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REINFORCED CONCRETE DESIGN 1

Assessment 2

by

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Question 1: Design of Slab

Figure 1 shows a roof key plan of a residential building situated in Taman Gambang Perdana. Slab FSI was designed with a thickness of 125 mm to carry a water tank which forms a characteristic variable action of 4.0 kN/m². During construction, slabs and beams are cast monolithically. Other slab properties and design data are given as follows:

Characteristic permanent action (excluding self-weight)	=	0.5 kN/m ²
Characteristic variable action	=	2.5 kN/ m ²
Unit weight of concrete	=	25 kN/m ³
Cover, <i>c</i>	=	25 mm
Characteristic concrete strength, f_{ck}	=	25 N/mm ²
High yield steel strength, f_{yk}	=	500 N/mm ²
Fire resistance	=	R60
Exposure condition	=	XC1

Question 1: Design of Slab

Use:

Main reinforcement diameter = 10 mm

Link/shear reinforcement diameter = 8 mm

Assume other information if required

- i. Assess the design action carried by slab FS1.
- ii. Evaluate the design bending moment and design the main reinforcement.
- iii. Evaluate the shear force and design the shear reinforcement.
- iv. Check the slab for deflection requirement.
- v. Illustrate the slab reinforcement detailing

Question 1: Design of Slab (Figure 1)

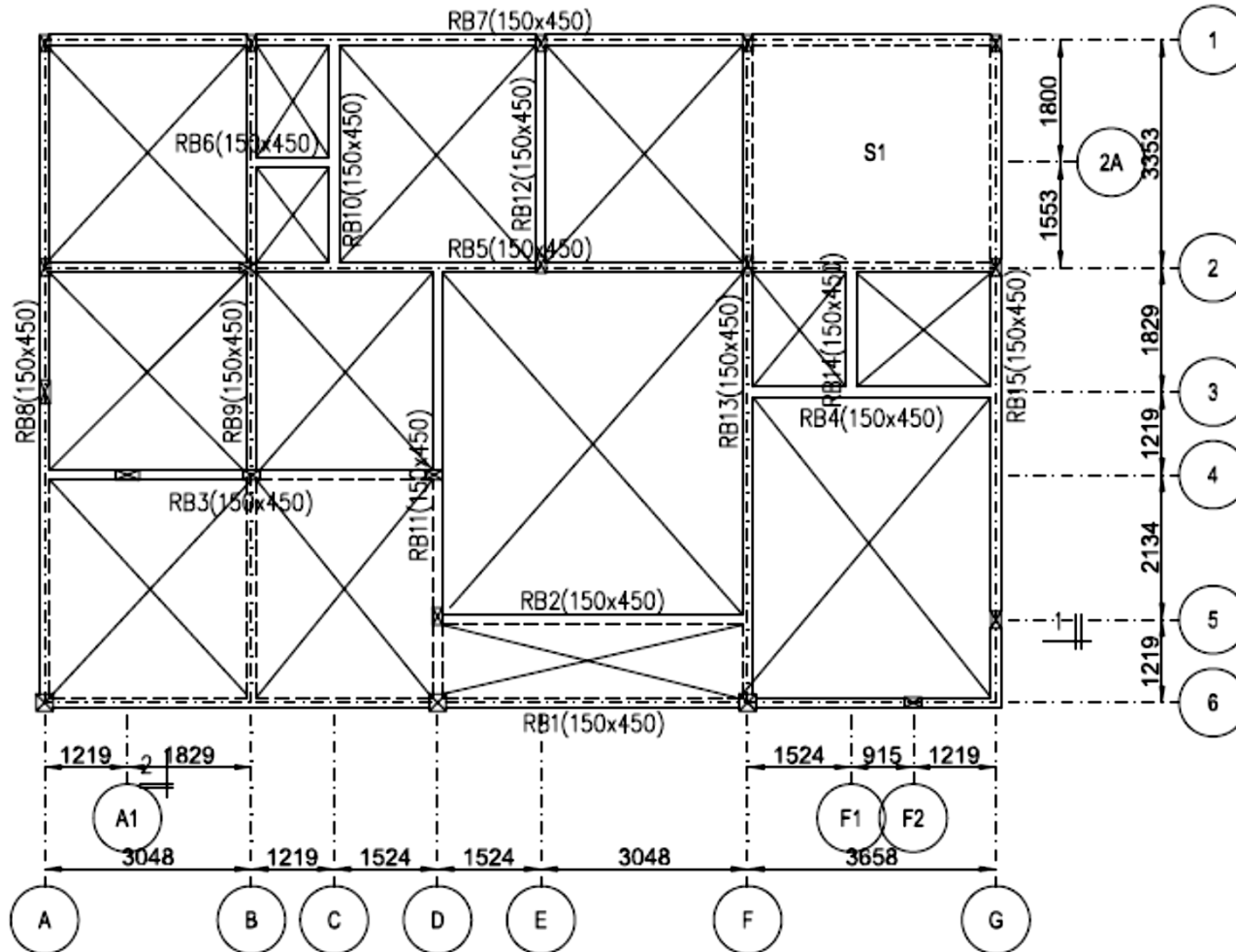


Figure 1

End of Assessment