Dr. Hassan Issa
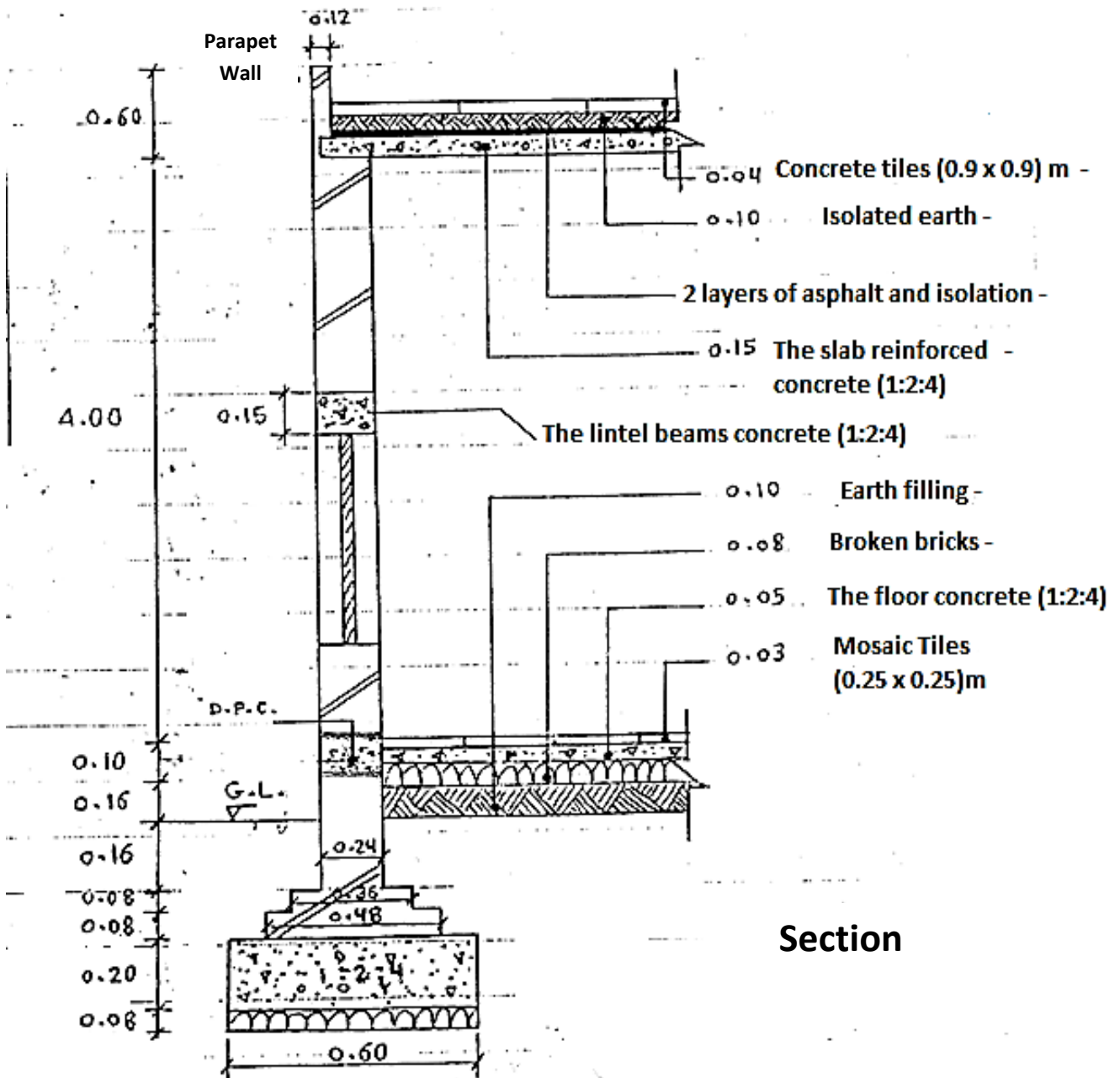**Dr. Aliaa Hamadi**
Lect. Mustafa Ayad
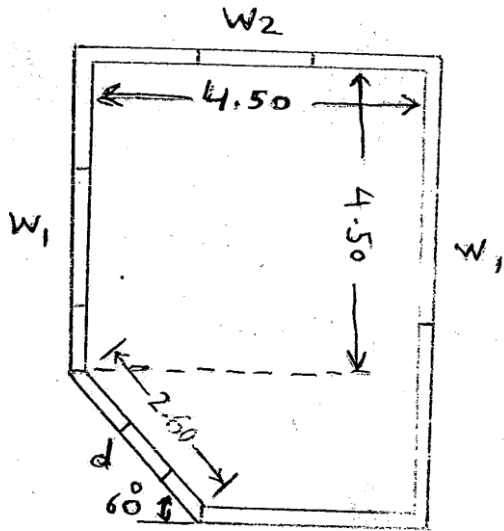
Examples of Bill of Quantities

أمثلة عن إعداد جداول الكميات

Ex/ for the plan and section of the wall shown below. Calculate quantities for each of the following construction works:

1- Excavation works for foundation.
2- All concrete works from foundation to the roof, take in the consideration that there is a continuous tie beam.
3- Brick works with bricks and cement mortar (from foundation to the celling up to the parapet wall).

Parapet Wall

0.12

0.60

0.04 Concrete tiles (0.9 x 0.9) m –

0.10 Isolated earth –

2 layers of asphalt and isolation –

0.15 The slab reinforced –
concrete (1:2:4)

4.00   0.15

The lintel beams concrete (1:2:4)

0.10   Earth filling –

0.08   Broken bricks –

0.05   The floor concrete (1:2:4)

0.03   Mosaic Tiles
(0.25 x 0.25)m

D.P.C.

0.10

0.16   G.L.

0.16   0.24

0.08

0.08

0.20

0.08

0.60

Section

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Plan

	Width (m)	Height (m)
D	1	2
W1	2	1.5
W2	1.5	1.5

Solution:

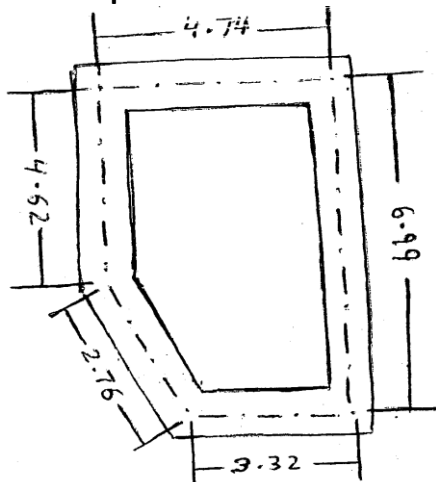**The interior triangle**
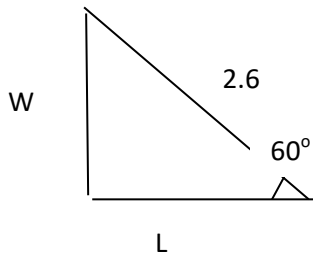
W = 2.6 × sin 60 = 2.25 m
L = 2.6 × cos 60 = 1.3 m

For the centre line:
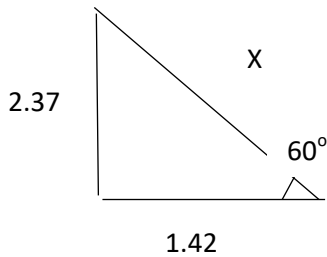
$$X = \sqrt{(2.37)^2 + (1.42)^2} = 2.76 \text{ m}$$

The foundation plan for center line as below

Length of centre line = 3.32 + 5.99 + 4.74 + 4.62 + 2.76 = 22.43 m

2

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| No.	Activity/Item	Unit	Dimensions			Quantity	Notes & Calculations
			Length	Width	Height		
1	*Earth works:* **Excavation works**	m³	22.43	0.6	0.6	8.08	**Length of center line = 3.32 + 5.99 + 4.74 + 4.62 + 2.76 = 22.43 m**
2	*Concrete works:* **Pouring concrete for foundation base (1:2:4)**	m³	22.43	0.6	0.2	2.69	
3	**Pouring reinforced concrete for a continuous tie beam (1:2:4)**	m³	22.43	0.24	0.15	0.81	
4	**Pouring reinforced concrete for the floor (1:2:4)**	m³	28.91		0.05	1.45	**A = 6.75 × 4.5 − [(2.25 × 1.3)/2] = 28.91**
5	**D.P.C with 0.1 depth**	L.m	22.43			22.43	
6	**Pouring reinforced concrete for the slab (1:2:4)**	m³	34.09		0.15	5.11	**A = 7.23 × 4.98 − [(2.49 × 1.54)/2] = 34.09**
7	**Brick works:** **Blinding layer for footing with 0.08 m thickness**	m²	22.43	0.6		13.46	
8	**Blinding layer for the ground base with 0.08 m thickness**	m²	28.91			28.91	
9	**Building with bricks and cement mortar (1:3) under the D.P.C** **- the 0.48 m step** **- the 0.36 m step** **- the 0.24 m step up to the D.P.C level**	 m³ m³ m³	 22.43 22.43 22.43	 0.48 0.36 0.24	 0.08 0.08 0.32	 0.86 0.65 1.72 3.32	
10	**Building with bricks and cement mortar (1:3) above the D.P.C Level** • **Wall 0.24 m width above the D.P.C Level** **Excluding the following:** **- Volume of the door opening** **- Volume of the window opening W1** **-Volume of the window**	 m³ m³ m³ m³	 22.43 2 1.5 1.5	 0.24 1 2 1.5	 4 0.24 0.24 0.24	 21.53 -0.48 -1.44 -0.54	 **No. of doors = 1** **No. of windows w1 = 2** **No. of windows w2 = 1**

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	opening W2 - Volume of continuous tie beam (Item No. 3)				-0.81	
11	Building with bricks and cement mortar (1:3) for the parapet wall	m3	22.43	0.12	0.45	1.21

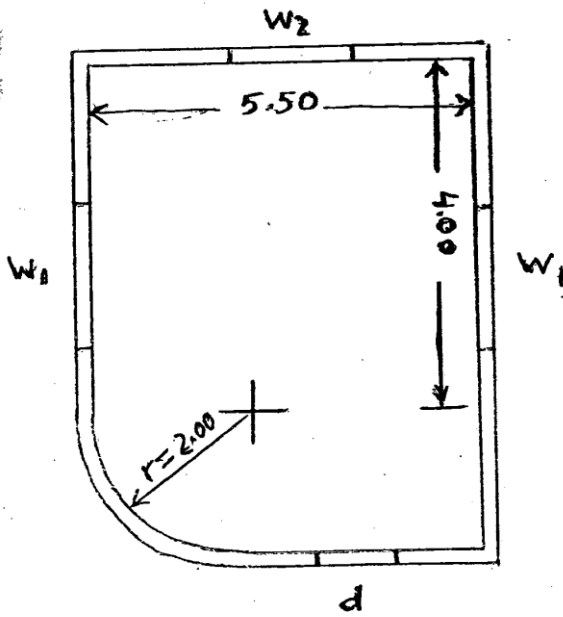
H.W

1/ For the plan and section of the wall shown below. Calculate quantities for each of the following construction works:

1- **Excavation works for foundation.**
2- **All concrete works from foundation to the roof, take in consideration that there is a continuous tie beam.**
3- **Brick works (under & above the D.P.C level up to the parapet wall).**
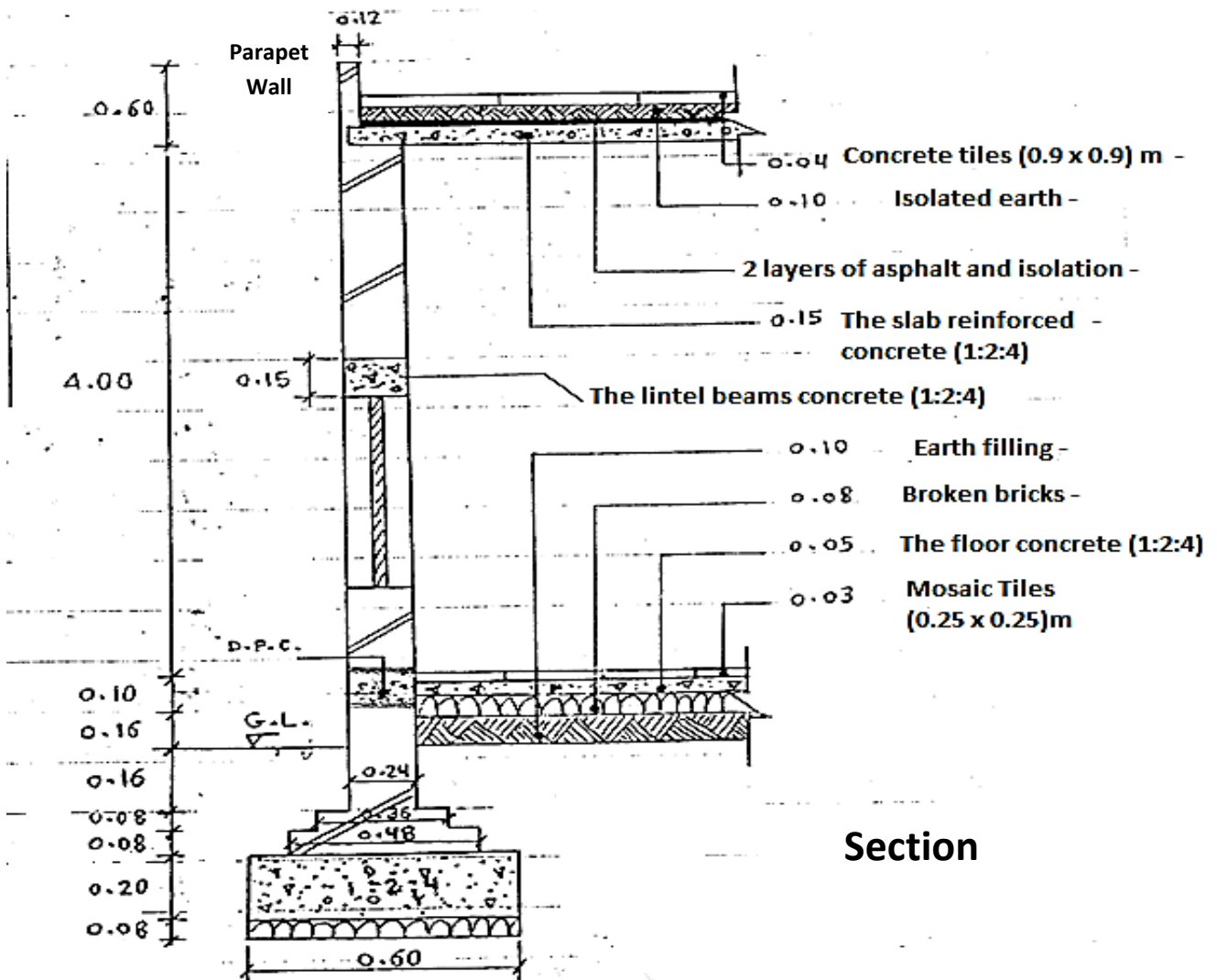
Section

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Plan

	Width (m)	Height (m)
D	1	2
W1	2	1.5
W2	1.5	1.5

2/ For the plan (hexagon shape) and section of the wall shown in No. 1. Calculate quantities for each of the following construction works:

    1- **Excavation works for foundation.**

    2- **Brick works (under & above the D.P.C level up to the parapet wall).**

Plan

Each line in the room is 3m length from inside

	Width (m)	Height (m)
D	1	2
W1	2	1.5