

Continuous Beams And One Way Slabs

The ACI Code gives approximate formulas for finding shear and bending moments in continuous beams and one way slabs. A summary list of these formulas follows. They are equally applicable to USCS and SI units. Refer to the ACI Code for specific applications of these formulas.

For Positive Moment

1) End spans

If discontinues end is unrestrained = $wl_n^2/11$

If discontinues end is integral with the support= $wl_n^2/14$

2) Interior spans = $wl_n^2/16$

For Negative Moment

1) Negative moment at exterior face of first interior support

Two spans = $wl_n^2/9$

More spans = $wl_n^2/10$

2) Negative moment at other faces of interior supports= $wl_n^2/11$

3) Negative moment at face of all supports for slabs with spans not exceeding 10ft (3m) and (b) beams and girders where the ratio of sum of column stiffness to beam stiffness exceeds 8 at each end of the span= $wl_n^2/12$

4) Negative moment at interior faces of exterior supports, for members built integrally with their supports

Where the support is a spandrel beam or grider = $wl_n^2/24$

Where the support is a column = $wl_n^2/16$

Shear Forces

Shear in end members at first interior support = $1.15 w l_n / 2$

Shear at all other supports = $w l_n / 2$

End Reactions

Reactions to a supporting beam, column, or wall are obtained as the sum of shear forces acting on both sides of the support.

Source: <http://www.engineeringcivil.com/continous-beams-and-one-way-slabs.html>