

Influence Lines

Civil Engineering

Placing a moving load at its worst.

An influence line plots one effect at one fixed point as a unit load travels across the span.

MID-SPAN MOMENT, SIMPLE SPAN
Peak $L/4$

REACTION AT A SUPPORT
Peak 1.0

- It describes one point, not the whole member
- The ordinate is the effect of a unit load there
- Put live load over the same-sign area only
- Worst moment often needs a part span loaded
- Point loads: multiply by the ordinate and add
- A UDL: multiply by the area under the line

LOOK FOR IT

A bridge girder is checked with the axle train parked at the worst ordinate.

Educational reference. Influence lines find the worst load position; the design check that follows is code work.