Structural Analysis Report

Project: Simply Supported Beam Simulation

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1 Structural Overview

This report analyzes the internal stress distribution of a 12-meter structural element. The assessment focuses on Shear Force (V) and Bending Moment (M) envelopes.

1.1 Analysis Assumptions

1. Material behaves in a linear-elastic manner.
2. Plane sections remain plane after bending.
3. Self-weight is included in the provided loading data.

Figure 1: Schematic Loading Diagram

2 Tabulated Data Log

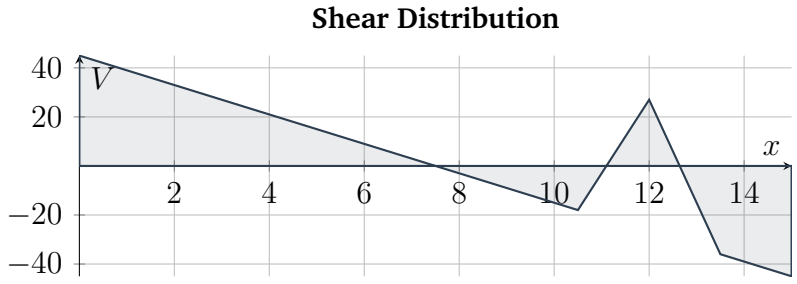
Extracted values at discrete intervals across the span:

Point (m)	Shear (kN)	Moment (kNm)
0.0	45.0	0.0
3.0	27.0	108.0
6.0	9.0	162.0
9.0	-9.0	162.0
12.0	27.0	108.0
15.0	-45.0	0.0

3 Internal Force Envelopes

The following diagrams represent the calculated envelopes for the beam span.

3.1 Shear Force Diagram (SFD)



3.2 Bending Moment Diagram (BMD)