Exercise 5.1

Figure **5.1** shows part of a first floor shop office plan. All beams and slab are cast simultaneously. A 3m height and 112.5mm thick brick-wall is constructed along the perimeter of the building. Given the following data;

-Class of concrete = C35/45, f_{yk}=500N/mm^2

-Column size=300mm300mm

-Beam size for 1a/A-B=200mm400mm, A/1-2=300mm550mm

-Slab thickness=125mm

-G_k for brickwall=2.6kN/m

- Q_k=2.5kN/m^2

- Finishes and services loads=1.0kN/m^2

Tutorial 1

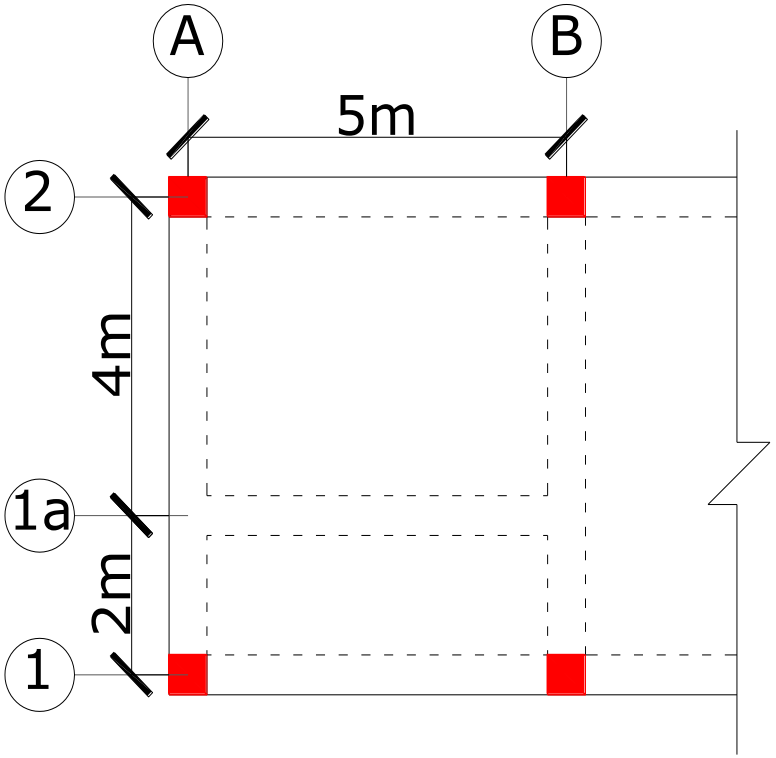

Figure **5.1**

1) Design beam 1a/A-B, verify deflection and crack control for the beam.
2) Design beam A/1-2, verify deflection and crack control for the beam

Exercise 5.1

The plan layout in Figure **5.2** is provided with continuous beams. Given the data below: variable actions = 3.5kN/m^2, finishing = 1.0kN/m^2, thickness of slab=125mm, size of all beams = 225mm x 450mm, f_{ck}=25N/mm^2, f_{yk}=500N/mm^2. Design beam 2/A-D.

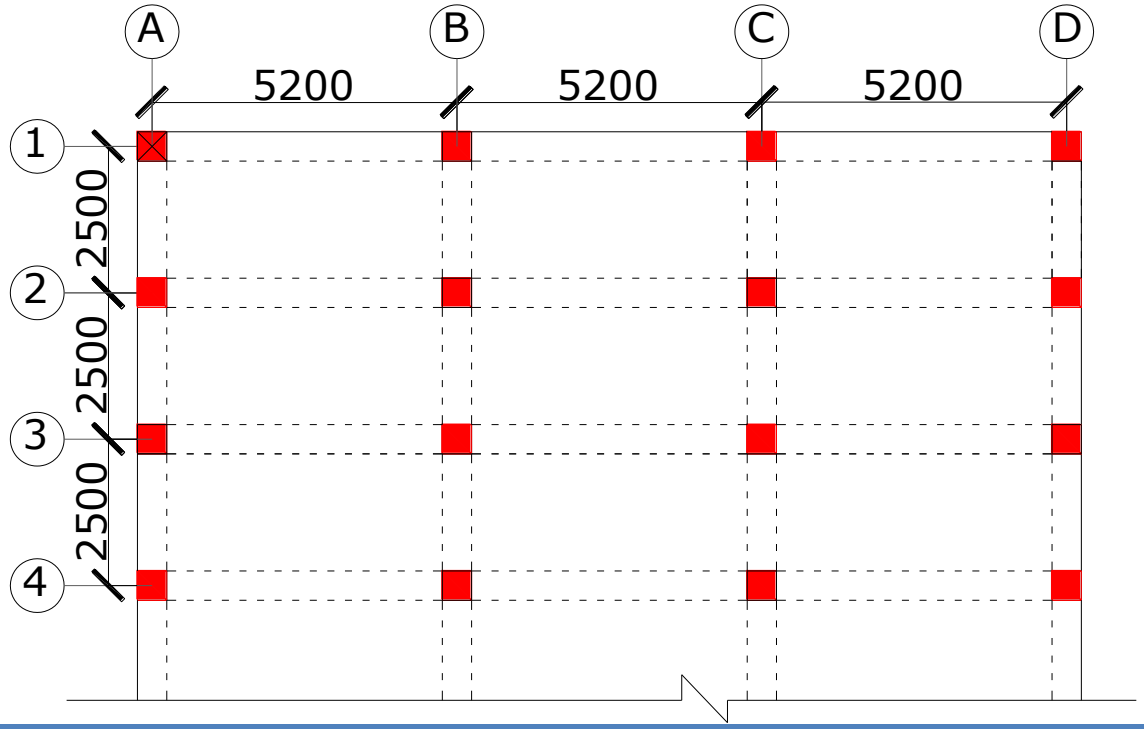

Figure **5.2**