

AEN 4131: FARM STRUCTURES

ASSIGNMENT 4

Due date: May 27, 2024

Question One

A suspended floor is to be built. The floor is to be supported by 4 equally spaced beams as shown in Fig. Q1. If the uniformly distributed surface load imposed by the floor on the beams is to be 20 kN/m^2 .

Determine:

- The equivalent concentrated load to be supported by beam B or C
- The equivalent concentrated load to be supported by beam A or D.
- The uniformly distributed line load to be imposed on beam A.

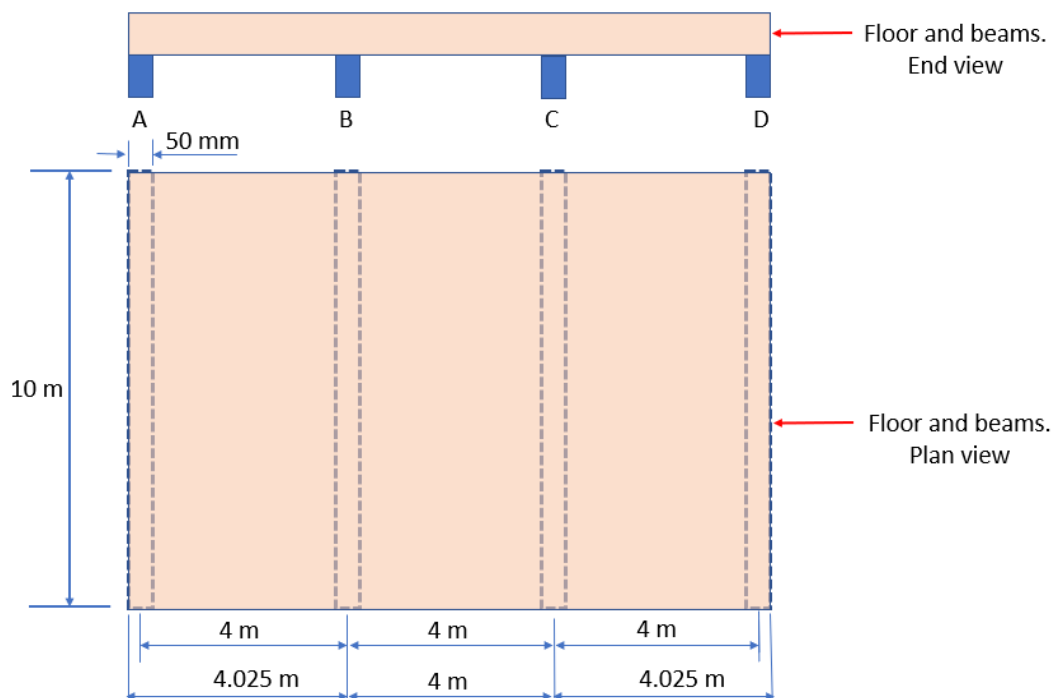


Fig. Q1

Question Two

A farmer is using a simply supported beam to hoist an engine weighing 8 kN from a tractor. The simplified beam and hoist arrangement is shown in Fig. Q2.

- Determine the supporting reactions on the beam points A and B.
- Draw the shear force and bending moment diagrams for the beam.
- State the location and the maximum value of the shear force and the bending moment.

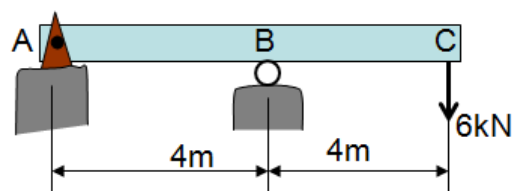


Fig. Q2