

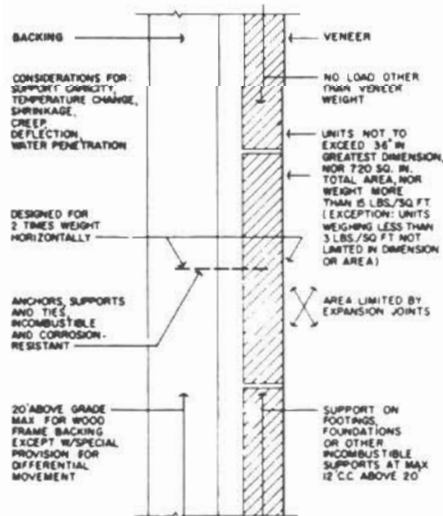
ANCHOR TIED MASONRY VENEER

Reprinted from the September/1976 issue of Masonry Industry Magazine.

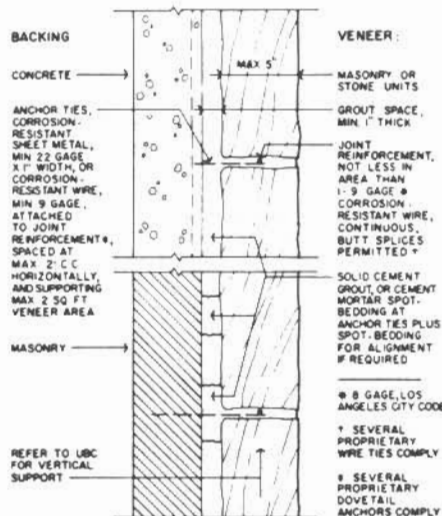
□ IN MODERN TIMES no other building products have enjoyed such widespread popularity as veneering materials than brick, block and stone masonry. Seeking the quality, richness and aesthetics of the "masonry look," architects and other building designers have utilized masonry veneer in endless varieties of ways and in ever-increasing quantities. There are no limitations upon the designer's imagination when it comes to masonry veneer.

This stimulus has come about thanks to the modern techniques for adhesion and anchoring of masonry veneer, which permit safe, economical and permanent adherence of masonry veneer over wood, plaster, concrete and other types of walls.

To insure a secure and permanent bond of masonry veneer to a wall sur-



WALL SECTION detail shows general requirements for anchorage of masonry veneer units to backing.



WALL SECTION detail shows system of anchoring masonry or stone veneer units (maximum 5" thick) to concrete or masonry backing.

face it is important that modern techniques of adhering or anchoring veneer be employed. To this end it is important that clear and detailed plans and specifications be prepared by the architect and designer.

As defined in the Uniform Building Code, adhered veneer is veneer secured and supported through adhesion to an approved bonding material applied over an approved backing; and anchored veneer is secured to and supported by approved mechanical fasteners attached to an approved backing. This article will focus primarily on anchored veneer techniques.

Many of the approved and popularly used mechanical fasteners are shown in the illustrations which accompany this article. The architect and the masonry

contractor have a wide variety of choices in using these various mechanical fasteners and systems. The important point is that such fasteners and systems meet code requirements.

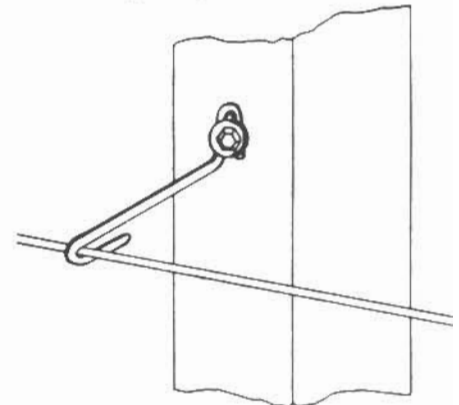
It is well, here, to call out the basic requirement for anchored veneer, as set forth in Section 3006 of the new 1976 Uniform Building Code, to wit:

Sec. 3006. (a) Permitted Backing. Backing may be of any material permitted by this Code. Exterior veneer including its backing shall provide a weatherproof covering.

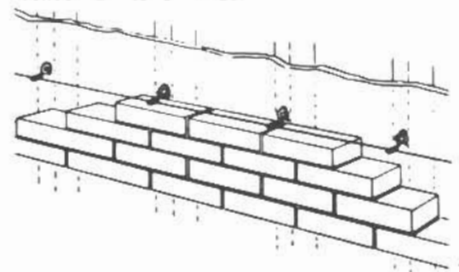
(b) Height and Support Limitations. Anchored veneer shall be supported on footings, foundations or other noncombustible support except as provided under Section 2516.

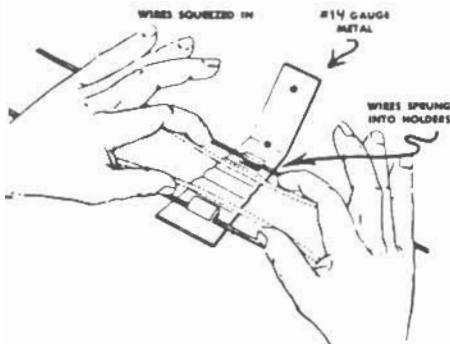
Where anchored veneer is applied more than 25 feet above the adjacent ground elevation, it shall be supported by noncombustible, corrosion-resistant, structural framing having horizontal supports space not over 12 feet vertically above the 25-foot height.

Noncombustible, noncorrosive lintels and noncombustible supports shall be provided over all openings where the veneer unit is not self-spanning. The deflections of all

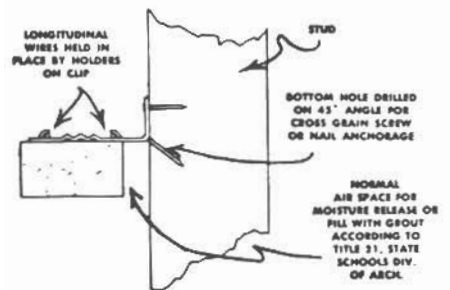
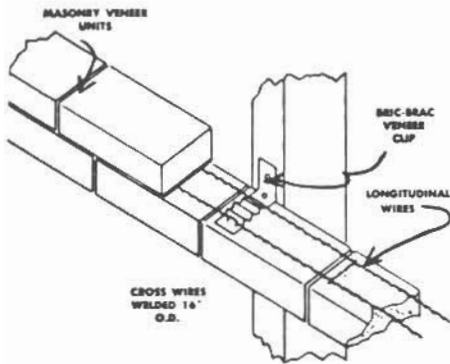


THE WIRE tie is a very popular system of mechanical anchoring of masonry veneer. The tie is shown in close detail in illustration at top and in place in a wall in illustration below. The anchor tie is formed of 9-gauge galvanized wire, with two 180° perpendicular loops. One loop is fastened to stud or wall by self-drilling and self-tapping screws. The other loop is placed in the horizontal mortar joint and receives either #9 or #8 gauge galvanized longitudinal wire. The longitudinal wire should be placed in the middle third of the width of the masonry units, and meet ASTM and Federal specifications. The ties are manufactured in varying sizes to accommodate masonry veneer 2" to 5" wide.





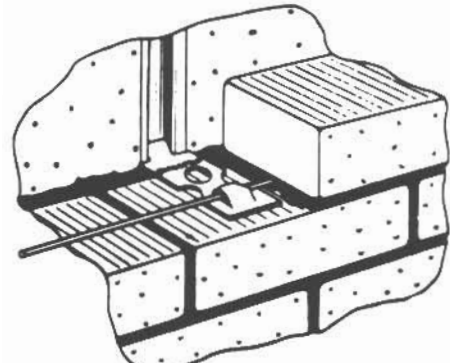
THIS MASONRY VENEER TIE has two slot holders into which longitudinal wire is placed, as shown in close detail above and in wall position below.



structural lintels and horizontal supports required by this subsection shall not exceed 1/500 of the span under full load of the veneer.

(c) **Area Limitations.** The area and length of anchored veneer walls shall be unlimited, except as required to control expansion and contraction and by Section 3001(b).

(d) **Application.** In lieu of the design required by Section 3004 anchored veneer



DOVETAIL type brick anchor, made of 16-gauge by 1" galvanized steel, utilizes heavy hook to enclose 8-gauge galvanized wire.

may be applied by one of the methods specified in U.B.C. Standard 30-1.

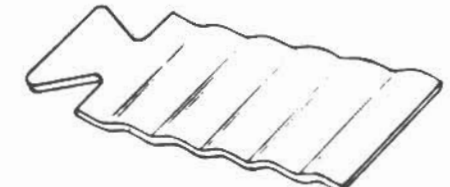
Subsection (b), "Height and Support Limitations," was a significant (and only) change made to Section 3006 in the 1976 Uniform Building Code. The reference to Section 2516, also a significant change in the 1976 Uniform Building Code, is quoted as follows:

Sec. 2516. (a) Dead Load. Wood members shall not be used to permanently support the dead load of any masonry or concrete.

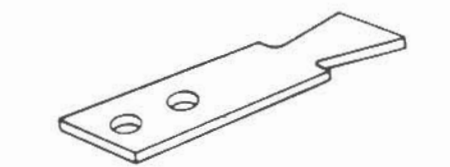
Exceptions: (1) . . . (2) . . . (3) . . . (4) Veneer of brick, concrete or stone applied as specified in Section 3006(b) may be supported by approved treated wood foundations when the maximum height of veneer does not exceed 25 feet above the foundation. Such veneer used as an interior wall finish may also be supported on wood floors which are designed to support the additional load, and be designed to limit the deflection and shrinkage of 1/500 of the span of the supporting members.

U.B.C. Standard No. 30-1, "Veneer Application," spells out requirements for anchored veneer. It is quoted in part as follows:

Sec. 30.104. (a) Masonry and Stone Units (Five Inches Maximum in Thickness). Masonry and stone veneer not exceeding five inches in thickness may be anchored di-



DOVETAIL type furring anchor is made of 16-gauge by 1" galvanized and corrugated steel.

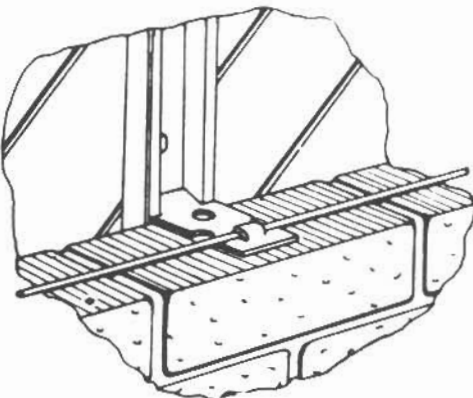


DOVETAIL type marble anchor is made of 1/8" x 1" galvanized steel and has two 3/8" dowel holes.

rectly to structural masonry, concrete, or studs in one of the following manners:

1. Anchor ties shall be corrosion-resistant and, if made of sheet metal, shall have a minimum size of No. 22 gauge by one inch or, if of wire, shall be a minimum of No. 9 gauge. Anchor ties shall be spaced so as to support not more than two square feet of wall area but not more than 24 inches on center horizontally. In Seismic Zone No. 3, anchor ties shall be provided to horizontal joint reinforcement wire of No. 9 gauge or equivalent. The joint reinforcement shall be continuous with butt splices between ties permitted.

When applied over stud construction, the studs shall be spaced a minimum of 16 inches on-centers and approved paper shall

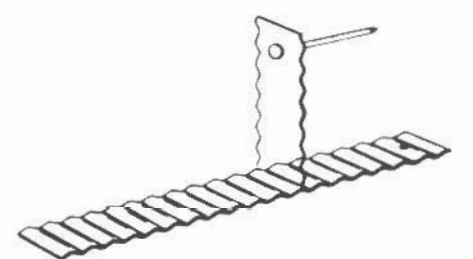


DOVETAIL type anchor slot — untaped is made from 24-gauge galvanized steel and is used for anchoring masonry to wood. It is installed with special nails. The slot retains easily inserted anchors that adjust automatically to mortar line.

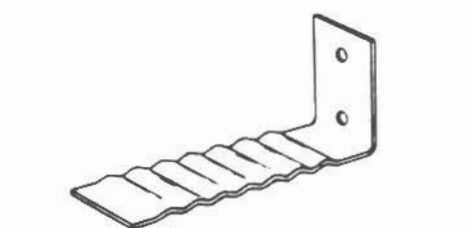
first be applied over the sheathing or wires between studs, except as otherwise provided in Section 1707, Uniform Building Code, Volume I, and mortar shall be slushed into the one-inch space between facing and paper.

As an alternate, an air space of at least one inch may be maintained between the backing and the veneer, in which case temporary spot bedding may be used away from the ties to align the veneer. Spot bedding at the ties shall be of cement mortar entirely surrounding the ties.

An excellent book on Masonry Veneer, published by Masonry Institute of America, is available to provide guidelines for plans and specifications for all types of masonry veneering. Copies may be obtained by sending \$3.50 to Masonry Institute of America, 2550 Beverly Blvd., Los Angeles, CA 90057. □



CORRUGATED brick veneer tile has one nail hole at end.



ANGLE TYPE veneer tie is made of 16-gauge galvanized steel, 1" wide. It has two holes for nails or screws. This tie is specified for many brick veneer-on-frame jobs.