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CLOSURE APPARATUS FOR USE WITH SHELF ANGLES

Abstract

An assembly supports external masonry veneer. A soffit assembly is provided to close what might otherwise be an open eave lying inboard of the bottom margin of the masonry veneer. The soffit assembly includes a fitting that mounts to the toe of the shelf angle, such that the soffit may be mounted from the shelf angle and run rearwardly toward the supporting wall structure. The soffit assembly may come as a two-part assembly. Alternatively, it may come as a three-part assembly. In either circumstance the soffit assembly may include a drip edge. The soffit assembly includes an external coating. It may be used over a door or window opening between first and second side walls.

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Background/Summary

CROSS-REFERENCE TO RELATED APPLICATIONS [0001] This application is a continuation-in-part of U.S. patent application Ser. No. 18/496,151 filed on Oct. 27, 2023, the entire disclosure of which is hereby incorporated by reference.

FIELD OF INVENTION
[0002] This specification relates to structural materials for use in the construction of buildings, and, in one particular context, to support structure external veneer components.
BACKGROUND OF THE INVENTION
[0003] In former times, brick walls were load bearing structures. In contemporary building structures bricks, or other masonry elements, or other visible finished surface elements, are rarely load-bearing. They tend more often to be employed as surface cladding on the exterior face of load-bearing structure as a masonry veneer.
[0004] When mounting face brick or stone veneer on the face of a wall structure, the first row of bricks or stone, or veneer commonly fits on a steel support. The steel support may be termed a shelf angle, and may extend outward from the wall structure, and may run along, or have a major dimension extending in, a direction that is generally horizontal and cross-wise to the wall. The steel support is mounted to the wall before brick-laying commences. The steel support may be welded to a steel anchoring system embedded in the wall. Alternatively, the steel support may be carried in spaced apart brackets that have themselves been mounted to the load bearing wall structure. This becomes more problematic where the wall is not planar, but curved or rectangular, and where the wall is interrupted by interruptions and boundary conditions such as corners, doors, windows, and so on.
SUMMARY OF INVENTION
[0005] In an aspect of the invention there is a shelf angle. It has a web and a flange extending away from the web.
[0006] A masonry veneer support assembly that has a masonry veneer shelf angle, a first mounting bracket, and a second mounting bracket. The first and second mounting brackets attach to building structure. The shelf angle has a first leg that extends upwardly, and a second leg that extends forwardly away from the building structure. The masonry veneer shelf angle seats on the first and second mounting brackets. A soffit is mounted to the shelf angle. The soffit extends rearwardly toward the building structure.
[0007] In a feature of that aspect of the invention, the assembly includes a further securement mounted to the building structure, and the soffit has an outboard margin mounted to the shelf angle and an inboard margin mounted to the further securement. In another feature, the further securement has a folded strip that defines a slot. The soffit has an inboard margin that, on installation, slides into the slot. In another feature, the further securement is a J-strip. In yet another feature, the second leg of the shelf angle has a tip most distant from the building structure and the soffit has an outboard flange folded to conceal the outboard tip. In a further additional feature, the flange of the soffit has a return leg that extends rearwardly toward the building structure; and, as installed, masonry veneer seated above the second leg of the shelf angle overlaps at least a portion of the return leg. In yet another feature, the assembly has a flashing drip edge that overhangs the soffit. In a still further feature, the soffit has an epoxy coating. In yet another feature, both the soffit and the further securement have an external coating. In still yet another feature, the horizontal leg of the shelf angle has a toe, and the outboard margin of the soffit has an accommodation sized to admit the toe of the shelf angle; and the assembly includes a support rail that mounts to a wall of structure, the support rail has a slot, and the soffit has an inboard margin that seat in the slot of the rail.

[0008] In another aspect, there is a soffit assembly that has a first rail fitting that mounts to an inner wall; a second rail fitting having a first engagement interface and a second engagement interface; and a soffit that extends between, and is mounted to, the first rail fitting and the second rail fitting. The first engagement interface is mounted to a masonry veneer shelf angle. The second engagement interface has an accommodation in which to admit a margin of the soffit.
[0009] In a feature of that aspect the first engagement fitting forms an interference fit with a toe of the masonry veneer shelf angle. In another feature the first engagement fitting of the second rail fitting defines a socket in which to receive a toe of a shelf angle, and the second engagement fitting defining a first slot in which a first margin of the soffit is admitted on assembly. In another feature the first rail fitting defines a second slot in which a second margin of the soffit is admitted on assembly. In still another feature, the second rail fitting has a drip edge.
[0010] In another aspect, there is a masonry veneer support assembly for spanning a structure opening between first and second side walls. The masonry veneer support assembly has a masonry veneer shelf angle of a length to span the opening between the first and second side walls, a first mounting bracket, and a second mounting bracket. The first and second mounting brackets are attached to building structure rearwardly of the first and second sidewalls. The shelf angle has a first leg extending upwardly, and a second leg extending forwardly away from the building structure. The first and second mounting brackets establish a spacing gap between the shelf angle and the building structure. The masonry veneer shelf angle is seated on the first and second mounting brackets whereby the shelf angle is cantilevered forwardly of, and supported by, the building structure. A soffit receiver is mounted to the building structure. A soffit is mounted to the shelf angle. The soffit extends rearwardly toward the building structure and seats in the soffit receiver and conceals the spacing gap. The soffit extends laterally between the first and second side walls.
[0011] In a feature of that aspect, the soffit receiver has a folded strip defining a slot, and the soffit has an inboard margin that, on installation, slides into the slot. In another feature, the soffit receiver is a J-strip. In a further feature, the second leg of the shelf angle has a tip most distant from the building structure and the soffit has an outboard flange folded to conceal the outboard tip. In an additional feature, the flange of the soffit has a return leg that extends rearwardly toward the building structure. As installed, masonry veneer seated above the second leg of the shelf angle overlaps at least a portion of the return leg. In still another feature, the assembly includes a flashing drip edge that overhangs the soffit. In still another feature, the soffit has an epoxy coating.
[0012] In another aspect, there is a masonry veneer support assembly for spanning a structure opening between first and second side walls. The masonry veneer support assembly has a masonry veneer shelf angle of a length to span the opening between the first and second side walls. The shelf angle has a first leg extending upwardly, and a second leg extending forwardly away from the building structure. There is a spacing gap rearwardly of the shelf angle between the shelf angle and the building structure. The masonry veneer shelf angle is seated on the first and second side walls whereby the shelf angle is supported the first and second side walls to either side of the structure opening. A soffit receiver is mounted to the building structure. A soffit is mounted to the shelf angle. The soffit extends rearwardly toward the building structure. The soffit seats in the soffit receiver and conceals the spacing gap. The soffit extends laterally between the first and second side walls.
[0013] In a feature of that aspect the soffit defines a socket in which to receive a toe of a shelf angle, and the soffit receiver defines a first slot in which a first margin of the soffit is admitted on assembly. In another feature, the soffit is a two-part soffit having a rail fitting that mounts to a tip of the shelf angle distant from the building structure, and that has a second slot in which a second margin of the soffit is admitted on assembly. In another feature, the soffit has a drip edge.
[0014] In another aspect there is a masonry veneer support assembly for spanning a structure opening between first and second side walls. The masonry veneer support assembly has a masonry

veneer shelf angle of a length to span the opening between the first and second side walls. The shelf angle has a first leg that extends upwardly, and a second leg that extends forwardly away from the building structure. The first leg of the shelf angle is mounted against the building structure. The masonry veneer shelf angle spans the opening between the first and second side walls. A soffit receiver is mounted to a back of the shelf angle and depends therebelow. A soffit is mounted to a forward tip of the second leg of the shelf angle. The soffit extends rearwardly toward the soffit receiver underneath the second leg of the shelf angle. The soffit extends laterally between the first and second side walls.

[0015] In a feature of that aspect, the soffit defines a socket in which to receive a toe of a shelf angle, and the soffit receiver defines a first slot in which a first margin of the soffit is admitted on assembly. In another feature, the soffit is a two-part soffit having a rail fitting that mounts to a tip of the shelf angle distant from the building structure, and that has a second slot in which a second margin of the soffit is admitted on assembly. In still another feature, the soffit has a drip edge.

Description

BRIEF DESCRIPTION OF THE ILLUSTRATIONS

[0016] The foregoing aspects and features of the invention may be understood with the aid of the accompanying illustrations, in which:

[0017] FIG. **1** is a side view of a masonry veneer support installation;

[0018] FIG. **2** is a perspective view from above of the masonry veneer support installation if FIG. **1**;

[0019] FIG. **3** is a perspective view from above of a long-legged alternate masonry veneer support installation to that of FIG. **2**;

[0020] FIG. **4***a* is a side view of a detail of the masonry veneer support assembly of either FIG. **2** or FIG. **3**;

[0021] FIG. **4***b* is an enlarged detail of FIG. **4***a*; and

[0022] FIG. **4***c* is an enlarged detail of the assembly of FIG. **4***b* prior to assembly;

[0023] FIG. **5***a* is a side view of an alternate assembly to that of FIG. **4***a;*

[0024] FIG. **5***b* is an enlarged foreshortened view of the assembly of FIG. **4***b;*

[0025] FIG. **6***a* is an alternate embodiment of the assembly of FIG. **4***b;*

[0026] FIG. **6***b* is an alternate embodiment of the assembly of FIG. **5***b;*

[0027] FIG. **7***a* is an alternate embodiment to that of FIG. **1**;

[0028] FIG. **7***b* is an alternate embodiment to that of FIG. **1** or FIG. **7***a;*

[0029] FIG. **8***a* is a further alternate embodiment to that of FIG. **1**;

[0030] FIG. **8***b* is a further alternate embodiment to that of FIG. **8***a;*

[0031] FIG. **9***a* is a further alternate embodiment to that of FIG. **1**;

[0032] FIG. **9***b* is an enlarged detail of the embodiment of FIG. **9***a;*

[0033] FIG. **9***c* is another enlarged detail of the embodiment of FIG. **9***a;*

[0034] FIG. **9***d* is a further alternate embodiment to that of FIG. **9***a;*

[0035] FIG. **9***e* is a further alternate embodiment to that of FIG. **9***a*; and

[0036] FIG. **9***f* is an enlarged detail of the embodiment of FIG. **9***e.*

[0037] FIG. **10***a* is a side view of a concealer assembly, such as that of FIG. **1** mounted to a shelf angle and stand-off mounting brackets;

[0038] FIG. **10***b* is a side view similar to FIG. **10***a* of a concealer assembly in a spaced assembled configuration without stand-off brackets;

[0039] FIG. **10***c* is a side view similar to FIG. **10***b* in an assembled configuration without a stand-off spacing;

[0040] FIG. **11***a* is a perspective view of an expanded assembly as in FIG. **10***a;*

[0041] FIG. **11***b* shows the assembly of FIG. **11***a* as-assembled;
[0042] FIG. **11***c* shows the assembly of FIG. **11***b* as a lintel mounted to a slab;
[0043] FIG. **11***d* shows the assembly of FIG. **11***c* with bricks partially installed;
[0044] FIG. **11***e* shows the assembly of FIG. **11***d* with insulation installed;
[0045] FIG. **12***a* is a view comparable to FIG. **11***a* of the assembly of FIG. **10***b;*
[0046] FIG. **12***b* is a view comparable to FIG. **11***b* of the assembly of FIG. **10***b;*
[0047] FIG. **12***c* is a view comparable to FIG. **11***c* of the assembly of FIG. **10***b;*
[0048] FIG. **12***d* shows the assembly of FIG. **12***c* with bricks partially installed;
[0049] FIG. **13***a* is a view comparable to FIG. **11***a* of the assembly of FIG. **10***c;*
[0050] FIG. **13***b* is a view comparable to FIG. **11***b* of the assembly of FIG. **10***c;*
[0051] FIG. **13***c* is a view like FIG. **11***c* of the assembly of FIG. **10***c*; and
[0052] FIG. **13***d* shows the assembly of FIG. **13***c* with bricks partially installed.

DETAILED DESCRIPTION

[0053] The description that follows, and the embodiments described therein, are provided by way of illustration of an example, or examples, of particular embodiments of the principles of the present invention. These examples are provided for the purposes of explanation, and not of limitation, of those principles and of the invention. In the description, like parts are marked throughout the specification and the drawings with the same respective reference numerals. The drawings may be taken as being to scale, or generally proportionate, unless indicated otherwise.
[0054] The terminology used in this specification is thought to be consistent with the customary and ordinary meanings of those terms as they would be understood by a person of ordinary skill in the art in North America. Following from the decision of the Court of Appeal for the Federal Circuit in *Phillips* v. AWH Corp., the Applicant expressly excludes all interpretations that are inconsistent with this specification, and, in particular, expressly excludes any interpretation of the claims or the language used in this specification such as may be made in the USPTO, or in any other Patent Office, other than those interpretations for which express support can be demonstrated in this specification or in objective evidence of record in accordance with In re Lee, (for example, earlier publications by persons not employed by the USPTO or any other Patent Office), demonstrating how the terms are used and understood by persons of ordinary skill in the art, or by way of expert evidence of a person or persons of experience in the art.
[0055] Referring to the general arrangement of FIG. **1**, and the side view of FIG. **2**, there is a partial cross-section of a wall assembly, indicated generally as **20**, such as might include the shelf angle assembly **30**. For the purposes of this description it may be helpful to consider a Cartesian co-ordinate frame of reference. The vertical, or up-and-down, direction may be designated as the z-axis, or z-direction. The direction perpendicular to the plane of the page may be considered as the longitudinal direction or x-direction, or x-axis, and may be taken as being the cross-wise direction of the wall. The left-to-right direction in the plane of the page, i.e., perpendicular to the wall, may be considered the sideways, or y-direction, or y-axis.
[0056] In this description, reference is made to building structure, or load-bearing structure, and load-bearing wall structure. The description pertains to mounting bracket assemblies that support external facing veneer components, such as face brick, spaced away from the supporting structure. The mounting brackets are anchored to load-bearing structure. Whether that load bearing structure is a structural wall or a concrete floor slab carried by framework, by a poured wall, by a block wall, or other load bearing members, in the context of this description whether it is a wall, a floor, or a ceiling, within the meaning of this specification it is a load-bearing wall structure to which the veneer supporting members may be mounted.
[0057] This description relates to apparatus, such as shelf angle assembly **30**, for supporting masonry veneer, such as face brick or face stone, whether rough or finished. The masonry veneer may be taken as having a weight of 35 lbs/sq.ft. The various alternatives herein include a first member (or several first members), and a second member. The first member, or members, may be

wall mounting brackets. The second member may be a shelf angle. The term “shelf angle” is a term of art in the science of building construction. See, for example “*Technical Notes on Brick Construction”* by the Brick Industry Association, 1850 Centennial Park Drive, Reston, Virginia, 20191, www.gobrick.com (703) 620-0010, identified as 28B and dated December 2005, found at https://www.gobrick.com/docs/default-source/read-research-documents/technicalnotes/28b-brick-veneer-steel-stud-wa lls.pdf?sfvrsn=. A “shelf angle” is a substantial structural member, capable of carrying the 35 lbs/sq. ft. load of a masonry veneer, and is not to be confused with light metal railings for kitchen shelves, book shelves, or display cabinets in a retail display. A shelf angle has a forwardly extending leg that has a length, or reach, that exceeds the depth of face brick. Such a length may be 4 to 6 inches, or possibly more. Unless otherwise stated, as a default herein, the first member and second member may be as being steel, which may be a mild steel. Other materials may be suitable depending on the circumstances. A shelf angle may be a rolled steel member, rolled at the steel mill, having a back, or web, square to the horizontal flange, or shelf, upon which the masonry veneer sits. It is usually hot rolled steel. It has a material thickness that is generally ¼″ or more, such as or 5/16″, ⅜″ or 7/16″ or ½″, with various lineal weights per foot. A shelf angle is not something in which the horizontal leg can be bent by hand to change the angle relative to the back: it is a rigid, rolled steel section. Shelf angles are shown and described in at least U.S. Pat. No. 6,128,883 issued on Oct. 10, 2000; U.S. Ser. No. 14/556,824 filed Dec. 1, 2014, issued as U.S. Pat. No. 9,316,004 on Apr. 19 ,2016; U.S. Ser. No. 14/556,947 filed Dec. 1, 2014, issued as U.S. Pat. No. 9,447,585 on Sep. 20, 2016; U.S. Ser. No. 14/688,477 filed Apr. 16, 2015 issued as U.S. Pat. No. 10,323,419 on Jun. 18, 2019; U.S. Ser. No. 15/075,682 filed Mar. 21, 2016 issued as U.S. Pat. No. 10,294,676 on May 21, 2019; U.S. Ser. No. 15/626,474 filed Jun. 19, 2017, issued as U.S. Pat. No. 11,078,672 on Aug. 3, 2021; U.S. Ser. No. 16/137,177 filed Sep. 20, 2018, issued as U.S. Pat. No. 11,041,315 on Jun. 22, 2021; U.S. Ser. No. 16/426,801 filed May 30, 2019, issued as 11,118,358 on Sep. 14, 2021; U.S. Ser. No. 16/700,868 filed Dec. 2, 2019, issued as U.S. Pat. No. 11,255,091 on Feb. 22, 2022; U.S. Ser. No. 16/841,611 filed Apr. 6, 2020, issued as U.S. Pat. No. 11,162,265 on Nov. 2, 2021 and U.S. Ser. No. 17/332,667 filed May 27, 2022, issued Mar. 29, 2023 as U.S. Pat. No. 11,629,504.

[0058] Shelf angles are not light steel, aluminum or plastic sections. Examples of apparatus that are not shelf angles are shown in WO 99/21669 of Ferrante et al.; US 2006/0 010 789of Andino; US 2006/0 277 840 of Bailey; US 2007/0 151 190 of Huff; WO 02/06603 of Guerrasio; U.S. Pat. No. 6,094,877 of White; US 2009/060 656 of Szkola; U.S. Pat. No. 5,212,917 of Kurtz. This listing is not thought to be exhaustive. None of these references show, describe, or suggest shelf angles. Items provided for forming the edges of gardens, or as a border for driveway interlocking paving stones, or trimming dry-wall have no relationship to substantial structural elements that carry masonry loads on a cantilevered leg of an angle section. By definition, they are not shelf angles, and cannot reasonably be interpreted as shelf angles.

[0059] Shelf angles are sometimes made in 20 ft or 40 ft lengths, cut to length, and, in some instances, may have mounting apertures or other fittings in the back as described hereinbelow, or machined, cut, or punched to yield the segmented form described in greater detail herein. Likewise, shelf angle mounting brackets are substantial structural elements of sizes, thicknesses and weights commensurate with the role of supporting shelf angles and the masonry veneer they carry.

[0060] Wall assembly **20** may include load-bearing structure, or a load bearing assembly, indicated generally as **22**, and externally visible facing elements, indicated generally as **24**. The externally visible facing elements are mated to, or linked to, or stabilized by, load bearing structure **22**. The linking, or positioning of the facing elements with the load-bearing structural elements may be achieved by the use of interface elements such as supports, or support assemblies, **26**, and tying members **28**. Support assemblies **26** and tying members **28** may be taken as being made of mild steel unless otherwise noted. Combinations of load bearing frame or wall assemblies, such as **22**, facing elements **24**, support assemblies **26** and tying assemblies **28** may be assembled as indicated

in FIG. **2***a*.

[0061] Load-bearing structure **22** can be understood as being a supporting primary structure, which may have several different forms. First, it may include a foundation, which may be a poured concrete foundation **32**. There may be a floor structure, such as a poured concrete floor slab **34**. Floor slab **34** may carry a wall structure **36** which may have the form of laid blocks **38**, or which may in other embodiments include a framed structure, such as may be a wood or steel framed structure.

[0062] Visible facing elements **24** may include brickwork **40**, or stonework, be it rough stone or finished stone, or other cladding. The anchor system may support masonry veneer, thin granite veneer, large stone panels or pre-cast concrete in place of the bricks. In FIG. **1**, facing elements **24** are shown as bricks **42** laid in successive courses. Support assembly **26** may include a base or bench or first member **44** in the form of a "shelf angle", or angle iron **46**. Shelf angle **46** may be an angle iron that runs along the wall structure in the horizontal direction, and provides the bed upon which the lowest course of bricks finds its support, hence shelf angle **46** may be termed a brick support. First member **44** may be mounted to a second member **50**, which may have the form of a support bracket or mounting bracket **52**. Second member **50** it itself fixedly mounted to the load bearing wall structure. The vertical load of the facing, e.g., bricks **42** is carried by the bench or "shelf" of first member **44**, and passed into such number of second members **50** as may support first member **44**. There are at least first and second support members **50** spaced laterally apart along the wall or supporting wall structure. For example, there may be several such supports on, for example, 24″ centers, which may correspond to the spacing, or double the spacing of wall studs in standard framing. Second members **50** may then carry the shear load from first member **44** into the load bearing wall structure. The depth of second members **50** in the y-direction (i.e., normal to the wall) may typically be less than the vertical height of second members **50**, such that the webs of second members **50** may be considered low aspect ratio beams in which the bending moment is small, or negligible.

[0063] Second members **50** are secured to load bearing wall structure or building structure **22**. The securement may be, for example, mechanical securements such as threaded fasteners or expanding fasteners or anchors **54**. In securement to a poured concrete wall or floor slab (as shown), fasteners **54** may be concrete anchor fittings, as in FIG. **1**, or embedded threaded rods, studs, or bolts. On installation, the anchor foot is inserted in a preformed (typically pre-drilled) socket such as a blind hole formed in the concrete slab, and the fastener is tightened, drawing the collet or mandrel into the segmented shank, forcing it to expand and bind in the blind hole. As tightened, the underside of anchor head flange bears upon a spreader or washer, or spacer, and the nut is tightened against it.

[0064] Second members **50** have a depth (in the y-direction) that may correspond to, or may be greater than, the thickness of insulation panels **56** such as may be mounted to the front (or outside) face of the structural load-bearing wall assembly **22**. There may also be a drainage shield, or flashing, **58** such as may encourage moisture to drain outwardly of and away from structural wall assembly **26**. A vapour barrier membrane **59** may be captured behind insulation panels **56**. Flashing **58** may traverse insulation **56** at the level of shelf angle **44** with its lowermost margin draining over angle iron **46**, the lowermost margin terminating outwardly at a drip edge **48**, such that any moisture draining over vapour barrier **59** is drained away. That is, a continuous metal flashing **58** is supported on or above shelf angle **46**. It may connect to a continuous flexible flashing which extends over the brick supports and that may connect to a vapour barrier membrane. Sheets of rigid insulation **56** may be mounted over top or otherwise outwardly of the membrane of vapour barrier **59** on the outer face of the wall. The anchor system shown allows cavity insulation **56** to be continuous behind the brick support. The rigid insulation may be of a thickness that allows an air space or gap 'G' between the insulation and the external veneer brick facing **40** mounted on shelf angle **46**. The angle support brackets **52** may be made in a variety of sizes each corresponding to a desired thickness of the rigid insulation and air space. In these arrangements, or embodiments, a

standard size of brick support shelf angle **46** may be used without regard to the spacing between the brick facing and the face of the wall desired for insulation.

[0065] In some embodiments, tying members **28** may be located upwardly of support assembly **26**. Tying members **28** may have the form of brick tie assembly **60**, in which there is an anchor **62** and a brick tie **64**. As may be noted, anchor **62** has a body **66** such as may have the form of a stamped steel plate. The distal portion of body **66** may be termed a tail **68**. Tail **68** may have a length in the y-direction (i.e., into the wall) corresponding to the through thickness of cinder blocks **38**, and such as may be located between adjacent blocks of a block wall and embedded in the mortar therebetween. Alternatively, tail **68** may be embedded in a further poured concrete wall, as may be. To that end, tail **68** may have perforations such as may permit mortar (or poured concrete) to flow therethrough. Body **66** may also have a proximal portion **70** of a depth in the y-direction corresponding to the thickness of insulation panel **56**. Proximal portion **70** may be perforated to reduce thermal conduction in the y-direction. Proximal portion **70** may have a step, or abutment, or indexing or locating feature, such as a shoulder, by which the correct depth position in the y-direction is obtained relative to the cinder block and the insulation. Body **66** may also have an outermost end portion having an array of tie location apertures, or seats or positions. A faceplate seats on the outside face of the insulation and may be used on installation where the positioning of anchor **62** is set prior to installation of tail **68** in a poured concrete form. Brick tie **64** is then located in one or another of the seat positions. When the successive courses of bricks **42** are laid, the outermost ends of brick tie **64** are embedded in the mortar between courses, as suggested in FIG. **1**. Tying members as described are used where the air or insulation space between the load bearing structure and the external veneer exceeds one inch, and in all cases where the wall height exceeds **30** ft. Tying members as described may be placed on up to **24** inch spacing vertically, and up to **32** inch spacing horizontally.

[0066] Considering FIG. **1**, FIG. **2**, and FIG. **3**, support bracket **52** may have the form of a channel **80** (as viewed from above or below, as in FIG. **5***d*) having a first member in the nature of a rear plate or back **82**, and a second member in the nature of a web or leg **84**. Channel **80** may also have a third member in the nature of a second web or leg **86**. In the embodiment shown, legs **84** and **86** stand outwardly of back **82**. That is, as installed back **82** may lie in an x-z plane abutting the load bearing structure **22**, be it framing, metal girders, poured concrete wall or poured concrete slab, and so on. Legs **84** and **86** stand outwardly away from that y-z plane. In context that outwardly direction may be termed forwardly away from the wall. In general, it may be convenient that legs **84** and **86** stand in y-z planes perpendicular to the plane of back **82**, standing spaced apart and parallel, but this is not necessarily so. For example, legs **84**, **86** could be splayed to form a V or winged shape as opposed to a square-sided U. In the particular embodiment illustrated, legs **84**, **86** are a pair of side plates that extend from respective sides of the rear plate, back **82**, in a direction away from the wall to form the sides of the U-shaped channel. The side plates are generally rectangular in shape and lie in respective vertical planes.

[0067] Back **82** may have a mounting, a seat, or an attachment fitting **90** such as shown in FIGS. **2** and **3** by which mechanical fastener **54** may secure bracket **52** to the load bearing structure. In general, in all of the embodiments herein a shim plate or plates **88**, such as may be substantially similar in size to back **82** of anchor bracket **52**, may be mounted between each anchoring bracket **52** and the outer face of the building structure or support structure, represented by wall structure **22** (i.e., load-bearing wall assembly **22**), as may be suitable, for evenly engaging the concrete surface and for spacing each anchor bracket **52** from the wall as desired to accommodate irregularities in the outer face of the wall and for spreading the concentrated load of mechanical fastener **54** and mounting bracket **52** into the wall structure. Fitting **90** may be a slot **92** that permits height adjustment of bracket **52**. Slot **92** may be oriented at a non-parallel angle or direction that is skewed, or oriented on a diagonal, relative to the vertical axis at an angle, theta. Slot **92** may be an elongate aperture in back **82** that extends along an inclined axis **72** angularly offset from vertical.

The slot may be left-handed or right-handed, as may be. In one example, the inclined axis may be offset 22.5 degrees from vertical. The upright plate of back **82** can thus be fastened to the wall at numerous locations relative to the wall corresponding to different positions of the bolt within the slot.

[0068] The side plates defined by legs **84**, **86** carry the brick support defined by shelf angle **46**. Looking at leg **84** as being representative also of leg **86**, the distal portion of leg **84** (i.e., the portion standing away most distantly from back **82**) has a fitting, or accommodation, or seat **94** that is matingly co-operable with first member **44**, and that provides a shear load transfer interface **96**, e.g., in which a vertical gravity load from member **44** is transferred into web **84** (or **86** as may be). Seat **94** includes vertical reaction interface **96**, and has a back that conforms to the shape of the back of first member **44**. In the examples shown, seat **94** is generally L-shaped.

[0069] A moment restraint is indicated as retainer **100**. In the version of FIG. **1**, retainer **100** is a profile cut finger that overhangs the front of the vertical leg of shelf angle **46**. In the version of FIG. **1**, or FIG. **2**, or FIG. **3**, retainer **100** could also have the form of clip that includes, or can alternately be named as being, an upper reaction member, a securement, anchor, key, grip, lock or lock member, and so on such as may be taken as being the same as, or substantially the same as, any of the various alternatives of mounting brackets and clips shown in U.S. patent application Ser. No. 16/700,868 filed Dec. 2, 2019. The version of retainer **100** in FIG. **1** could be a clip that has the general form or a channel such as item **98** in U.S. Ser. No. 16/700,868, having a back and a pair of spaced apart, first and second members or legs, or arms, or fingers that extend away from opposite edges of the back. Retainer **100** may also be referred to as a clip, cleat, clasp or clamp; a lock or locking member, or key; a link; a securement or an engagement member. The first leg may be termed an anchor, or root, or catch, or hook. Similarly, the second leg may be termed an engagement member, finger, catch, claw, grip, holder, retainer or retainer member, and so on. The back may be referred to, or may define, the reach or grasp, or span of retainer **100** in the y-direction. The lower portion of the back of the L-shape can also be considered to be, or to define, a lower reaction member **102**. That is, retainer **100**, in particular outer finger **114** of retainer **100**, and lower reaction member **102** present or define a pair of moment-couple reaction surfaces that co-operate to react the moment couple produced by the weight of the masonry veneer applied at the moment arm of the eccentricity of the veneer load relative to the vertical reaction interface **96**.

[0070] Leg **84** (or **86**) may have a stop, or abutment, or seat, or accommodation **104** that, in use is occupied by one arm or leg, or finger of retainer **100** is engaged or anchored. Accommodation **104** may be formed by cutting a notch or relief or rebate into the top end of legs **84** and **86**. Back **82** may also be trimmed at the bottom end, and the rearwardly extending feet that may remain extend in the plane of the sidewalls, i.e., of legs **84** and **86**. Retainer **100** over-reaches the upper end of the vertical leg of shelf angle **46**, such that the other arm or finger, or leg of retainer **100** depends or extends in front of the uppermost margin of first member **44**. This may tend to prevent its escape, and may tend to prevent it from rotating counter-clockwise as seen in FIG. **1** due to the eccentricity of the vertical load of the bricks. The inside face of the downward or distal tip of the finger may have the form of an abutment, or stop, or restraint that faces wholly, substantially, or predominantly in the-y direction, defining an upper reaction member. As may be noted, during installation, retainer **100** slides downward into place to engage, i.e., to capture, the upper end of the back wall of the shelf angle to the front edges of the seats of the mounting bracket.

[0071] Vertical reaction interface **96** may be defined as the upper face of the toe, edge, or side of an extending portion or member, or abutment, or stop, or lug, or dog, or toe **108**, however it may be called, such as may be or may define a protruding extension or protrusion in the y-direction of the lower margin of leg **84**. That is, in the embodiment illustrated the recessed channel shape of seat **94** includes a shoulder at a bottom end. That shoulder defines vertical reaction interface **96**, and it carries the shelf angle, such that the brick supporting flange extends laterally outward from the wall.

[0072] Lower reaction member **102** extends upwardly and away from the root of toe **108**, and has the form of a wall or edge that faces wholly, substantially or predominantly in the +y direction. A fatigue detail, or stress relief detail, in the form of a finite radius relief is provided at the root of the intersection of vertical reaction interface **96** and lower reaction member **102**. The upper and lower stops (i.e., **100** and **102**) constrain the translational degree of freedom of corresponding upper and lower regions of the back of shelf angle **46**, and thus define a moment-couple reaction inhibiting motion in the rotational degree of freedom about the x-axis of angle iron **46** in the counter-clockwise direction.

[0073] In the embodiment of FIGS. **1** and **2**, shelf angle **46** is mounted at a height that corresponds generally to the height of the attachment interface of back **82** to the load-bearing support wall structure. By contrast, the embodiment of FIG. **3** has a mounting bracket **130**, rather than **110** or **52**, in which mounting bracket **130** is a "long legged" version in which mounting the height of the seat of shelf angle **46** is well below the level of the wall mounting fitting represented by the mechanical fastener such as anchor **54**.

[0074] The brick support defined by angle iron **46** includes a mounting flange that engages anchor bracket **50**, and a supporting flange arranged to carry bricks. The mounting flange and the supporting flange may typically be mounted at right angles to form an L-shaped angle iron, typically made of steel. As in the various Figures, angle iron **46** has a first or horizontal leg **116** and a second or vertical leg **118**. Horizontal leg **116** extends forwardly (in the +y direction) away from vertical leg **118**, and hence on installation also forwardly and away from bracket **52**. Horizontal leg **116** runs along the wall structure in the x-direction. Typically, the running length of the angle iron is much greater than the horizontal leg length. For example, in one embodiment the running length may be **72** inches, while the leg of the angle may be 6 inches or less. In various embodiments the x: y aspect ratio of lengths may be in the range of 4:1 to 16:1. In other embodiments the running length may be 20 ft. or 40 ft., or a portion thereof as cut-to-length, giving an aspect ratio of 4:1 to 100:1. Bracket **52** may be cut to length as may suit. As installed, the length of leg **116** proud of the end of toe **108** in the y-direction may have a length corresponding to the depth in the y-direction of the facing members to be supported. In the case of face brick, that length corresponds to the depth of the face brick. In some embodiments it may be somewhat less than the depth of the face brick to permit the iron to be less noticeably visible, or to be hidden as in FIG. **1**.

[0075] In FIGS. **1**, **2** and **3**, vertical leg **118** has an accommodation, slot, aperture, socket, or relief, or reliefs **120** spaced upwardly from the junction of members **116** and **118**. The lower margin of relief **120** may be located at or above the run-off of the rolled radius between members **116** and **118**, i.e., in the tangent portion of the vertical leg, rather than in the radius. Reliefs **120** are sized to receive the dogs, or toes **108** of web members **84** or **86**. They are over-sized in the x-direction to permit lateral adjustment of bracket **52**, as, for example, according to the fastener position along inclined slots **92**. For half inch thick legs, the slot may be 2.5 inches wide, giving, potentially, one inch play to either side of center. The height of the slot may be slightly oversize to permit rotating installation of bracket **52**. The vertical through thickness of each toe **108** may be **1**″ or more.

[0076] In the engagement of toe or dog **108** in accommodation or relief **120**, as may be, it may be that the lowermost margin of leg **84** (or **86**) does not extend lower than (i.e., downwardly proud of) the bottom of horizontal leg **116**, such that no additional vertical clearance allowance is required for toe **108**, meaning that the toe is concealed behind the external veneer and the bottom edge of the lowest course of bricks may be lower than otherwise. Expressed differently, in terms of a seating arrangement of structural members, second member **50** is the receiving member, and first member **44** may be considered to be the received member. In the arrangement of shown the received member is flush with, or extends downwardly proud of, the lowermost portion or extremity of the receiving member and may tend to conceal the receiving member from view. The engagement of the receiving and received members is a mechanical interlocking relationship that is biased into securement by gravity acting on the load. That is, while the angle iron may be adjustable and

engageable while unloaded, the loading of bricks or other surface elements may tend to increase the moment couple on the angle iron, such as may tend to tighten the hold of the moment couple reaction members of the receiving member.

[0077] The received member, such as shelf angle **46**, is itself a receiving member, or accommodation, for the externally visible masonry veneer facing elements, and as the facing elements are received, rearward structure such as bracket **52** is obscured from view. The received member has a first portion that defines a seat or bench, or accommodation, or support, or platform or under-girding, or shelf, for the externally visible masonry veneer facing members, hence the term “shelf angle”. It is a form of sill. The received member also has a second portion that engages the receiving member such that vertical load from the received member is transmitted or carried into the receiving member and thence into the load-bearing supporting structure. In that sense the second portion is an engagement fitting, or key, or inter-locking feature, or indexing feature, that mates with the receiving member. An L-shaped angle iron may be a convenient form having these properties.

[0078] Considering FIG. **2**, mounting support bracket **110** is similar to mounting support bracket **52**, except that it is deeper in the y-direction, and the toe **108** is formed to fit through the apertures **120** in the shelf angle **46**. This greater depth may correspond to a greater thickness of insulation, such as thermal insulation panel **56**.

[0079] Inasmuch as each leg **84**, **86** or **154**, may pass through the wall insulation panels **56**, each leg may also have an array of apertures as at **124**, such as may reduce the section for heat transfer in the y-direction. In some embodiments apertures **124** may be non-circular, and may have an oval, oblong, or elliptical form. The form of aperture may have a long axis and a short axis. The long axis may be inclined at an angle to the perpendicular. In one embodiment the angle of inclination may be about **45** degrees. The interstitial strips **126** between adjacent apertures may tend to be inclined on a generally diagonal angle.

[0080] The foregoing description provides the structural context of the features of FIGS. **4***a*, **4***b* and **4***c*. FIG. **4***a* shows the elements of FIGS. **4***b* and **4***c*. However, FIG. **4***a* shows the various elements in their true proportions, or relatively close to true proportions. FIG. **4***b* shows the same elements, with the lengths of various portions foreshortened, or sections, such that the details are enlarged for easier understanding. The dimensions D**1**, D**2**, D**3** and D**4** are intended to symbolize the true dimensions, in general proportion as in FIG. **4***a*, with the annotation provided in FIG. **4***c* to show the corresponding features that have been foreshortened. The same commentary in respect of dimensions D**1**, D**2**, D**3** and D**4** applies to FIGS. **5***a* and **5***b*. As established in the geometry described above, the shelf angle support structure holds the masonry veneer facing assembly **24** laterally outboard from the facing **144** of the lower wall structure covering or cladding or paneling **140** by an overhang distance in the +y direction, designated as Y.sub.24. In the example shown, that distance may create a step like an eave. This distance may be of the order of 6″ to 20″, or possibly more, depending on the circumstances. It is usually desirable that this space be obstructed to impede the entry of birds, mice, squirrels, chipmunks, raccoons, skunks, and so on. It may also be desirable to conceal substantial structural members such as shelf angle **46** and mounting support brackets **52**, as may be.

[0081] To that end, there may be a closure assembly, in the form of a soffit assembly **150**. There are different embodiments of closure assembly **150**. In the embodiments seen in FIGS. **2**, **3** and **4***a*, **4***b* and **4***c*, closure assembly **150** includes a first member **152** and a second member **154**. In this first embodiment, first member **152** is a soffit **160**, and second member **154** is a termination member. In the example shown, second member **154** is continuous in the x-direction and is a rail, and may be referred to as a J-strip.

[0082] Soffit **160** has a first leg **162**, a second leg **164**, and a back **166**. First leg **162** is an upper leg and second leg **164** is a lower leg. Back **166** joins them at their roots. The legs are not symmetrical. Upper leg **162** has a length that is less than the inside length of the upper surface of the horizontal

leg **116**. The length of horizontal leg **162** may be, and in the embodiment illustrated is, more than half the width of a brick of standard face brick dimensions. In North America the dimensions of a standard face brick are typically 7⅝″ long; 3⅝″ deep, and 2¼″ high. The length of leg **162** can be taken as being in the range of 2 inches to 4 inches, such that when installed leg **162** overlies leg **116** of shelf angle **46**, and the mortar and masonry seat on top of leg **162**. As installed, leg **162** cannot thereafter escape.

[0083] In contrast, the lower leg **164** has a length that corresponds to the length of a soffit of corresponding size to the eave, and with an inside margin (i.e., the terminating edge of leg **164** most distant from back **166**) that engages with the J-strip or P-strip defined by second member **154**. Back **166** has a width that is the same size as, or, more generally, corresponds to, the vertical through-thickness of horizontal leg **116** of shelf angle **46**. Upper leg **162** and lower leg **164** are spaced apart by a distance that, at least nominally, corresponds to the reach defined by the width (i.e., the vertical dimension) of back **166**. It may be helpful for the legs of first member **152** to be pigeon-toed. That is to say, they are not parallel, but rather the tips distant from back **166** are closer together than the roots at back **166**. In such a circumstance, on installation the tip of upper toe **162** rides onto the roll-off radius of the tip of the horizontal leg of the hot-rolled angle iron of shelf angle **46**, like a cam-follower, and first member **152** then engages horizontal leg **116** in an interference fit, and squeezes leg **116**, thus discouraging removal. One way to do this is to form first member **152** such that legs **162** and **164** are tapered toward each other. On installation the legs flex apart slightly, and carry a spring pre-load. The tightness of the squeeze merely needs to be tight enough for installation, prior to the installation of the masonry veneer.

[0084] Shelf angle **46** may be understood to be a hot-rolled steel shelf angle as received from the steel mill and then cut to length. Facia, soffits, and soffit receiving rails such as J-strips and P-strips may typically be made of aluminum sheet, or sometime plastic extrusions. Most commonly, in North America, soffits are made of aluminum. Accordingly, it may be desirable to place a galvanic barrier between the steel and the aluminum.

[0085] In that regard, optionally, or additionally, a separation layer, or isolating layer such as a double-side tape, or a membrane of plastic sheet such as a nylon™ or UHMW polymer sheet can be mounted on the underside (i.e., the inside face) of leg **162**, and such portion of the upper face, or upper side of lower leg **164**. In a further alternative, the underside of leg **162** and the upper side of leg **166** can be provided with a surface coating, or treatment. That surface coating may be anodizing, or paint, or an epoxy coating.

[0086] In general, it may be said that first member **152** has a first portion, or a first engagement interface that interacts with the shelf angle, and, in particular, engages the outboard tip of horizontal leg **166**. In the example given, the channel defined by legs **162**, **164** and back **166** defines the first engagement interface in the form of a female socket **168** that seats on, mounts to, or mates with, the male engagement member defined by the tip **170** of the horizontal angle iron leg of shelf angle **46**. First member **152** also has a second engagement interface, distant from the first engagement interface, that mates with the inboard mounting member defined by second member **154**. In the example, the second interface is defined as the prong or insert edge **158**.

[0087] Second member **154**, which has the form of a P-strip or J-Strip, defines the mating engagement interface that interacts with first member **152**. In the example shown, that mating interface is folded over to form an engagement interface **172** that has the form of, or includes, a socket or slot or receiver **174** into which tip **170** inserts. In this example, receiver **174** defines a female member and tip **170** defines a male member, the one being engageable with the other. It is to some extent arbitrary whether the female member is formed on tip **170** or on second member **154**, or the other way around.

[0088] As above, second member **154** has the form or a J-strip having a first leg **176** and a second leg **178**, the first and second legs being joined at a corner. First leg **176** is a vertical leg that is attached to the supporting building structure typically be using mechanical fasteners such, as

screws, that screw into external cladding of the adjacent vertical wall paneling. In the example shown second leg **178** is a horizontal leg. Leg **178** has a folded over outermost end, the end having a first bend **180** that defines the outboard lower edge of slot **174** and, by being folded, does not have an exposed sharp edge upon which a person might otherwise cut themselves. It has a re-entrant fold or run **182** that extends to a second bend or inboard bend **184** that forms the bottom or inboard end of slot or receiver **174**, of engagement fitting **172**. Fitting **172** then has a further outward run **186** that terminates at a smooth edge. In this case, the smooth edge is formed by making a further bend, a third bend **188**, and folding the free edge run **192** back inwardly into slot or receiver **174** to form the outboard upper edge of slot **174** so that, once again, no sharp edge remains exposed.

[0089] When the building structure is erected, and mounting brackets **52** and shelf angle **46** are installed. Second member **154** of soffit assembly **150** is mounted to the exterior of the lower cladding materials of the building, such as cladding or paneling or facing **144**. First member **152** is then slid into place, first by introducing the tip **190** of horizontal leg **116** into the channel between legs **162** and **164**, and then by advancing first member **152** in the-y direction to introduce the inboard edge or tip **170** of soffit **160** into slot **172**.

[0090] In the alternative of FIGS. **5***a*, **5***b* and **5***c*, there is a soffit assembly **200** that rather than being made of two assemblies or two fittings, as in assembly **150** of FIGS. **4***a*, **4***b* and **4***c* is made of three assemblies or three fittings. The three assemblies are an engagement interface in the form of an outer rail, identified as fitting **202**, and another engagement interface member or inner rail identified as fitting **204**, and a closure panel in the form of soffit **206** that extends between and mates with, the inner and outer rails **204**, **202**. That is, assembly **200** has a fitting **204** in the form of the J-strip of second member **152** as before. As installed fitting **204** defines an inner rail mounted to the external cladding **144** of the lower portion of the building structure. By contrast, first member **152** of FIGS. **4***a*, **4***b* and **4***c* is replaced by an outer rail in the form of engagement member or fitting **202**, and a separate closure member or soffit **206**. Engagement member **202** includes an upper leg **208** and a back **206** that correspond to, and for the purpose of this description may be taken as being the same as, upper leg **162** and back **166**. Lower leg **212** may be taken as being the same, or substantially the same, as leg **178** of fitting **154**. Engagement member or fitting **202** provides a slot or receiver **214** that may be taken as being the same as, or substantially the same as, the slot or receiver **174**. Soffit **206** then has a first margin **216** and a second margin **218**, each of which corresponds to insert edge **158**, and that seat, respectively, in slot **174** of inboard rail fitting **204** and slot **214** of outboard rail fitting **202**.

[0091] In North America, aluminum soffit tends to be supplied in pre-fabricated roll-formed sheets that are 17½″ wide and 10 ft long. They have pre-formed longitudinally running stiffening ridges on 4″ centers. They are sold in both solid sections and perforated sections, and, on installation, it is common for every third or fourth section of soffit to be a perforated section to allow the eaves to breathe. In the alternative of FIGS. **5***a*, **5***b* and **5***c*, it may be that the eave distance is either a non-standard dimension, or may not be a constant dimension, it may taper or fluctuate depending on whether the wall structure as assembled is square and true. In that case, a pre-fabricated soffit and rail construction as in FIGS. **4***a*, **4***b* and **4***c* may not be suitable. Moreover, the external veneer masonry may be installed upon the shelf angle before the installation of soffits, to prevent the soffit from being damaged during construction. In such instances it may be helpful to install the outer rail defined by engagement member or fitting **202** on the tip **190** of horizontal leg **116** of shelf angle **46**, and then to install the masonry veneer such as brickwork **40** prior to installation of soffit **206**. Soffit **206** is then cut to length as suitable and inserted by longitudinal sliding in the x-direction, such that first margin **216** (i.e., the inboard margin) seats in receiver **174** and second margin **218** (i.e., the outboard margin) seats in receiver **218**. The running edges of soffit **206**, i.e., in the y-direction perpendicular to the inboard and outboard rails, generally have a straight edge on one side and a mating straight edge with an accommodation on the other side such that one fits into another in an

overlapping fit as the adjacent soffit sections are slid into place. When the last soffit section is being slid into place the installer gently deflects the inboard receiver rail or the outboard receiver rail, or both sufficiently to permit the slightly flexed last piece of soffit to engage the respective tracks defined by the slots in the receivers **174** and **214**, and once they are popped or coaxed into place the inboard and outboard rails **202**, **204** are deflected back into the proper horizontal plane so that the finished rail has a straight and level appearance. This may be achieved by use of a wooden member, be it a length of 2×4 or 2×6 to cause the lip of the rail to be smoothly positioned, rather than puckered, for example.

[0092] The result is that the soffit assembly **200** has three components. As described above, it has a first member or first fitting **204** that mounts to toe **190** of the horizontal leg **116** of shelf angle **46**; it has a second member **202**, **154** or second fitting that mounts to the building structure **144**; and it has a third member that defines the soffit panel **206** that extends between the first and second fittings **202**, **204**. First fitting **202** has a first interface that is, or defines, an accommodation or seat or socket **220** that mates with toe **190** of shelf angle **46**; and a second interface **222** that is, or defines an accommodation, or seat or socket, such as slot or receiver **214** that receives the outboard edge **218** of soffit **206**. The second fitting **202** has a first engagement interface, or mounting fitting, **224** at which it is attached to the building structure, namely the vertical leg **176** that is secured by mechanical fastening hardware to the structure. The second fitting has a second engagement interface **226** that is, or defines, an accommodation, or seat or socket that such as slot or receiver **174** received the inboard edge **216** of soffit **206**. This approach permits the use of pre-fabricated soffit panels such as are sold at building supply outlets, that may be bought in standard lengths and cut to length in installation as suitable.

[0093] In the assembly of FIG. **1**, it is presumed that, on installation a flashing overlies first leg **162** of first member **152**. In FIG. **1** that flashing is shown as item **58** which has an upper flange that is oriented on a slope to encourage the draining of condensation, if any, away from the supporting structure **22** toward the air gap between insulation **56** and the facing veneer brick **42**. It then has a vertical, or substantially vertical leg that seats in front of, and spaced from, vertical leg **118** of shelf angle **46**, and a further horizontal leg that overlies horizontal leg **116** of shelf angle **46** and overlies horizontal leg **162** of first member **152** of soffit assembly **150**. The outermost edge of the horizontal leg of flashing **58** may end in a drip edge **48**, which may be formed by bending the margin of the flashing downward, typically at **45** degrees, and then bending the otherwise exposed sharp free edge and folding it back and upward underneath the angled edge so that no sharp edge is exposed. The lower edge of a membrane defining a vapour barrier **59** then overlies at least a portion of the upper sloped leg of flashing **58**, so that condensation on the outside of vapour barrier **59** may tend to drip down onto the sloped portion of flashing **58**, and be drained away. In North American practice, flashing **58** may be made of **22**, **24** or **26** ga. steel sheet that has been either roll-formed or bent in a break. The flashing is painted or otherwise coated so that the steel is protected from moisture to discourage rust.

[0094] There may be instances where there is no flashing, and therefore no drip edge above the soffit assembly. In those circumstances it may be that the soffit assembly includes a drip edge. In the alternate versions of FIGS. **6***a* and **6***b*, which correspond to the version of FIGS. **4***b* and **5***b* respectively, whether the flashing has a drip edge or not, it is seen that the outboard rail fitting of the soffit assembly is provided with a drip edge, indicated as **228**. A drip edge may tend to be desirable in a climate in which rain is not infrequent, or where there is ice accumulation in Winter, followed by cycles of melting and freezing. The drip edge tends to discourage capillary migration of moisture upward and into the soffit assembly and other structure more generally. As can be seen, the drip edge is formed by bending and folding additional sections of the aluminum sheet from which the soffit and facia members may customarily be made.

[0095] FIG. **7***a* is substantially similar to the embodiment of FIG. **1**. It differs in that masonry veneer support mounting bracket **52** of FIG. **1** has a vertical load transfer support interface-i.e., a

toe-that passes through, and seats in, apertures formed in the back, namely vertical leg **116** of shelf angle **46**. By contrast, in veneer support mounting bracket **234** of FIG. **7***a*, the vertical load transfer interface toe **236** locates underneath horizontal leg **116** of shelf angle **46**, such that the shelf angle is supported from below as opposed to being supported through the back of shelf angle **46**. The practical corollary of this embodiment is that dimension D**2** in the underlying concealment soffit assembly is deeper than in FIG. **1** by an amount sufficient to pass below toe **236**. That is, D**2** is deeper by the depth of toe **236**.

[0096] FIG. **7***b* is substantially similar to the embodiment of FIG. **1**. In this case a masonry veneer support assembly is indicated generally as **240**. There is a concrete foundation **230** and a masonry block wall **232** that has been laid on top of the concrete foundation. The masonry veneer elements are again shown as **24** with bricks **42**.

[0097] As may be recalled, in the mounting assembly of FIG. **1** there are mounting brackets **52** that mount to the supporting wall structure **32**, **34** and the shelf angle **46** is introduced into seats **94** of mounting brackets **52**. Shelf angle **46** is held in place not by any fastening, but merely by the geometry of the seat and, eventually, the weight of the masonry veneer on the horizontal leg.

[0098] The mounting assembly of FIG. **7***b* differs from that of FIG. **1** in that rather than a releasable geometric seat, there are steel brackets **242** that have a single or double-webbed vertically extending member **244** that terminates at an upper fitting that receives a mechanical fastener that may typically be, or include, a concrete or masonry anchor **238**. At the lower end of vertically extending member **244** there is a foot, or lower engagement interface member **246** in the form of a bracket or tab **248**. In the example, bracket **248** has a ridged back side that mates with a similarly ridged plate or pad **252** that is welded to member **244**. Bracket **248** has an oval opening that allows the position of the abutment to be adjusted to abut the supporting structure, such as the concrete foundation, as suitable. On installation bracket **248** is adjusted and the mechanical fastener of bracket **248** is tightened such that the respective sets of ridges engage and lock in the suitable position. Shelf angle **250** is welded to the forward edge of member **244** and such other members **244** as may be spaced along the face of the wall.

[0099] In this arrangement, the concealment members may be those of assembly **150** of FIGS. **4***a*, **4***b* and **4***c* as described above, namely items **152** and **154**. Alternatively it may employ items **254**, **256**, where item **254** may be the same as item **152**. It may, alternatively, have a stepped lip or toe **258**. Item **256** could be the same as item **154** or, alternatively, as shown in FIG. **7** it may be a J-strip **260** that has a vertical leg **262** that fastens to the wall structure, and an outwardly extending, horizontal leg **264**, upon which toe **258** seats.

[0100] As before, a flashing **270** sits on top of the re-entrant top leg **162**, and bricks **42** sit on top of the flashing **270**. Condensate that may form then drips down the flashing. Accordingly, the wall mounting assembly can be made of a unitary welded structure, as opposed to an assembly of mounting brackets with seats into which the shelf angle is placed on installation at the job site. The supporting angles need not be open channel sections, but can be single webs or a U-shaped double web in which the back of the U faces outward.

[0101] In the embodiments of FIGS. **8***a* and **8***b*, there is a situation in which there is a foundation **280**. It may be a poured concrete foundation, or a laid block foundation. There is a floor slab **282** that is carried upon foundation **280**. Floor slab **282** has an overhang **284** that stands outwardly away from the outside of foundation. As in FIG. **1**, there are mounting brackets **52** mounted to the exposed face of the floor slab. They are held in place by concrete anchors **54**. As before, shelf angle **46** is carried in the seats of the various mounting brackets. It can have the same concealment closure arrangement as in FIG. **7** or as in FIGS. **4***a*, **4***b* and **4***c*, whether with parts **152**, **154** or with parts **254**, **256** as previously described. As before, a flashing with a drip edge sits over the return leg **162**.

[0102] However, in this case there is a spaced insulated cladding or paneling **290** that is mounted to the outside face of the lower wall defined by foundation **280**. In this arrangement paneling **290** is

mounted to brackets **292**. Brackets **292** are secured to foundation **280** with mechanical fasteners. Brackets **292** provide a stand-off spacing between paneling **290** and foundation **280**. In this instance, the upper edge of paneling **290** has a stiffening member, identified as rail **294**. A squeezable foam strip **296** is located between rail **294** and the underside of the overhang **284** of slab **282**. A sealant, such as a bead of caulking **298** is run along the outside of strip **296**.

[0103] As may be noted, the embodiment of FIG. **8***a* leaves an exposed portion of the underside of slab **282**. By contrast, in the embodiment of FIG. **8***b*, there is the same issue of an overhanging slab **282**. However, in this instance the concealment assembly includes a first member **302** and a second member **304**. First member **302** includes re-entrant leg **162** that seats over the tip of the horizontal leg **116** of shelf angle **46**, and has substantially the same configuration as item **254**, above. In this case the step of the toe locates on top of strip **296**. Second member **304** has the form of a supporting J-strip **306**. In this case, J-strip **306** has an inverted horizontal leg **308** that runs underneath slab **282** rearwardly of the front face of slab **282**. The supporting horizontal leg or tip **310** hangs downwardly from the inboard end of the horizontal leg of J-Strip **306**. In this way the underside of slab **282** is covered, and concealment assembly **300** provides both the outward appearance of the finished soffit, and excludes birds and rodents, as may be.

[0104] Thus, the assemblies of FIGS. **8***a* and **8***b* show that the concealment assembly can define a full or partial soffit, and may co-operate with a lower veneer wall, or paneling, such as may be spaced outwardly of the foundation or other supporting structure, and may include an insulation layer and airspace, as suitable. This approach stands in contrast to embodiments such as that of FIG. **1**, in which the soffit structure may extend to, and may be anchored to, the supporting wall structure. They also show the use of a seal, in this case combining a sealing strip and caulking at the transition, or mating interface, of the concealment structure (i.e., the soffit or its associated J-strip or P-strip) with other external cladding structure.

[0105] Whether in FIG. **7**, FIG. **8***a* or FIG. **8***b*, the enclosing soffit structure may be a two-piece assembly as in FIGS. **3**, **4***a*, **4***b* and **4***c*; or a three-piece assembly as in FIGS. **5***a*, **5***b*, **6***a* and **6***b*. In general, the features of the various alternate embodiments may be mixed and matched as appropriate without the need for exhaustive and repetitious illustration and description of all of the possible permutations and combinations.

[0106] Thus far the discussion has assumed the use of a soffit concealment apparatus in connection with the use of a shelf angle that mounts in channel-shaped mounting fittings that have a profile cut to define a shelf angle seat. An example of this kind of mounting is the mounting bracket shown and described in U.S. Pat. No. 6,128,883 of Hatzinikolas. However, the cavity concealment apparatus may be used with other kinds of bracket assemblies, including pre-welded assemblies that use, for example, perpendicular plates that are welded to the back of the upstanding legs of the shelf angles. The apparatus shown in FIGS. **9***a* to **9***f* are intended to show soffit concealment apparatus used with such alternate welded assemblies.

[0107] FIG. **9***a* shows a building structure assembly **320** having a wall girder in the form of an I-beam **322** carried on supporting structure, which may have the form of vertical steel posts **324**. A joist **326** is carried on the upper flange of I-beam **322**. Joist **326** has a cantilevered extension **328** that is carried outboard of I-beam **322** and defines an overhang. It may be understood that there is an array of such joists **326** spaced along I-beam **322** such as to form the supports of a floor structure **332**. There may, of course, be further posts **324** and girders **322** built up to define additional storeys and floors of the building, as may be.

[0108] A masonry veneer support assembly is identified as **330**. It is employed to carry masonry veneer such as bricks **42** or such other masonry as may be. Masonry support assembly **330** includes a set of first members **334** that are mounted to, and extend downwardly from, a plurality of the joists on such spacing as may correspond. In some instances, the spacing may be **4** ft., for example. First members **334** are made of mild steel and may be referred to as knives or knife plates. The outboard end of the knife extends outboard of the joist by some distance. That distance may in

some cases correspond to the thickness of insulation to be installed, plus an air gap for the draining of such condensation as may be. The shelf angle **336** may have a set of stems **338** welded to the back of the upstanding leg of the shelf angle. Stems **338** may extend perpendicular to the running direction of shelf angle **336**, and have a number and pitch spacings corresponding to the number and spacing of the knife plates. On installation stems **138** are bolted or otherwise mechanically fastened to the knife plates **334**. In this assembly, the weight of the masonry veneer, once installed, creates an overturning moment not only on masonry support assembly **330** but also on the respective cantilevered end portion extension **328** of joists **326**. In that regard, assembly **330** has a strut or brace **340** that has an upper end welded to a respective knife plate, or first member **334** and a lower end that is welded to the lower extremity of the web of I-beam **322**, and which may be welded to a gusset **342** that is webbed to the I-beam web, very close to the bottom flange. In some instances, the bottom edge of the strut/gusset combination may be welded to the upper side of the lower flange of the I-beam. As seen in the example illustrated in FIG. **9***a*, strut or brace **340** extend on an oblique angle, or diagonal, upwardly and outwardly from the lower flange of I-beam **302** to shelf angle **336**. Struts or braces **340** then function to react the overturning moment due to the weight of the masonry carried at its cantilever distance from the center of the web of I-beam **322**.

[0109] In this configuration, it may be desired to enclose the space underneath the structure from the outboard tip of the horizontal leg of shelf angle **336** to the underside of I-beam **322**. To that end there is a concealment apparatus, or shroud, or cowling assembly **350**. It has a first portion **344** that engages shelf angle **336**, a second portion **346** that engages the supporting building structure, in this case the lower flange of I-beam **322**, and a third portion that in the illustration has the form of a spanning member, or cowling, **348** that extends between, and closes the open gap between, second portion **346** and first portion **344**. In the example shown, first portion **344** and second portion **346** are separate pieces that are individually mounted to shelf angle **336** and I-beam **302**, respectively. Cowling **348** then functions a soffit, except having a dog-leg shape to enclose the plane underneath the knives **334**, while conforming to the diagonal of structs or braces **340**.

[0110] In the specific example shown, first portion **344** and second portion **346** are both roll formed sheet metal members that have the form of engagement clips. Considering first portion **344** first. As seen in FIG. **9***b*, first portion **344** has, in essence, first, second and third elements **352**, **354**, and **356**, which can also be referred to first, second, and third legs. First portion **344** has a back **360**, and a bent leg **362**. In the example shown, bent leg **362** has a length that is less than the horizontal depth of a brick **42**. In use, bent leg **362** seats on top of the horizontal leg **358** of shelf angle **336**.

[0111] At the opposite extremity, or edge, or vertex of back **360**, there is a second leg **364** defined by third element **356**. The second leg is bent back upon itself. It has an outside fold **366** and an inside fold **367** that has been bent back toward back **360**. There is a further leg or fold **368** that is bent from fold **367** in another reverse of direction to extend away from back **360**. The tip **369** of fold **368** is bent back upon itself to form a clean folded edge **370**.

[0112] In the uninstalled, undeflected orientation or condition of first portion, the spacing between bent leg **362** and fold **368** may be, and in the example shown it, smaller than the thickness of horizontal leg **358**, and fold **368** is more narrowly close to leg **362** at its end more distant from back **360** than at its root most proximate to back **360**. At its root, the space is equal to or greater than the thickness of leg **358**. Thus, there is a seat **372** defined between leg **362** and fold **368** (i.e., between first element **352** and second element **354**). On installation there is an interference fit such that leg **358** spreads first element **352** and second element **354** apart. That is, first portion **344** defines a spring between first element **352** and second element **354**. On installation the spring grasps leg **358** of shelf angle **336**.

[0113] Similarly, there is a second accommodation or seat **374** defined between second element **354** and third element **356** of first portion **344**. Third portion **348** has a first edge or end **376** that engages first portion **344** and a second edge or end **378** that engages second portion **346**. On installation first end **376** engages second seat **374**. In the embodiment shown, first end **376** is a

male engagement fitting that inserts into the female engagement fitting defined by second seat **374**. This male-female arrangement could be reversed as between first portion **344** and second portion **346**.

[0114] At the other end, as seen in FIG. **9***c*, second portion **346** has a first element **382**; a second element **384** and a third element **386**. First element **382** is joined to second element **384** by a first back **388**. Second element **384** is joined to third element **386** by a second back **390**. The overall arrangement of the first second and third elements is to form an interface member having generally a Z-section or Z-shape. In the example shown, first element **382** has the form of a leg **392**, second element **384** has the form of a second fold or leg **394**, and third element **386** has the form of a leg **396** that has a first fold **398** and a second fold **400** in the form of a reverse bent tip, that is bent back on itself inside first fold **398**, such that leg **396** presents a clean folded (and painted) external edge, rather than a sharp cut metal edge. As can be seen, leg **392**, back **388** and leg **394** combine to form a channel. The inside of the channel defines a first accommodation or seat **402** into which the tip of the lower flange of I-beam **322**. As before, the tip of the channel is narrower than the root, and defines a clearance that is slightly smaller than the thickness of the I-beam, such that insertion of the flange tip in the channel forces the tip of leg **392** to deflect away from second leg **394**. As before, the socket or accommodation is a spring, and this interference fit imposes a spring pre-load to grip the toe of the flange of the I-beam.

[0115] Similarly, the folded back toe of third element **386** leaves a clearance between the tip of leg **396** and leg **394** that is smaller than the thickness of second end **378**. Accordingly, insertion of second end **378** in the slot, or seat, or accommodation **404** defined between leg **396** and leg **394**, tends to pry leg **396** away from leg **394**, resulting in an interference fit. As before, the combination of legs **394**, **396** and back **388** in their channel configuration defines a spring, and insertion of end **378** in the seat causes a spring pre-load to be developed such that second end **378** is gripped in the seat.

[0116] As noted, third portion **348** has first end **376** that forms the engagement edge of the first panel or section **406** of third portion **348**. Third portion **348** has a second panel or section **408** that, as installed, enclosed the diagonal defined by the struts or braces. Third portion **348** terminates in its bottom end with a bent goose-neck **410** that terminates in second end **378**. The material sheet thickness of third portion **348** is sufficiently small, and the overall arc length of material between ends **376** and **378** is sufficiently great that third portion **348** is flexible enough to permit first end **376** to be installed, and then second end **378** to be sprung into place.

[0117] Looking at FIG. **9***d*, there is a further alternative arrangement. In this case there is, again, an I-beam **322** mounted on posts **324** in a post-and-girder construction. In this case, steel floor joists **326** are mounted to welded gusset plates **418** that are welded within the inside of the web and flanges of I-beam **322**. There is corrugated sub-floor **412** upon which there is poured a concrete slab floor **414** that has a cantilevered portion **416**.

[0118] On the outside of I-beam **322** and lower than cantilevered portion **416** is a masonry veneer support assembly **420**. Again, there is a knife plate, or set of spaced-apart knife plates **422** welded to the outside of the web of I-beam **322** and to the underside of the cantilever liner plate **424**. Vertical angles **424** are attached to the outboard ends of knife plates **422** with mechanical fasteners. A shelf angle **336** is then mounted to the lower edge of the vertical angle irons, either by mechanical fasteners, as shown, or more permanently, by welding.

[0119] The exposed gap between shelf angle **336** and I-beam **322** is, once again, concealed by a soffit concealment assembly **430**. Assembly **430** includes a first portion **432**, a second portion **434**, and a third portion **436**. First portion **432** may be taken as being the same as, or substantially the same as, first portion **344**, above.

[0120] Second portion **434** differs in that while second portion is Z-shaped, having a first engagement interface **438** that provides a seat that faces and engages the forward side of the lower flange of I-beam **322**; a second engagement interface **440** that faces the opposite direction to

engage the inboard edge of the soffit. In this example the third portion **436** has the form of a soffit **450** is a flat panel with inboard and outboard edges **446** and **448** that engage the sockets, or accommodations, or seats defined by first portion **432** and second portion **434** respectively. First engagement interface **438** and second engagement interface **440** are joined by an intermediate member in the form of a vertical leg **444**. Leg **444** has a length corresponding to the height mismatch between the bottom flange of I-Beam **322** and the horizontal leg of shelf angle **336**.

[0121] In the example shown, second engagement interface **440** may be understood to have the same, or substantially the same, arrangement as shown in inner rail fitting **204**, with vertical leg **444** corresponding to vertical leg **210** in FIG. **5***b*. The upper fitting, engagement interface **438** is essentially the same arrangement turned upside down, with the direction of the seat opening reversed, i.e., to face the lower flange of I-beam **322**, and the opening of seat **452** being greater than seat **214** such that the greater thickness of the flange can be accommodated. Moreover, in the version in FIG. **9***b*, the outside leg **454** is longer than inside leg **456**, being the reverse of the arrangement of legs **182** and **186** in FIG. **5***b*. Whether in FIG. **5***b* or FIG. **9***d*, the resultant geometry defines a spring clip that has a spring pre-load when engaged. The use of light sheet metal soffits does not, of course, impede the installation of insulation in the gap as before.

[0122] In the example of FIGS. **9***e* and **9***f* there is a further arrangement. In this case I-beam **322** has been replaced by a closed structural section, in this case a rectangular or square steel beam **458** of hollow section. Although it could be offset at a different height from shelf angle **336**, such as to require the use of an inclined panel as in FIG. **9***a*, or a stepped assembly such as Z-shaped second portion **434**, in this example they are shown at the same height, such that a flat, planar member such as soffit **450** may be used. In this case, however, the enclosure or concealment assembly **460** has a further, fourth element. In this example, the fourth element is a termination strip, or runner strip **462** that is fastened to the inboard web of hollow beam **458**, such as by mechanical fasteners **459**. Runner strip **458** has a roll-formed upper edge that is folded back on itself to define a seat rail **464**. As installed, seat rail **464** may be in contact with the web of beam **458**. However, on installation of second portion **466**, the reverse folded upper inner edge **468** of second portion **466** inserts between the web of beam **458** and rail **464**, deflecting it away from the web of beam **458**, forming an interference fit with a sprung pre-load. An outside vertical leg **470** then extends downward to the second engagement interface in the same manner as leg **210** in FIG. **5***b*, with the engagement interface with soffit **450** then being of the same geometry and nature as the engagement interface of soffit panel **206** in the spring clip defined between legs **186** and **182** in FIG. **5***b*. In this arrangement, when the overfolded upper leg seats behind rail **464**, fastening hardware **459** is hidden from view, and the visible upper edge of the assembly terminates at a clean, straight, upper edge defined by the upper fold. In these examples, the soffit and rail construction is light weight sheet metal, typically steel. On some occasions J-strips and P-strips are made of extruded plastic for the same or similar purposes. On insertion, the folds are sufficiently flexible to permit elastic bending be hand to permit installation, and sufficiently resilient to spring back into the desired shape once installed.

[0123] In the examples of FIGS. **9***a*-**9***f*, in previous construction shelf angle **322** would commonly have been a T-shaped steel section, with the stem of the T-shape oriented to stand upwardly, and the inside portion of the flange of the inverted T then being used to obstruct the otherwise open gap between the T-section and the wall. That gap might have been filled with insulation, with an air space being left between the outside face of the insulation and the inside face of the brick veneer. However, the use of a heavy steel T-section in this location may not always be desirable. First, T-sections tend to be less widely available, and the space of the gap may not be the same as the length of horizontal flange desired to underlie the face brick. Accordingly, either an asymmetric T must be specially ordered, or a symmetrical tee must have one of the legs trimmed. Standard L-shaped angle irons tend to be more widely available, and as standard sizes may tend to be available at lower cost. They may also tend to weigh less, given the absence of the inner portion of the cross-

bar of the T as compared to a shelf angle. The light construction using a first element-namely an outer rail; a second element, namely an inner rail; and a third element in the form of a soffit that is cut to length to fit between the rails, may tend to permit much lighter construction, without the need for specially ordered heavy structural sections.

[0124] To this point, the discussion has assumed that the soffit elements are used in an overhanging or out-stepped wall section, such as may sometimes occur where an upper portion of a structure has a floor footprint that overhangs a lower upstanding foundation, for example. However, a concealment structure may also be found at the location of a penetration in the wall structure, such as a window or door, where there is a substantial through-thickness of structure lying inwardly of an external masonry veneer. This kind of portal cowling, or false-work, or cosmetic covering may be found in at least three contexts.

[0125] The first context, as exemplified in FIG. **10***a*, and in the details of FIGS. **11***a*-**11***e*, is that in which a structural assembly similar to that of FIG. **1** is used to define a lintel over a door or window opening of modest width where the lintel or shelf angle **472**, and the loading on the lintel, is carried through mounting fittings, or mounting brackets **474**, **476**, that support the shelf angle **472**. In this arrangement there is a concealment or soffit assembly **480**. It has a first member **482** that corresponds generally to first member **152** of soffit assembly **150** as shown in FIGS. **4***a*-**4***c*; and a second member **484** that corresponds generally to second member **154** of soffit assembly **150**.

[0126] Support fittings **474**, **476** have a fixed stand-off distance between back **478** of the mounting bracket **474** or **476** that mounts against the supporting wall structure, and the inside dimension of the back of the vertical web **118** of the shelf angle **46** as found in the accommodation defined by seat **94** of the mounting bracket. This stand-off distance may correspond intentionally to a standard thickness of insulation, such as rigid expanded foam insulation **56**, be it 2 inches thick, or some other standard thickness. In this example, as seen in FIG. **11***c*, although there may be masonry veneer sides or pillars **492**, **494** below the height of the shelf angle to either side of the window or door opening, nonetheless those inferior (i.e., lower) masonry veneer portions **492**, **494** carry only their own weight. The weight of the superior (i.e., upper) masonry veneer **496** seated on the shelf angle as seen in FIG. **11***d* is carried through the mounting brackets and into the primary structure of the supporting wall, as may be. Insulation **498** is installed in the usual manner between the back of shelf angle **46** and the front of the wall. In this case, the concealing members **492**, **494** provide a cosmetic covering that conceals the underlying, possibly less aesthetically attractive, lintel defined by the shelf angle. They also, of course, conceal the mounting brackets and any layers of insulation materials as may be.

[0127] In summary, in FIG. **10***a* and FIGS. **11***a*-**11***e* there is a masonry veneer support assembly **480** for spanning a structure opening between first and second side walls **492**, **494**. It has a masonry veneer shelf angle **46** of a length to span the opening between the first and second side walls **492**, **494**. First and second mounting brackets **474**, **476** are attached to building structure rearwardly of the first and second sidewalls **492**, **494**. Shelf angle **46** has a first leg **118** extending upwardly, and a second leg **116** extending forwardly away from the building structure. First and second mounting brackets **474**, **476** establish a spacing gap between shelf angle **46** and the building structure. Shelf angle **46** is seated on first and second mounting brackets **474**, **476** whereby shelf angle **46** is cantilevered forwardly of, and supported by, the building structure. A soffit receiver **484** is mounted to the building structure. A soffit **482** is mounted to shelf angle **46**. Soffit **482** extends rearwardly toward the building structure and seats in soffit receiver **484** and conceals the spacing gap. Soffit **482** extends laterally between first and second side walls **492**, **494**.

[0128] In the second context, as exemplified in FIG. **10***b* and in the details of FIGS. **12***a*-**12***d*, there is a soffit concealment assembly **500** that has a first member **502** and a second member **504**. As before, assembly **500** is generally similar to soffit assembly **150**, and members **502** and **504** correspond generally to members **152** and **154**. However, in this instance there are no mounting

brackets such as brackets **474**, **476**. That is, the lintel or shelf angle **46** is not cantilevered from the rearwardly located main upstanding structure. Rather, the lintel **46** is structurally supported by the masonry of other supporting structure of the pillars **506**, **508** that are either defined by, or concealed by, masonry veneer pillars **506**, **508** to either side of the structural opening, be it a window or a doorway. In this instance, there is a gap between the back edge of the lintel defined by shelf angle **46** and the forward face of the nearest rearwardly located structure **510** through which the opening for the window or doorway extends. This distance may or may not be a standard distance, and the forwardly positioned veneer elements may not necessarily be in planar parallel relationship to the rearwardly located doorway. That is, there may be a skew or a dimensional mis-match, such as may not uncommonly occur where the addition of an external masonry veneer cladding is provided as a retro-fit installation on previously built structure.

[0129] In this second example, the frame of reference of the location of lintel **46** is defined by the inferior (i.e., lower) masonry structure (or steel or other framing, as may be) of pillars **506**, **508** upon which lintel **46** is mounted, and the frame of reference of the closing member of the covering concealment falsework of the soffit members **502**, **504** is defined by the rearwardly located inner wall structure **510** to which the closing member **504** is mounted. In that sense, the lintel “floats” relative to inner wall, and the “float” distance, being the dimension between them, is taken up by the enclosing sheet **512** of first member **502**, which is cut to length to suit that dimension, which may be non-standard. It is slid into place on installation between the two vertical sides, or jambs, of the window or door opening. As may be appreciated, when the soffit sheet **512** is cut, it may be trimmed to unequal dimensions where the lintel is not square to the through-thickness of the inside wall, but is skewed.

[0130] In summary, in FIG. **10***b* and FIGS. **12***a*-**12***d* there is a masonry veneer support assembly for spanning a structure opening between first and second side walls. It has a masonry veneer shelf angle **46** of a length to span the opening between the first and second side walls **506**, **508**. Shelf angle **46** has a first leg **118** extending upwardly, and a second leg **116** extending forwardly away from the building structure. There is a spacing gap rearwardly of shelf angle **46** between shelf angle **46** and the building structure. Shelf angle **46** is seated on the first and second side walls **506**, **508** whereby shelf angle **46** is supported by those first and second side walls to either side of the structure opening. Soffit receiver **504** is mounted to the building structure. Soffit **502** is mounted to shelf angle **46**. Soffit **502** extends rearwardly toward the building structure. Soffit **502** seats in soffit receiver **504** and conceals the spacing gap. Soffit **502** extends laterally between the first and second side walls **502**, **504**.

[0131] Soffit **502** defines a socket **514** in which to receive a toe of shelf angle **46**. Soffit receiver **504** defines a first slot **516** in which a first margin **518** of soffit **502** is admitted on assembly. In an alternative, soffit **502** may have the two-part form of FIGS. **5***a* and **5***b* in which the soffit has a rail fitting that mounts to a tip of shelf angle **46** distant from the building structure and has a second slot in which a second margin of the soffit is admitted on assembly. In another feature, as in FIGS. **6***a* and **6***b*, the soffit has a drip edge.

[0132] In the third instance, in the example of FIG. **10***c* and FIGS. **13***a*-**13***d*, there is a soffit assembly **520** that has a first member **522** and a second member **524** that correspond generally to first member **152** and second member **154**. In this example, the shelf angle, or lintel **46** may be mounted directly to the supporting structure of the adjacent masonry pillars **526**, **528**. This may occur, for example, where the rearward structure **530** is neither heated nor insulated, such as in the case of a garage or breezeway, or external walkway, passageway, porch, such as a shaded or protected alameda. In such a circumstance, lintel **46** may again be seated for structural support on the masonry or other structure **526**, **528** to either side of the window or door opening, or it may be mounted to the superior (i.e., higher) rearward structure **530** against which it backs, and from which it is not otherwise separated or spaced (i.e., in contrast to the forwardly cantilevered spacing of the shelf angle see in FIG. **10***a*). During construction, the side pillars of masonry veneer **526**,

528 (or such other structure as may be) are built up to the desired height. The lintel **46** is then seated on that structure **526**, **528**. The rearward reference member, or receiving member **524**, is then positioned on, and secured to the rearward structure **530** at the appropriate height to receive the inwardly extending margin of the enclosing soffit member **522** that engages the outwardly extending toe of the lintel or shelf angle **46**. In these contexts, in the first, second and third instances the terms “lintel” and “shelf angle” are used interchangeably.

[0133] In this third instance, the point of reference for the rear closure member **524** is the rearward face of the shelf angle or lintel **46**, to which the rear closure member **524** is mounted. The concealing member **522** then mounts to the forward portion, i.e., the forward tip of horizontal leg **116** of shelf angle or lintel **46**, and slides rearwardly until seated in the seat of rear closure member **524**. As such, the long horizontal soffit leg **532** of concealing member **522** merely covers the underside of shelf angle **46**, rather than bridging an otherwise visible gap as in the examples of FIGS. **10***a* and **10***b* between lintel **46** and rearward structure, whichever it may be. I.e., in this instance, there is no gap to be covered. As such the enclosing leg **536** of the soffit is co-extensive, (or substantially co-extensive allowing for tolerances), with the length of the horizontal leg **116** of the lintel or shelf angle **46**.

[0134] To recap, there is a masonry veneer support assembly **520** for spanning a structure opening between first and second side walls **526**, **528**. It has a masonry veneer shelf angle **46** of a length to span the opening between first and second side walls **526**, **528**. Shelf angle **46** has a first leg **118** that extends upwardly, and a second leg **116** that extends forwardly away from the building structure. First leg **118** is mounted against the building structure. Soffit receiver **524** is mounted to a back of the shelf angle and depends therebelow. Soffit **522** is mounted to a forward tip of second leg **116** of shelf angle **46**. Soffit **522** extends rearwardly toward soffit receiver **524** underneath second leg **116**. Soffit **522** extends laterally between first and second side walls **526**, **528**.

[0135] In each of these three examples, there may be a drip edge, or flashing **534** that is cut to width to fit between the lateral walls, and that is installed over the leading edge of the first soffit member and horizontal leg **116** prior to installation of veneer masonry on top of shelf angle **46**, in whichever of the examples is being considered. Alternatively, the drip edge may include a gutter that is inclined laterally to carry moisture to the side of the doorway, i.e., rather than dripping on the heads of people walking through the opening of the door **536**. The drip edge may, alternatively, be formed in the soffit member as seen in FIGS. **6***a* and **6***b*.

[0136] As may be understood, each of the examples of FIGS. **10***a*, **10***b* and **10***c* the soffit assembly is a two-part assembly as in FIGS. **4***a*, **4***b* and **4***c*. Analogously, they could however, be three-part assemblies as seen in FIGS. **5***a* and **5***b*. Similarly, while the soffit receivers, i.e., the second members of the respective soffit assemblies, typically have the form of J-strips, in which the upstanding leg is attached to supporting structure, they may also have the form of a P-strip.

[0137] Various embodiments of the invention have been described in detail. As explained, the various embodiments described address one or more of the various problems and challenges of dealing with with curved walls and with discontinuities or interruptions in a wall structure such as corners, windows, doors, the desirability of reducing heat transfer, the facilitation of manufacturing, and so on. Since changes in and or additions to the above-described best mode may be made without departing from the nature, spirit or scope of the invention, the invention is not to be limited to those details but only by the appended claims.

Claims

1. A masonry veneer support assembly for spanning a structure opening between first and second side walls, said masonry veneer support assembly comprising: a masonry veneer shelf angle of a length to span the opening between the first and second side walls, a first mounting bracket, and a second mounting bracket; said first and second mounting brackets being attached to building

structure rearwardly of the first and second sidewalls; said shelf angle having a first leg extending upwardly, and a second leg extending forwardly away from said building structure; said first and second mounting brackets establishing a spacing gap between said shelf angle and the building structure; said masonry veneer shelf angle being seated on said first and second mounting brackets whereby said shelf angle is cantilevered forwardly of, and supported by, the building structure; a soffit receiver mounted to said building structure; a soffit mounted to said shelf angle, said soffit extending rearwardly toward said building structure and seating in said soffit receiver and concealing the spacing gap; and said soffit extending laterally between said first and second side walls.

2. The masonry veneer support assembly of claim 1 wherein said soffit receiver has a folded strip defining a slot, and said soffit has an inboard margin that, on installation, slides into said slot.

3. The masonry veneer support assembly of claim 1 wherein said soffit receiver is a J-strip.

4. The masonry veneer support assembly of claim 1 wherein said second leg of said shelf angle has a tip most distant from the building structure and said soffit has an outboard flange folded to conceal said outboard tip.

5. The masonry veneer support assembly of claim 4 wherein said flange of said soffit has a return leg that extends rearwardly toward the building structure; and, as installed, masonry veneer seated above said second leg of said shelf angle overlaps at least a portion of said return leg.

6. The masonry veneer support assembly of claim 1 wherein said assembly includes a flashing drip edge that overhangs said soffit.

7. The masonry veneer support assembly of claim 1 wherein said soffit has an epoxy coating.

8. A masonry veneer support assembly for spanning a structure opening between first and second side walls, said masonry veneer support assembly comprising: a masonry veneer shelf angle of a length to span the opening between the first and second side walls; said shelf angle having a first leg extending upwardly, and a second leg extending forwardly away from said building structure; there being a spacing gap rearwardly of said shelf angle between said shelf angle and the building structure; said masonry veneer shelf angle being seated on said first and second side walls whereby said shelf angle is supported said first and second side walls to either side of said structure opening; a soffit receiver mounted to said building structure; a soffit mounted to said shelf angle, said soffit extending rearwardly toward said building structure and seating in said soffit receiver and concealing the spacing gap; and said soffit extending laterally between said first and second side walls.

9. The masonry veneer support assembly of claim 8 wherein said soffit defines a socket in which to receive a toe of a shelf angle, and said soffit receiver defines a first slot in which a first margin of the soffit is admitted on assembly.

10. The masonry veneer support assembly of claim 8 wherein said soffit is a two-part soffit having a rail fitting that mounts to a tip of the shelf angle distant from the building structure, and that has a second slot in which a second margin of said soffit is admitted on assembly.

11. The masonry veneer support assembly of claim 8 wherein said soffit has a drip edge.

12. A masonry veneer support assembly for spanning a structure opening between first and second side walls, said masonry veneer support assembly comprising: a masonry veneer shelf angle of a length to span the opening between the first and second side walls; said shelf angle having a first leg extending upwardly, and a second leg extending forwardly away from said building structure; said first leg of said shelf angle is mounted against the building structure; said masonry veneer shelf angle spanning said opening between said first and second side walls; a soffit receiver mounted to a back of said shelf angle and depending therebelow; a soffit mounted to a forward tip of said second leg of said shelf angle, said soffit extending rearwardly toward said soffit receiver underneath said second leg of said shelf angle; and said soffit extending laterally between said first and second side walls.

13. The masonry veneer support assembly of claim 12 wherein said soffit defines a socket in which

to receive a toe of a shelf angle, and said soffit receiver defines a first slot in which a first margin of the soffit is admitted on assembly.

14. The masonry veneer support assembly of claim 12 wherein said soffit is a two-part soffit having a rail fitting that mounts to a tip of the shelf angle distant from the building structure, and that has a second slot in which a second margin of said soffit is admitted on assembly.

15. The masonry veneer support assembly of claim 12 wherein said soffit has a drip edge.