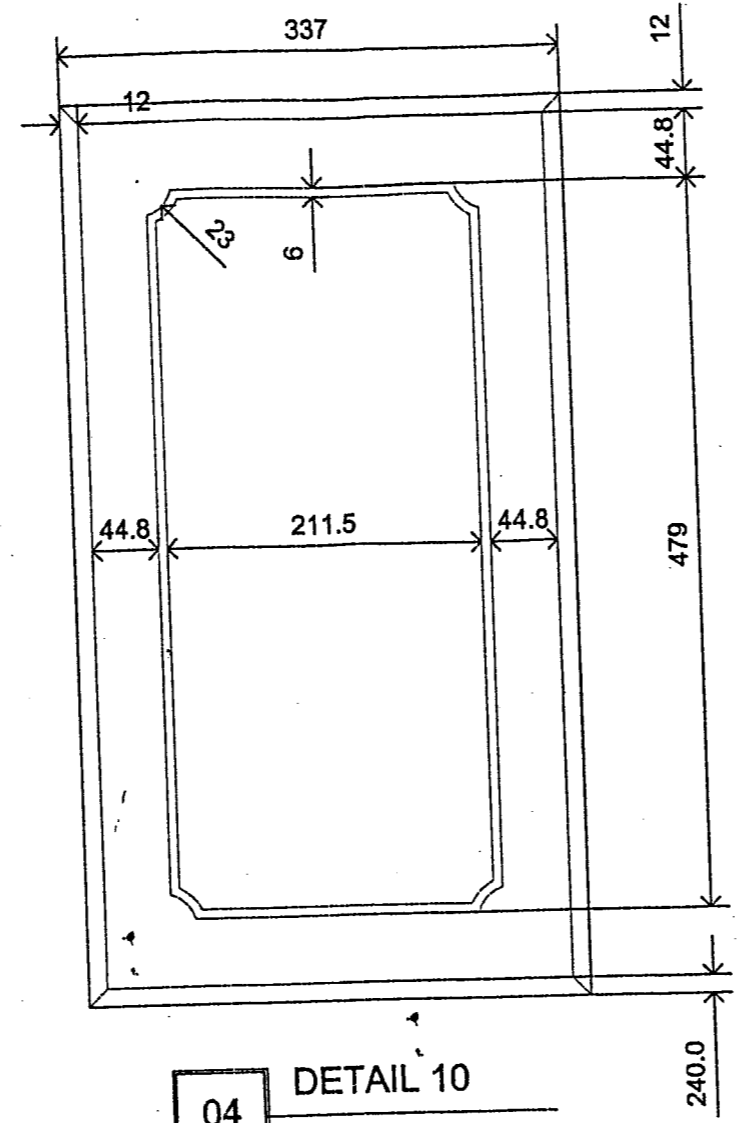
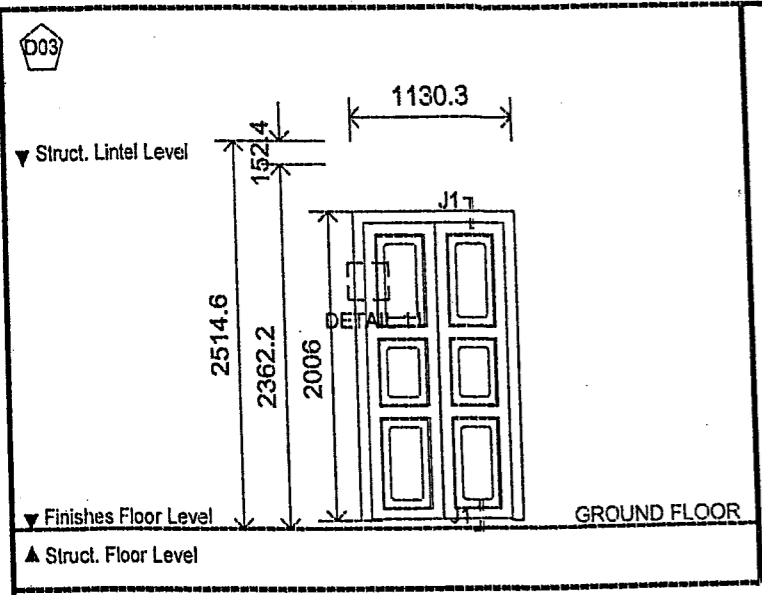
03 SECTION K2 - K2
Scale 1:15

DOOR
D04 1130.3 mm width x 2028 mm high double leaf hard wood timber panel door painted with approved paint finish

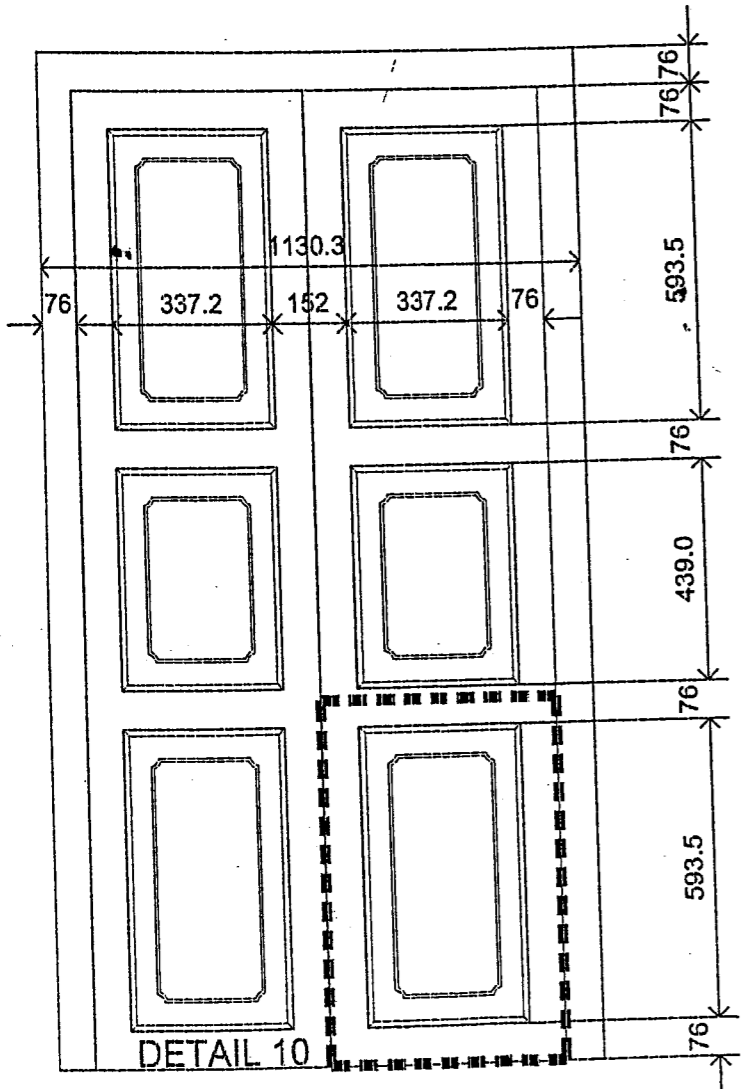
[RMG 336]

DRAWING NUMBER: DW/6

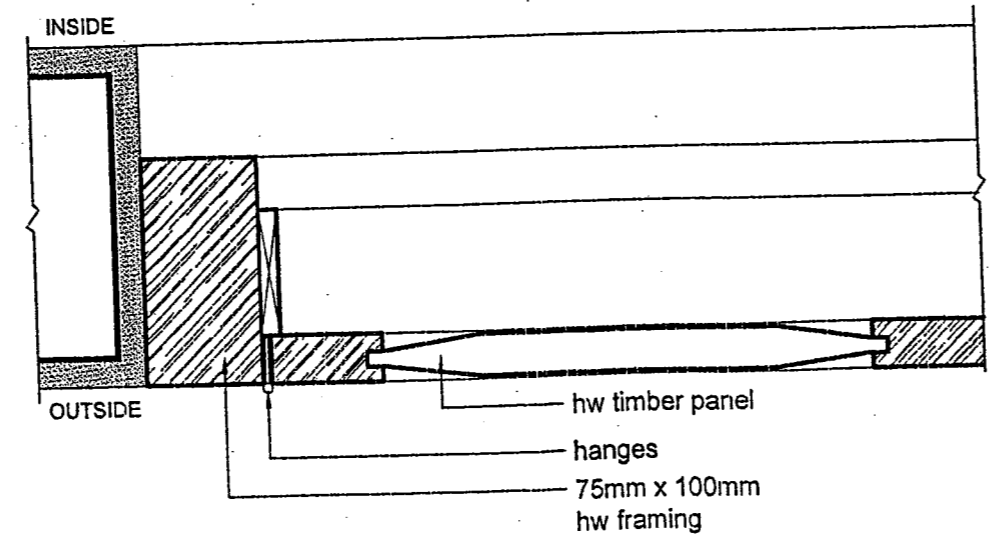
FOR TENDER



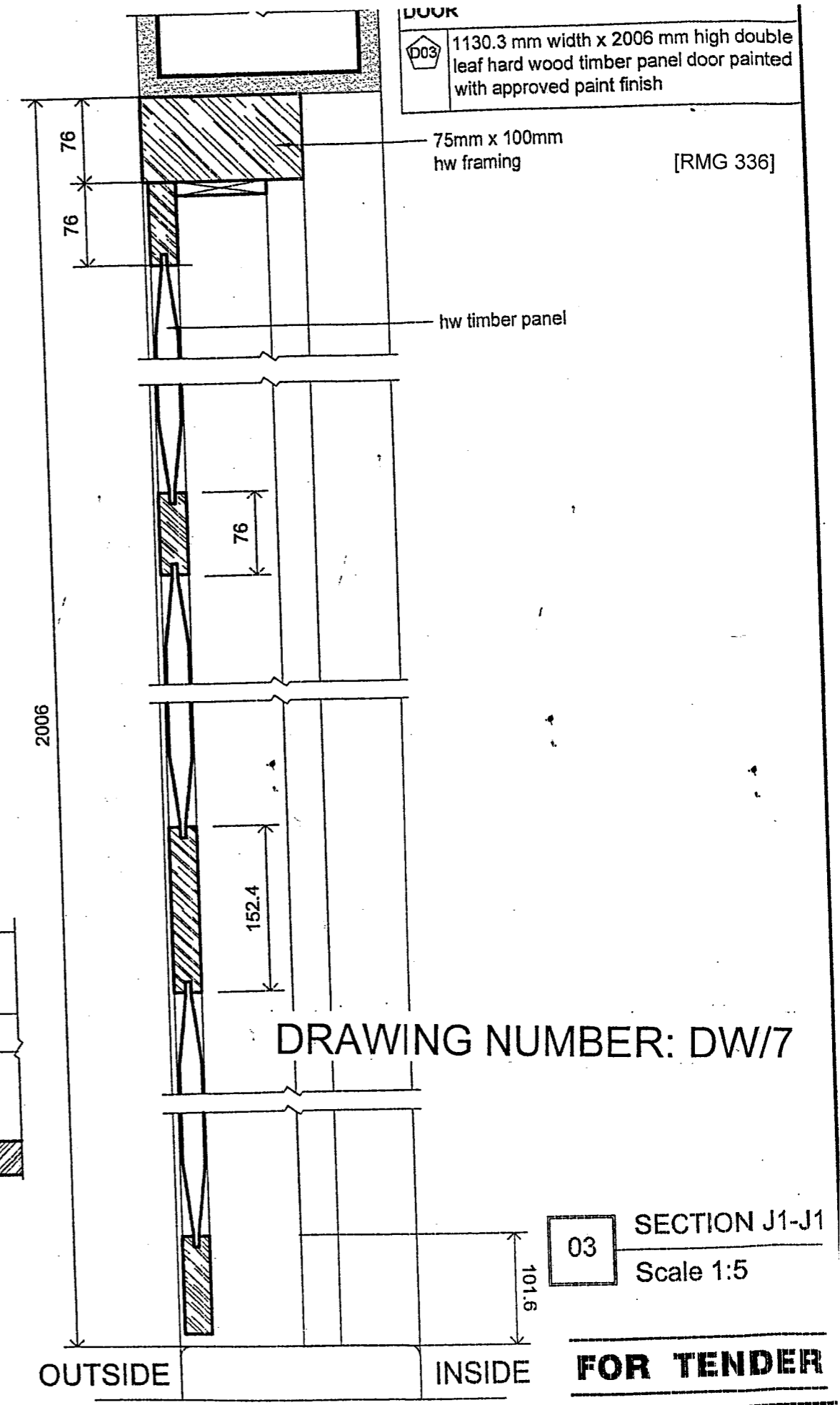
04 DETAIL 10
Scale 1:5



01 TYPICAL D03
Scale 1:15



02 DETAIL 11
Scale 1:5



DRAWING NUMBER: DW/7

03 SECTION J1-J1
Scale 1:5

FOR TENDER