

SULIT



**BAHAGIAN PEPERIKSAAN DAN PENILAIAN
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI
KEMENTERIAN PENGAJIAN TINGGI**

JABATAN KEJURUTERAAN AWAM

PEPERIKSAAN AKHIR

SESI I : 2022/2023

DCQ20104: BUILDING WORKS MEASUREMENT 2

TARIKH : 14 DISEMBER 2022

MASA : 8.30 AM – 10.30 AM (2 JAM)

Kertas ini mengandungi **SEMBILAN (9)** halaman bercetak.

Bahagian A: Struktur (2 soalan)

Bahagian B: Esei (4 soalan)

Dokumen sokongan yang disertakan : LUKISAN PELAN

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIARAHKAN

(CLO yang tertera hanya sebagai rujukan)

SULIT

SECTION A : 50 MARKS**BAHAGIAN A: 50 MARKAH****INTRUCTION:**

This section consists of **TWO (2)** structured essay questions. Answer **ALL** questions.

ARAHAN:

*Bahagian ini mengandungi **DUA (2)** soalan esei berstruktur. Jawab **SEMUA** soalan.*

Notes:**Nota:**

- (a) Taking off shall refer to the rules and principles in Standard Method of Measurement for Building Works second edition (SMM2).

Kerja-kerja penyaringan mesti berdasarkan prinsip-prinsip yang ditetapkan dalam Kaedah Pengukuran Piawai Kerja Bangunan edisi ke-2 (SMM2.)

- (b) Candidate is allowed to make assumptions if the information given in a drawing is inadequate.

Calon dibenarkan untuk membuat andaian munasabah sekiranya maklumat atau spesifikasi dalam lukisan tidak diperuntukkan atau tidak jelas.

- (c) Marks will be given for the knowledge of the subject and systematic setting of dimensions, adequacy and accuracy of description and dimensions.

Markah akan diberikan berdasarkan pengetahuan tentang subjek dan dimensi yang sistematik, kecukupan dan ketepatan penerangan dan dimensi.

QUESTION 1
SOALAN 1CLO1
C2

- (a) Show a taking off list for a typical building frame element.

Tunjukkan senarai saringan bagi elemen kerangka bangunan biasa.[5 marks]
[5 markah]CLO1
C3

- (b) Based on the Drawing No.
- DCQ20104/FRAME/A/S1/01**
- , prepare the quantity measurement for concrete in roof beam for RB1 and mild steel stirrups for RB3.

*Berdasarkan Lukisan No. **DCQ20104/FRAME/A/S1/01**, sediakan pengukuran kuantiti bagi konkrit pada rasuk bumbung RB1 dan pengikat besi tetulang lembut bagi RB3.*[8 marks]
[8 markah]CLO1
C3

- (c) Based on the Drawing No.
- DCQ20104/FRAME/A/S1/01**
- , prepare the quantity measurement with a complete as bill of quantities for formwork of roof beam in RB3.

*Berdasarkan Lukisan No. **DCQ20104/FRAME/A/S1/01**, sediakan pengukuran kuantiti beserta senarai kuantiti yang lengkap bagi kotak bentuk pada rasuk bumbung RB3*[12 marks]
[12 markah]

QUESTION 2
SOALAN 2CLO 1
C2

- (a) According to Standard Method of Measurement for Building Works second edition (SMM2), relate an example of description to show a thickness requirement in measuring concrete slab.

Berdasarkan Standard Method of Measurement for Building Works second edition (SMM2), kaitkan satu contoh keterangan bagi menunjukkan kehendak bagi ketebalan dalam mengira lantai konkrit.

[5 marks]
[5 markah]

CLO 1
C3

- (b) According to the Drawing No. **DCQ20104/UPPER FLOOR/A/S2/01**, prepare the quantity measurement for formwork to soffit of slab and formwork to edge of slab.

*Merujuk kepada Lukisan No. **DCQ20104/UPPER FLOOR/A/S2/01**, sediakan pengukuran kuantiti bagi kotak bentuk pada bawah lantai konkrit dan kotak bentuk pada sisi lantai.*

[8 marks]
[8 markah]

CLO1
C3

- (c) According to the Drawing No. **DCQ20104/UPPER FLOOR/A/S2/01**, prepare the quantity measurement with complete a bill of quantities for reinforcement Y25-004-250 and Y25-003-250.

*Merujuk kepada Lukisan No. **DCQ20104/UPPER FLOOR/A/S2/01**, sediakan pengukuran kuantiti berserta senarai kuantiti yang lengkap bagi besi tetulang Y25-004-250 dan Y25-003-250.*

[12 marks]
[12 markah]

SECTION B : 50 MARKS
BAHAGIAN B : 50 MARKAH

INSTRUCTION:

This section consists of **FOUR (4)** essay questions. Answer **TWO (2)** questions only.

ARAHAN :

Bahagian ini mengandungi EMPAT (4) soalan esei. Jawab DUA (2) soalan sahaja.

Notes :

Nota :

1. Taking off shall refer to the rules in Standard Method of Measurement of Building Works Second Edition (SMM2)

Kerja-kerja penyaringan hendaklah merujuk kepada peraturan yang terdapat di dalam Kaedah Pengukuran Piawai untuk Kerja-Kerja Bangunan Edisi Kedua (SMM2)

2. Candidate is allowed to make any assumptions if the information given in the drawing is inadequate.

Calon adalah dibenarkan untuk membuat sebarang andaian sekiranya maklumat yang diberikan di dalam lukisan tidak lengkap.

3. Marks will be given for the knowledge of the subject and systematic setting of dimensions, adequacy and accuracy of description and dimensions.

Markah akan diberikan berdasarkan pengetahuan tentang subjek dan sistematik dimensi, kecukupan dan ketepatan penerangan dan dimensi.

QUESTION 1
SOALAN 1CLO1
C3

- (a) Based on Drawing No. **DCQ20104/STAIRCASE/B/S1/0** , prepare the quantity measurement for concrete in staircase and formwork to landing beam.

*Berpandukan Lukisan No. **DCQ20104/STAIRCASE/B/S1/01**, sediakan pengukuran kuantiti bagi konkrit papak tangga dan kotak bentuk bagi rasuk pelantar tangga.*

[10 marks]
[10 markah]

CLO1
C4

- (b) Based on drawing No. **DCQ20104/STAIRCASE/B/S1/01** , prepare the quantity measurement with complete a bill of quantities for concrete in landing slab, concrete in landing beam and concrete in toe beam .

*Berpandukan Luukisan No. **DCQ20104/STAIRCASE/B/S1/01**, sediakan pengukuran kuantiti serta senarai kuantiti yang lengkap bagi kerja konkrit di pelantar lantai, konkrit di rasuk pelantar dan konkrit di rasuk tunggul.*

[15 marks]
[15 markah]

QUESTION 2**SOALAN 2**CLO1
C3

- (a) Based on the Drawing No. **DCQ20104/ROOF/Sec.B/2b/01**, prepare the quantity measurement for common rafter, valley rafter in roof element.

Berdasarkan Lukisan No. DCQ20104/ROOF/Sec.B/2b/01, sediakan pengukuran kuantiti bagi kasau biasa, kasau lurah di dalam elemen bumbung.

[10 marks]
[10 markah]

CLO1
C4

- (b) Based on Drawing No. **DCQ20104/ROOF/Sec.B/2b/01**, prepare the quantity measurement with complete a bill of quantities for ridge board and wall plate item in roof element .

Berpandukan Lukisan No. DCQ20104/ROOF/Sec.B/2b/01, sediakan pengukuran kuantiti beserta dengan senarai kuantiti yang lengkap bagi item tulang perabung dan plat dinding di dalam elemen bumbung.

[15 marks]
[15 markah]

QUESTION 3**SOALAN 3**CLO1
C3

- (a) Based on the Drawing No. **DCQ20104/BRICKWALL/Sec.B/3b/01**, prepare the quantity measurement for internal wall item in wall element.

Berdasarkan Lukisan No. DCQ20104/BRICKWALL/Sec.B/3b/01, sediakan pengukuran kuantiti bagi item dinding dalaman di dalam elemen dinding.

[10 marks]

[10 markah]

CLO1
C4

- (b) Based on the Drawing No **DCQ20104/BRICKWALL/Sec.B/3b/01**, prepare the quantity measurement complete with a bill of quantities for external wall item in wall element.

Berdasarkan Lukisan No DCQ20104/BRICKWALL/Sec.B/3b/01, sediakan pengukuran kuantiti beserta senarai kuantiti yang lengkap bagi item dinding luaran di dalam elemen dinding.

[15 marks]

[15 markah]

QUESTION 4**SOALAN 4**CLO1
C3

- (a) Based on Drawing No. **DCQ20104/DOOR&WINDOW/1** and **DCQ20104/DOOR&WINDOW/2**, prepare the quantity measurement for **ALL** aluminium window works.

*Berdasarkan Lukisan No. **DCQ20104/DOOR&WINDOW/1** dan **DCQ20104/DOOR&WINDOW/2**, sediakan pengukuran kuantiti bagi **SEMUA** kerja-kerja tingkap jenis aluminium.*

[10 marks]

[10 markah]

CLO1
C4

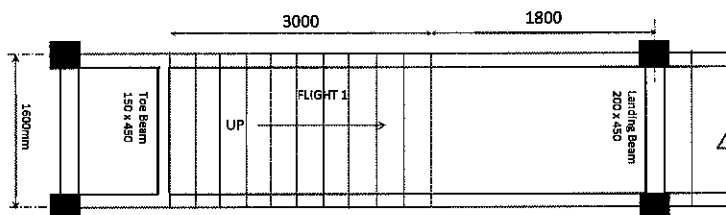
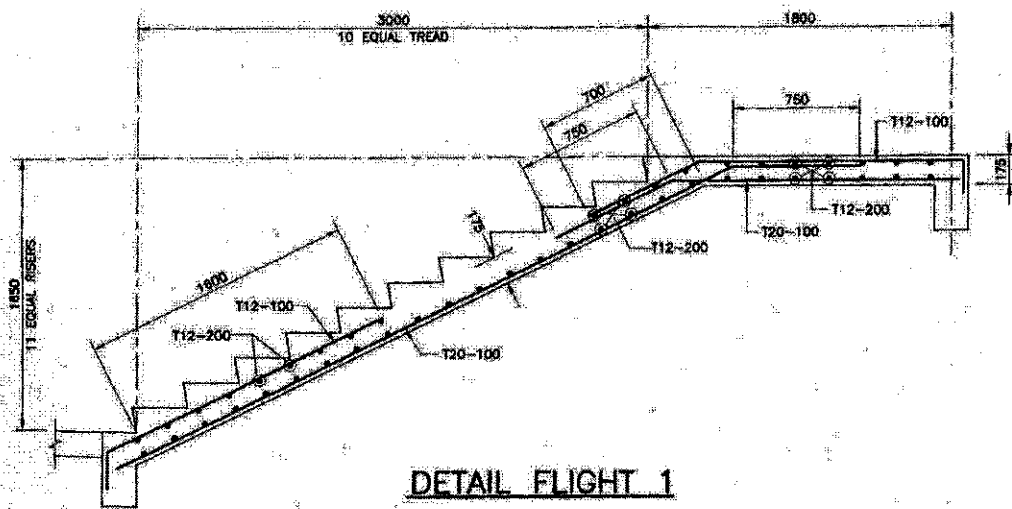
- (b) Based on Drawing No. **DCQ2064/DOOR&WINDOW/1** and **DCQ20104/DOOR&WINDOW/2**, prepare the quantity measurement complete with a bill of quantities for timber door works.

*Berdasarkan Lukisan No. **DCQ20104/DOOR&WINDOW/1** dan **DCQ20104/DOOR&WINDOW/2**, sediakan pengukuran kuantiti beserta dengan senarai kuantiti yang lengkap bagi kerja-kerja pintu jenis kayu.*

[15 marks]

[15 markah]

SOALAN TAMAT



Note: Grade 20 of concrete, 25mm thick concrete cover

Ground Floor Plan – Not To Scale

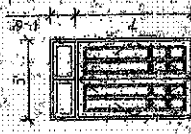
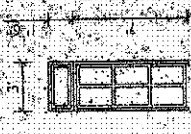
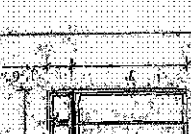
DRAWING NO. DCQ2064/Staircase 2022

Make assumptions if necessary

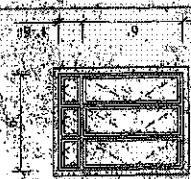
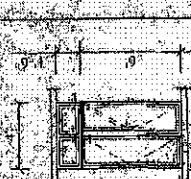
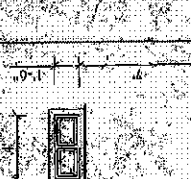


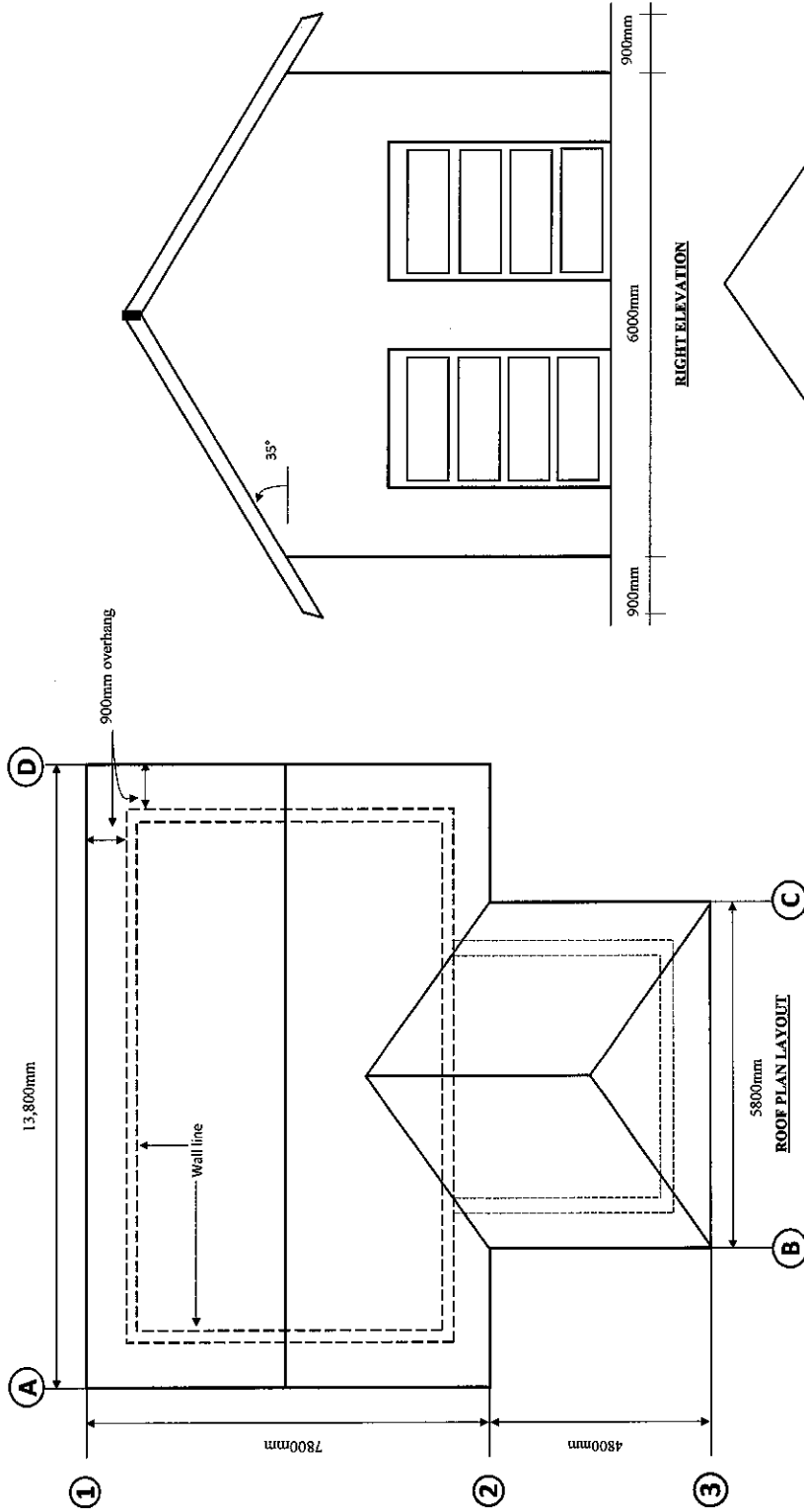
SCALE: 1/8"=1'-0"

DOOR SCHEDULE

type	D1	D2	D3	D4	D5
image & size					
spec	Double decorative timber solid floor with top hung detail	Decorative timber solid floor with top hung detail	Decorative timber solid door to detail	Decorative timber solid door to detail	Aluminium frame glass sliding door to manual detail

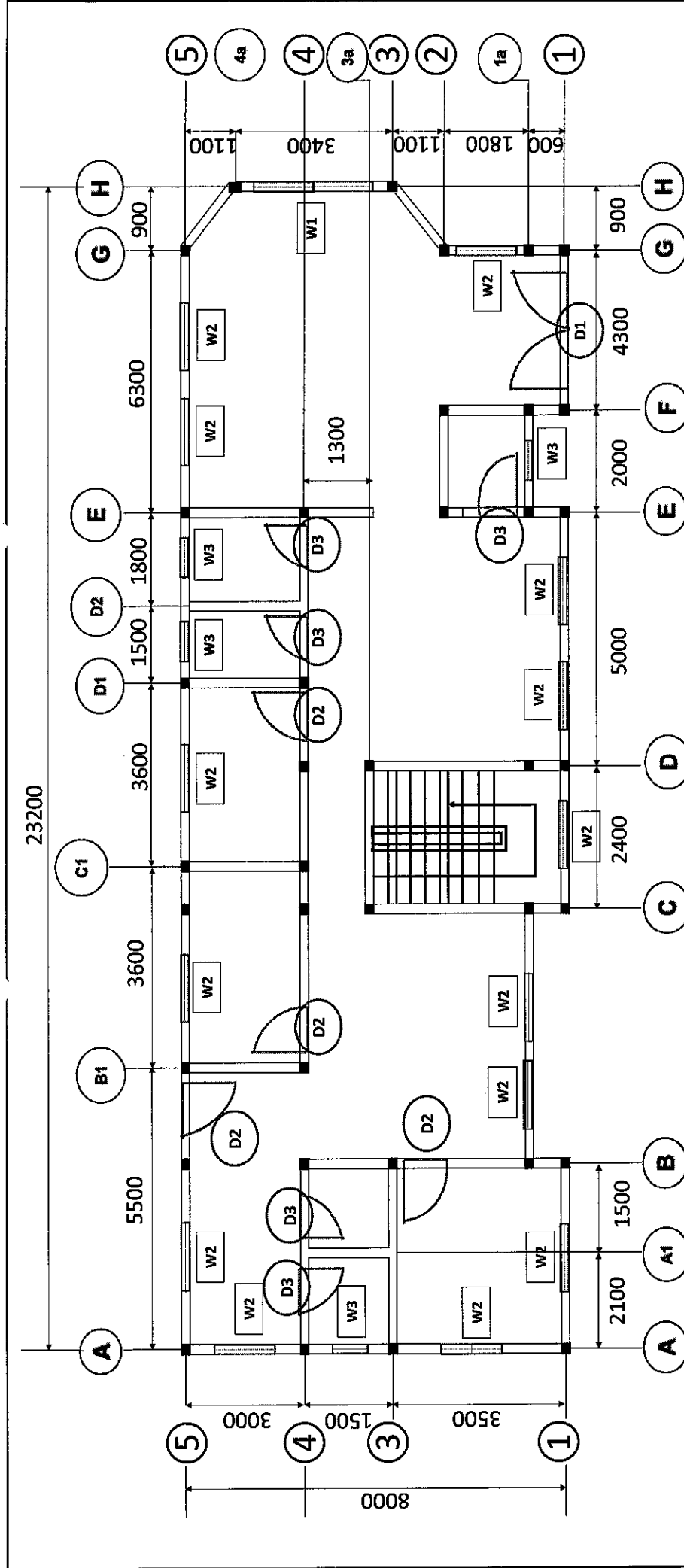
WINDOW SCHEDULE

type	W1	W2	W3	W4	W5
image & size					
spec	Aluminium frame casement window with top hung above	Aluminium frame casement window with top hung above	Aluminium frame casement window with top hung above	Aluminium frame high level top hung ventilation above	Aluminium frame floor glass panel



- Notes:**
1. 100mm x 50mm H.W. Rafter at 600mm centre to centre.
 2. 100mm x 75mm H.W. Wall plate
 3. 150mm x 25mm H.W. Ridge board
 4. 100mm x 50mm H.W. Ceiling Joist at 600mm centre to centre
 5. 100mm x 50mm H.W. Hip dan Valley Rafter

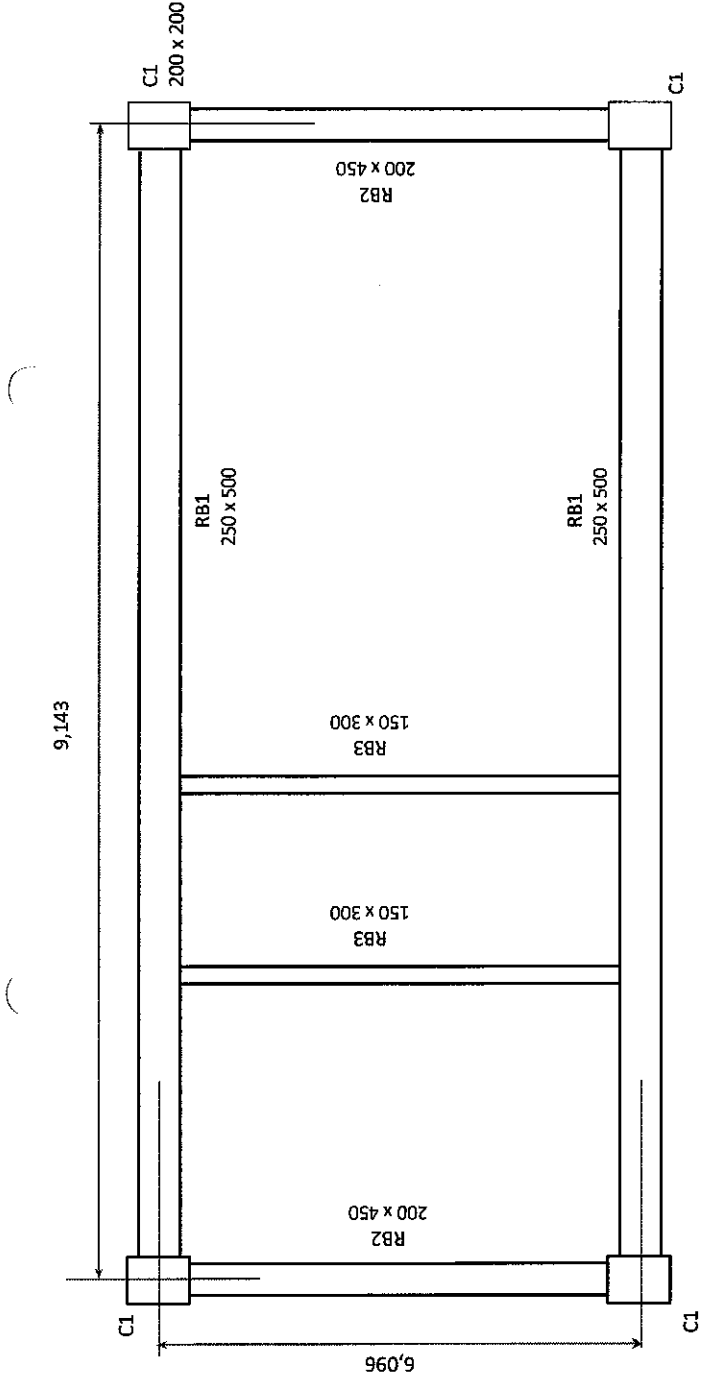
DCQ20104/ROOF/Sec.B/2b/01



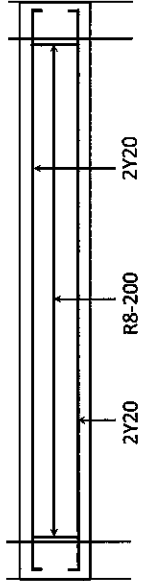
FIRST FLOOR PLAN LAYOUT
 110mm thick brickwall with 20mm thick cement plaster on both sides

Doors & Windows Schedule	
D1	1600 x 2100 x 40mm thick Solid Timber Panelled Door
D2	900 x 2100 Skeleton Framed Flush Door
D3	760 x 2100 Skeleton Framed Flush Door
W1	2400 x 1700 Anodized Aluminium Window
W2	1200 x 1700 Anodized Aluminium Window
W3	600 x 900 Tinted Glass Louvers Window

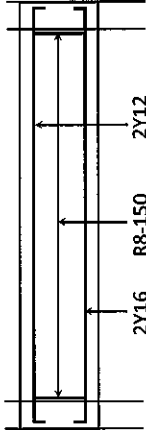
- NOTES:**
- All concrete shall be Grade 20.
 - Concrete cover to bars (Except where otherwise shown):
 Column 25mm
 Beam 25mm
 Slab 12mm
 - All columns shall be similar size (refer column schedule)
 - All beams shall be size 125 x 350.
 - The building height is 3.2 meter.



ROOF BEAM LAYOUT (N.T.S)



TYPICAL DETAIL OF ROOF BEAM RB3 (N.T.S)



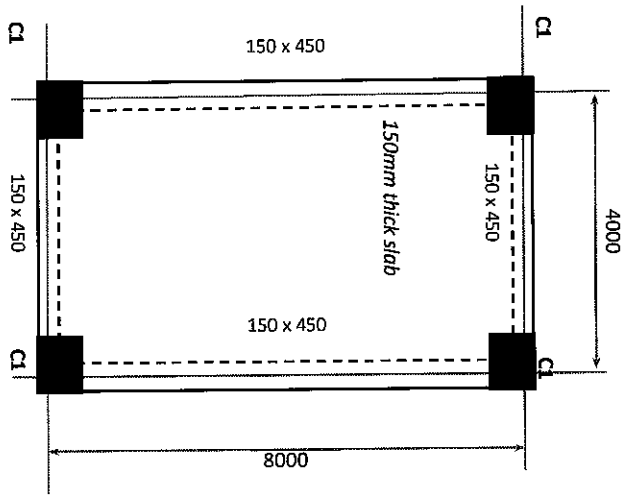
TYPICAL DETAIL OF ROOF BEAM RB1 & RB2 (N.T.S)

Reinforcement schedule

Diameter of bars	20mm	8mm
Multiplier Factor	2.467	0.395

Note : - Size of column C1 - 200mm x 200mm
 - Conc. cover for column and roof beam is 40mm thick

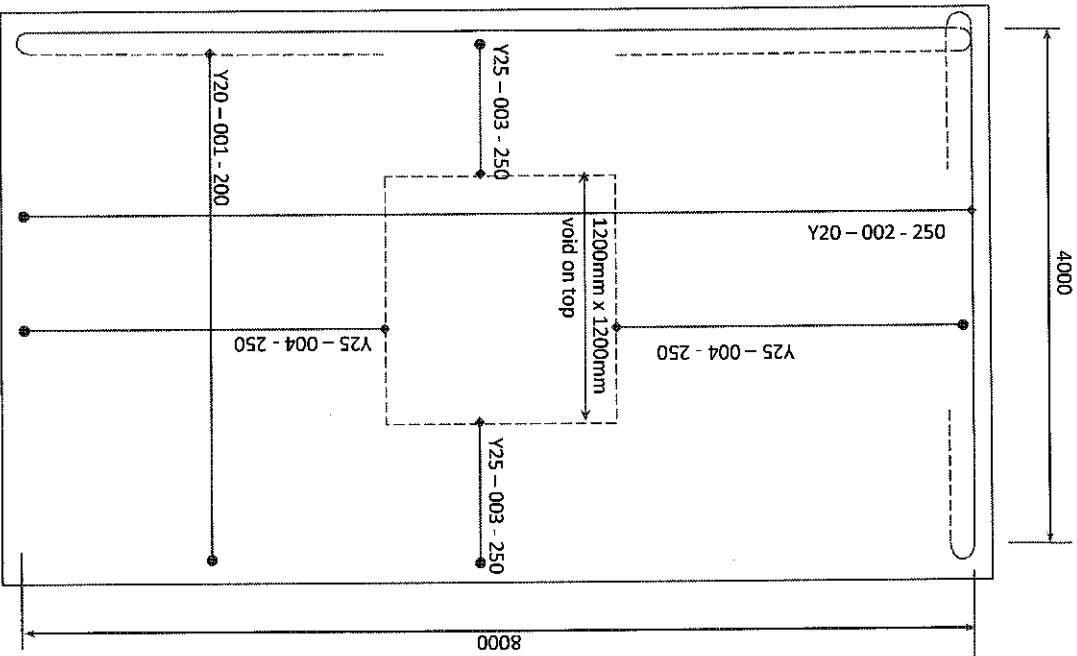
DRAWING NO. DCQ20104/FRAME/A/S1/01



Note :- Suspended Floor – 150mm Thick
Concrete cover – 25mm
Column 300mm x 300mm
Grade 20 of concrete

First Floor Beam & Slab Layout (n.t.s)

DRAWING NO: DCQ20104/UPPER FLOOR/AS2/01



DETAIL OF REINFORCEMENT