# Stone worktop *thickness*, overhang and support

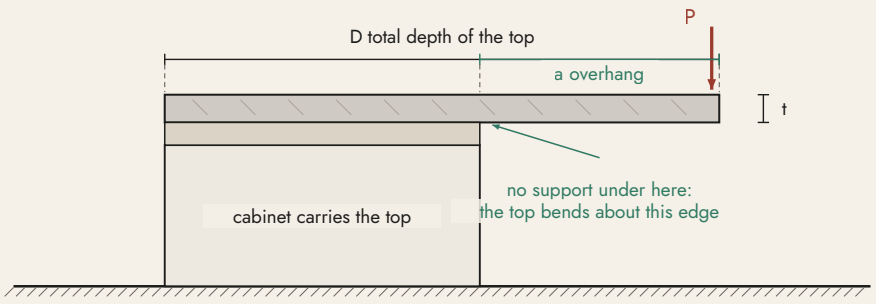
How thickness, overhang and cut-outs change the load on a stone worktop, the weight of a top, and what the partner fabricator confirms in writing. It gives no span or overhang table.

Compliance guidance. This sheet gives no span, overhang, thickness or cut-out limit for any stone. We found no published figure we could stand behind, and the web pages that quote one disagree with each other. The ratios and weights below are beam statics and arithmetic from a stated density, for the partner fabricator and a structural engineer to check. They are not engineered capacities. A top that can break, drop or tip under a person leaning, sitting or standing on it needs a tested design from the fabricator. Guidance, not engineering advice.

## AT A GLANCE

| If you change | Sag | Bending stress | Weight | Why |
|---|---|---|---|---|
| Double the overhang, a person leans on the edge | x 8 | x 2 | unchanged | Cantilever with a load at the tip: sag grows with the overhang cubed, the bending moment with the overhang. |
| Double the overhang, load spread along it | x 16 | x 4 | unchanged | Sag grows with the overhang to the fourth power, the moment with its square. |
| Thickness 20 mm to 30 mm | ÷ 3.4 | ÷ 2.25 | x 1.5 | Sag falls with thickness cubed, bending stress with thickness squared. |
| Keep the same bending stress when the overhang doubles | x 2.8 | unchanged | x 1.41 | Thickness must rise by the square root of two: a 20 mm top would need about 28 mm. |
| Keep the same sag when the overhang doubles | unchanged | x 0.5 | x 2 | Thickness must double: a 20 mm top would need 40 mm. Stiffness, not strength, then governs. |
| Halve the width of the strip left beside a cut-out | x 2 | x 2 | unchanged | For the same bending moment: stress and sag rise in the ratio of full width to ligament width. |
| Overhang more than half the depth of the top | n/a | n/a | n/a | A loose top is no longer held down by its own weight: the centre of mass has passed the front edge of the support. |

Factors multiply the value you had. Exact beam statics for a strip of one material, load and width, not safe limits. Stone strength and stiffness vary by stone and by slab and no stone value is used.




t thickness D total depth a overhang P load on the edge

Side view of a stone top on an island: thickness t, total depth D and the overhang a beyond the cabinet, with a load P on the edge. Original drawing by Make Bespoke Studio, not to scale.

## WEIGHT OF THE TOP

| Stone thickness (density assumed 2,700 kg/m³) | Weight per m² |
|---|---|
| 20 mm | 54 kg |
| 30 mm | 81 kg |
| 40 mm | 108 kg |

Density is assumed. Weight = thickness (mm) x density / 1,000.

## WHAT TO ASK THE PARTNER FABRICATOR FOR

The stone and the slab with its flexural test report (edition stated); the build-up in section; the support layout with the depth and each overhang; the overhang it will leave unsupported for this stone and thickness, with the load case and whether tested or calculated; each cut-out with its ligament and corner radius; where each seam falls; how the top is held down; the weight of each piece and the access route.

## SPECIFICATION WORDING

### TOP BUILD-UP AND SUPPORTS

Stone worktop: [30] mm [named stone, finish] on [cabinet carcass / 18 mm ply carrier / steel frame] as drawing [ref], depth D [ ] mm, overhang a [ ] mm at [the seating edge / the island end], supports at [ ] mm and [ ] mm from the end. The partner fabricator is to confirm in writing, before production, the overhang it is willing to leave unsupported for this stone and thickness, the load case it is based on, and whether that is from test or calculation.

### CUT-OUTS AND SEAMS

Cut-outs: [hob] and [sink] positioned as drawing [ref], with a minimum ligament of [ ] mm to the front edge and [ ] mm to any end or other cut-out, inside corners radiused to [ ] mm, made in the workshop. Seams: positioned over [a cabinet wall], not less than [ ] mm from any cut-out, joint width [ ] mm, bonded and levelled with [colour-matched adhesive]. The fabricator is to propose the figures; none is to be assumed from this drawing.

### FIXING AND STABILITY

The top is to be fixed to the supports by [adhesive and clips / brackets / mechanical fixings] so that it cannot tip or lift when a load of [ ] kg is applied at the edge at its most unfavourable point. The partner is to state how the top is held down and the load at which it would tip if the fixing failed. No reliance is to be placed on the weight of the top alone.

### EVIDENCE AND WEIGHT

Provide the flexural strength test report for the slab supplied [BS EN 12372:2022 or BS EN 13161:2008, edition stated], the density, and the weight of each piece. Pieces are to be [carried flat on edge on an A-frame] and the access route checked by [contractor] before delivery.

## TERMS USED

### Overhang

The part of a worktop that extends beyond its last support. Its length a, with the thickness and the stone, decides how much bending the stone has to resist. It is the seating edge of an island or the end of a peninsula.

### Ligament

The strip of stone left between a cut-out and the front edge, an end or another cut-out. It carries the load round the hole, so a narrow ligament is the weakest part of a top with a sink or hob.

### Cantilever

A beam supported at one end only. The overhang of a worktop is a cantilever, and under a load at the tip its sag grows with the cube of its length (Wood Handbook, Table 9-1).

### Flexural strength

The bending stress at which a stone breaks in a standard test: BS EN 12372:2022 (concentrated load) or BS EN 13161:2008 (constant moment). It varies from slab to slab, so a report is for the slab supplied.

## STANDARDS AND SOURCES


- USDA Forest Products Laboratory, Wood Handbook, FPL-GTR-282 (2021): equations 9-2 and 9-3, Table 9-1: beam formulae used for the ratios. No timber value used.
- BS EN 12372:2022 and BS EN 13161:2008: flexural strength of natural stone; BSI Knowledge showed 12372:2022 Current (2006 edition withdrawn 11 Mar 2022) and 13161:2008 Current, under review, on 5 and 6 Nov 2026 (seen in our flooring notes). Texts not read.
- Natural Stone Institute, Dimension Stone Design Manual: the primary reference for stone design in the US; paywalled and not obtained. Not read.
- Our sheet: Table top thickness, overhang and span: same statics for tables.


Full guide: https://makebespoke.com/trade/technical/stone-worktop-thickness-overhang-and-support. Make Bespoke Studio coordinates manufacture through its partner workshops. Figures are guidance only and your specification governs; some may be superseded, so contact the studio to verify.