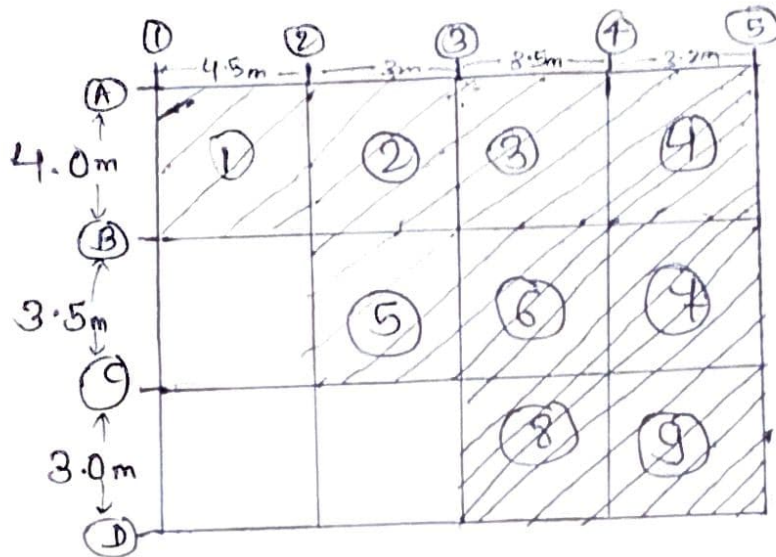


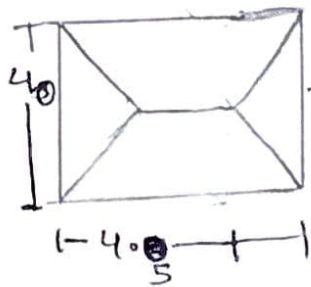
# Load calculation by 'Tributary Method'



Unit weight =  $25 \text{ kN/m}^3$

Thickness =  $0.125 \text{ m}$

for slab ① :



Now, equivalent UDL on beam due to slab

$$= \frac{\text{Area} \times 25 \text{ kN/m}^3 \times 0.125 \text{ m}}{\text{length}}$$

$$\text{Area of } \Delta \text{ for slab 1} = \frac{1}{2} \times 4 \times \frac{4}{2} = 4 \text{ m}^2$$

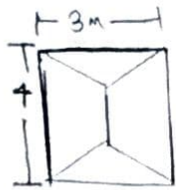
$$\therefore \text{UDL} = \frac{4 \times 25 \times 0.125}{2} = 3.125 \text{ kN/m}$$

$$\text{Area of } \square \text{ for slab 1} = \frac{1}{2} \times (4.5 + 0.5) \times 2 = 5 \text{ m}^2$$

$$\therefore \text{udl} = \frac{5 \times 25 \times 0.125}{4.5}$$

$$= \underline{\underline{3.472 \text{ kN/m}}}$$

for slab 2.



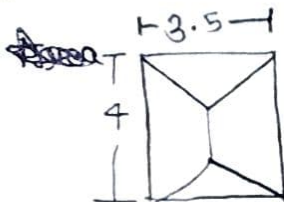
$$\text{Area of } \Delta = \frac{1}{2} \times 3 \times \frac{3}{2} = 2.25 \text{ m}^2$$

$$\therefore \text{UDL} = \frac{2.25 \times 25 \times 0.125}{3} = 2.344 \text{ kN/m}$$

$$\text{Area of } \square = \frac{1}{2} \times (4+1) \times \frac{3}{2} = 3.75 \text{ m}^2$$

$$\therefore \text{UDL} = \frac{3.75 \times 25 \times 0.125}{4} = 2.93 \text{ kN/m}$$

for Slab 3



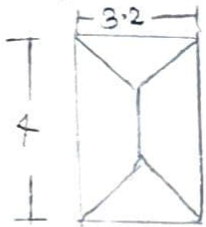
$$\text{Area of } \Delta = \frac{1}{2} \times \frac{3.5^2}{2} = 3.0625 \text{ m}^2$$

$$\therefore \text{UDL} = \frac{3.0625 \times 25 \times 0.125}{3.5} = 2.734 \text{ kN/m}$$

$$\text{Area of } \square = \frac{1}{2} \times (4+0.5) \times \frac{3.5}{2} = 3.938 \text{ m}^2$$

$$\therefore \text{UDL} = \underline{\underline{3.074 \text{ kN/m}}}$$

for Slab 4



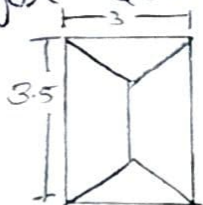
$$\text{Area of } \Delta = 2.56 \text{ m}^2$$

$$\therefore \text{UDL} = 2.5 \text{ kN/m}$$

$$\text{Area of } \square = 3.84 \text{ m}^2$$

$$\therefore \text{UDL} = 3 \text{ kN/m}$$

for Slab 5



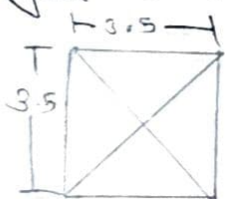
$$\text{Area of } \Delta = 2.25 \text{ m}^2$$

$$\text{A UDL} = 2.344 \text{ kN/m}$$

$$\text{Area of } \square = 3 \text{ m}^2$$

$$\text{UDL} = 2.679 \text{ kN/m}$$

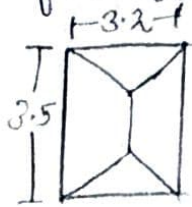
for Slab 6



$$\text{Area of } \Delta = 3.0625 \text{ m}^2$$

$$\therefore \text{UDL} = 2.734 \text{ kN/m}$$

for Slab 7



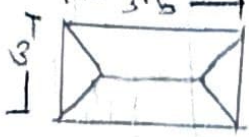
$$\text{Area of } \Delta = 2.56 \text{ m}^2$$

$$\therefore \text{UDL} = 2.5 \text{ kN/m}$$

$$\text{Area of } \triangle = 3.04 \text{ m}^2$$

$$\therefore \text{UDL} = 2.714 \text{ kN/m}$$

for Slab 8



$$\text{Area of } \Delta = 2.25 \text{ m}^2$$

$$\therefore \text{UDL} = 2.344 \text{ kN/m}$$

$$\text{Area of } \triangle = 3 \text{ m}^2$$

$$\therefore \text{UDL} = 2.679 \text{ kN/m}$$

for Slab 9



$$\text{Area of } \Delta = 2.25 \text{ m}^2$$

$$\therefore \text{UDL} = 2.344 \text{ kN/m}$$

$$\text{Area of } \triangle = 2.55 \text{ m}^2$$

$$\therefore \text{UDL} = 2.49 \text{ kN/m}$$

	①	②	③	④	⑤
①	3.472	2.344	2.734	2.5	
②	3.472	6.055	4.688	5.468	5
③	2.679	2.344	5.413	5.448	4.99
④	2.344	2.679	4.688	2.49	2.344
⑤					3

for dead load.

for live load as UDL.

Live load on floor = 4 kPa

Live load on roof = 1.5 kPa.

$$\therefore \text{UDL} = \frac{\text{load} \times \text{Area}}{\text{length}}$$

for Slab 1

- for floor

$$\text{UDL for } \Delta = 4 \text{ kN/m}$$

$$\text{UDL for } \nabla = 4.45 \text{ kN/m}$$

- for roof

$$\text{UDL for } \Delta = 1.5 \text{ kN/m}$$

$$\text{UDL for } \nabla = 1.67 \text{ kN/m}$$

for Slab ②.

- for floor

$$\text{UDL for } \Delta = 3 \text{ kN/m}$$

$$\text{UDL for } \nabla = 3.75 \text{ kN/m}$$

- for roof

$$\text{UDL for } \Delta = 1.125 \text{ kN/m}$$

$$\text{UDL for } \nabla = 1.406 \text{ kN/m}$$

for Slab ③

- for floor

$$\text{UDL for } \Delta = 3.5 \text{ kN/m}$$

$$\text{UDL for } \nabla = 3.938 \text{ kN/m}$$

- for roof

$$\text{UDL for } \Delta = 1.3125 \text{ kN/m}$$

$$\text{UDL for } \nabla = 1.477 \text{ kN/m}$$

for Slab ④

- for floor

$$\text{UDL for } \Delta = 3.2 \text{ kN/m}$$

$$\text{UDL for } \nabla = 3.84 \text{ kN/m}$$

- for roof

$$\text{UDL for } \Delta = 1.2 \text{ kN/m}$$

$$\text{UDL for } \nabla = 1.44 \text{ kN/m}$$

for Slab ⑤

- for floor

$$\text{UDL for } \Delta = 3 \text{ kN/m}$$

$$\text{UDL for } \nabla = 3.429 \text{ kN/m}$$

- for roof

$$\text{UDL for } \Delta = 1.125 \text{ kN/m}$$

$$\text{UDL for } \nabla = 1.286 \text{ kN/m}$$



for slab 6

- for floor

$$UDL \text{ for } \Delta = 3.5 \text{ kN/m}$$

- for roof

$$UDL \text{ for } \Delta = 1.3125 \text{ kN/m}$$

for slab 7

- for floor

$$UDL \text{ for } \Delta = 3.2 \text{ kN/m}$$

$$UDL \text{ for } \Delta = 3.474 \text{ kN/m}$$

- for roof

$$UDL \text{ for } \Delta = 1.2 \text{ kN/m}$$

$$UDL \text{ for } \Delta = 1.303 \text{ kN/m}$$

for slab 8 =

- for floor

$$UDL \text{ for } \Delta = 3 \text{ kN/m}$$

$$UDL \text{ for } \Delta = 3.429 \text{ kN/m}$$

- for roof

$$UDL \text{ for } \Delta = 1.125 \text{ kN/m}$$

$$UDL \text{ for } \Delta = 1.286 \text{ kN/m}$$

for slab 9

$$UDL \text{ for } \Delta = 3 \text{ kN/m}$$

$$UDL \text{ for } \Delta = 3.188 \text{ kN/m}$$

- for roof

$$UDL \text{ for } \Delta = 1.125 \text{ kN/m}$$

$$UDL \text{ for } \Delta = 1.195 \text{ kN/m}$$

①	②	③	④	⑤
4.45	3	3.5	3.2	
4.45	4.75	6	7.778	3.84
3.429		6.929	6.974	3.474
	3	6.929	6.388	
		3	6	3
		3.429	3.188	

UDL of live load of  
for floor

①	②	③	④	⑤
1.67	1.125	1.3125	1.2	
1.67	2.906	2.883	2.917	1.44
1.286		2.5985	2.6155	1.303
	1.125	2.5985	2.395	
	1.125	2.25	2.25	1.25
		1.286	1.195	

UDL of live load for  
roof