Masonry Wall Load per Metre on a Beam or Slab

Line load of a brick or block wall with plaster on both faces per metre run, reduced for openings, and as an area load for partition allowances.

Method: Dead load from unit weights

Input parameters

Unit system: SI

Parameter	Value	Unit
Wall thickness (without plaster)	230.00	mm
Wall height	3.0000	m
Masonry density	1,920.0	kg/m³
Plaster thickness each face	12.000	mm
Plaster density	2,000.0	kg/m³
Openings as a share of wall area	0	%

Calculated results

Parameter	Value	Unit
Line load	14.404	kN/m
Wall weight per square metre of face	4.8013	kPa

Notes for this case

• The wall weighs its density times thickness per square metre of face, plus plaster on both faces; times the height it is a line load on the supporting beam or slab. A 230 mm brick wall 3 m high with 12 mm plaster weighs about 14.4 kN/m. Openings reduce it, but lintels carry the load above them to the jambs, so use the reduction with care. Partitions of uncertain position on slabs are often taken as an equivalent area load instead.

Formula and method

$$q = (\rho t + 2\rho_p t_p)g, \quad w = q\,h(1 - f_o)$$

Variables

t	Wall thickness (without plaster)	m
h	Wall height	m
ρ	Masonry density	kg/m³
t_p	Plaster thickness each face	m
ρ_p	Plaster density	kg/m³
f_o	Openings as a share of wall area	-
w	Line load	N/m
q	Wall weight per square metre of face	Pa

Method and standards

Wall load.

Assumptions and limits

- Uniform wall; unit weights as entered.

References

Dead load from unit weights

Report details

Report reference	FCC-J114-G5SF (the same inputs always give the same reference)
Generated	23 November 2026, 18:00 UTC
Calculator	Masonry Wall Load per Metre on a Beam or Slab
Method last reviewed	17 November 2026
Software release	FireCAD Calc, release of 22 November 2026
Release checks	3 reference cases of this calculator, computed independently, are checked on every release

Results are for engineering estimation. Verify critical designs against the referenced standards and your own data.

This calculator online

https://calc.firecad.com/civil/concrete/wall-load-per-metre

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.