STRUCTURE -A

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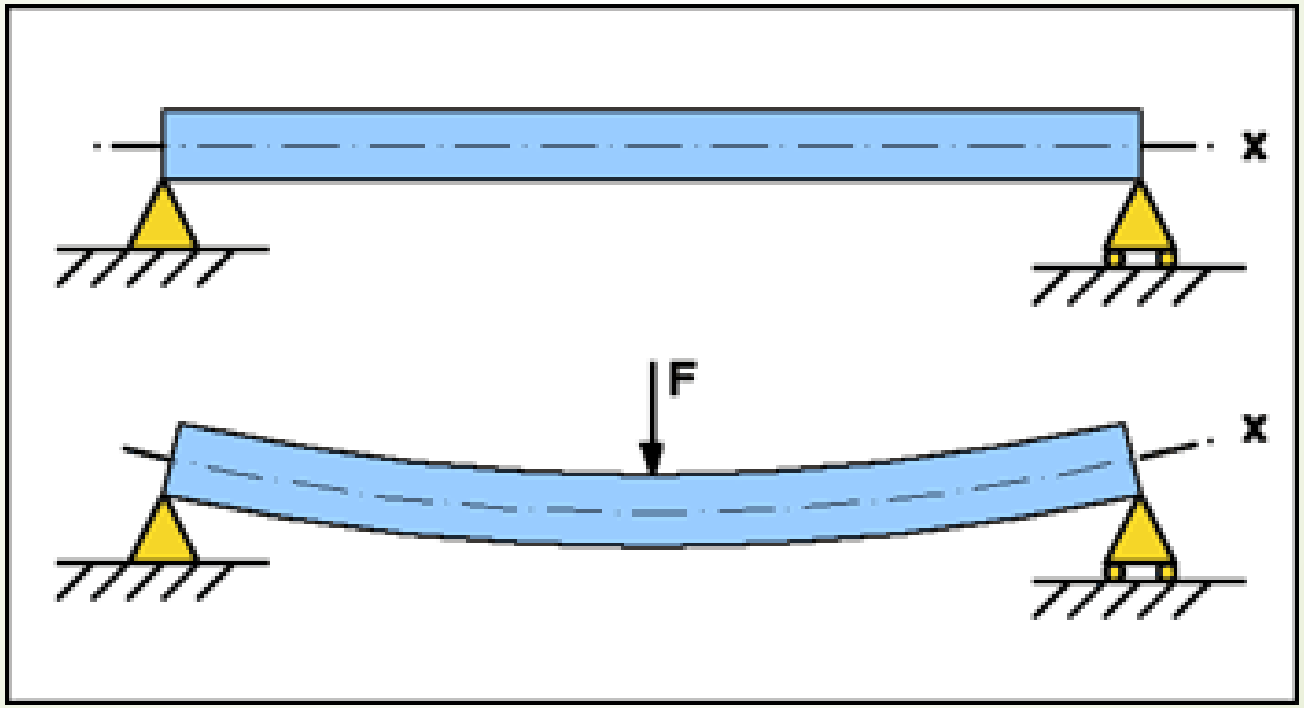
SYLLABUS

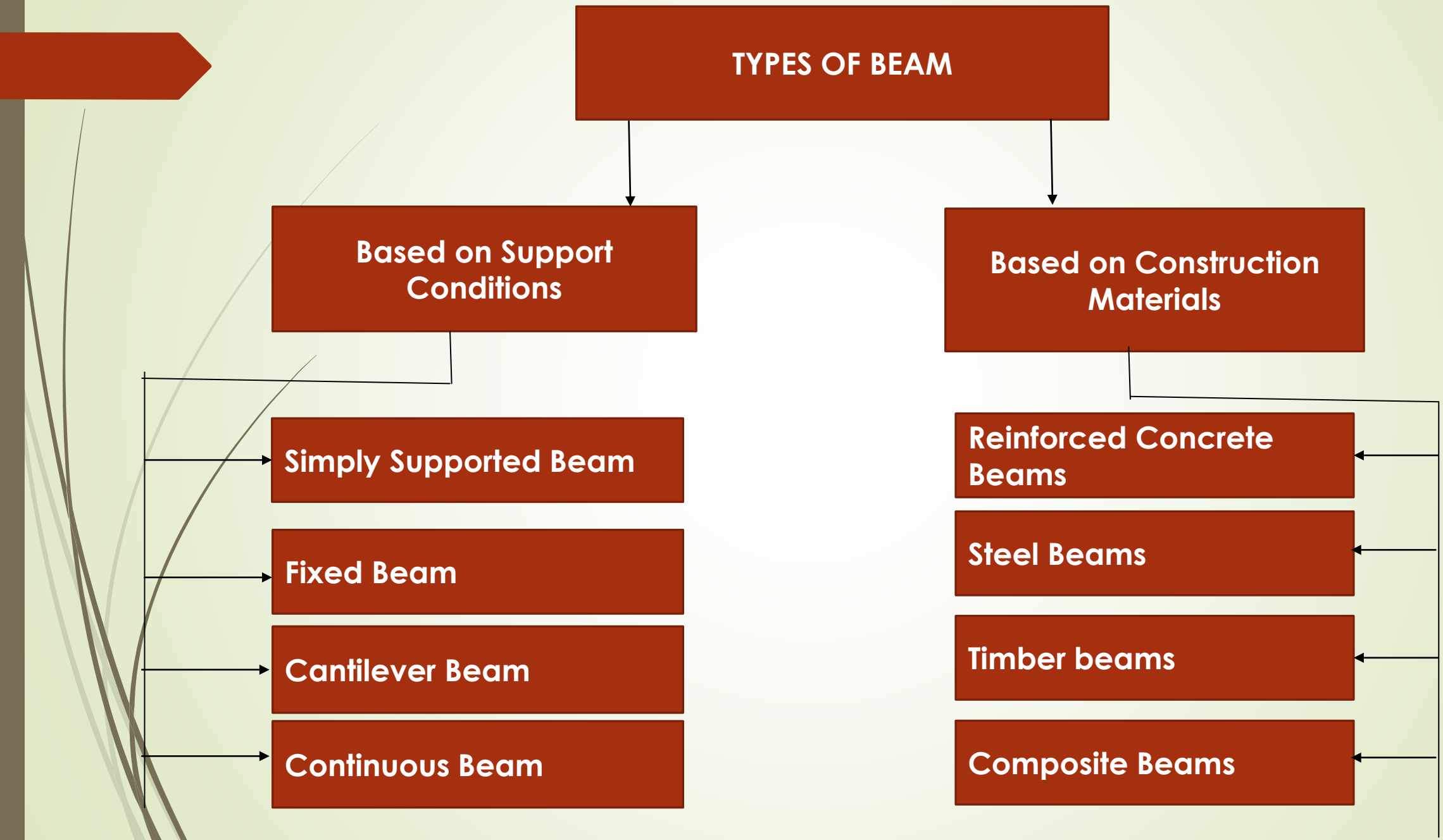
1. Bending Moment and Shear Force:

Concept of a beam, and supports (Hinged, Roller and Fixed). Types of Beams:Simply supported, cantilever, fixed overhang and continuous beams,types of loads (distributed, point and varying). Concept of Bending Moment & Shear Force. Sign coventions. Bending moment and shear force diagrams for cantilever, simply supported and overhanging beams subjected to uniformly distributed, concentrated and uniformly varying loads. Relationship between load, shear force and bending moment. Point of maximum B.M. and contraflexure, concept of fixed and continuous beams.

BEAM

Beam is a structural member which is acted upon by a system of extenal loads at lateral to the axis.

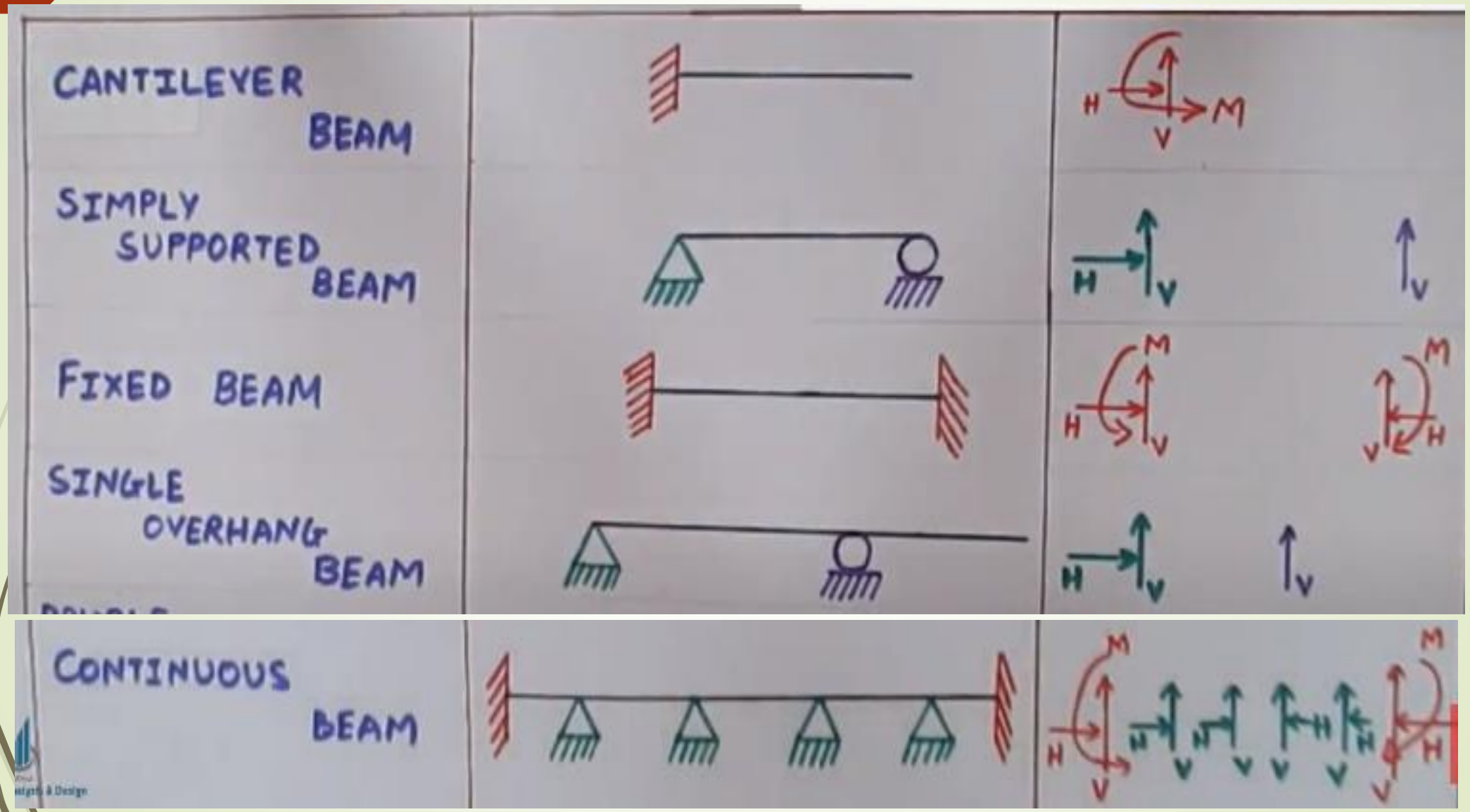



TYPES OF BEAM
Based on Support Conditions
Based on Construction Materials
Simply Supported Beam
Fixed Beam
Cantilever Beam
Continuous Beam
Reinforced Concrete Beams
Steel Beams
Timber beams
Composite Beams

SUPPORT CONDITIONS

S.no	Types of Support	Representation by	Reaction Force	Resisting Load
1.	Roller Support		Vertical	Vertical loads
2.	Pinned Support		Horizontal and vertical	Vertical and horizontal loads
3.	Fixed Support		Horizontal, vertical and moments	All types of loads Horizontal, vertical and Moments
4.	Simple Support		Vertical	Vertical loads

Based on Support Conditions



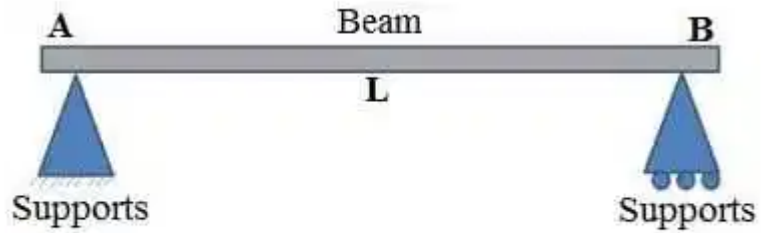


Fig. 1: Simply supported beam

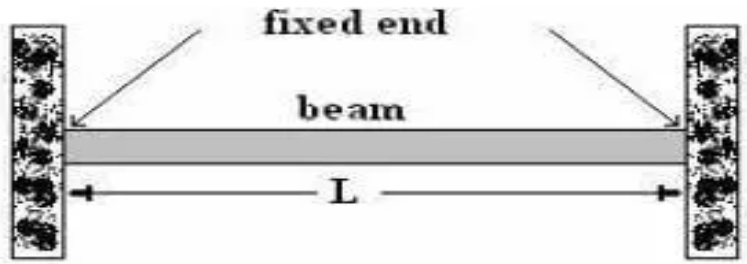


Fig. 2: Fixed beam

Fig. 3: Cantilever beam

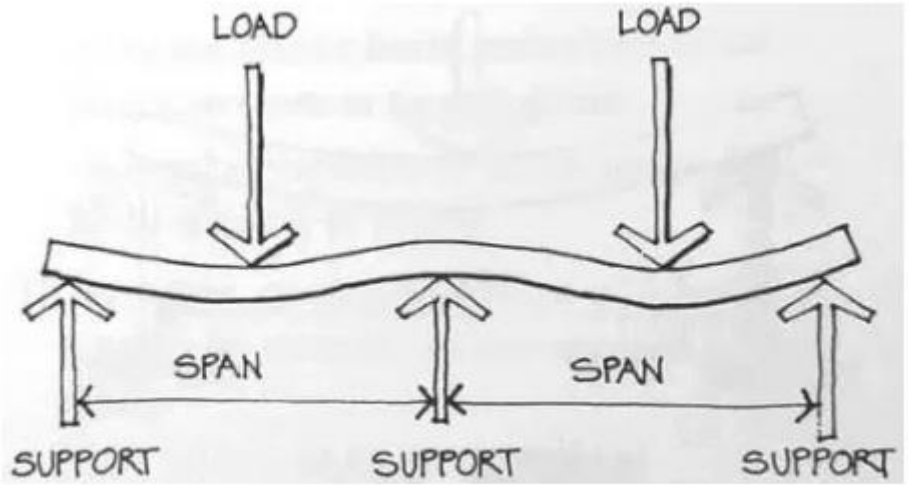


Fig. 4: Continuous beam

Based on Construction Materials

Fig. 5: Reinforced concrete beam

Fig. 6: Steel beam

Fig. 7: Timber Beam

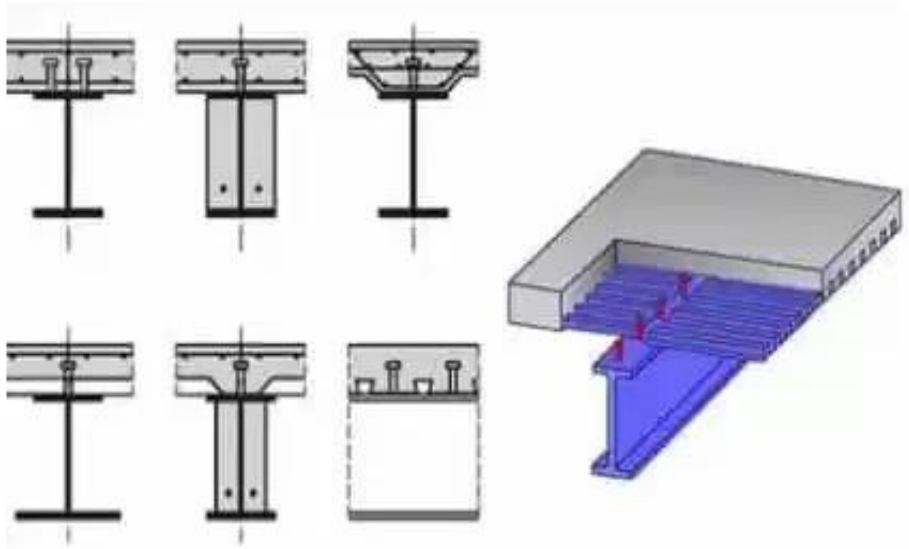


Fig. 8: Composite beam

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