A projection of successive courses of masonry, upward and outward, from the outside face of the masonry wall, a corbel adds visual interest to a wall. Corbels are commonly found near the top of the wall to form a cornice, or at floor lines to form a water table.

Because corbelling introduces eccentricity and bending stresses into the masonry, the Code (TMS 402/ACI 530/ASCE 5 Masonry Standards Joint Committee “Building Code Requirements for Masonry Structures”) limits the outward projection of a corbel. Prescriptive provisions (rules of thumb) are provided therein for corbels in masonry that is not loadbearing. Corbels in masonry that is loadbearing are required to be engineered in accordance with the allowable stress design, strength design, or prestressed design chapters of the Code.

**Code Changes**

Prior to the 2008 edition of the Code, corbels were only permitted to be constructed in masonry walls of solid units. A change in the 2008 code permits either solid units or hollow units that are solidly filled with mortar or grout to be used. Corbels can be formed in solid walls, single wythe (vertical layer of masonry units) walls, or hollow walls.

Prescriptive Code limitations on corbel projections include the maximum projection of a single course (horizontal row of masonry units) and the maximum total projection of the corbel. Those limitations are as follows:

- The maximum amount that one course can project out from the outside face of the course below is limited to one-half the nominal height of the unit and one-third the nominal thickness of the unit or wythe.
  - **The nominal unit height is the specified unit height plus the specified mortar bed joint thickness.**
  - **The nominal unit thickness is the specified unit thickness plus the specified mortar joint thickness.**

The maximum amount that the total corbel can project out from the face of the wall below is limited to one-half the wall thickness for solid walls and is limited to one-half the wythe thickness for single wythe walls and hollow walls.

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**Figure 1. Limits on corbelling in solid walls**
Reproduced from Commentary on Building Code Requirements for Masonry Structures TMS 402-08/ACI 530-08/ASCE 5-08, Figure CC-1.12.1

**Figure 2. Limits on corbelling in walls with air space**
Adapted from Commentary on Building Code Requirements for Masonry Structures TMS 402-08/ACI 530-08/ASCE 5-08, Figure CC-1.12.2
Solid walls include multi-wythe walls in which the wythes are bonded either by unit headers or by metal ties across a solidly filled collar joint.

Single wythe walls include the veneer wythe or a single wythe of solid or hollow units. Hollow walls include masonry-bonded hollow walls and cavity walls (multi-wythe walls with an air space between wythes).

For single wythe walls and hollow walls, there is an additional requirement that the back face of the corbelled section of masonry remain plane within one inch. That is, it is not permissible to step out the units in each course by more than one inch without filling in the space that is created behind the corbelled course. Ideally, the back face of the corbelled masonry should be maintained in plane, but the Code provision includes recognition of construction tolerances and the impracticality of filling small slivers of masonry.

The prescriptive corbel limitations imposed by the Code for masonry that is not loadbearing are illustrated in Figures 1 and 2.

“A change in the 2008 code permits either solid units or hollow units that are solidly filled with mortar or grout to be used.”

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