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(54) **Title:** A ROOF, SIDING, OR CLADDING, OR RIDGE OR HIP MEMBER FOR A ROOF

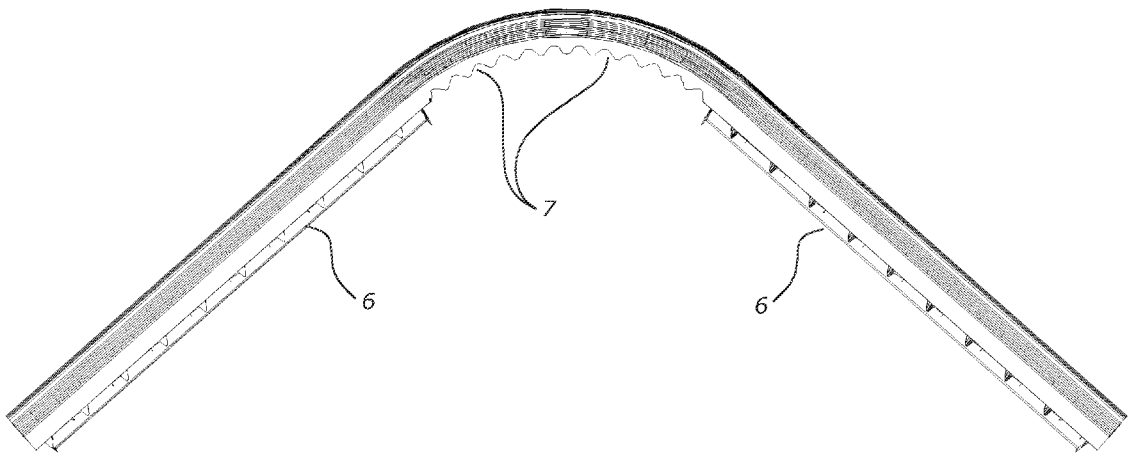


FIGURE 8

(57) **Abstract:** A ridge or hip member for a roof comprising a substantially flexible zone and a substantially rigid zone on each side of the flexible zone. The flexible zone adapted to allow the member to be bent by an installer by hand to conform the member to the ridge or hip of a roof, with the flexible zone located along a ridge or hip line of the roof. Each rigid zone being located on each side of the ridge or hip line.

[Continued on next page]

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A ROOF, SIDING, OR CLADDING, OR RIDGE OR HIP MEMBER FOR A ROOF

FIELD OF THE INVENTION

The present invention relates to a ridge or hip member for the roof of a building, or to a roof, siding or cladding member for a roof.

BACKGROUND TO THE INVENTION

A roof comprises a membrane or members arranged to form a water tight membrane or covering over a building frame work or building surface. Sides of the roof meet at hip lines (hips) and ridge lines (ridges) of the roof. A ridge member or hip member is provided to bridge over the hip or ridge to cover and therefore make water tight the upper ends of the sides that meet at the hip or ridge of the roof. Existing hip or ridge members include sheet metal flashings that are preformed to match the pitch of a roof, and ridge tiles such as half round or third round or angled ridge tiles that are arranged along the ridge or hip with adjacent tiles overlapping.

In this specification where reference has been made to patent specifications, other external documents, or other sources of information, this is generally for the purpose of providing a context for discussing the features of the invention. Unless specifically stated otherwise, reference to such external documents is not to be construed as an admission that such documents, or such sources of information, in any jurisdiction, are prior art, or form part of the common general knowledge in the art.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide an improved ridge or hip member or a roof, siding or cladding member, or to at least provide the public with a useful choice.

In one aspect, the present invention broadly consists in a ridge or hip member for a roof comprising:

a substantially flexible zone and a substantially rigid zone on each side of the flexible zone, the flexible zone adapted to allow the member to be bent by an installer by hand to conform the member to the ridge or hip of a roof with the flexible zone located along a ridge or hip line of the roof and with each rigid zone located on each side of the ridge or hip line.

In some embodiments, said flexible zone is located between at least a pair of rigid zones, or said flexible zone is flanked by a pair of substantially rigid zones.

In some embodiments, the flexible zone extends from a leading edge of said member to a trailing edge (optionally said flexible zone being oriented to extend in a direction along a longitudinal axis of said member).

In some embodiments, the substantially flexible zone is relatively more flexible than the substantially rigid zone on each side of the flexible zone (optionally in a transverse direction of the ridge or hip member).

In some embodiments, the substantially rigid zone each side of the flexible zone is relatively more rigid than the substantially flexible zone (optionally in a transverse direction of the ridge or hip member).

In some embodiments, the flexible zone extends from an overlapping region to an underlapping region.

In some embodiments, the member comprises at least a first engagement feature, and at least a second engagement feature.

In some embodiments, the first engagement is adapted to engage with an engagement feature of an adjacent ridge or hip member to substantially locate or co-locate or set the relative position of the adjacent member and/or provide for a connection between said ridge or hip member and said adjacent member.

In some embodiments, the first engagement feature is configured to engage with a second engagement feature of an adjacent member.

In some embodiments, the second engagement is adapted to engage with an engagement feature of an adjacent ridge or hip member to substantially locate or co-locate or set the relative position of the adjacent member and/or provide for a connection between said ridge or hip member and said adjacent member.

In some embodiments, the second engagement feature is configured to engage with a first engagement feature of an adjacent member.

In some embodiments, said first engagement feature is located on an upper surface of an underlapping region and said second engagement feature is located on a lower surface of an overlapping region.

In some embodiments, said first engagement feature and second engagement features allow for weathertight sealing between said member and an adjacent member.

In some embodiments, said first engagement feature is a recess, or groove (optionally in the underlapping region) and said second engagement feature is a projection (optionally extending from a lower surface of the overlapping region), wherein the recess is adapted to receive the projection of an adjacent and/or overlapping ridge or hip member to substantially locate or co-locate or set the relative position the adjacent members.

In some embodiments, said first engagement feature is a projection (optionally extending from an upper surface of the underlapping region), and said second engagement feature is a recess groove (optionally in the overlapping region) wherein the recess is adapted to receive the projection of an adjacent and/or overlapping ridge or hip member to substantially locate or co-locate or set the relative position the adjacent members.

In some embodiments, said projection is dimensioned, and/or sized and shaped, so as to be prevented from engagement with and/or a seating within at least one fluid channel.

In some embodiments, at least one fluid channel is dimensioned, and/or sized and shaped, so as to be prevented from engagement with and/or a seating within said projection.

In some embodiments, in use when said member is slid upwards with respect to an already installed adjacent member during installation said projection passes over said at least one fluid channel without engaging (or is unable to engage) said at least one fluid channel before reaching said recess and to become engaged with said recess.

In some embodiments, at least one fluid channel is closer to (or more toward) a leading edge of said member when installed or a leading edge of said underlapping region than said recess.

In some embodiments, the recess is an alignment channel extending lateral to a roof ridge or hip direction.

In some embodiments, the projection extends lateral to the roof ridge or hip direction, and/or wherein the member comprises a plurality of projections extending from a lower surface of the overlapping region spaced apart in a direction lateral to the roof ridge or hip direction, the recess adapted to receive the plurality of projections of an adjacent and/or overlapping ridge or hip member.

In some embodiments, the projection has a width less than a width of the recess to allow movement of the member relative to an adjacent member along the direction of the ridge or hip of the roof.

In some embodiments, said movement allows for variance in rotational alignment of said member, with said adjacent member.

In some embodiments, the member comprises a said projection in the rigid zones and is without a said projection in the flexible zone.

In some embodiments, one or both of an upper surface of an underlapping region and a lower surface of an overlapping region comprise a glue or adhesive strip or region, including but not limited to pressure sensitive adhesives.

In some embodiments, the member comprises an overlapping region and an underlapping region, the underlapping region comprising at least one fluid channel in an upper surface of the underlapping region and extending across the width of the member.

In some embodiments, said at least one fluid channel is configured to direct fluid received between the overlapping and underlapping regions of adjacent members down the roof surface away from the ridge or hip line of the roof.

In some embodiments, the fluid channel extends laterally with respect to the ridge or hip line of the roof.

In some embodiments, the member comprises a plurality of said fluid channels spaced apart along a roof ridge or hip direction of the member.

In some embodiments, the plurality of fluid channels comprises at least two spaced apart groups of said fluid channels, each group comprising at least two said fluid channels.

In some embodiments, a first fluid channel nearest the overlapping region has a greater channel depth and/or width than other said fluid channels spaced further from the overlapping region.

In some embodiments, the fluid channel has a depth of about 3mm, and/or a width of about 4mm.

In some embodiments, the first fluid channel has a depth of about 3mm and/or a width of about 4mm, and other fluid channels have a depth of about 2mm and/or a width of about 3mm.

In some embodiments, the at least one fluid channel has a wavy path, and/or substantially sinusoidal path, and/or is of a shape or configuration which is not engageable by said projection.

In some embodiments, the wavy path has a pitch of about 5mm and an amplitude of about 25mm.

In some embodiments, the flexible zone spans at least 10% of the width and/or length of the member straddling the ridge or hip line of the roof.

In some embodiments, the flexible zone spans at least 15%, or at least 20% of the width and/or length of the member.

In some embodiments, the flexible zone presents a minimum bend radius of at least 20mm, or at least 25mm, or at least 30mm, or at least 35mm, or at least 40mm, or at least 45mm, or at least 50mm.

In some embodiments, the flexible zone is more flexible than the rigid zones by comprising one or more of:

- different geometry and/or material in the flexible zone and the rigid zones
- a concertina-type section in the flexible zone
- an area of variable thickness in the flexible zone relative to the rigid zones
- a variation in material properties and/or material in said flexible zone relative to the rigid zones
- a reduced thickness in said flexible zone relative to the rigid zones
- a reinforced polymer in said rigid zone and/or an unreinforced polymer in said flexible zone
- a polymer of a first stiffness in said flexible zone, and a polymer of a second stiffness in said rigid zone, wherein said second stiffness is greater than said first stiffness.

In some embodiments, said flexible zone has a minimum bend radius corresponding with a maximum bendable state of said flexible zone.

In some embodiments, said maximum bendable state is defined by engagement of one or more features of the flexible zone (optionally said features are a plurality of ribs extending in a longitudinal direction of the member or in the direction of a ridge or hip of the roof).

In some embodiments, the flexible zone has a longitudinal stiffness (or stiffness in a direction along the ridge or hip line) similar or substantially the same as a longitudinal stiffness (or stiffness in a direction along the ridge or hip line) of the rigid zone.

In some embodiments, the flexible zone has a stiffness in a direction transverse to the longitudinal direction (or in the direction of a ridge or hip of the roof) substantially less that the stiffness of the rigid zone in the direction transverse to the longitudinal direction.

In some embodiments, the member is anisotropic.

In some embodiments, the member has a first elastic modulus or first stiffness in a width direction and a second elastic modulus or second stiffness in a length direction, the first elastic modulus or first stiffness less than the second elastic modulus or second stiffness.

In some embodiments, when bent or installed the rigid zones stay substantially planar.

In some embodiments, when bent or installed, deflection of said member is of the flexible zone.

In some embodiments, the flexible zone comprises a plurality of spaced apart grooves in a lower surface of the member, the grooves arranged side-by-side across the width of the member and extending in a length direction of the member to be arranged along the ridge or hip line of the roof.

In some embodiments, the member comprises an overlapping region and an underlapping region, and the grooves extend to an edge, or close to an edge, of the member in the underlapping region.

In some embodiments, the depth of the grooves at the edge of the member in the underlapping region is less than the depth of the grooves along a remainder of the grooves.

In some embodiments, the member comprises an overlapping region and an underlapping region, and wherein the grooves do not extend fully to an edge of the member in the overlapping region.

In some embodiments, wherein the grooves have a depth of 1mm and/or a width of 5mm, optionally 3mm.

In some embodiments, the member has a first thickness in the rigid zones and a second thickness in the flexible zone, the first thickness greater than the second thickness.

In some embodiments, the thickness of the member in the flexible zone is less than the thickness of the member in the rigid zones.

In some embodiments, the thickness of the flexible zone is less than the thickness of the rigid zones for substantially the full width of the flexible zone.

In some embodiments, said flexible zone is configured to bend to provide for an arc shaped profile across the flexible zone (e.g. in a direction to extend substantially over a ridge or hip of the roof to be clad).

In some embodiments, said flexible zone is configured to bend substantially evenly and/or substantially uniformly across its width.

In some embodiments, said flexible zone is configured to substantially bend evenly and/or substantially uniformly across its width to provide for substantially constant radius of curvature across said flexible zone when bent.

In some embodiments, said rigid zone is stiffer along an axis (optionally a transverse axis and/or from a leading edge of the member to a trailing edge of the member) than an axis (optionally a transverse axis and/or from a leading edge of the member to a trailing edge of the member) of said flexible zone.

In some embodiments, the flexible zone is stiffer along a first axis (optionally a longitudinal axis, or an axis extending from a leading edge of the member to a trailing edge of the member) than a second axis (optionally a transverse axis or an axis extending parallel to one or more of: a leading edge of the member to a trailing edge of the member) to allow the member to be bent along said second axis while resisting bending in the first axis.

In some embodiments, said flexible zone comprises a flexible region to provide for said flexibility, said flexible region located on an underside of said ridge or hip member.

In some embodiments, said flexible region does not extend through to an upper surface of the ridge or hip member so as to not be visible from said upper surface.

In some embodiments, an exposed surface of the ridge or hip member is substantially flat, or said exposed surface comprises surface decoration or

patterning or texturing to emulate natural or man-made roofing materials such as timber shakes or shingles, asphalt shingles.

In some embodiments, the flexible zone comprises at least a first layer and at least a second layer,
said first layer at least in part defining the underside of the flexible zone of the ridge or hip member, and said second layer defining at least in part an upper surface of the flexible zone of the ridge or hip member to be exposed in use; and wherein the first layer comprises said flexible region, and
wherein said second layer is a substantially flat or planar surface, or of a substantially uniform thickness.

In some embodiments, said second layer is configured to stretch to accommodate a bending or deflection of said flexible region of said first layer while still remaining substantially flat, and/or retaining a profile of the upper layer, such as of an exposed surface optionally said exposed surface comprises decoration or patterning or texturing to emulate natural or man-made roofing materials such as timber shakes or shingles, asphalt shingles.

In some embodiments, said second layer is configured to stretch in a direction along a length or width to accommodate a bending or deflection of said flexible section of said first layer while still remaining substantially flat; and/or wherein said first layer is configured to compress in a direction along a length or width on bending or deflecting of said member.

In some embodiments, the flexible zone comprises a first material and the ridge zones comprise a second material, wherein the first material is more flexible than the second material.

In some embodiments, the member comprises at least two material layers, a first layer comprising a first material, and a second layer comprising a second material, and wherein the first material is more flexible than the second material, and wherein

in the flexible zone a thickness of the first layer is greater than a thickness of the second layer, and/or

in each rigid zone a thickness of the second layer is greater than a thickness of the first layer.

In some embodiments, the member comprises a first material and a second material, wherein the first material is more flexible than the second material, and wherein the flexible zone includes more of the first material than the second material, and/or wherein the rigid zones include more of the second material than the first material.

In some embodiments, the flexible zone is without the second material, and/or wherein the rigid zones are without the first material.

In some embodiments, an amount of the first material in each rigid zone reduces across the width of the rigid zone from the flexible zone towards an edge of the member, and/or wherein an amount of the first material increases in the flexible zone from each said rigid zone towards a centre of the flexible zone.

In some embodiments, the first material is or comprises one or more elastomers.

In some embodiments, the first material comprises at least one polymer and a first loading level of reinforcing and/or filler, and the second material comprises at least one polymer and a second loading level of reinforcing and/or filler, and wherein the first loading level is less than the second loading level so that the first material is more flexible than the second material.

In some embodiments, the first material and the second material each comprise the same polymer or polymers, or wherein the polymer or polymers of the first material are different to the polymer or polymers of the second material optionally the second material comprises different physical properties to the first material for example different flexibility, different softness, or different deformation characteristics.

In some embodiments, the member comprises a plurality of ribs on the lower surface of the rigid zones.

In some embodiments, the member comprises a plurality of ribs on the lower surface of the member.

In some embodiments, said ribs define cavities between the ribs, the ribs providing strength to the rigid zones.

In some embodiments, said ribs extend in one or more of a first axis (optionally a longitudinal axis or an axis extending from a leading edge of the member to a trailing edge of the member) and a second axis (optionally a transverse axis, or an axis extending parallel to one or more of: a leading edge of the member to a trailing edge of the member).

In some embodiments, said ribs extend in one or more of:

a first axis (optionally disposed at an angle to longitudinal axis or disposed at an angle to an axis extending from a leading edge of the member to a trailing edge of the member)

a second axis (optionally disposed at an angle to a transverse axis, or an axis extending or disposed at an angle to one or more of: a leading edge of the member to a trailing edge of the member)

a third axis (optionally parallel to one or more cutting guides).

a fourth axis (optionally perpendicular to one or more cutting guides

In some embodiments, the ribs are located between adjacent cutting guides.

In some embodiments, the said ribs comprise at least a first set of ribs, and at least a second set of ribs.

In some embodiments, said ribs are arranged in a criss-crossing or intersecting type pattern.

In some embodiments, the first set of ribs are arranged substantially perpendicular to the second set of ribs.

In some embodiments, the ribs are arranged as a pattern to cover a substantial portion of the underside of the ridge or hip member (optionally the ribs are arranged in a pattern to cover a substantial portion or an entire underside of the exposed region, optionally the ribs are arranged in a pattern to cover a substantial portion or an entire underside of the underlapping region).

In some embodiments, the ribs provide a stiffness or relative rigidity to the ridge or hip member in a direction extending from a central axis or longitudinal axis of the ridge or hip member towards one or more leading corner(s) of the ridge or hip member.

In some embodiments, the member comprises an overlapping region and an underlapping region, and width and/or length of the member in the underlapping region is less than the length of the member in the overlapping region such that edges of the member in the underlapping region are obscured from view by an adjacent overlapping member.

In some embodiments, the member comprises a step in an upper surface at a boundary of an underlapping region, so that an upper surface of the underlapping region is elevated above an upper surface of the member adjacent to said boundary of said underlapping region configured to be exposed in use.

In some embodiments, the step is angled away from the upper surface of the member adjacent to said boundary of said underlapping region configured to be exposed in use towards the upper surface of the underlapping region.

In some embodiments, the upper surface of the underlapping region slopes relative to a lower surface of the underlapping region away from the overlapping region.

In some embodiments, the upper surface of the underlapping region comprises a ramped region, said ramped region having a positive gradient (relative to a lower surface of the underlapping region) in a direction away from a trailing edge of the member towards said leading edge.

In some embodiments, said ramped region is the majority of the length of the upper surface of the underlapping region.

In some embodiments, in said underlapping region said member is tapered from a relatively thinner end at or closer to a trailing edge of the member to a relatively thicker end closer to a leading edge of the member.

In some embodiments, the ridge or hip member comprises at least one fastening zone, which fasteners may be provided to or pass therethrough, so as secure or

provide for a securement of the member to a building surface and/or an adjacent member.

In some embodiments, the at least one fastening zone is located within the or each rigid zone.

In some embodiments, the at least one fastening zone is located in the underlapping region of the ridge or hip member.

In some embodiments, the member comprises at least one flexible or hinged portion, optionally the at least one flexible or hinged portion allows for flexibility or hinging about a substantially transverse axis of the member.

In some embodiments, the flexible or hinged portion located in each rigid zone

In some embodiments, the fastening zone is located on one or both sides of a flexible or hinged portion located in each rigid zone.

In some embodiments, the flexible or hinged portion allows for a relative flexing or hinging of a first portion of each rigid zone relative to a second portion of each rigid zone.

In some embodiments, the first portion of each rigid zone is located nearer or more toward a leading edge of the ridge or hip member than the second portion of each rigid zone

In some embodiments, the flexing or hinging isolates and/or attenuates and/or prevents the transmission of forces from the first portion of each rigid zone relative to a second portion of each rigid zone.

In some embodiments, the fastening zone is located on one or both sides of a recess located in each rigid zone (optionally the recess acts as said hinged portion).

In some embodiments, the at least one fastening zone is a pair of fastening zones, each fastening zone located in each rigid zone.

In some embodiments, the or each fastening zone comprises two sub-sections disposed on either side of a recess.

In some embodiments, the fastening zone comprises at least one rib.

In some embodiments, the fastening zone is stiffer than the remainder of the rigid zone (other than the flexible or hinging portion).

In some embodiments, the at least one rib comprises at least a first set of ribs and a second set of ribs.

In some embodiments, the at least one rib is arranged in a criss-cross or intersecting type arranged pattern.

In some embodiments, the first set of ribs are arranged substantially perpendicular to the second set of ribs.

In some embodiments, at least one cavity is formed between the first set of ribs and the second set of ribs.

In some embodiments, the cavity is configured to be receivable of at least one fastener.

In some embodiments, the cross sectional area of the cavity is configured to be smaller or the same size as the cross-sectional area of at least one fastener

In some embodiments, the distance between the first set of ribs and the second set of ribs, and/or at least one dimension of the cavity is smaller or the same size as the largest dimension of at least one fastener.

In some embodiments, the ribs are configured to engage with a head and/or portion of the fastener when installed, to distribute a fastening force over the fastening zone.

In some embodiments, the underlapping region and/or the fastening zone comprises an area of increased thickness compared to a remainder of the member

through which fasteners may be provided to secure the member to a building surface.

In some embodiments, the underlapping region comprises an area of increased thickness compared to a remainder of the member through which fasteners may be provided to secure the member to a building surface.

In some embodiments, an underlapping region of the member comprises an indicia corresponding with the location for receipt of a fastener to secure the member to a building surface.

In some embodiments, the member comprises a region for receipt of a fastener to secure the member to a building surface, wherein said region comprises: an indicia, and/or is a reinforced area.

In some embodiments, said reinforced area is provided by a reinforcing layer, or the addition of reinforcing to said reinforced area.

In some embodiments, the ridge or hip member comprises at least one recess along a leading edge (optionally parallel to said leading edge) in the or each rigid zone.

In some embodiments, the ridge or hip member is configured to receive at least one adhesive portion and/or line and/or bead on one or both sides (adjacent) of the at least one recess, said at least one adhesive portion and/or line and/or bead configured to engage with an adjacent member when installed (optionally to create a substantially waterproof seal)

In some embodiments, the member comprises at least one edge feature, the edge feature being located at, or near, or along one or more of: a side or outer edge and/or the leading edge, and/or the trailing edge, optionally the edge feature is substantially parallel to said edge.

In some embodiments, the edge feature is one or more of a: raised wall, or recess.

In some embodiments, the edge feature provides for a barrier to the underside of the ridge or hip member.

In some embodiments, the edge feature provides for a visual barrier, such that when installed the underside of the member is not visible from the side or outer edge of the member.

In some embodiments, said edge feature is configured to engage with the exposed surface of an adjacent tile when installed.

In some embodiments, the edge feature is configured to provide a continuous face of a side or outer edge of the member.

In some embodiments, the ridge or hip member comprises at least one cutting guide.

In some embodiments, the cutting guide is located on an underside of the exposed region of the ridge or hip member.

In some embodiments, the at least one cutting guide extends in a direction along an axis or in a direction, or provides for a cutting guide pathway, that extends from the leading edge of the ridge or hip member towards or to one or more outer or side edges of the member.

In some embodiments, the at least one cutting guide comprises one or more of:

a thinned region

a slot

a region of reduced member material thickness.

In some embodiments, the ridge or hip member comprises a raised wall or an edge feature located along at least one side and/or around said at least one cutting guide (optionally along an inner side of the at least one cutting guide).

In some embodiments, the edge feature extends in a direction away from an upper surface of the member and/or from the upper surface of said member towards a building surface to which the member is attached, and/or an adjacent member.

In some embodiments, the raised wall or edge feature provides for a barrier to the underside of the ridge or hip member.

In some embodiments, the raised wall or edge feature provides for a visual barrier, such that when installed the underside of the member is not visible.

In some embodiments, said raised wall or edge feature is configured to engage with the exposed surface of an adjacent tile or member when installed.

In some embodiments, the raised wall or edge feature is configured to provide a continuous face of an edge of the ridge or hip member when the ridge or hip member is cut along said cutting guide.

In some embodiments, the at least one cutting guide is configured to allow removal of at least one (optionally a pair of) leading corner(s), or other portions, of the ridge or hip module.

In some embodiments, the at least one cutting guide comprises a first cutting guide or a first set of cutting guides and a second cutting guide or a second set of cutting guides.

In some embodiments, the first set of cutting guides extend in a direction along an axis or in a direction, or provides for a cutting guide pathway, that extends from the leading edge of the ridge or hip member towards or to a first outer or side edge of the member.

In some embodiments, the second set of cutting guides extend in a direction along an axis or in a direction, or provides for a cutting guide pathway, that extends from the leading edge of the ridge or hip member towards or to a second outer or side edge of the member.

In some embodiments, each cutting guide in the first set of cutting guides has a corresponding cutting guide in the second set of cutting guides, optionally, said each cutting guide and corresponding cutting guide being a mirror image of each other each other.

In some embodiments, each of the at least one cutting guides (or corresponding pairs of cutting guides in the first and second sets of cutting guides) corresponds with a particular roof pitch angle.

In some embodiments, the second set of cutting guides is a mirror image of the first set of cutting guides about a longitudinal or central axis.

In some embodiments, the cutting guide is of a linear cutting guide pathway or is of a non-linear (e.g. curved) cutting guide pathway.

In some embodiments, the at least one cutting guide is located within each rigid zone

In some embodiments, the at least one cutting guide comprises a cutting guide or set of cutting guides in each rigid zone.

In some embodiments, the cutting guide or set of cutting guides in each rigid zone is a mirror image of the at least one cutting guide located in the other of each rigid zone along a central or longitudinal axis.

In some embodiments, the at least one cutting guide is extends from a leading edge of the ridge or hip member across part of the flexible zone, and at least part of the rigid zone to an outer edge of the ridge or hip member

In some embodiments, the at least one cutting guide is along an axis from the leading edge of the ridge or hip member towards an outer edge of the ridge or hip member

In some embodiments, the at least one cutting guide, or each set of cutting guides, comprises one, or two, or three or more cutting guides.

In some embodiments, each of the one or more cutting guides is disposed at a different angle from each of the other one or more cutting guides (optionally a different angle to each cutting guide in each set of cutting guides).

In some embodiments, each of the one or more cutting guides is disposed at a different angle from one or more of:

a longitudinal axis of the ridge or hip member
a transverse axis of the ridge or hip member
a leading edge the ridge or hip member

a trailing edge the ridge or hip member..

In some embodiments, the member is formed from or comprises at least one polymer and comprises:

reinforcing and/or filler in the polymer in the rigid zones and no reinforcing or filler in the polymer in the flexible zone, or

reinforcing and/or filler in the polymer, the member having a first loading level of reinforcing or filler in the flexible zone and a second loading level of reinforcing or filler in the rigid zones, and wherein the first loading level is less than the second loading level.

In some embodiments, the second loading level is at least twice the first loading level.

In some embodiments, the second loading level of the filler or reinforcing or both is at least 40%, or 50%, or 60%, or 70%, or 80%, or 90% w/w.

In some embodiments, the member is formed from or comprises at least one polymer and reinforcing and/or filler in the polymer, and

wherein the reinforcing and/or filler is aligned in a length direction of the member to be aligned with the direction of the ridge or hip line of the roof.

In some embodiments, the filler comprises one or more of the following: talc, calcium carbonate, mica, silica, kaolin, calcium sulphate, magnesium hydroxide, stabilizers, dolomite.

In some embodiments, the reinforcement comprises one or more of the following: glass fibres, glass beads, glass flakes, flax, cellulose, wood fibres, wood flour, cotton, sawdust, inorganic fibres, polymer fibres, polymer scrim, polymer knit, polymer weave, aramids, ceramics, carbon fibres

In some embodiments, the second elastic modulus is between 1.5 times and 20 times the first elastic modulus, optionally the second elastic modulus is at least twice the first elastic modulus.

In some embodiments, the member is formed from one or more polymers.

In some embodiments, one or polymers comprise one or more elastomers.

In some embodiments, the one or more elastomers are selected from thermoplastic elastomers.

In some embodiments, the one or more polymers are selected from polystyrene (GPPS), polyethylene terephthalate (PET), polyester methacrylate (PEM), high impact polystyrene (HIPS), acrylonitrile butadiene styrene (ABS), polyvinyl chloride (PVC), polyurethanes (PU), polyethylene (PE) including homopolymer, copolymer, block copolymer and terpolymer forms, polylactic acid (PLA), nylon (PA), acrylics (PMMA), high density polyethylene (HDPE), low density polyethylene (LDPE), linear low density polyethylene (LLDPE), medium density polyethylene (MDPE), cross linked polyethylene (PEX), thermoplastic elastomer (TPE), thermoplastic polyolefin (TPO), thermoplastic rubber (TPR), polypropylene (PP), including homopolymer and copolymer forms, polybutylene terephthalate (PBT), styrene-acrylonitrile resin (SAN), ethylene tetrafluoroethylene (ETFE), vinyl, methacrylate copolymers, foamed polymer, polycarbonates, and combinations thereof.

In some embodiments, said member comprises an underlapping region configured to be covered in use by an overlapping region of an adjacent member.

In some embodiments, said underlapping region is located at a trailing edge of said member.

In some embodiments, said member comprises an overlapping region configured to cover in use (or when installed) an underlapping region of an adjacent member.

In some embodiments, said overlapping region is located at a leading edge of said member.

In some embodiments, an upper surface of said member comprises an exposed surface.

In some embodiments, said member is longer in a direction from a leading edge to a trailing edge, said direction being a longitudinal axis

In some embodiments, said longitudinal axis is to be oriented when installed in a direction along a ridge or hip line.

In some embodiments, wherein a length of the member is in the same direction as, or in a transverse direction to a ridge or hip line when installed

In some embodiments, a width of the member is in the same direction as, or in a transverse direction to a ridge or hip line when installed.

In some embodiments, the member comprises at least two layers of polymeric material, wherein the layers are of the same or different polymeric material. In some embodiments, at least one material has high UV resistance.

In some embodiments, the member or the polymer layers can be coloured or comprise a blend of colours. In some embodiments, the polymer on the outer layer of the member can be manufactured to mimic traditional roofing products.

In some embodiments, the member is manufactured by a continuous forming process, for example as described in International patent publication WO2016/088026. Alternatively in some embodiments the member is formed by injection moulding, die casting, extrusion, pressing, or any other suitable known forming process.

In another aspect there is provided a ridge or hip member for a roof comprising:

a substantially flexible zone and a substantially rigid zone on each side of the flexible zone, the flexible zone adapted to allow the member to be bent by an installer by hand to conform the member to the ridge or hip of a roof with the flexible zone located along a ridge or hip line of the roof and with each rigid zone located on each side of the ridge or hip line.

In some embodiments, said flexible zone is located between at least a pair of rigid zones, or said flexible zone is flanked by a pair of substantially rigid zones.

In some embodiments, the flexible zone extends from a leading edge of said member to a trailing edge (optionally said flexible zone being oriented to extend in a direction along a longitudinal axis of said member).

In some embodiments, the substantially flexible zone is relatively more flexible than the substantially rigid zone on each side of the flexible zone (optionally in a transverse direction of the ridge or hip member).

In some embodiments, the substantially rigid zone each side of the flexible zone is relatively more rigid than the substantially flexible zone (optionally in a transverse direction of the ridge or hip member).

In some embodiments, the member comprises at least a first engagement feature, and at least a second engagement feature, optionally, the first engagement is adapted to engage with an engagement feature of an adjacent ridge or hip member to substantially locate or co-locate or set the relative position of the adjacent member and/or provide for a connection between said ridge or hip member and said adjacent member, optionally, the first engagement feature is configured to engage with a second engagement feature of an adjacent member.

In some embodiments, the second engagement is adapted to engage with an engagement feature of an adjacent ridge or hip member to substantially locate or co-locate or set the relative position of the adjacent member and/or provide for a connection between said ridge or hip member and said adjacent member, optionally, the second engagement feature is configured to engage with a first engagement feature of an adjacent member.

In some embodiments, the member comprising an overlapping region and an underlapping region, the underlapping region comprising at least one fluid channel in an upper surface of the underlapping region and extending across the width of the member, optionally, said at least one fluid channel is configured to direct fluid received between the overlapping and underlapping regions of adjacent members down the roof surface away from the ridge or hip line of the roof, optionally, the fluid channel extends laterally with respect to the ridge or hip line of the roof.

In some embodiments, the flexible zone is more flexible than the rigid zones by comprising one or more of:

- different geometry and/or material in the flexible zone and the rigid zones
- a concertina-type section in the flexible zone

- an area of variable thickness in the flexible zone relative to the rigid zones
- a variation in material properties and/or material in said flexible zone relative to the rigid zones
- a reduced thickness in said flexible zone relative to the rigid zones
- a reinforced polymer in said rigid zone and/or an unreinforced polymer in said flexible zone
- a polymer of a first stiffness in said flexible zone, and a polymer of a second stiffness in said rigid zone, wherein said second stiffness is greater than said first stiffness.

In some embodiments, said flexible zone has a minimum bend radius corresponding with a maximum bendable state of said flexible zone, optionally, said maximum bendable state is defined by engagement of one or more features of the flexible zone (optionally said features are a plurality of ribs extending in a longitudinal direction of the member or in the direction of a ridge or hip of the roof).

In some embodiments, the flexible zone has a longitudinal stiffness (or stiffness in a direction along the ridge or hip line) similar or substantially the same as a longitudinal stiffness (or stiffness in a direction along the ridge or hip line) of the rigid zone.

In some embodiments, the flexible zone has a stiffness in a direction transverse to the longitudinal direction (or in the direction of a ridge or hip of the roof) substantially less that the stiffness of the rigid zone in the direction transverse to the longitudinal direction.

In some embodiments, wherein the member has a first elastic modulus or first stiffness in a width direction and a second elastic modulus or second stiffness in a length direction, the first elastic modulus or first stiffness less than the second elastic modulus or second stiffness.

In some embodiments, when bent or installed the rigid zones stay substantially planar.

In some embodiments, when bent or installed, deflection of said member is of the flexible zone.

In some embodiments, the flexible zone comprises a plurality of spaced apart grooves in a lower surface of the member, the grooves arranged side-by-side across the width of the member and extending in a length direction of the member to be arranged along the ridge or hip line of the roof.

In some embodiments, the member has a first thickness in the rigid zones and a second thickness in the flexible zone, the first thickness greater than the second thickness.

In some embodiments, the thickness of the member in the flexible zone is less than the thickness of the member in the rigid zones.

In some embodiments, the thickness of the flexible zone is less than the thickness of the rigid zones for substantially the full width of the flexible zone.

In some embodiments, said flexible zone is configured to bend to provide for an arc shaped profile across the flexible zone (e.g. in a direction to extend substantially over a ridge or hip of the roof to be clad).

In some embodiments, said flexible zone is configured to bend substantially evenly and/or substantially uniformly across its width.

In some embodiments, wherein said flexible zone is configured to substantially bend evenly and/or substantially uniformly across its width to provide for substantially constant radius of curvature across said flexible zone when bent.

In some embodiments, said rigid zone is stiffer along an axis (optionally a transverse axis and/or from a leading edge of the member to a trailing edge of the member) than an axis (optionally a transverse axis and/or from a leading edge of the member to a trailing edge of the member) of said flexible zone.

In some embodiments, the flexible zone is stiffer along a first axis (optionally a longitudinal axis, or an axis extending from a leading edge of the member to a trailing edge of the member) than a second axis (optionally a transverse axis or an axis extending parallel to one or more of: a leading edge of the member to a

trailing edge of the member) to allow the member to be bent along said second axis while resisting bending in the first axis.

In some embodiments, said flexible zone comprises a flexible region to provide for said flexibility, said flexible region located on an underside of said ridge or hip member

In some embodiments, said flexible region does not extend through to an upper surface of the ridge or hip member so as to not be visible from said upper surface

In some embodiments, an exposed surface of the ridge or hip member is substantially flat, or said exposed surface comprises surface decoration or patterning or texturing to emulate natural or man-made roofing materials such as timber shakes or shingles, asphalt shingles.

In some embodiments, the flexible zone comprises at least a first layer and at least a second layer,
said first layer at least in part defining the underside of the flexible zone of the ridge or hip member, and said second layer defining at least in part an upper surface of the flexible zone of the ridge or hip member to be exposed in use; and
wherein the first layer comprises said flexible region, and
wherein said second layer is a substantially flat or planar surface, or of a substantially uniform thickness, optionally, said second layer is configured to stretch to accommodate a bending or deflection of said flexible region of said first layer while still remaining substantially flat, and/or retaining a profile of the upper layer, such as of an exposed surface optionally said exposed surface comprises decoration or patterning or texturing to emulate natural or man-made roofing materials such as timber shakes or shingles, asphalt shingles.

In some embodiments, wherein the member comprises a plurality of ribs on the lower surface, optionally, of the rigid zones, optionally, said ribs define cavities between the ribs, the ribs providing strength to the rigid zones.

In some embodiments, the upper surface of the underlapping region comprises a ramped region, said ramped region having a positive gradient (relative to a lower surface of the underlapping region) in a direction away from a trailing edge of the member towards said leading edge.

In some embodiments, the ridge or hip member comprises at least one fastening zone, which fasteners may be provided to or pass therethrough, so as secure or provide for a securement of the member to a building surface and/or an adjacent member.

In some embodiments, the at least one fastening zone is located within the or each (relatively) rigid zone.

In some embodiments, the at least one fastening zone is located in the underlapping region of the ridge or hip member.

In some embodiments, the member comprises at least one flexible or hinged portion, optionally the at least one flexible or hinged portion allows for flexibility or hinging about a substantially transverse axis of the member.

In some embodiments, the flexing or hinging isolates and/or attenuates and/or prevents the transmission of forces from the first portion of each rigid zone relative to a second portion of each rigid zone.

In some embodiments, the underlapping region and/or the fastening zone comprises an area of increased thickness compared to a remainder of the member through which fasteners may be provided to secure the member to a building surface.

In some embodiments, the member comprises at least one edge feature, the edge feature being located at, or near, or along one or more of: a side or outer edge and/or the leading edge, and/or the trailing edge, optionally the edge feature is substantially parallel to said edge, optionally, the edge feature is one or more of a: raised wall, or recess.

In some embodiments, the edge feature provides for a barrier to the underside of the ridge or hip member, and/or the edge feature provides for a visual barrier, such that when installed the underside of the member is not visible from the side or outer edge of the member.

In some embodiments, the ridge or hip member comprises at least one cutting guide.

In some embodiments, the cutting guide is located on an underside of the exposed region of the ridge or hip member.

In some embodiments, the at least one cutting guide comprises one or more of:

a thinned region

a slot

a region of reduced member material thickness.

In some embodiments, the member comprises a raised wall or an edge feature located along at least one side and/or around said at least one cutting guide (optionally along an inner side of the at least one cutting guide), optionally, the edge feature extends in a direction away from an upper surface of the member and/or from the upper surface of said member towards a building surface to which the member is attached, and/or an adjacent member.

In some embodiments, the raised wall or edge feature provides for a barrier to the underside of the ridge or hip member, and/or wherein the raised wall or edge feature provides for a visual barrier, such that when installed the underside of the member is not visible.

In some embodiments, the at least one cutting guide is configured to allow removal of at least one (optionally a pair of) leading corner(s), or other portions, of the ridge or hip module.

In some embodiments, the at least one cutting guide comprises a first cutting guide or a first set of cutting guides and a second cutting guide or a second set of cutting guides, optionally, the second set of cutting guides is a mirror image of the first set of cutting guides about a longitudinal or central axis.

In some embodiments, the first set of cutting guides extend in a direction along an axis or in a direction, or provides for a cutting guide pathway, that extends from the leading edge of the ridge or hip member towards or to a first outer or side edge of the member, and wherein the second set of cutting guides extend in a direction along an axis or in a direction, or provides for a cutting guide pathway, that

extends from the leading edge of the ridge or hip member towards or to a second outer or side edge of the member.

In some embodiments, each cutting guide in the first set of cutting guides has a corresponding cutting guide in the second set of cutting guides, optionally, said each cutting guide and corresponding cutting guide being a mirror image of each other each other.

In some embodiments, wherein each of the at least one cutting guides (or corresponding pairs of cutting guides in the first and second sets of cutting guides) corresponds with a particular roof pitch angle.

In some embodiments, the cutting guide is of a linear cutting guide pathway or is of a non-linear (e.g. curved) cutting guide pathway.

In some embodiments, the at least one cutting guide is extends from a leading edge of the ridge or hip member across part of the flexible zone, and at least part of the rigid zone to an outer edge of the ridge or hip member.

In another aspect there is provided ridge or hip module comprising a plurality of formed regions corresponding to said ridge or hip members as defined in above aspects.

In some embodiments, said module is provided with said edge feature, and each member of said module further comprises said cutting guide portions.

In some embodiments, a member portion is separable from the module to provide for a resized module.

In another aspect there is provided a roofing, cladding or siding member comprising:

an upper surface comprising an exposed surface or region,

an underlapping region configured to be covered in use by an overlapping region of an adjacent member,

at least one cutting guide configured to allow for the resizing of the member and/or the removal of a portion of the member.

In some embodiments, the cutting guide is located on an underside of the exposed region of the member.

In some embodiments, the at least one cutting guide extends in a direction along an axis or in a direction, or provides for a cutting guide pathway, that extends from the leading edge of the member towards or to one or more outer or side edges of the member.

In some embodiments, the at least one cutting guide comprises one or more of:

a thinned region

a slot

a region of reduced member material thickness.

In some embodiments, the member comprises a raised wall or an edge feature located along at least one side and/or around said at least one cutting guide (optionally along an inner side of the at least one cutting guide), optionally, the edge feature extends in a direction away from an upper surface of the member and/or from the upper surface of said member towards a building surface to which the member is attached, and/or an adjacent member.

In some embodiments, the raised wall or edge feature provides for a barrier to the underside of the member, and/or wherein the raised wall or edge feature provides for a visual barrier, such that when installed the underside of the member is not visible.

In some embodiments, the at least one cutting guide is configured to allow removal of at least one (optionally a pair of) leading corner(s), or other portions, of the member.

In some embodiments, the at least one cutting guide comprises a first cutting guide or a first set of cutting guides and a second cutting guide or a second set of cutting guides, optionally, the second set of cutting guides is a mirror image of the first set of cutting guides about a longitudinal or central axis.

In some embodiments, the first set of cutting guides extend in a direction along an axis or in a direction, or provides for a cutting guide pathway, that extends from the leading edge of the member towards or to a first outer or side edge of the

member, and wherein the second set of cutting guides extend in a direction along an axis or in a direction, or provides for a cutting guide pathway, that extends from the leading edge of the member towards or to a second outer or side edge of the member.

In some embodiments, each cutting guide in the first set of cutting guides has a corresponding cutting guide in the second set of cutting guides, optionally, said each cutting guide and corresponding cutting guide being a mirror image of each other each other.

In some embodiments, each of the at least one cutting guides (or corresponding pairs of cutting guides in the first and second sets of cutting guides) corresponds with a particular roof pitch angle.

In some embodiments, the cutting guide is of a linear cutting guide pathway or is of a non-linear (e.g. curved) cutting guide pathway.

In some embodiments, said member comprises an underlapping region configured to be covered in use by an overlapping region of an adjacent member, optionally, said underlapping region is located at a trailing edge of said member.

In some embodiments, said member comprises an overlapping region configured to cover in use (or when installed) an underlapping region of an adjacent member, optionally, said overlapping region is located at a leading edge of said member.

In some embodiments, an upper surface of said member comprises an exposed surface.

In some embodiments, said member is longer in a direction from a leading edge to a trailing edge, said direction being a longitudinal axis, optionally, wherein said longitudinal axis is to be oriented when installed in a direction along a ridge or hip line.

In some embodiments, a length of the member is in the same direction as, or in a transverse direction to a ridge or hip line when installed

In some embodiments, a width of the member is in the same direction as, or in a transverse direction to a ridge or hip line when installed.

In another aspect there is provided roofing, cladding or siding member comprising a plurality of formed regions corresponding to said roofing, cladding or siding member as defined in any of the above aspects.

In some embodiments, said module is provided with said edge feature, and each member of said module further comprises said cutting guide portions.

In some embodiments, a member portion is separable from the module to provide for a resized module.

In another aspect there is provided a roofing, cladding or siding member. The roofing, cladding or siding member may be provided with any of the features as described with respect to any of the above aspects.

In some embodiments, the member is provided a substantially flexible zone and a substantially rigid zone on each side of the flexible zone, the flexible zone adapted to allow the member to be bent by an installer by hand to conform the member to the ridge or hip of a roof with the flexible zone located along a ridge or hip line of the roof and with each rigid zone located on each side of the ridge or hip line.

In another aspect there is provided a module comprising a plurality of formed regions corresponding to said member as defined in any one of the any one of the above aspects.

In some embodiments, said module is provided with said edge feature, and each member of said module further comprises said cutting guide portions.

In some embodiments, a member portion is separable from the module to provide for a resized module

In one aspect, the present invention broadly consists in a system of ridge or hip members as a plurality of ridge of hip members installed in an underlapping and overlapping configuration as described in the aspect above.

The term "comprising" as used in this specification and claims means "consisting at least in part of". When interpreting each statement in this specification and claims that includes the term "comprising", features other than that or those prefaced by the term may also be present. Related terms such as "comprise" and "comprises" are to be interpreted in the same manner.

It is intended that reference to a range of numbers disclosed herein (for example, 1 to 10) also incorporates reference to all rational numbers within that range (for example, 1, 1.1, 2, 3, 3.9, 4, 5, 6, 6.5, 7, 8, 9 and 10) and also any range of rational numbers within that range (for example, 2 to 8, 1.5 to 5.5 and 3.1 to 4.7) and, therefore, all sub-ranges of all ranges expressly disclosed herein are hereby expressly disclosed. These are only examples of what is specifically intended and all possible combinations of numerical values between the lowest value and the highest value enumerated are to be considered to be expressly stated in this application in a similar manner.

As used herein the term "and/or" means "and" or "or", or both.

As used herein "(s)" following a noun means the plural and/or singular forms of the noun.

This invention may also be said broadly to consist in the parts, elements and features referred to or indicated in the specification of the application, individually or collectively, and any or all combinations of any two or more said parts, elements or features, and where specific integers are mentioned herein which have known equivalents in the art to which this invention relates, such known equivalents are deemed to be incorporated herein as if individually set forth.

The invention consists in the foregoing and also envisages constructions of which the following gives examples only.

BRIEF DESCRIPTION OF THE DRAWINGS

Preferred embodiments of the invention will be described by way of example only and with reference to the drawings, in which:

Figure 1 is a top and side view of a ridge or hip member for the ridge or hip of a roof, the member shown in an uninstalled flat configuration.

Figure 2 is a top view of the ridge or hip member of Figure 1 in the uninstalled flat configuration.

Figure 3 is a bottom view of the ridge or hip member of Figure 1 in the uninstalled flat configuration.

Figure 4 is a side view of the ridge or hip member of Figure 1 in the uninstalled flat configuration.

Figure 5 is an end view of the ridge or hip member of Figure 1 in the uninstalled flat configuration, showing an overlapping end of the member.

Figure 6 is an end view of the ridge or hip member of Figure 1 in the uninstalled flat configuration, showing an underlapping end of the member.

Figure 7 is a top and side view of the ridge or hip member of Figure 1 shown in an installed bent configuration.

Figure 8 is an end view of the ridge or hip member of Figure 1 in the installed bent configuration, showing an underlapping end of the member.

Figure 9 is a side view showing two members of Figure 1 overlapping.

Figures 10A to 10D are schematic end views of the ridge or hip member of Figure 1 in the uninstalled flat configuration, illustrating different materials or material layers in the member.

Figure 11A is a perspective view of a further embodiment of the ridge or hip member in the uninstalled flat configuration.

Figure 11B is a top view of ridge or hip member or Figure 11A in the uninstalled flat configuration.

Figures 11C and 11D are views of the under surface of embodiments of the ridge or hip member or Figure 11A and 11B in the uninstalled flat configuration.

Figures 11E and 11F are a side view and end view of ridge or hip member of Figures 11A-11D in the uninstalled flat configuration.

Figures 11H and 11I are perspective views of the under surface of embodiments of the ridge or hip member or Figure 11A and 11B in the uninstalled flat configuration.

Figures 12A to 12C show various views of another embodiment of a member.

Figures 13A to 12C show various views of another embodiment of a member.

Figures 14A to 14B show various views of another embodiment of a member.

Figures 15A to 15B show a series of members as a module.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

Various embodiments are described with reference to the Figures. Throughout the Figures and specification, the same reference numerals may be used to designate the same or similar components, and redundant descriptions thereof may be omitted.

A ridge or hip member for a roof may comprise a substantially flexible zone 10 and a substantially rigid zone 11 on each or at least two sides of the flexible zone 10. The flexible zone 10 allows the member to be bent by an installer by hand to conform the member to the ridge or hip of a roof. During installation the flexible zone 10 is located along a ridge or hip line of the roof, with each rigid zone located on each side of the ridge or hip line. The installer bends the member over the ridge line to conform the member to the ridge of the roof. The member may be fastened to a building surface in the bent or installed configuration by fasteners applied through the member. When installed, the member forms a ridge or hip tile, to waterproof the ridge or hip of a roof.

The following are structural characteristics of the member 1 which may be combined with any of the other described features.

The member 1 may comprise an underlapping region 3. The underlapping region 3 may be configured to be covered in use by an overlapping region 2 of an adjacent member 1A. The underlapping region may be located at a trailing edge 12 of said member 1.

The member 1 may comprise an overlapping region 2 configured to cover in use (or when installed) an underlapping region 3 of an adjacent member 1A. The overlapping region 2 may be located at a leading edge 13 of said member 1.

Figure 9 shows an example of engagement between two members. The overlapping region 2 of a first member 1 is shown as covering an underlapping region 3 of an adjacent member 1A.

An upper surface of said member may comprise an exposed surface 14. The exposed surface 14 being uncovered when the member 1 is installed.

The member 1 may be longer in a direction from a leading edge 13 to a trailing edge 12 than a direction perpendicular to the direction from the leading edge to the trailing edge. In this case direction from a leading edge to a trailing edge is a longitudinal axis of the member 1. To be installed the longitudinal axis of the members, (or an axis in a direction along the flexible zone 10) may be oriented in a direction along a ridge or hip line. The flexible zone 10 may then accommodate a ridge or hip line, as the flexible zone 10 bends, deforms or flexes it creates a surface to cover said ridge or hip line. In some embodiments the member may be shorter in the direction from the leading edge 13 to the trailing edge 12 than the direction perpendicular to the direction from the leading edge to the trailing edge.

The flexible zone 10 may be located between a plurality of rigid zones 11. In some embodiments the flexible zone 10 may be located between a pair of rigid zones, or may be flanked by a pair of rigid zones. The flexible zone may be located between 3 (for example in a Y or T configuration), or 4 (for example in a cross or X configuration) or 5 or 6 rigid zones, for example to cover over a junction of three or four or more ridge lines of a roof.

The substantially flexible zone 10 may be relatively more flexible than the substantially rigid zone(s) 11 on each side of the flexible zone. The substantially flexible zone 10 may be relatively more flexible than the substantially rigid zone(s) 11 on each side of the flexible zone 10 in a transverse direction of the ridge or hip member 1.

The substantially rigid zone 11 each side of the flexible zone 10 may be relatively more rigid than the substantially flexible zone 10. The substantially rigid zone 11 each side of the flexible zone 10 may be relatively more rigid than the substantially flexible zone 10 in a transverse direction of the ridge or hip member 1.

The flexible zone may extend from a leading edge of said member to a trailing edge. Additionally or alternatively, the flexible zone may be oriented to extend in a direction along a longitudinal, or transverse axis of said member.

The member 1 may be between about 100mm and about 500mm in width (ie a direction perpendicular to the hip or ridge line or in a direction substantially parallel to the leading edge or trailing edge), optionally the member 1 may be about 300mm in width.

The member 1 may be between about 100mm and about 500mm in length (ie a direction along the hip or ridge line or in a direction substantially perpendicular to the leading edge or trailing edge), optionally the member 1 may be about 315mm in length.

The terms longitudinal and transverse are used with reference to the embodiment as shown in Figure 1. In the context of this embodiment the term longitudinal is used to describe a lengthwise direction of the member, in the direction of a ridge or hip of the roof. It will be appreciated that the term longitudinal may be replaced by the phrase 'in the direction of a ridge or hip of the roof' in cases when the member may be longer in a direction transverse to the direction of a ridge or hip of the roof.

The member 1 may comprise engagement features to connect or align adjacent members. The member 1 comprises a first engagement feature 6 and a second engagement feature 5. The first engagement feature 6 and second engagement feature 4 may allow for weathertight sealing between a member 1 and an adjacent member 1A.

The first engagement feature 6 and/or the second engagement feature 4 may engage with an engagement feature of an adjacent member. The engagement of the first engagement feature 6 and/or the second engagement feature 4 with an engagement feature of an adjacent member locates, or co-locates or sets the relative position of the member and the adjacent member. The engagement of the first engagement feature 6 and/or the second engagement feature 4 with an engagement feature of an adjacent member may additionally or alternatively provide for a connection between said ridge or hip member and said adjacent member. The first engagement feature 4 of a member 1 may be configured to engage with a second engagement feature 6 of an adjacent member. The second

engagement feature 6 of a member 1 may be configured to engage with a first engagement feature 5 of an adjacent member.

In some embodiments the first engagement feature 6 may be located on an upper surface of an underlapping region 3 and the second engagement feature 6 is located on a lower surface of an overlapping region 2. In some other embodiments the first engagement feature 6 may be located on a lower surface of an overlapping region 2 and the second engagement feature 6 is located on a 2 an upper surface of an underlapping region 3.

In the embodiment as shown in Figures 1-9 the first engagement feature 6 is a projection and the second engagement feature 5 is a recess, groove or alignment channel. However it will be appreciated that the first and second engagement features may comprise other features to facilitate other methods of connection between members (for example a tongue and groove). In some embodiments, the first engagement feature my comprise a projection extending downwardly from the overlapping region 2 and the second engagement feature may be a shoulder 17 facing towards the leading edge 13 of the member.

In some embodiments the first engagement feature 6 is a projection, and the second engagement feature 5 being a recess, or groove. Such first engagement feature 6 and second engagement feature 5 are shown in Figures 1-9. The recess 5 is adapted to receive the projection 6 of an adjacent and/or overlapping ridge or hip member to substantially locate or co-locate or set the relative position the adjacent members when installed. An engagement between a recess 5 of a member 1 and a projection 6 of an adjacent member 1A is shown in Figure 9. In the embodiment as shown in Figure 9 the recess 5 is located on an upper surface of the underlapping region, and the projection 6 is located on the underside of the underlapping region. Alternatively the first engagement feature 6 may be a recess, and the second engagement feature 5 may be a projection. The first engagement feature 6 may be a projection and may be dimensioned, and/or sized and shaped, so as to be prevented from engagement with and/or a seating within at least one fluid channel 4a, 4b, 4c (described below). The fluid channel may also be dimensioned, and/or sized and shaped, so as to be prevented from engagement with and/or a seating within said projection. The inability for the projection to engage with a fluid channel aids in ease of installation of a member to an adjacent member. In a first step a first member is installed on a roofing surface. To install a further member the member to be installed is pushed upward over the already installed member. The

projection on the underside of the underlapping region will pass over at least one fluid channel without engaging (or will be unable to engage) said at least one fluid channel before reaching said recess and become engaged with said recess 5. This for easy installation without having to ensure that a member is accurately placed on top of an adjacent member. The fluid channel may also be located closer or more toward a leading edge of the member or a leading edge of the member than the recess.

As shown in Figure 1 alignment channel or groove or second engagement feature 5 may extend laterally across the member 1. Additionally the alignment channel may extend across a first rigid zone, a flexible zone and a second rigid zone. The alignment channel may also be located substantially parallel to a leading edge 13 or a trialing edge 12 of the member 1.

The projection (being a first engagement feature 6) may comprise a plurality of projections. The plurality of projections may be spaced apart in a lateral direction to the roof ridge or hip region, the recess or recesses of an adjacent member may be configured to receive said plurality of projections.

The projection (being a first engagement feature 6) may also have a width less than the width of the recess (being a second engagement feature 5). This allows for some relative movement of the projection within the recess when engaged, the relative movement of the projection within the recess allows for the relative location of engaged members to also be adjusted while the engagement features still remain engaged. This allows for an installer to fine-tune the position of engaged members without having to disengage connection. The relative movement of the projection within the recess may also allow for rotational alignment of a member and an adjacent member. This may be particularly useful where a ridge or hip of a roof is not perfectly straight. As shown in Figure 3 the projection(s) may be located exclusively in the rigid zones, and absent from the flexible zone.

One or both of an upper surface of an underlapping region 3 and a lower surface of an overlapping region 2 comprise a glue or adhesive strip or region. The glue or adhesive may be a pressure sensitive adhesives (however other types of adhesive are contemplated).

The member may comprise at least one fluid channel (4a, 4b, 4c) in an upper surface of the underlapping region 3. The at least one fluid channel (4a, 4b, 4c)

may extending across the width of the member, and/or extends laterally with respect to the ridge or hip line of the roof and/or parallel to a leading edge 13 or a trailing edge 12 or the member. The at least one fluid channel (4a, 4b, 4c) may be configured to direct any fluid received between the overlapping and underlapping regions of adjacent members down the roof surface away from the ridge or hip line of the roof. The at least one fluid channel may be configured to prevent or reduce water penetrating between adjacent members from the leading edge of a member to the trailing edge of an adjacent underlapping member. As shown in at least Figure 2 the member 1 may comprise a plurality of fluid channels, arranged in at least one fluid channel group. There may be at least two fluid channel groups, each comprising at least two fluid channels. The fluid channel groups may be spaced apart from each other to allow for a multiple redundancy water protection system. Additionally or alternatively, a first fluid channel 4a located nearest to the leading edge and/or the overlapping region may have a greater channel depth and/or width than the other fluid channels 4b, 4c.

The at least one fluid channel (4a, 4b, 4c) may have a depth of between about 1mm and about 10mm, or between about 2mm and about 5mm or about 3mm; and a width of between about 1mm and about 10mm, or between about 2mm and about 5mm or about 4mm.

The first fluid channel 4a located nearest to the leading edge and/or the overlapping region may have a depth of about 3mm and/or a width of about 4mm, while the other fluid channels have a depth of about 2mm and/or a width of about 3mm.

As shown in Figure 2 the at least one fluid channel may be wavy path, and/or substantially sinusoidal path, and/or is of a shape or configuration which is not engageable by said projection. The wavy path or sinusoidal path may have a pitch of between about 2mm and about 15mm, or between about 4 mm and about 10mm, or about 5mm, and an amplitude of between about 10mm and about 40 mm, or between about 20mm and about 30mm or about 25mm. The wavy path prevents the fluid channel from engagement with the projection 6 of an overlapping member during installation of the overlapping member. The water channels may be otherwise shaped or configured to prevent engagement with the engagement projection 6 of an overlapping member. For example, where the projection 6 extends perpendicular to the longitudinal direction of the member, the water channels may be arranged at an angle other than perpendicular to the longitudinal

direction, or may be non-linear, e.g. a square wave form or shape, saw tooth wave form shape or other non-linear shape. Alternatively the projection may comprise a non-linear shape in a direction across the member.

Figure 1 shows flexible zone 10. The flexible zone is configured to be bent or deformed to accommodate a ridge or hip line of a roof to which it is to be attached. Further, when bent or deformed the flexible zone may allow the rigid zone to be aligned with the roof on either side of the ridge or hip. The flexible zone may have an relaxed or non-deformed condition where it is substantially planar. An installer may bend or deform the flexible zone to a bent or deformed state for installation on the ridge or hip line of a roof to suit a particular roof pitch. The member may be suitable for conforming to the hip or ridge for a range of roof pitches.

In some embodiments the flexible zone 10 may comprise a ramped portion 41 on the underside of the member 1.

The flexible zone 10 may span at least 5%, or at least 10%, or at least 15%, or at least 20% of the total length or width of the member in a direction perpendicular to the direction of the hip or ridge line of a roof). For example, a member comprising a width of 300mm in a direction perpendicular to the hip or ridge line, the width of the flexible zone may be about 15mm to 60mm or more.

The flexible zone 10 presents a minimum bend radius of at least 20mm, or at least 25mm, or at least 30mm, or at least 35mm, or at least 40mm, or at least 45mm, or at least 50mm. The minimum bend radius of the flexible zone may correspond with a maximum bendable state of said flexible zone such that when the flexible zone is bent, it will bend to a maximum bendable state. The maximum bendable state may be provided by or defined by engagement of one or more features of the flexible zone. The features may be one or more of: a plurality of ribs extending in a longitudinal direction of the member, or a plurality of alternating peaks and valleys.

The flexible zone 10 may be more flexible than the rigid zones by comprising one or more of:

- different geometry and/or material in the flexible zone and the rigid zones
- a concertina-type section in the flexible zone
- an area of variable thickness in the flexible zone relative to the rigid zones

- a variation in material properties and/or material in said flexible zone relative to the rigid zones
- a reduced thickness in said flexible zone relative to the rigid zones
- a reinforced polymer in said rigid zone and/or an unreinforced polymer in said flexible zone
- a polymer of a first stiffness in said flexible zone, and a polymer of a second stiffness in said rigid zone, wherein said second stiffness is greater than said first stiffness.

Some of these configurations are discussed in more detail below.

The flexible zone 10 may have a first stiffness, or longitudinal stiffness or, a stiffness in the direction of the ridge or hip line which is similar or substantially the same as a first stiffness or longitudinal stiffness or, a stiffness in the direction of the ridge or hip line of a said rigid zone 11. The first stiffness is greater than a stiffness of the flexible zone in a direction transverse to the hip or ridge line. As a result when bending the member along the direction of the ridge or hip line (e.g. bending of the member over the ridge or hip) the flexible zone 10 and rigid zone 11 resist bending transverse to the ridge or hip line.

In some embodiments, the flexible zone 10 has a stiffness in a direction transverse to the longitudinal direction (or a direction perpendicular or transverse to the direction of the ridge or hip line) which is substantially less that the stiffness of the rigid zone in a direction transverse (or a direction perpendicular or transverse to the direction of the ridge or hip line) to the longitudinal direction. As a result the flexible zone 10 may deform or bend across said ridge or hip line to accommodate the ridge or hip, while the rigid zone or zones 11 remain substantially undeformed or unbent, or planar.

In some embodiments the member is anisotropic, with a greater stiffness in the direction of the ridge or hip line and a lesser stiffness in a direction transverse to the ridge or hip line.

The member 1 may have a first elastic modulus or first stiffness in a width direction (or a direction perpendicular or transverse to the direction of the ridge or hip line) and a second elastic modulus or second stiffness in a length direction (or in the direction of the ridge or hip line) where the first elastic modulus or first stiffness is less than the second elastic modulus or second stiffness. This allows the member to

bend to accommodate the ridge or hip line while retaining its shape along the length of the ridge or hip line. In some embodiments, the second elastic modulus is between 1.5 times and 20 times that of the first elastic modulus, or at least twice the first elastic modulus.

Additionally of alternatively, the rigid zone 11 may stay substantially planar when installed. This ensures that an overlapping or underlapping adjacent member can engage and seal with another member. In some embodiments when the member is installed, deflection of said member is of or confined to the flexible zone 10.

The flexible zone 10 may comprise a plurality of spaced apart grooves 7 in a lower surface of the member 1. The grooves 7 may be arranged side-by-side across the width of the flexible zone 10 and extending in a direction (e.g. a length or longitudinal direction) of the member to be arranged along the ridge or hip line of the roof. In some embodiments the grooves extend to an edge, or close to an edge, of the member in the underlapping region. Optionally, the depth of the grooves at the edge of the member in the underlapping region may be less than the depth of the grooves along a remainder of the grooves. The grooves may have a depth of about 3mm and/or a width of 5mm, optionally 3mm. Sides (e.g. longitudinal sides) of adjacent grooves may engage or make contact in a maximum bendable state, to provide a limit to bending or define the maximum bendable state.

The member 1 may have a first thickness in the rigid zones 11 and a second thickness in the flexible zone 11, the first thickness may be greater than the second thickness. In some embodiments the thickness of the member in the flexible zone 10 is less than the thickness of the member in the rigid zones 11. In some embodiments the thickness of the flexible zone 10 is less than the thickness of the rigid zones 11 for substantially the full width of the flexible zone 10 (i.e. in a direction transverse to the ridge or hip line).

As shown in Figure 8 the flexible zone 10 may be configured to bend to provide for an arc shaped profile across the flexible zone 10, in a direction transverse to the hip or ridge line. The arc may extend in a transverse direction to extend substantially over a ridge or hip of a building surface to be clad. Optionally, said flexible zone may be configured to bend substantially evenly and/or substantially uniformly across its width, i.e. in a direction transverse to the hip or ridge line. In some embodiments the flexible zone is configured to substantially bend evenly and/or

substantially uniformly across its width to provide for a substantially constant radius of curvature across said flexible zone when bent.

As described earlier, the flexible zone preferably provides a minimum bend radius relating to a maximum bendable state. The maximum bendable state is with respect to normal operating loads, and is achievable by bending the member by an installer by hand and without assistance of mechanical tools or applying mechanical advantage. The length of the arc shaped profile preferably extends over the full transverse dimension of the flexible zone. The flexible zone preferably flexes over an arc length with a minimum length of at least 20mm, or 30mm, or 40mm, or 50mm, or 60mm, or 70mm. The arc length spans over the hip or ridge line. As the flexible zone bends with a minimum bend radius the flexible zone does not provide or act as a hinge between the rigid zones. A hinge, such as a living hinge, has a higher stress level due to the thin section of the hinge and a relatively tight bend radius. In contrast to a hinge, the flexible zone deforms more gradually over a relatively long arc length and with a minimum bend radius that is significantly greater than a bend radius of a hinge. Bending stress in the member is distributed across the width of the flexible zone, rather than being concentrated at a bend point. Thus the flexible zone achieves a continuous or uniform loading across the flexible zone, rather than a concentrated point load at a distinct location of the member.

In some embodiments, said rigid zone 11 is stiffer along an axis (optionally a transverse axis and/or from a leading edge of the member to a trailing edge of the member) than an axis (optionally a transverse axis and/or from a leading edge of the member to a trailing edge of the member) of said flexible zone 10. In some embodiments, the flexible zone is stiffer along a first axis (optionally a longitudinal axis, or an axis extending parallel to one or more of: a leading edge of the member to a trailing edge of the member) than a second axis (optionally a transverse axis and/or from a leading edge of the member to a trailing edge of the member) to allow the member to be bent along said second axis while resisting bending in the first axis.

The flexibility of the flexible zone 10 may be provided by a flexible region. The flexible region may be located on an underside of said ridge or hip member. The flexible region may not extend through to an upper surface of the ridge or hip member so as to not be visible from said upper surface. In some embodiments an exposed surface 14 of the ridge or hip member may be substantially flat. In some

embodiments the said exposed surface 14 comprises surface decoration or patterning or texturing to emulate natural or man-made roofing materials such as timber shakes or shingles, asphalt shingles. In the embodiments with a flexible region which is located on the underside of the member, any features which provide for the flexibility are not visible from the upper surface. Because the flexible region (for example grooves 7) is not visible from the upper surface a smooth or decorated surface finish can be provided to the exposed side of the member 1.

In some embodiments the flexible zone may comprise at least a first layer and at least a second layer. The first layer may, at least in, part define the underside of the flexible zone of the ridge or hip member. The second layer may, at least in part, define an upper surface of the flexible zone of the ridge or hip member to be exposed in use. The first layer may comprise said flexible region, and the second layer may be a substantially flat or planar surface, or of a substantially uniform thickness. As the flexibility of the flexible zone is provided for in the first layer, and the surface finish provided in the second layer a better surface finish can be provided as the finish of the first layer is not important as the first layer is not visible once the member is installed.

In some embodiments the second layer is configured to stretch to accommodate a bending or deflection of said flexible region of said first layer. The exposed surface may comprise decoration or patterning or texturing to emulate natural or man-made roofing materials such as timber shakes or shingles, asphalt shingles. Similarly, the first layer may be configured to compress in a direction along a length or width on bending or deflecting of said member.

In some embodiments the flexible zone comprises a first material and the rigid zones comprise a second material, and the first material is more flexible than the second material. Optionally the second material comprises different physical properties to the first material for example different flexibility, different hardness, or different deformation characteristics

Additionally or alternatively the member comprises at least two material layers. The member may comprise a first layer comprising a first material, and a second layer comprising a second material. In some embodiments the first material is more flexible than the second material. In some embodiments in the flexible zone a thickness of the first layer is greater than a thickness of the second layer.

additionally or alternatively, in each rigid zone a thickness of the second layer is greater than a thickness of the first layer.

The member may comprise a first material and a second material. The first material is more flexible than the second material, and the flexible zone includes more of the first material than the second material. Additionally or alternatively, the rigid zones include more of the second material than the first material. In some embodiments the flexible zone may be without the second material, and in some embodiments the rigid zones may be without the first material.

An amount of the first material in each rigid zone may reduce across the width of the rigid zone from the flexible zone towards an edge of the member. Additionally or alternatively, an amount of the first material increases in the flexible zone from each said rigid zone towards a centre of the flexible zone. The first material and the second material may each comprise the same polymer or polymers, or the polymer or polymers of the first material are different to the polymer or polymers of the second material. In some embodiments, the first or second material is or comprises one or more elastomers. In some embodiments the first material may comprise at least one polymer and a first loading level of reinforcing and/or filler. The second material may comprise at least one polymer and a second loading level of reinforcing and/or filler. The first loading level may be less than the second loading level so that the first material is more flexible than the second material.

As shown in Figure 3, in some embodiments the member may comprise a plurality of ribs 8. In some embodiments the ribs 8 are located on the lower surface of the rigid zones 11. The ribs 8 may define cavities 9 between the ribs. The ribs 8 may be provided to give strength to the rigid zones 11. The ribs 8 may be oriented in a longitudinal direction, or a transverse direction, or both longitudinal direction and a transverse direction. The ribs 8 may extend in one or more of a first axis (optionally a transverse axis and/or from a leading edge of the member to a trailing edge of the member) and a second axis (optionally a longitudinal axis, or an axis extending parallel to one or more of: a leading edge of the member to a trailing edge of the member).

As shown in Figures 11C-11D in some embodiments the ribs 8 may be oriented in a direction at an angle to a both a longitudinal direction and a transverse direction. The ribs 8 may extend in one or more of a first axis (optionally disposed at angle to a transverse axis and/or disposed at angle to a leading edge of the member to a

trailing edge of the member) and a second axis (optionally a disposed at angle to longitudinal axis, or an axis extending or disposed at angle to one or more of: a leading edge of the member to a trailing edge of the member).

In some embodiments at least one of the ribs may be oriented along an axis substantially perpendicular to one or more cutting guides 30 (for example rib 8). Additionally or alternatively, at least one of the ribs 8 may be oriented along an axis substantially perpendicular to one or more cutting guides 30 (for example rib 8′.

In some embodiments (for example as shown in Figure 11C) the ribs 8 may be located between adjacent cutting guides 30.

The ribs may comprise at least a first set of ribs, and at least a second set of ribs. In some embodiments the first set of ribs may for example be ribs 8 and extend in a first direction or along any of the axis as described above. The second set of ribs may for example be ribs 8′ and extend in a second direction (for example being a different direction to the first direction. or along any of the axis as described above.

In some embodiments the first set of ribs 8 are arranged substantially perpendicular to the second set of ribs 8′.

The ribs 8 may form a pattern or be patterned on underside of the rigid zones 11. In some embodiments the ribs 8 may form a crisscross type pattern with the ribs 8 and ribs 8′ being the first and second sets of ribs and/or in the directions as described above.

The ribs 8 being disposed in a more than one direction along the underside of the rigid zone 11 (for example a crisscross type pattern) provides for stiffness in the rigid zone 11 in more than one axis. The ribs 8 provide for stiffness or strength in a direction along the length of the ribs 8 or 8′. As shown in the pattern of ribs 8 and 8′ of Figures 11C-11D, where an angled X-type crisscross type pattern is used. However it is envisaged a +-type crisscross type pattern could also be used.

The ribs 8 may provide a stiffness or relative rigidity to the ridge or hip member in a direction extending from a central axis or longitudinal axis of the ridge or hip member towards one or more leading corner(s) of the ridge or hip member. In this way the ribs may ensure that the tile maintains its substantially flat profile across the entire surface of the tile, and/or the exposed surface 14. The ribs 8 also ensure

the leading corners are held in contact with the building surface or an adjacent tile or member when installed.

In some embodiments the crisscross type pattern may form cavities 9 between said ribs 8.

The ribs 8 may be arranged as a pattern to cover a substantial portion of the underside of the ridge or hip member. In some embodiments the ribs are arranged in a pattern to cover a substantial portion or an entire underside of the exposed surface or region 14.

In some embodiments the ribs are arranged in a pattern to cover a substantial portion or an entire underside of the underlapping region 13.

The ribs 8 may provide rigidity to the rigid zones 11 both in the direction of the ridge or hip of the roof and/or in a direction transverse or perpendicular to the ridge or hip. The benefits of the stiffness in these directions is described above. Providing ribs 8 on the underside of the rigid zones 11 is one way of achieving this, and it will be appreciated that other methods may also provide strength in these directions.

In some embodiments the width and/or length of the member in the underlapping region is less than the width and/or length of the member in the overlapping region such that edges of the member in the underlapping region are obscured from view by an adjacent overlapping member.

The member may comprise a step 17 in an upper surface of the member 1 at a boundary of an underlapping region 3. The step 17 may transition into an elevated upper surface of the underlapping region as a raised region 15. The raised region 15 may be elevated above an upper surface of the member adjacent to said boundary of said underlapping region configured to be exposed in use. Alternatively or additionally the raised region 15 may be elevated relative to an exposed region of the member 1. The step 17 may present a shoulder to bear against a downward projection of an overlapping member to relative alignment of the members.

The step 17 may comprise a ramped surface or be angled away from the upper surface of the member 1 adjacent to said boundary of said underlapping region 3 configured to be exposed in use towards the upper surface of the underlapping region 3.

The upper surface of the underlapping region 3 (optionally in said raised region 15) may slope relative to a lower surface of the underlapping region 2 away from the overlapping region 3.

The upper surface of the underlapping region 3 (optionally in said raised region 15) comprises a ramped region 16. The ramped region 16 may have a positive gradient (relative to a lower surface of the underlapping region 3) in a direction away from a trailing edge 12 of the member towards said leading edge 13.

In the embodiment as shown in Figure 4 the ramped region is the entire length of the upper surface of the underlapping region 3. In some embodiments the ramped region may extend for only part of the underlapping region 2, or the majority of the length of the upper surface of the underlapping region 3. The underlapping region 3 said member may be tapered from a relatively thinner end at or closer to a trailing edge of the member to a relatively thicker end closer to a leading edge of the member. The tapering of the underlapping region towards the trailing edge 12 provides a reduced gap 23 between an overlapping member and a building surface to which the member is installed, at the trailing edge of the underlapping member, as shown in Figure 9. The gap 23 is reduced compared to if the underlapping region was not tapered from the leading edge of the underlapping region. The reduced gap allows the overlapping members to achieve a flatter roof surface, and plaster or mortar or other filler compound may not be required to fill the gap between the overlapping member and the building surface. A reduced gap also achieves a reduced amount of deflection should a load be applied to an overlapping member, potentially avoiding damage to the member.

The member may be installed on a roofing surface by at least one fastener. The ridge or hip member may comprises at least one fastening zone 31. The fasteners may be provided to or pass therethrough the fastening zone 31 so as secure or provide for a securement of the member to a building surface and/or an adjacent member.

The at least one fastening zone 31 may be located within the or each rigid zone 11.

For example as shown in Figure 11C where a fastening zone 31 located in each of the two rigid zones.

The at least one fastening zone 31 may be located in the underlapping region 2 of the ridge or hip member 1. This may allow for the fastener to be covered by the overlapping region of an adjacent member.

In some embodiments the member may comprise at least one flexible or hinged portion 32. The flexible or hinged portion 34 may be located in each rigid zone 11.

The at least one flexible or hinged portion 32 may allow for flexibility or hinging about a substantially transverse axis of the member.

In some embodiments the flexible or hinged portion 32 may allow for a relative flexing or hinging of a first portion 33 of each rigid zone 11 relative to a second portion 34 of each rigid zone 11. The first portion 33 of each rigid zone 11 may be located nearer or more toward a leading edge 13 of the ridge or hip member 1 than the second portion 34 of each rigid zone 11.

The flexing or hinging portion 32 may isolate and/or attenuate and/or prevent the transmission of forces from the first portion 33 of each rigid zone 11 relative to a second portion 34 of each rigid zone 11.

The fastening zone 31 may be located on one or both sides of a flexible or hinged portion located 32 in each rigid zone 11.

The fastening zone 31 may be located on one or both sides of a recess located in each rigid zone and the recess may act as said flexible or hinged portion 32.

The at least one fastening zone 31 may comprise a pair of fastening zones 31, each fastening zone 31 located in each rigid zone 11.

The or each fastening zone 31 may comprises two sub-sections disposed on either side of a recess and/or said flexible or hinged portion 32.

In some embodiments the fastening zone comprises at least one rib 35. The rib 35 may be located on the underside of the member in the fastening zone 31. The fastening zone 31 may be relatively stiffer than the remainder of the relatively rigid zone 11 (other than the relatively flexible or hinging portion). In some embodiments the fastening zone 31 may be thicker than the remainder of the relatively rigid zone 11

The at least one rib 35 of the fastening zone 31 may comprise at least a first set of ribs and a second set of ribs. As shown in Figure 11C the ribs 35 comprise a first set and a second set or ribs. The ribs 35 may be oriented as described with respect to the ribs 8 or 8′ as described above. In the embodiment of figures 11C and 11D the ribs 35 of the fastening zone 31 are arranged differently than the ribs 8 or 8′.

The ribs 35 may be arranged both in a longitudinal direction or axis and a transverse direction or axis of the member 1. In some embodiments the ribs 35 may be orientated in the similar direction to the ribs (for example 8 or 8′) of the remainder of the rigid zone 11, or a different direction.

In some embodiments, the cavity size of the ribs 35 formed between adjacent ribs 35 may be substantially smaller than in the other ribs 8 or 8′. This may allow for additional stiffness in the fastening zone 31 as described above.

The at least one rib 35 may be arranged in a criss-cross or intersecting type arranged pattern.

The first set of ribs may be arranged substantially perpendicular to the second set of ribs (for example as shown in figures 11C and 11D).

At least one cavity 36 may be formed between the ribs 35. In some embodiments the least one cavity 36 may be formed between first set of ribs and the second set of ribs. The cavity 36 may be configured to be receivable of at least one fastener.

The cross sectional area of the cavity 36 may be configured to be smaller or the same size as the cross-sectional area of at least one fastener.

The distance between the first set of ribs and the second set of ribs, and/or at least one dimension of the cavity 36 may be smaller or the same size as the largest dimension of at least one fastener.

The ribs 36 may be configured to engage with a head and/or portion of the fastener when installed, to distribute a fastening force over the fastening zone.

To aid in receipt of the fastener the underlapping region 3 may comprise an area of increased thickness (such as an increased cross-sectional thickness) compared to a remainder of the member. The area of increased thickness through which fasteners may be provided may help to secure the member to a building surface.

In some embodiments, an underlapping region 3 of the member 1 may comprise an indicia corresponding with the location for receipt of a fastener to secure the member to a building surface. The underlapping region 3 may also comprise a reinforced area for receipt of a fastener, optionally the indicia is located in said reinforced area. The reinforced area may be provided by a reinforcing layer, or the addition of reinforcing to the reinforced area.

The ridge or hip member 1 may comprise at least one recess 37 along a leading edge 13 in the or each rigid zone 11. In some embodiments the recess 37 is parallel to the leading edge 13.

The ridge or hip member 1 may be configured to receive at least one glue portion and/or line and/or bead on one or both sides of the at least one recess 37. The least one glue portion and/or line and/or bead may be configured to engage with an adjacent member when installed. The at least one glue portion and/or line and/or bead may create a waterproof seal.

In some embodiments the member may comprise at least one edge feature 38, the edge feature 38 may be located at, or near, and/or along one or more of: a side or outer edge 39 and/or the leading edge 13, and/or the trailing edge 12 and/or about a portion of the perimeter of the member. In some embodiments the edge feature 38 may be aligned substantially parallel to said edge. The edge feature 38 may be one or more of a raised wall, or recess.

In some embodiments the edge feature 38 may extend in a direction away from an upper surface of the member and/or from the upper surface towards a building surface to which the member is attached, and/or an adjacent member.

In some embodiments the exposed section or portion comprises the edge feature 38. In some embodiments the edge feature 38 is restricted to being provided on or about the exposed section or portion.

Alternatively, in some embodiments the underlapping surface is not provided with an edge feature 38.

In some embodiments the edge feature 38 provides for a barrier to the underside of the ridge or hip member 1. In some embodiments the edge feature 38 provides for a visual barrier, such that when installed the underside of the member is not visible from the side or outer edge 39 of the member.

The edge feature 38 may be configured to engage with the exposed surface of an adjacent tile or member when installed.

The edge feature 38 may be configured to provide a continuous face of a side or outer edge 39 of the member.

In some embodiments the ridge or hip member may comprise at least one cutting guide 30/30'. The cutting guide 30/30' may be located on an underside of the exposed region or portion 14 of the ridge or hip member 1.

The at least one cutting guide 30/30' may comprises one or more of a thinned region, and/or a slot, and/or a region of reduced member material thickness.

In some embodiments the ridge or hip member 1 comprises an edge feature 38 (as described above) and/or a raised wall 40 located along at least one side and/or around said at least one cutting guide 30/30'. The edge feature 38 or raised wall 40 may provide for a barrier to the underside of the ridge or hip member. In some embodiments the edge feature 38 or raised wall 40 is provided along an inner surface of the cutting guide 30/30'.

The edge feature 38 or raised wall 40 of the cutting guide 30/30' may provide for a visual barrier, such that when installed the underside of the member is not visible.

The edge feature 38 or raised wall 40 of the cutting guide 30/30' may be configured to engage with the exposed surface of an adjacent member when installed.

The edge feature 38 or raised wall 40 of the cutting guide 30/30' may be configured to provide a continuous face of an edge of the ridge or hip member 1 when the ridge or hip member 1 is cut along said cutting guide 30/30'.

The at least one cutting guide 30/30' may be configured to allow removal of at least one or more, or optionally a pair of leading corner(s), or other portions, of the ridge or hip member 1.

As shown in Figure 11D the at least one cutting guide 30/30' may be located within each rigid zone 11. The member may comprise a cutting guide 30/30' or set of cutting guides in each rigid zone 11.

In some embodiments, for example as shown in Figures 11C and 11D, the at least one cutting guide comprises a first cutting guide or a first set of cutting guides 30 and a second cutting guide or a second set of cutting guides 30'.

The first cutting guide or first set of cutting guides 30 may extend in a direction along an axis or in a direction, or provides for a cutting guide pathway, that extends from the leading edge 13 of the ridge or hip member towards or to a first outer or side edge 39 of the member.

The second cutting guide or second set of cutting guides 30' extend in a direction along an axis or in a direction, or provides for a cutting guide pathway, that extends from the leading edge 13 of the ridge or hip member towards or to a second outer or side edge 39 of the member.

Each cutting guide in the first set of cutting guides 30 may be a corresponding cutting guide in the second set of cutting guides 30. Each cutting guide and corresponding cutting guide being a mirror image of each other each other.

Each of the at least one cutting guides (or corresponding pairs of cutting guides in the first and second sets of cutting guides) may correspond with a particular roof pitch angle.

The second set of cutting guides 30 may be a mirror image of the first set of cutting guides about a longitudinal or central axis.

The cutting guide may be a linear cutting guide pathway or is of a non-linear (e.g. curved) cutting guide pathway.

The cutting guide or set of cutting guides 30 in each rigid zone may be a mirror image of the at least one cutting guide located in the other of each rigid zone 11 along a central or longitudinal axis.

The at least one cutting guide 30 may extend from a leading edge 13 of the ridge or hip member 1 across part of the flexible zone 10, and at least part of the rigid zone 11 towards or to an outer edge 39 of the ridge or hip member.

The at least one cutting guide 40 may be provided along an axis or in a direction from the leading edge 13 of the ridge or hip member 1 towards or to an outer edge 39 of the ridge or hip member 1.

The at least one cutting guide 30 may comprise one, or two or three or more cutting guides 30.

In some embodiments, each of the one or more cutting guides 30 (as part of a set of cutting guides) is disposed at a different angle from each of the other one or more cutting guides 30 (of the set of cutting guides).

In some embodiments, each of the one or more cutting guides is disposed at a different angle from one or more of:

a longitudinal axis of the ridge or hip member
a transverse axis of the ridge or hip member
a leading edge the ridge or hip member
a trailing edge the ridge or hip member.

In some embodiments the member is formed from or comprises at least one polymer and comprises reinforcing and/or filler in the polymer in the rigid zones and no reinforcing or filler in the polymer in the flexible zone.

In some embodiments, the member at least one polymer and reinforcing and/or filler in the polymer. The member has a first loading level of reinforcing or filler in the flexible zone and a second loading level of reinforcing or filler in the rigid zones, and wherein the first loading level is less than the second loading level. Optionally, the second loading level is at least twice the first loading level. In some embodiments the second loading level of the filler or reinforcing or both is at least 40%, or 50%, or 60%, or 70%, or 80%, or 90% w/w.

Additionally or alternatively, the member is formed from or comprises at least one polymer and reinforcing and/or filler in the polymer, and the reinforcing and/or filler is aligned in a length direction of the member to be aligned with the direction of the ridge or hip line of the roof.

The filler may be one or more of the following: talc, calcium carbonate, mica, silica, kaolin, calcium sulphate, magnesium hydroxide, stabilizers, dolomite.

The reinforcement may be one or more of the following: glass fibres, glass beads, glass flakes, flax, cellulose, wood fibres, wood flour, cotton, sawdust, inorganic fibres, polymer fibres, polymer scrim, polymer knit, polymer weave, aramids, ceramics, carbon fibres

The member is formed from one or more polymers. The polymer(s) may be or contain one or more elastomers. Optionally, the one or more elastomers are or contain a thermoplastic elastomer.

Potential polymers may be one or more of: polystyrene (GPPS), polyethylene terephthalate (PET), polyester methacrylate (PEM), high impact polystyrene (HIPS), acrylonitrile butadiene styrene (ABS), polyvinyl chloride (PVC), polyurethanes (PU), polyethylene (PE) including homopolymer, copolymer, block copolymer and terpolymer forms, polylactic acid (PLA), nylon (PA), acrylics (PMMA), high density polyethylene (HDPE), low density polyethylene (LDPE), linear low density polyethylene (LLDPE), medium density polyethylene (MDPE), cross linked polyethylene (PEX), thermoplastic elastomer (TPE), thermoplastic polyolefin (TPO), thermoplastic rubber (TPR), polypropylene (PP), including homopolymer and copolymer forms, polybutylene terephthalate (PBT), styrene-acrylonitrile resin (SAN), ethylene tetrafluoroethylene (ETFE), vinyl, methacrylate copolymers, foamed polymer, polycarbonates, and combinations thereof.

Figures 12A-14B show a member 100 which does not have a flexible zone 10.

The member 100 may have any of the features as described above with reference to the member 1.

The member may be of a substantially constant stiffness in a transverse axis. In some embodiments the member 100 may be substantially rigid (as described with reference to the rigid zone 11 above.

The member 100 may have a fastening zone 31. Fasteners may be provided to or pass therethrough the fastening zone 31 so as secure or provide for a securement of the member to a building surface and/or an adjacent member. The fastening zone 31 may have features of the fastening zone 31 as described above.

The member 100 may have at least one rib 8, 8′, 8″ located on the underside of the member 100. The rib may provide stiffness to the member 100 in one or more directions. The at least one rib 8, 8′, 8″ may be as described above. In the embodiments as shown in Figures 12A, 12B, 13A, 13B and 14A, 14B there are three ribs provided. Ribs 8 and 8″ are provided angled with respect to the leading edge 13 and/or the trailing edge 12 (as per the embodiments of for example Figures 11C and 11D). However, the member 100 has a further rib 8″ which is provided substantially parallel to the leading edge 13 and/or the trailing edge 12.

The at least one rib 8, 8′, 8″ may form one or more or a plurality of cavities 9.

The member 100 may also comprise at least one recess 37 (as described above).

The member 100 may also comprises one or more edge features 38 (as described above).

The member 100 may also comprises one or more cutting guides 30 (for example as shown in Figures 14A and 14B.)

The member 100 may also have an angled portion or face 53. The angled portion or face 53 may be similar to the member when the cutting guides 30 are used to remove the leading corners of the member 100 (as shown in Figures 14A and 14B). The angled portion or face 53 may be provided as a linear face or a non-linear (e.g. curved) face. The angled portion or face 53 may be provided from the leading edge 13 to a side or outer edge.

The member 100 may also comprise a stepped region 50. The stepped region 50 may be formed as a ramped portion. The stepped region 50 may comprise one or more, or a plurality of steps or ledges. The steps may function as an engagement feature as described above. The steps may function as a progressive series of

surfaces upon which the underside of the underlapping region may engage the building surface. The steps may function as an arrangement in order to provide for a particular planar angle of the member 100 with respect to the building surface.

The exposed surface 14 of the member 100 may comprise a substantially tooth and/or U-shaped and/or V-shaped shaped portion 52 which extends towards the trailing edge 12 of the member 100.

The region 52 may comprise a stepped profile. The stepped profile of region 52 may comprise a substantially tooth and/or U-shaped and/or V-shaped shaped portion 52. The stepped profile may function as an engagement feature as described above.

The surface treatment (e.g. decoration or colouring or other material properties) is to be provided upon the exposed surface 14 or region and including the additional region 52. In one embodiment, the portion of the exposed surface 14 comprising the same surface treatment may extend as a substantially tooth shaped and/or U-shaped and/or V-shaped shaped portion 52.

The region 52 may be so shaped or configured in size so as that when a further layer of adjacent members are placed on top of the member 13, and when that further layer has had one or more angled front portions 53 are provided for one a portion of the member is removed (for example as shown in Figure 12C, or when cutting guides are used to modify the front surface of the tile), the exposed surface 14 with the necessary surface treatment is provided as a face or surface as region 52 in the gaps which are created between adjacent modules.

In some embodiments the region 52 may be shaped so as to substantially match the profile of the angled portion 53, such that when installed the exposed region as region 52 is visible in the gaps between adjacent modules being provided for in an overlaid overlapping arrangement upon a first layer of members or a member. The region 52 may be larger in area than the angled portion 53 and the gaps formed between adjacent modules, so that any exposed surface 14of the member in gaps between adjacent modules is provided with a visual surface treatment commensurate with the exposed surface 14.

The aforementioned ridge or hip member 1 or member 100 may be provided in the form of a module which comprising a plurality of conjoined members 1, 100. The module may be formed as a plurality of regions, each region of which corresponds to a ridge or hip member 1 or member 100 as disclosed herein.

Where a module is provided (providing for a singularly formed component providing in one component a plurality of hip and ridge members), such a module would be provided with its own edge features, such edge features being those as described in relation to a ridge or hip member 1 or member 100, and each member portion of such a module being provided with its own cutting guide portions.

The ridge or hip module may be formed in a manner or configured to allow for one or more member portions to be separable from the module, thereby allowing for the provision of a resized module. In such an embodiment, a module may be manufactured as a standard unit item, which can be shipped and delivered to site. Customisation of the ridge or hip module, or individual ridge or hip members may then be made on site according to the required dimensions or size parameters for the job.

The aforementioned roofing, cladding or siding member may be provided in the form of a module which comprising a plurality of conjoined members. The module may be formed as a plurality of regions, each region of which corresponds to a roofing, cladding or siding member as disclosed herein.

Where a module is provided (providing for a singularly formed component providing in one component a plurality of roofing, cladding or siding members), such a module would be provided with its own edge features, such edge features being those as described in relation to a roofing, cladding or siding member, and each member portion of such a module being provided with its own cutting guide portions.

The roofing, cladding or siding module may be formed in a manner or configured to allow for one or more member portions to be separable from the module, thereby allowing for the provision of a resized module. In such an embodiment, a module may be manufactured as a standard unit item, which can be shipped and delivered to site. Customisation of the roofing, cladding or siding module, or individual roofing, cladding or siding members may then be made on site according to the required dimensions or size parameters for the job.

It will be appreciated that the above described ridge or hip member, or a module which is formed of a plurality of such members, may be installed as a system comprising a plurality of members installed in an overlapping/underlapping configuration as described above.

The foregoing description of the invention includes preferred forms thereof. Modifications may be made thereto without departing from the scope of the invention as defined by the accompanying claims.

CLAIMS

1. A ridge or hip member for a roof comprising:

a substantially flexible zone and a substantially rigid zone on each side of the flexible zone, the flexible zone adapted to allow the member to be bent by an installer by hand to conform the member to the ridge or hip of a roof with the flexible zone located along a ridge or hip line of the roof and with each rigid zone located on each side of the ridge or hip line.

2. The ridge or hip member of claim 1, wherein said flexible zone is located between at least a pair of rigid zones, or said flexible zone is flanked by a pair of substantially rigid zones.

3. The ridge or hip member according to any one of the preceding claims, wherein the flexible zone extends from a leading edge of said member to a trailing edge (optionally said flexible zone being oriented to extend in a direction along a longitudinal axis of said member).

4. The ridge or hip member according to any one of the preceding claims, wherein the substantially flexible zone is relatively more flexible than the substantially rigid zone on each side of the flexible zone (optionally in a transverse direction of the ridge or hip member).

5. The ridge or hip member according to any one of the preceding claims, wherein the substantially rigid zone each side of the flexible zone is relatively more rigid than the substantially flexible zone (optionally in a transverse direction of the ridge or hip member).

6. The ridge or hip member according to any one of the preceding claims, comprising at least a first engagement feature, and at least a second engagement feature, optionally, the first engagement is adapted to engage with an engagement feature of an adjacent ridge or hip member to substantially locate or co-locate or set the relative position of the adjacent member and/or provide for a connection between said ridge or hip member and said adjacent member, optionally, the first engagement feature is configured to engage with a second engagement feature of an adjacent member.

7. The ridge or hip member of claim 6, wherein the second engagement is adapted to engage with an engagement feature of an adjacent ridge or hip member to substantially locate or co-locate or set the relative position of the adjacent member and/or provide for a connection between said ridge or hip member and said adjacent member, optionally, the second engagement feature is configured to engage with a first engagement feature of an adjacent member.

8. The ridge or hip member according to any one of the preceding claims, the member comprising an overlapping region and an underlapping region, the underlapping region comprising at least one fluid channel in an upper surface of the underlapping region and extending across the width of the member, optionally, said at least one fluid channel is configured to direct fluid received between the overlapping and underlapping regions of adjacent members down the roof surface away from the ridge or hip line of the roof, optionally, the fluid channel extends laterally with respect to the ridge or hip line of the roof.

9. The ridge or hip member of any one of the preceding claims, wherein the flexible zone is more flexible than the rigid zones by comprising one or more of:

- different geometry and/or material in the flexible zone and the rigid zones
- a concertina-type section in the flexible zone
- an area of variable thickness in the flexible zone relative to the rigid zones
- a variation in material properties and/or material in said flexible zone relative to the rigid zones
- a reduced thickness in said flexible zone relative to the rigid zones
- a reinforced polymer in said rigid zone and/or an unreinforced polymer in said flexible zone
- a polymer of a first stiffness in said flexible zone, and a polymer of a second stiffness in said rigid zone, wherein said second stiffness is greater than said first stiffness.

10. The ridge or hip member of any one of the preceding claims, wherein said flexible zone has a minimum bend radius corresponding with a maximum bendable state of said flexible zone, optionally, said maximum bendable state is defined by engagement of one or more features of the flexible zone (optionally said features

are a plurality of ribs extending in a longitudinal direction of the member or in the direction of a ridge or hip of the roof).

11. The ridge or hip member of any one of the preceding claims, wherein the flexible zone has a longitudinal stiffness (or stiffness in a direction along the ridge or hip line) similar or substantially the same as a longitudinal stiffness (or stiffness in a direction along the ridge or hip line) of the rigid zone.

12. The ridge or hip member of any one of the preceding claims, wherein the flexible zone has a stiffness in a direction transverse to the longitudinal direction (or in the direction of a ridge or hip of the roof) substantially less that the stiffness of the rigid zone in the direction transverse to the longitudinal direction.

13. The ridge or hip member according to any one of the preceding claims, having a first elastic modulus or first stiffness in a width direction and a second elastic modulus or second stiffness in a length direction, the first elastic modulus or first stiffness less than the second elastic modulus or second stiffness.

14. The ridge or hip member of any one of the preceding claims, wherein when bent or installed the rigid zones stay substantially planar.

15. The ridge or hip member of any one of the preceding claims, wherein when bent or installed, deflection of said member is of the flexible zone.

16. The ridge or hip member according to any one of the preceding claims, wherein the flexible zone comprises a plurality of spaced apart grooves in a lower surface of the member, the grooves arranged side-by-side across the width of the member and extending in a length direction of the member to be arranged along the ridge or hip line of the roof.

17. The ridge or hip member of any one of the preceding claims, wherein the member has a first thickness in the rigid zones and a second thickness in the flexible zone, the first thickness greater than the second thickness.

18. The ridge or hip member of any one of the preceding claims, wherein the thickness of the member in the flexible zone is less than the thickness of the member in the rigid zones.

19. The ridge or hip member of any of the preceding claims, wherein the thickness of the flexible zone is less than the thickness of the rigid zones for substantially the full width of the flexible zone.

20. The ridge or hip member of any of the preceding claims, wherein said flexible zone is configured to bend to provide for an arc shaped profile across the flexible zone (e.g. in a direction to extend substantially over a ridge or hip of the roof to be clad).

21. The ridge or hip member of any of the preceding claims, wherein said flexible zone is configured to bend substantially evenly and/or substantially uniformly across its width.

22. The ridge or hip member of any of the preceding claims, wherein said flexible zone is configured to substantially bend evenly and/or substantially uniformly across its width to provide for substantially constant radius of curvature across said flexible zone when bent.

23. The ridge or hip member of any of the preceding claims, wherein said rigid zone is stiffer along an axis (optionally a transverse axis and/or from a leading edge of the member to a trailing edge of the member) than an axis (optionally a transverse axis and/or from a leading edge of the member to a trailing edge of the member) of said flexible zone.

24. The ridge or hip member of any of the preceding claims, wherein the flexible zone is stiffer along a first axis (optionally a longitudinal axis, or an axis extending from a leading edge of the member to a trailing edge of the member) than a second axis (optionally a transverse axis or an axis extending parallel to one or more of: a leading edge of the member to a trailing edge of the member) to allow the member to be bent along said second axis while resisting bending in the first axis.

25. The ridge or hip member of any of the preceding claims, wherein said flexible zone comprises a flexible region to provide for said flexibility, said flexible region located on an underside of said ridge or hip member

26. The ridge or hip member of any of the preceding claims, wherein said flexible region does not extend through to an upper surface of the ridge or hip member so as to not be visible from said upper surface

27. The ridge or hip member of any of the preceding claims, wherein an exposed surface of the ridge or hip member is substantially flat, or said exposed surface comprises surface decoration or patterning or texturing to emulate natural or man-made roofing materials such as timber shakes or shingles, asphalt shingles.

28. The ridge or hip member of any of the preceding claims, wherein the flexible zone comprises at least a first layer and at least a second layer,
said first layer at least in part defining the underside of the flexible zone of the ridge or hip member, and said second layer defining at least in part an upper surface of the flexible zone of the ridge or hip member to be exposed in use; and
wherein the first layer comprises said flexible region, and
wherein said second layer is a substantially flat or planar surface, or of a substantially uniform thickness, optionally, said second layer is configured to stretch to accommodate a bending or deflection of said flexible region of said first layer while still remaining substantially flat, and/or retaining a profile of the upper layer, such as of an exposed surface optionally said exposed surface comprises decoration or patterning or texturing to emulate natural or man-made roofing materials such as timber shakes or shingles, asphalt shingles.

29. The ridge or hip member of any of the preceding claims, comprising a plurality of ribs on the lower surface, optionally, of the rigid zones, optionally, said ribs define cavities between the ribs, the ribs providing strength to the rigid zones.

30. The ridge or hip member of any one of the preceding claims, wherein the upper surface of the underlapping region comprises a ramped region, said ramped region having a positive gradient (relative to a lower surface of the underlapping region) in a direction away from a trailing edge of the member towards said leading edge.

31. The ridge or hip member according to any one of the preceding claims, wherein the ridge or hip member comprises at least one fastening zone, which fasteners may be provided to or pass therethrough, so as secure or provide for a securement of the member to a building surface and/or an adjacent member.

32. The ridge or hip member according to claim 31, wherein the at least one fastening zone is located within the or each (relatively) rigid zone.

33. The ridge or hip member according claim 31 or claim 32, wherein the at least one fastening zone is located in the underlapping region of the ridge or hip member.

34. The ridge or hip member according to any one of the preceding claims, wherein the member comprises at least one flexible or hinged portion, optionally the at least one flexible or hinged portion allows for flexibility or hinging about a substantially transverse axis of the member.

35. The ridge or hip member according to any one of the preceding claims, wherein the flexing or hinging isolates and/or attenuates and/or prevents the transmission of forces from the first portion of each rigid zone relative to a second portion of each rigid zone.

36. The ridge or hip member of any of the preceding claims, wherein the underlapping region and/or the fastening zone comprises an area of increased thickness compared to a remainder of the member through which fasteners may be provided to secure the member to a building surface.

37. The ridge or hip member according to any one of the preceding claims, wherein the member comprises at least one edge feature, the edge feature being located at, or near, or along one or more of: a side or outer edge and/or the leading edge, and/or the trailing edge, optionally the edge feature is substantially parallel to said edge, optionally, the edge feature is one or more of a: raised wall, or recess.

38. The ridge or hip member according to claim 37, wherein the edge feature provides for a barrier to the underside of the ridge or hip member, and/or the edge feature provides for a visual barrier, such that when installed the underside of the member is not visible from the side or outer edge of the member.

39. The ridge or hip member according to any one of the preceding claims, wherein the ridge or hip member comprises at least one cutting guide.

40. The ridge or hip member according to claim 39, wherein the cutting guide is located on an underside of the exposed region of the ridge or hip member.

41. The ridge or hip member according to any one of the preceding claims, wherein the at least one cutting guide comprises one or more of:

a thinned region

a slot

a region of reduced member material thickness.

42. The ridge or hip member according to any one claims 39 to 41, wherein the member comprises a raised wall or an edge feature located along at least one side and/or around said at least one cutting guide (optionally along an inner side of the at least one cutting guide), optionally, the edge feature extends in a direction away from an upper surface of the member and/or from the upper surface of said member towards a building surface to which the member is attached, and/or an adjacent member.

43. The ridge or hip member according to claim 42, wherein the raised wall or edge feature provides for a barrier to the underside of the ridge or hip member, and/or wherein the raised wall or edge feature provides for a visual barrier, such that when installed the underside of the member is not visible.

44. The ridge or hip member according to any one of claims 39 to 42, wherein the at least one cutting guide is configured to allow removal of at least one (optionally a pair of) leading corner(s), or other portions, of the ridge or hip module.

45. The ridge or hip member according to any one claims 39 to 44, wherein the at least one cutting guide comprises a first cutting guide or a first set of cutting guides and a second cutting guide or a second set of cutting guides, optionally, the second set of cutting guides is a mirror image of the first set of cutting guides about a longitudinal or central axis.

46. The ridge or hip member according to claim 45, wherein the first set of cutting guides extend in a direction along an axis or in a direction, or provides for a cutting guide pathway, that extends from the leading edge of the ridge or hip

member towards or to a first outer or side edge of the member, and wherein the second set of cutting guides extend in a direction along an axis or in a direction, or provides for a cutting guide pathway, that extends from the leading edge of the ridge or hip member towards or to a second outer or side edge of the member.

47. The ridge or hip member according to claim 45 or claim 46, wherein each cutting guide in the first set of cutting guides has a corresponding cutting guide in the second set of cutting guides, optionally, said each cutting guide and corresponding cutting guide being a mirror image of each other each other.

48. The ridge or hip member according to any one of claims 39 to 47, wherein each of the at least one cutting guides (or corresponding pairs of cutting guides in the first and second sets of cutting guides) corresponds with a particular roof pitch angle.

49. The ridge or hip member according to any one of claims 39 to 48, wherein the cutting guide is of a linear cutting guide pathway or is of a non-linear (e.g. curved) cutting guide pathway.

50. The ridge or hip member according to any one of claims 39 to 49, wherein the at least one cutting guide is extends from a leading edge of the ridge or hip member across part of the flexible zone, and at least part of the rigid zone to an outer edge of the ridge or hip member

51. A roofing, cladding or siding member comprising:

an upper surface comprising an exposed surface or region,

an underlapping region configured to be covered in use by an overlapping region of an adjacent member,

at least one cutting guide configured to allow for the resizing of the member and/or the removal of a portion of the member.

52. The roofing, cladding or siding member of claim 51, wherein the cutting guide is located on an underside of the exposed region of the member.

53. The roofing, cladding or siding member of 52, wherein the at least one cutting guide extends in a direction along an axis or in a direction, or provides for a

cutting guide pathway, that extends from the leading edge of the member towards or to one or more outer or side edges of the member.

54. The roofing, cladding or siding member of claim 51 or claim 52, wherein the at least one cutting guide comprises one or more of:

a thinned region

a slot

a region of reduced member material thickness.

55. The roofing, cladding or siding member of any one of claims 52 to 54, wherein the member comprises a raised wall or an edge feature located along at least one side and/or around said at least one cutting guide (optionally along an inner side of the at least one cutting guide), optionally, the edge feature extends in a direction away from an upper surface of the member and/or from the upper surface of said member towards a building surface to which the member is attached, and/or an adjacent member.

56. The roofing, cladding or siding member according to claim 55, wherein the raised wall or edge feature provides for a barrier to the underside of the member, and/or wherein the raised wall or edge feature provides for a visual barrier, such that when installed the underside of the member is not visible.

57. The roofing, cladding or siding member according to any one of claims 52 to 56, wherein the at least one cutting guide is configured to allow removal of at least one (optionally a pair of) leading corner(s), or other portions, of the member.

58. The roofing, cladding or siding member according to any one of claims 52 to 57, wherein the at least one cutting guide comprises a first cutting guide or a first set of cutting guides and a second cutting guide or a second set of cutting guides, optionally, the second set of cutting guides is a mirror image of the first set of cutting guides about a longitudinal or central axis.

59. The roofing, cladding or siding member according to claim 58, wherein the first set of cutting guides extend in a direction along an axis or in a direction, or provides for a cutting guide pathway, that extends from the leading edge of the member towards or to a first outer or side edge of the member, and wherein the second set of cutting guides extend in a direction along an axis or in a direction, or

provides for a cutting guide pathway, that extends from the leading edge of the member towards or to a second outer or side edge of the member.

60. The roofing, cladding or siding member according to any one of claim 58 or claim 59, wherein each cutting guide in the first set of cutting guides has a corresponding cutting guide in the second set of cutting guides, optionally, said each cutting guide and corresponding cutting guide being a mirror image of each other each other.

61. The roofing, cladding or siding member according to any one of claims 50 to 60, wherein each of the at least one cutting guides (or corresponding pairs of cutting guides in the first and second sets of cutting guides) corresponds with a particular roof pitch angle.

62. The roofing, cladding or siding member according to any one of claims 50 to 61, wherein the cutting guide is of a linear cutting guide pathway or is of a non-linear (e.g. curved) cutting guide pathway.

63. The member of any one of the preceding claims, wherein said member comprises an underlapping region configured to be covered in use by an overlapping region of an adjacent member, optionally, said underlapping region is located at a trailing edge of said member.

64. The member of any one of the preceding claims, wherein said member comprises an overlapping region configured to cover in use (or when installed) an underlapping region of an adjacent member, optionally, said overlapping region is located at a leading edge of said member.

65. The member of any one of the preceding claims, wherein an upper surface of said member comprises an exposed surface.

66. The member of any one of the preceding claims, wherein said member is longer in a direction from a leading edge to a trailing edge, said direction being a longitudinal axis, optionally, wherein said longitudinal axis is to be oriented when installed in a direction along a ridge or hip line.

67. The member of any one of the preceding claims, wherein a length of the member is in the same direction as, or in a transverse direction to a ridge or hip line when installed

68. The member of any one of the preceding claims, wherein a width of the member is in the same direction as, or in a transverse direction to a ridge or hip line when installed.

69. A module or a comprising a plurality of formed regions corresponding to said member as defined in any one of the any one of the preceding claims.

70. The module as claimed in 69, wherein said module is provided with said edge feature, and each member of said module further comprises said cutting guide portions.

71. The module as claimed in claim 69 or claim 70, wherein a member portion is separable from the module to provide for a resized module.

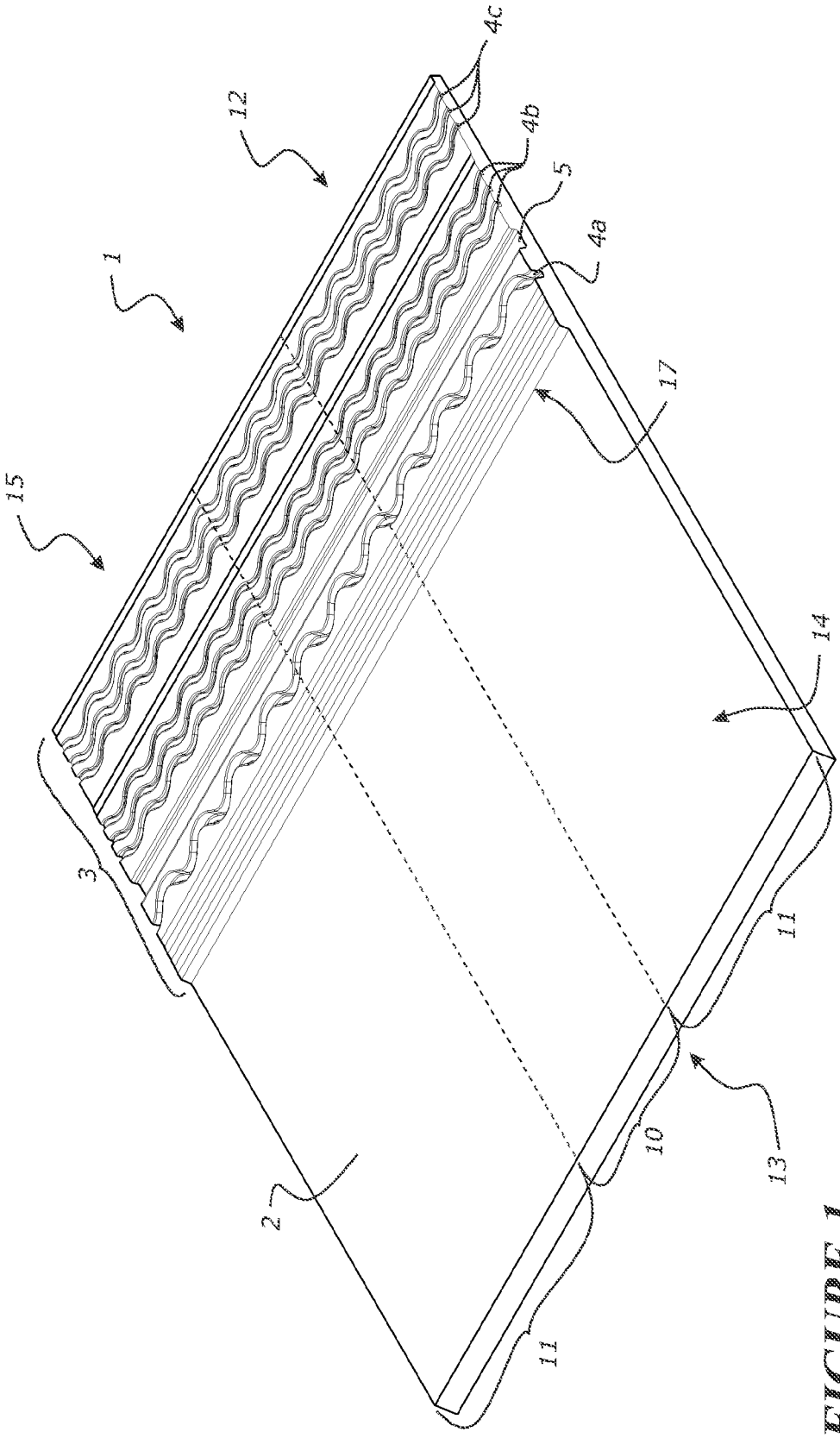


FIGURE 1

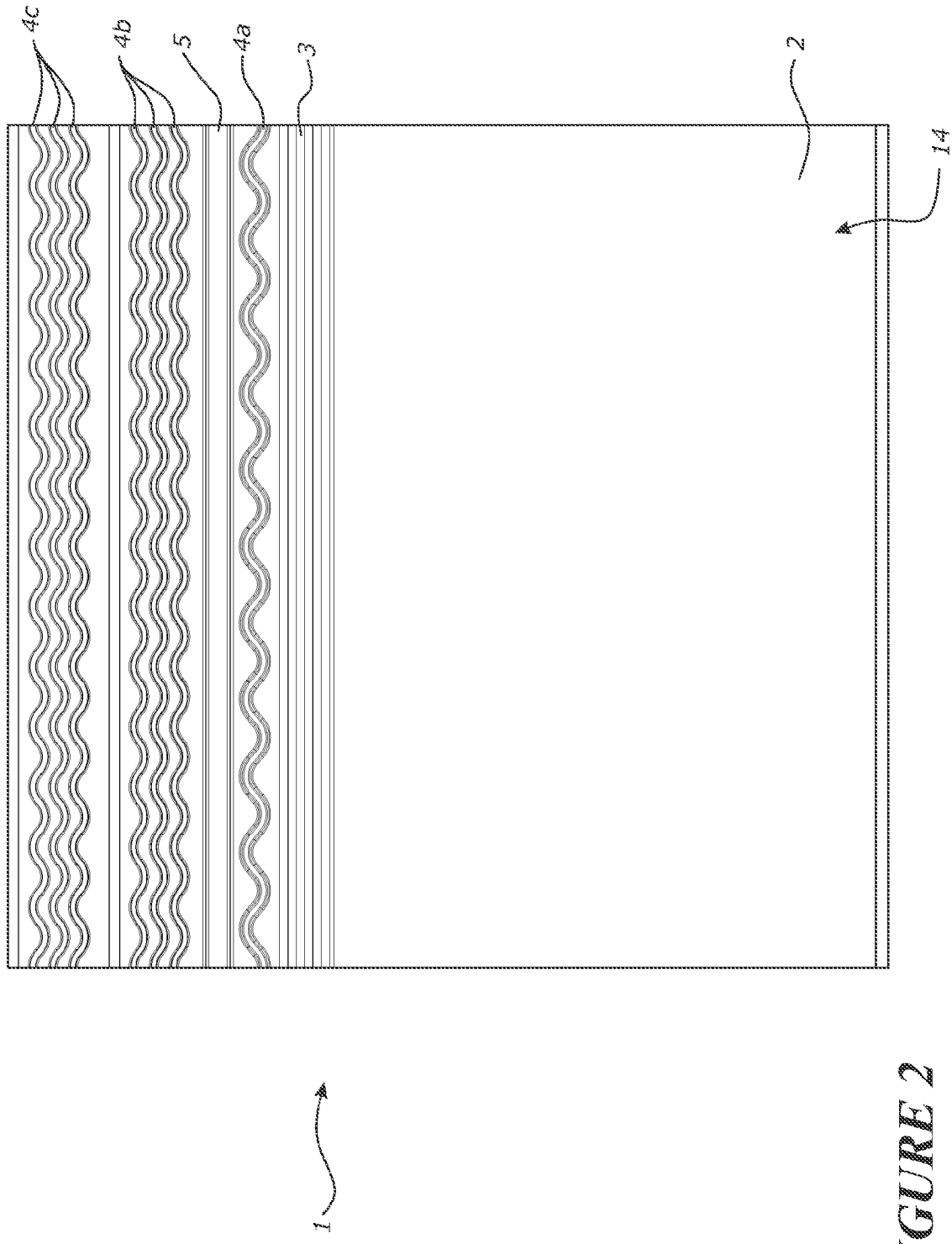


FIGURE 2

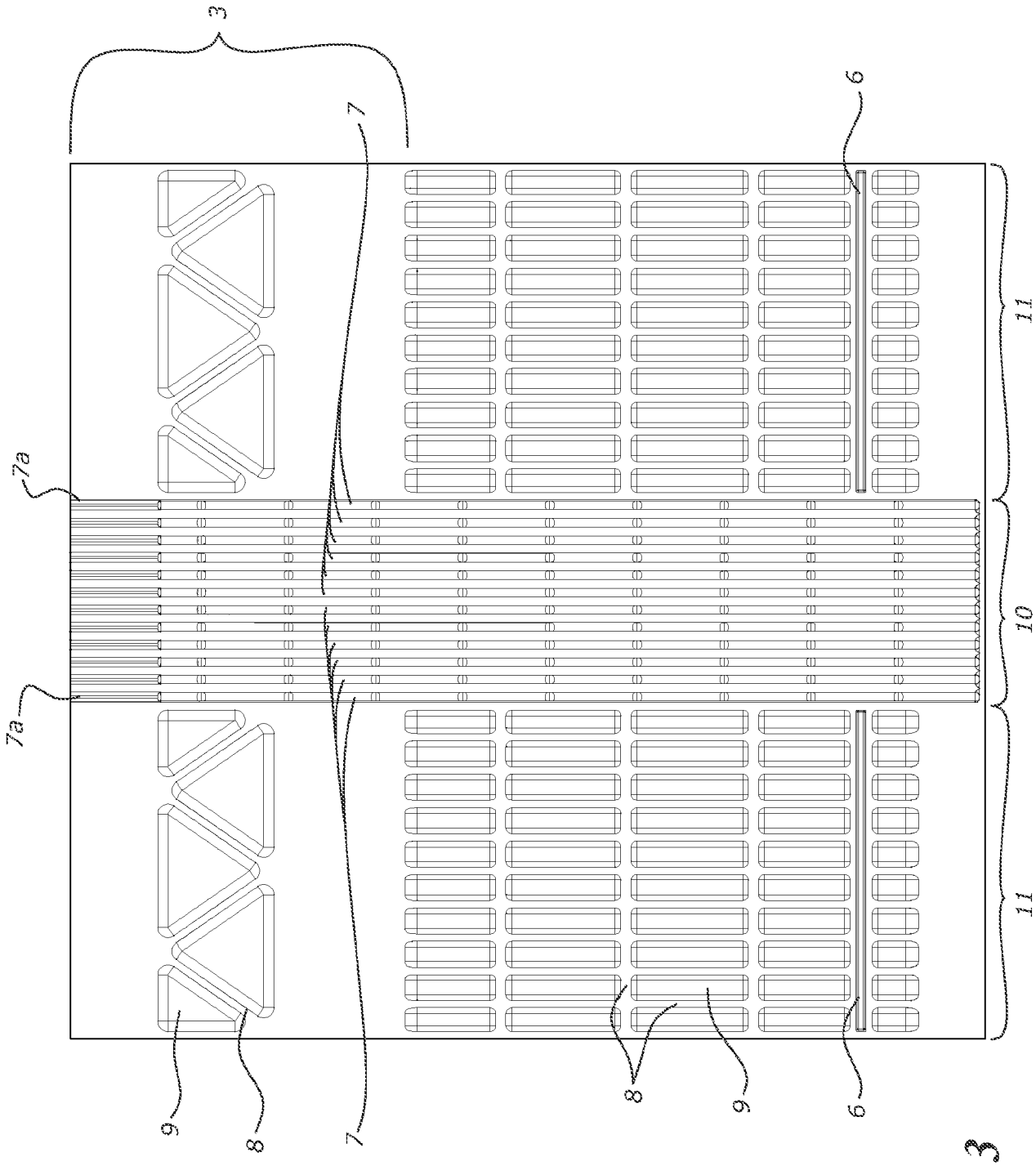


FIGURE 3

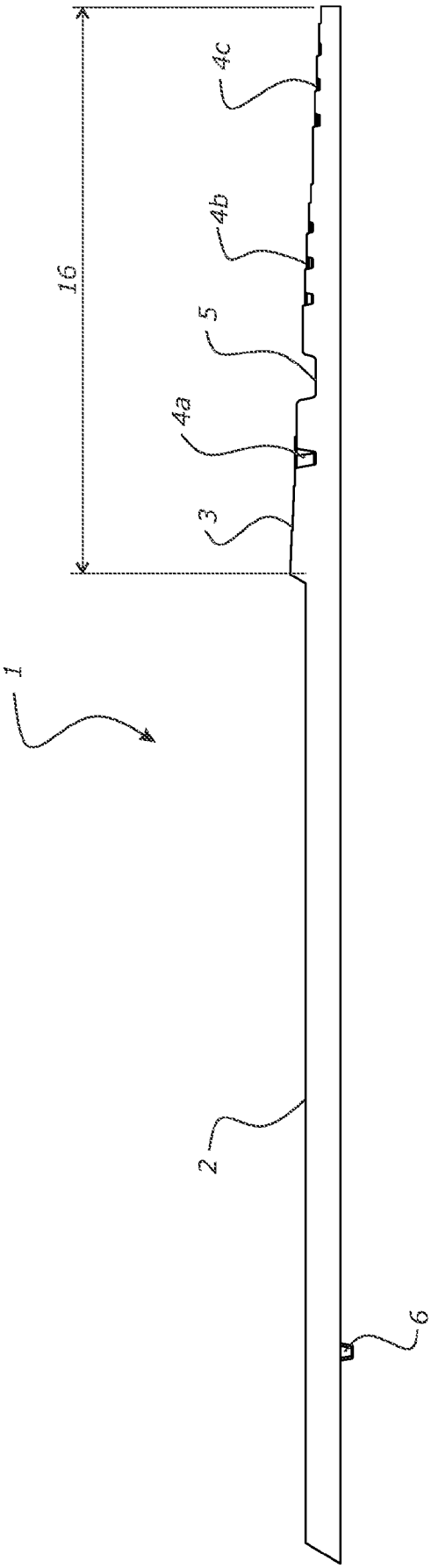


FIGURE 4



FIGURE 5

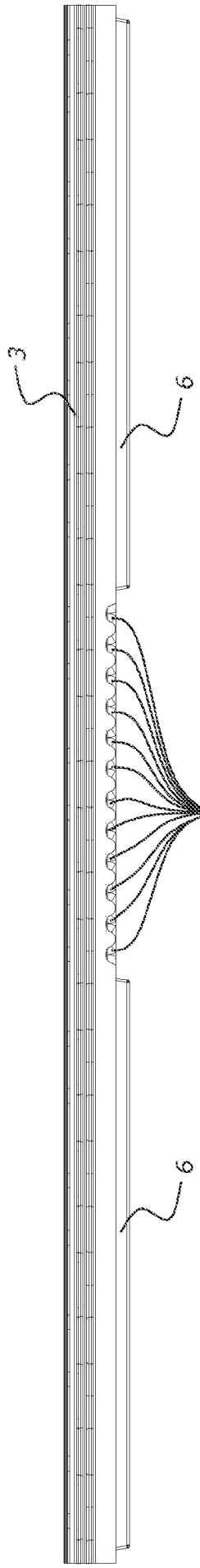


FIGURE 6

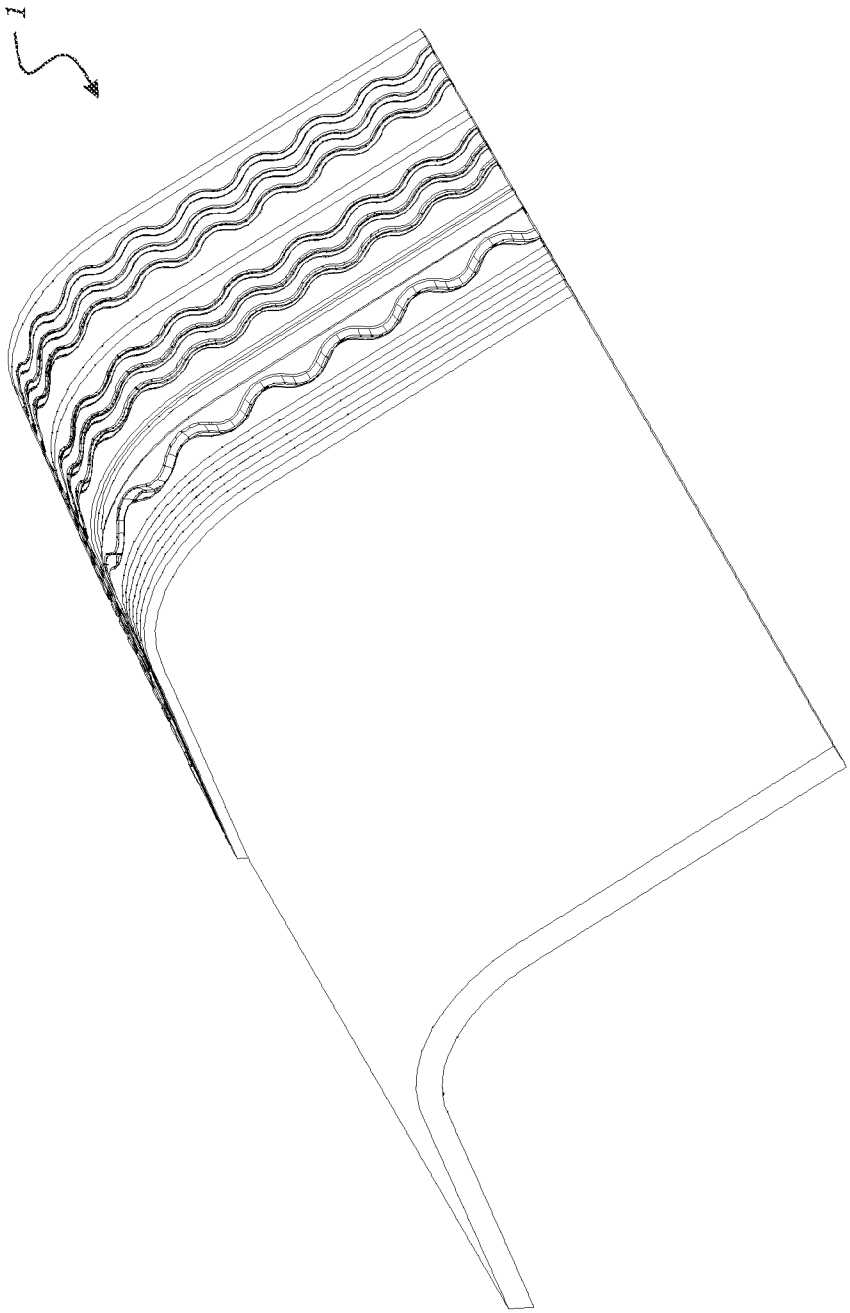


FIGURE 7

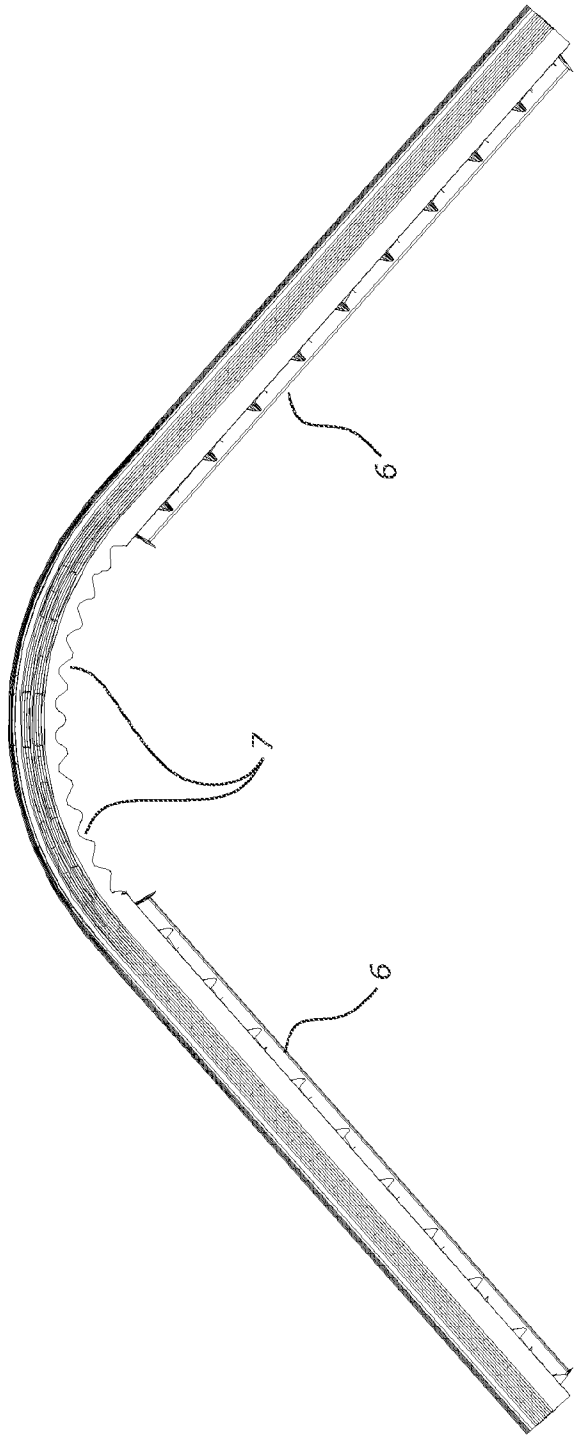


FIGURE 8

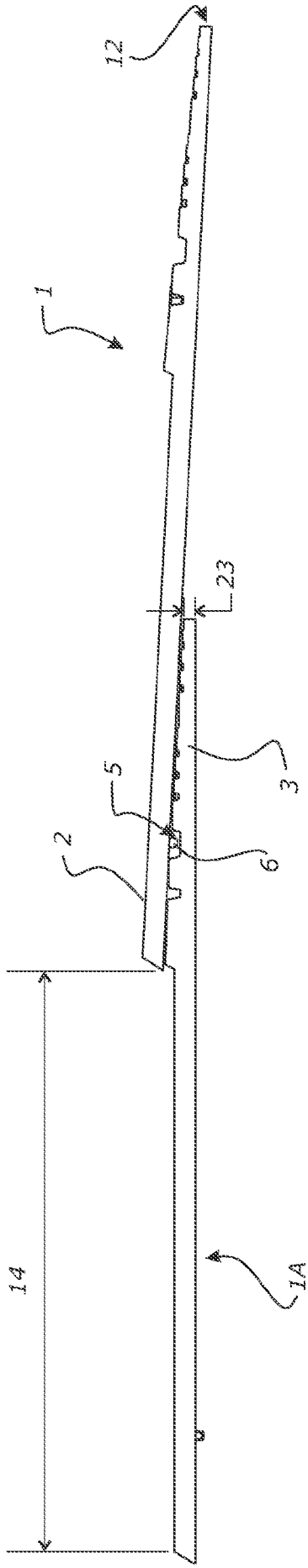


FIGURE 9

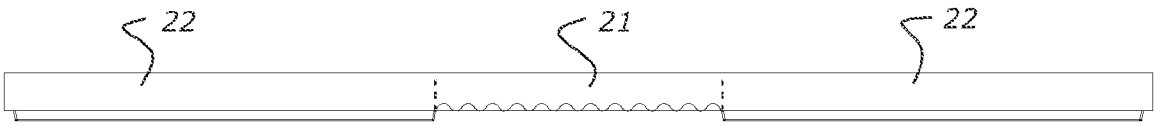


FIGURE 10A

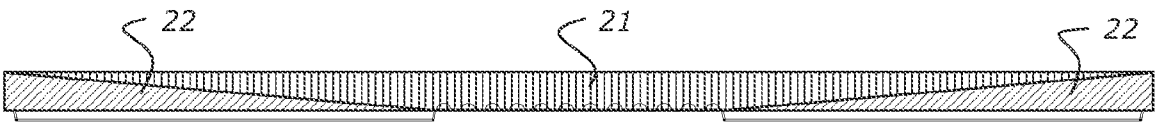


FIGURE 10B

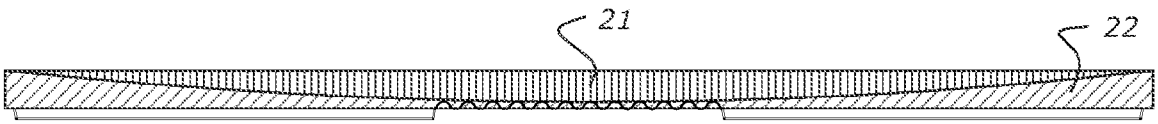


FIGURE 10C

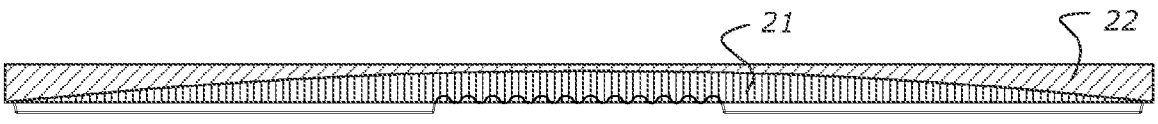


FIGURE 10D

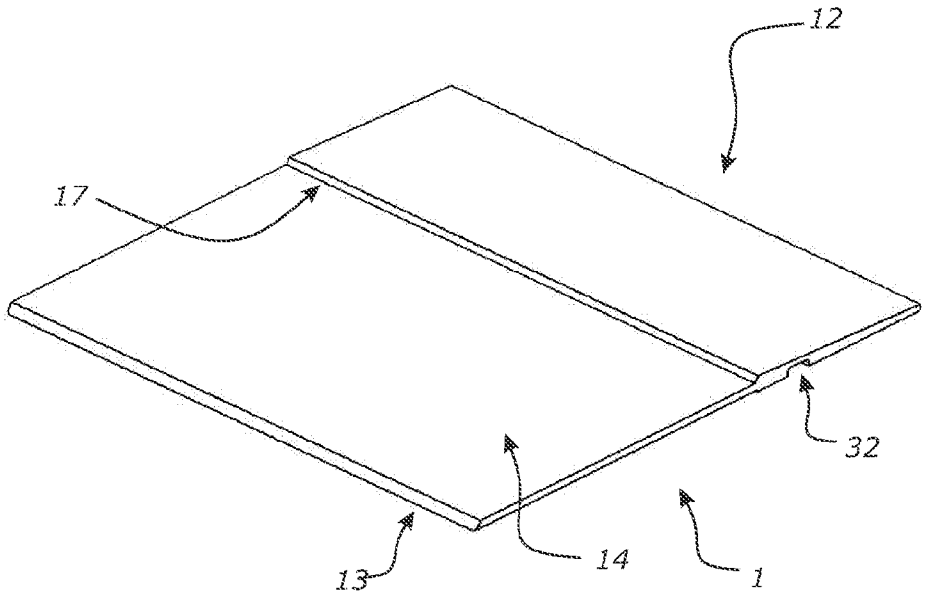


FIGURE 11A

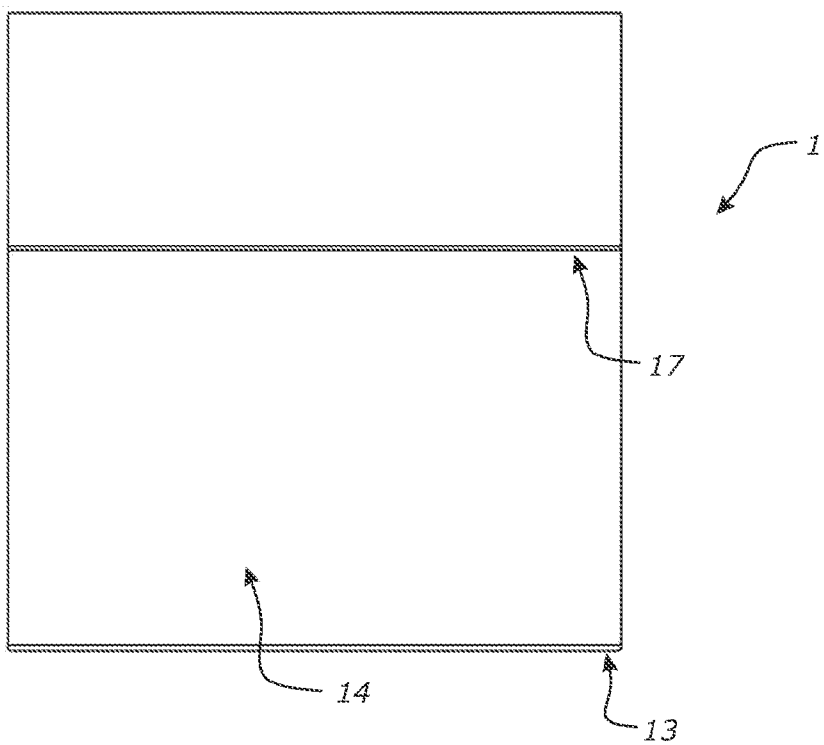


FIGURE 11B

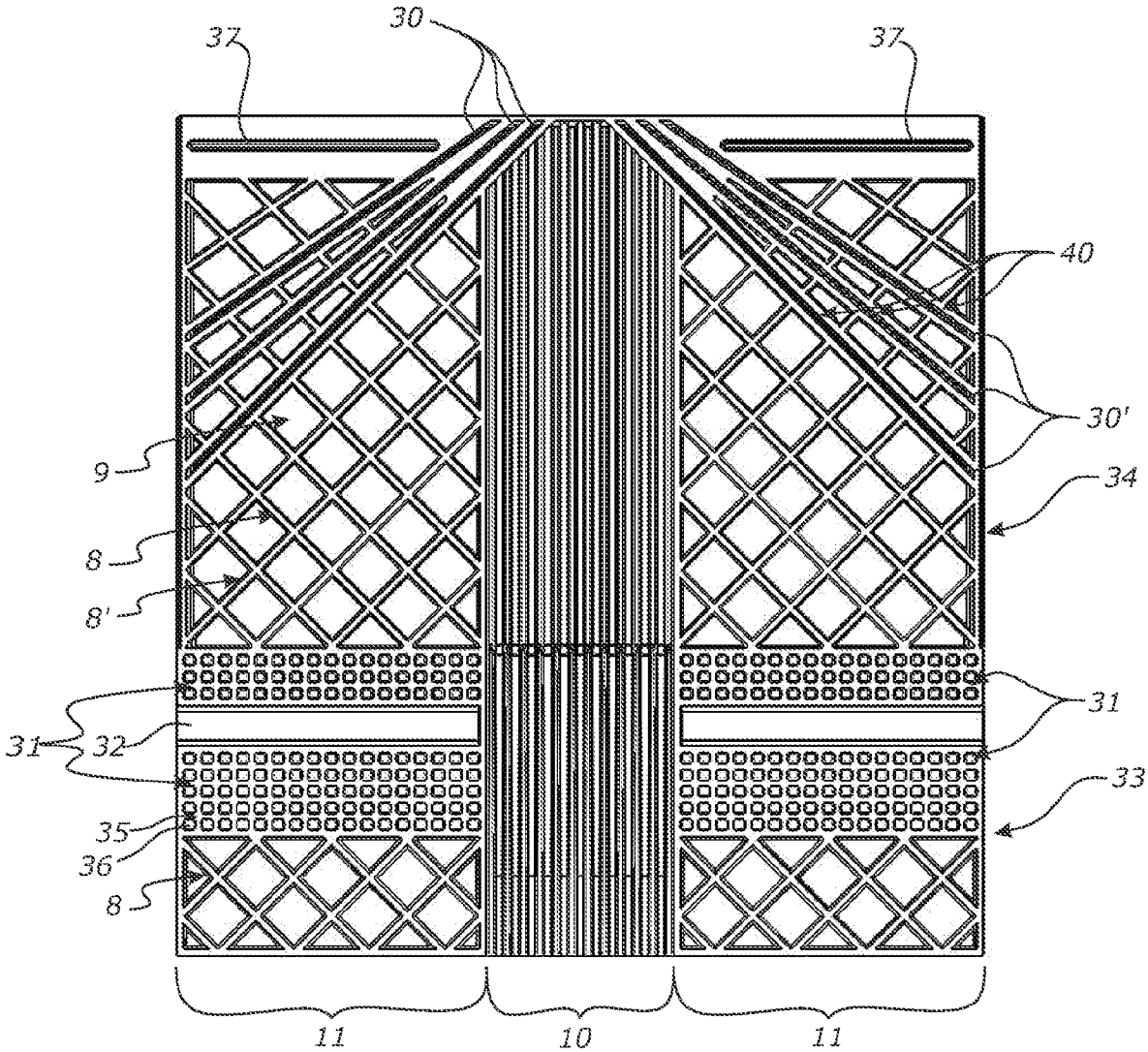


FIGURE 11C

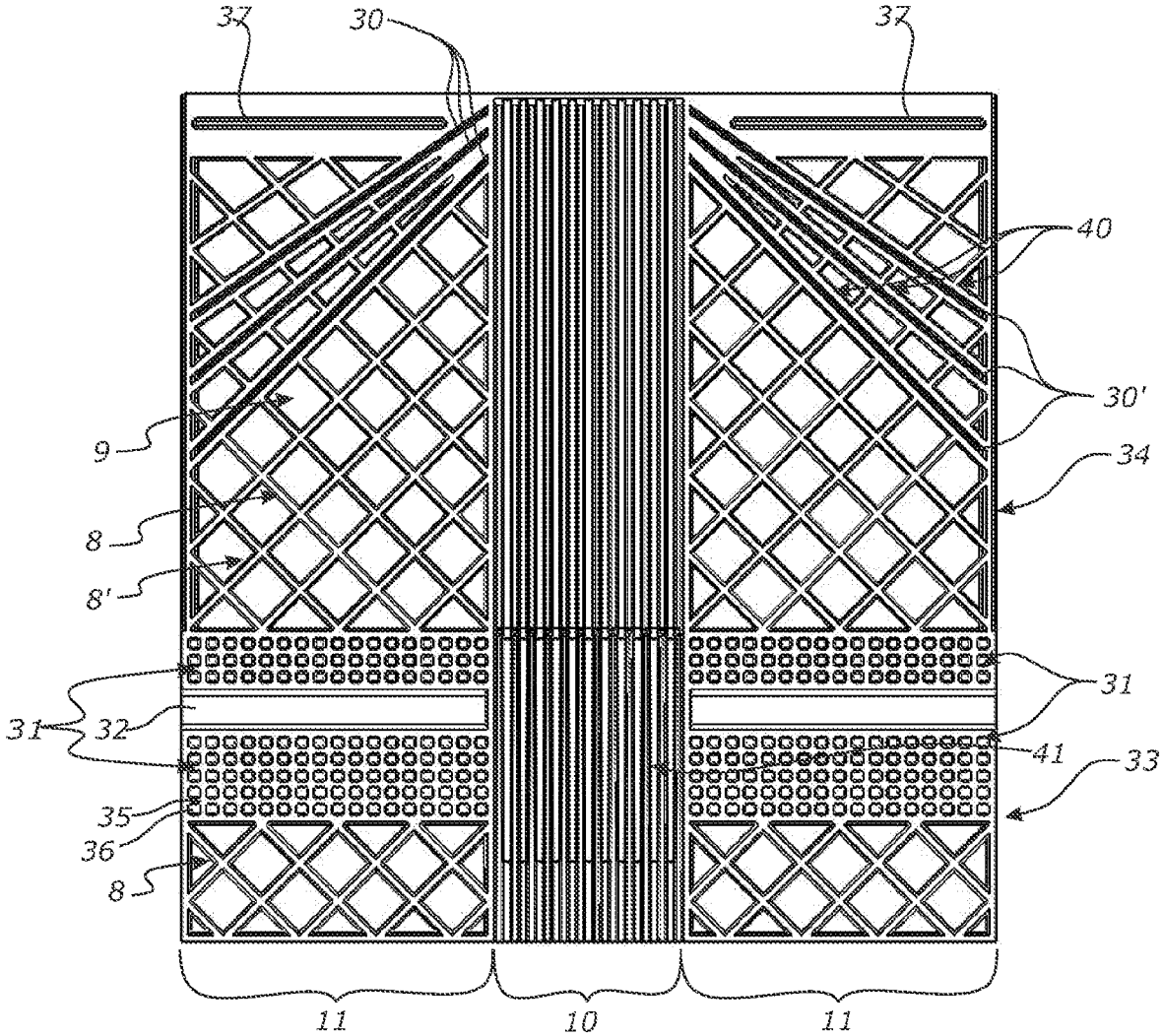


FIGURE 11D

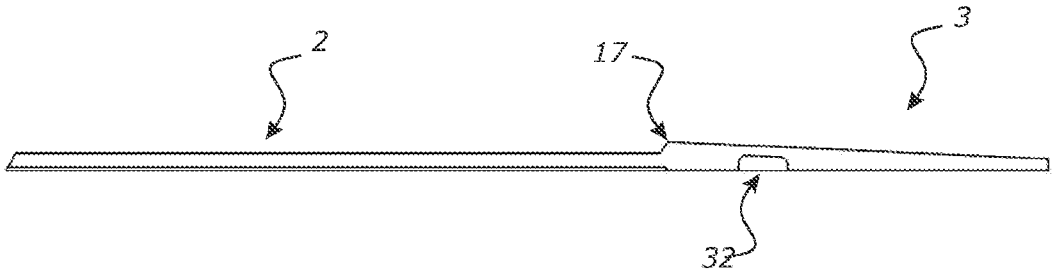


FIGURE 11E

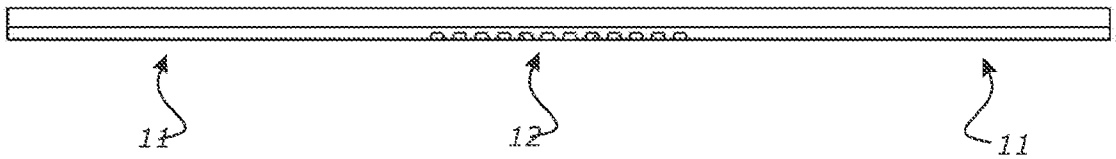


FIGURE 11F

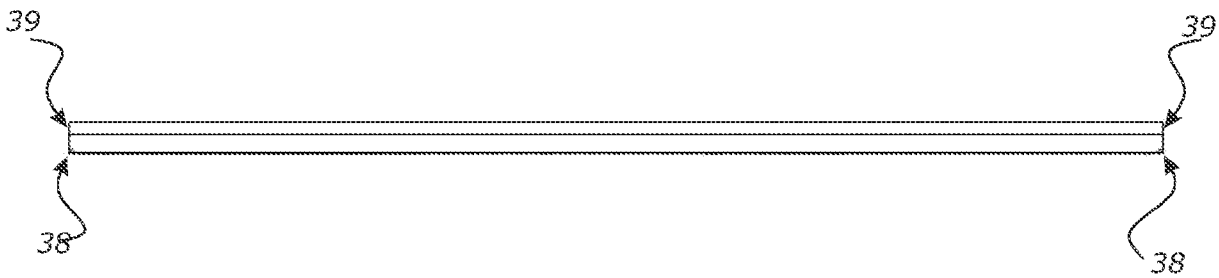


FIGURE 11G

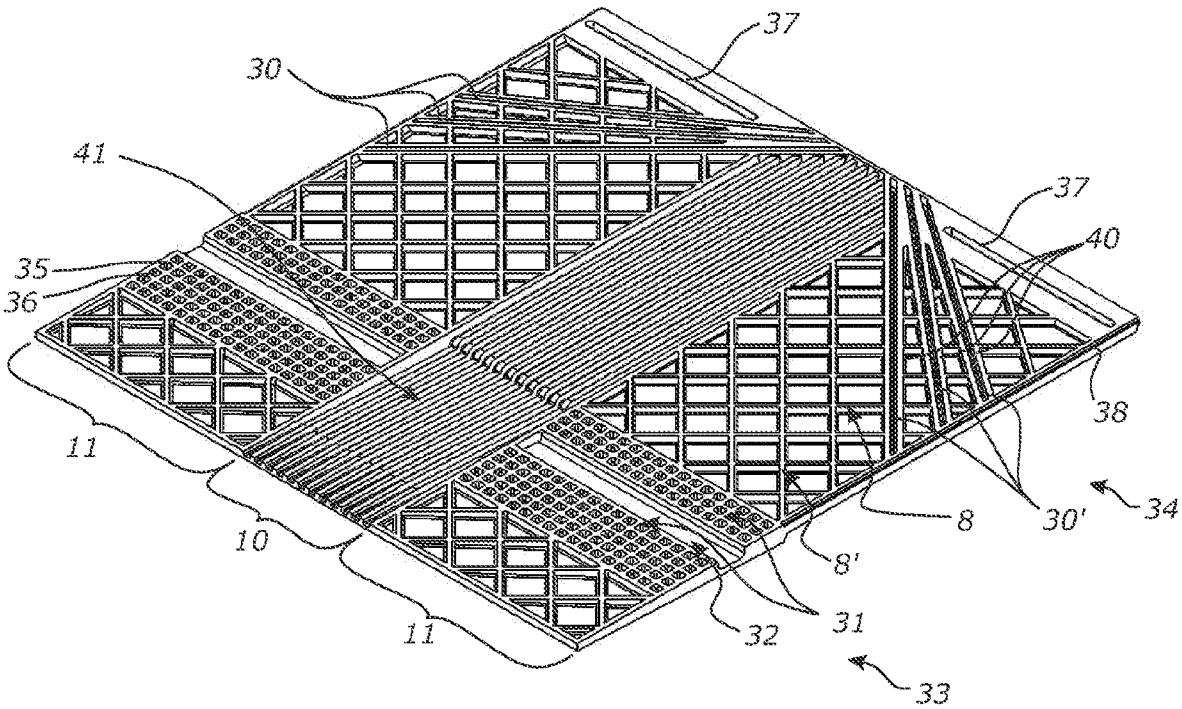


FIGURE 11H

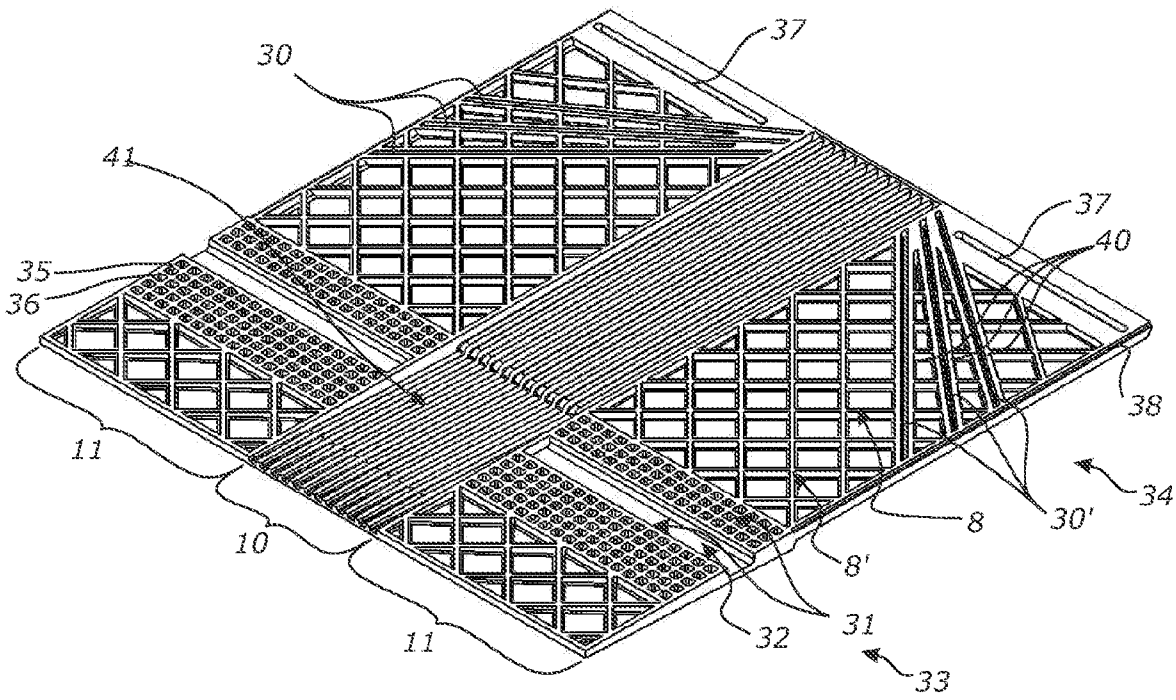


FIGURE 11I

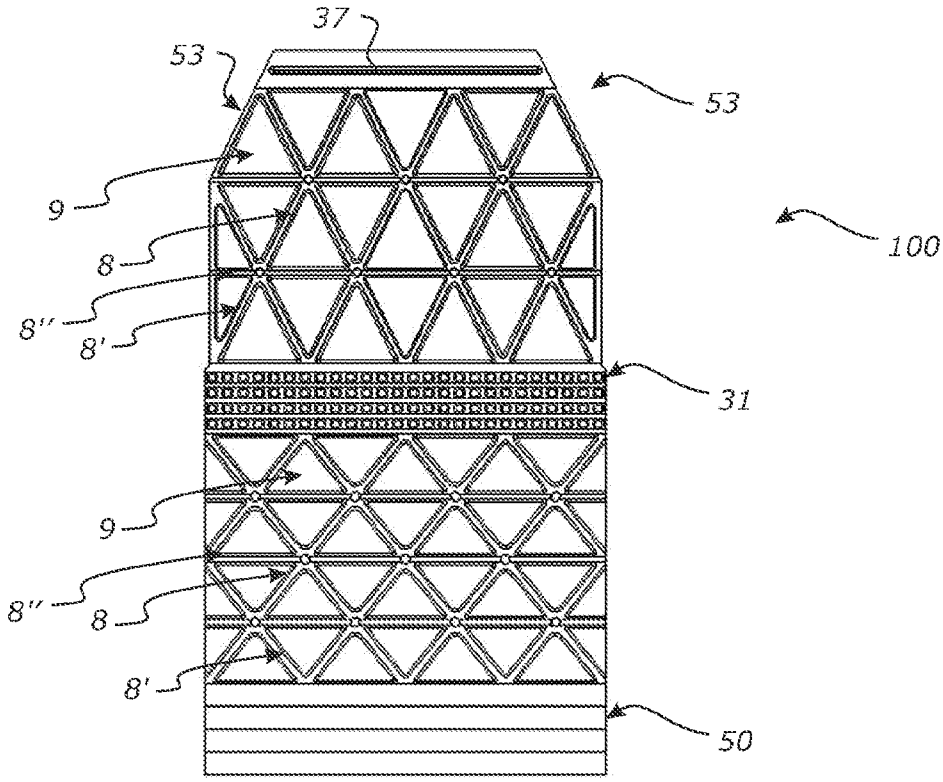


FIGURE 12A

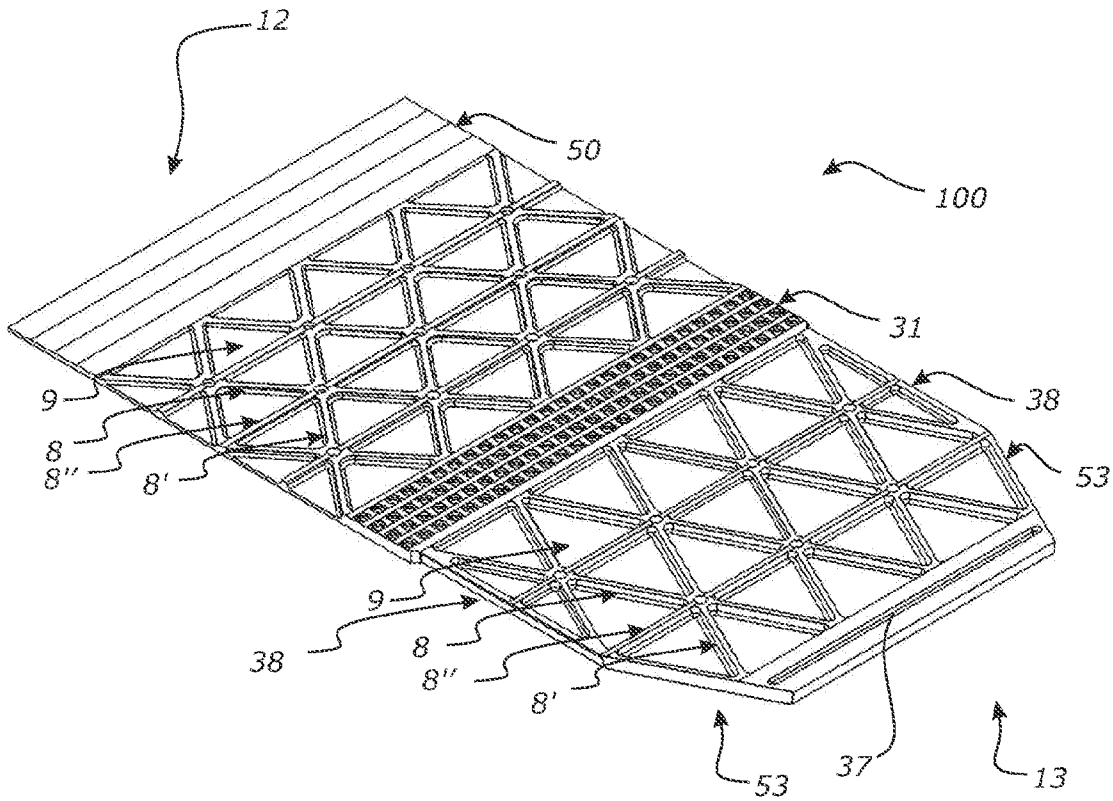


FIGURE 12B

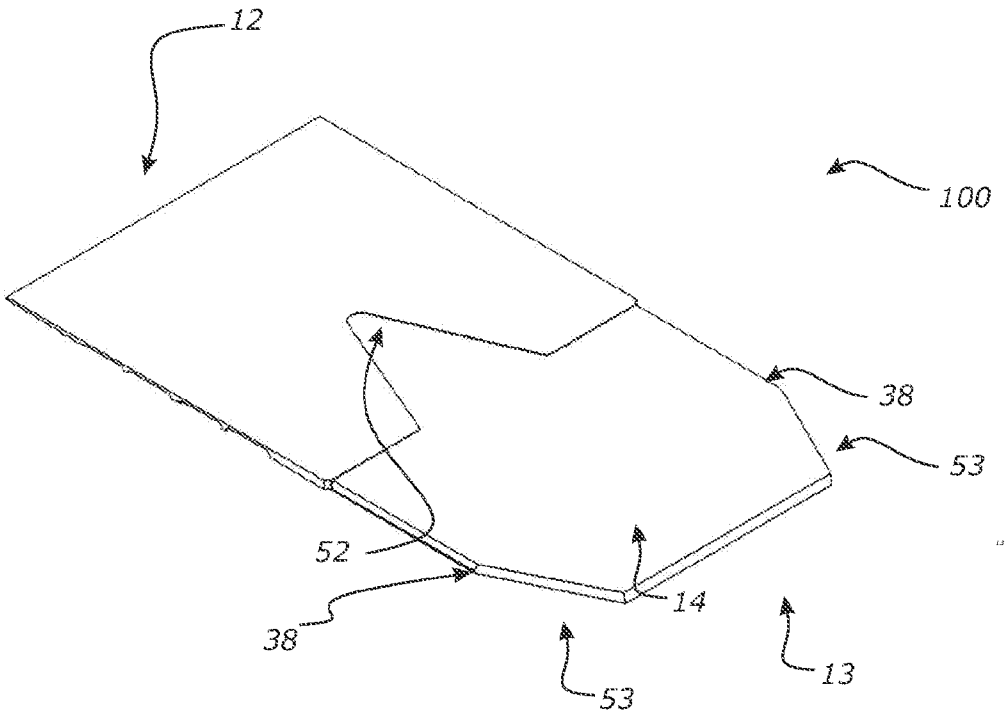


FIGURE 12C

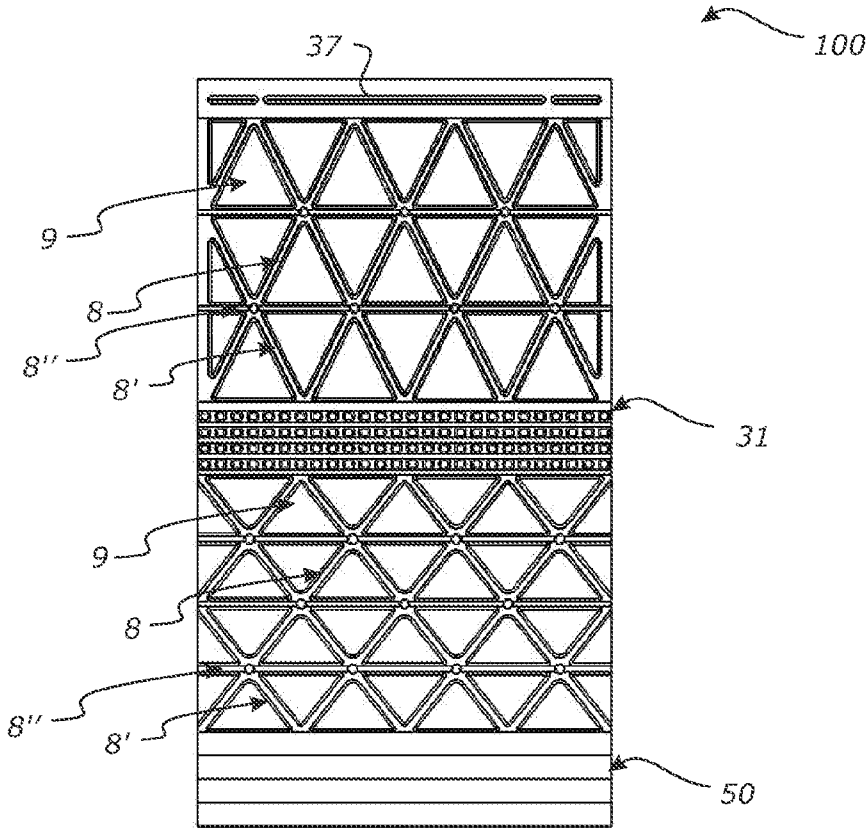


FIGURE 13A

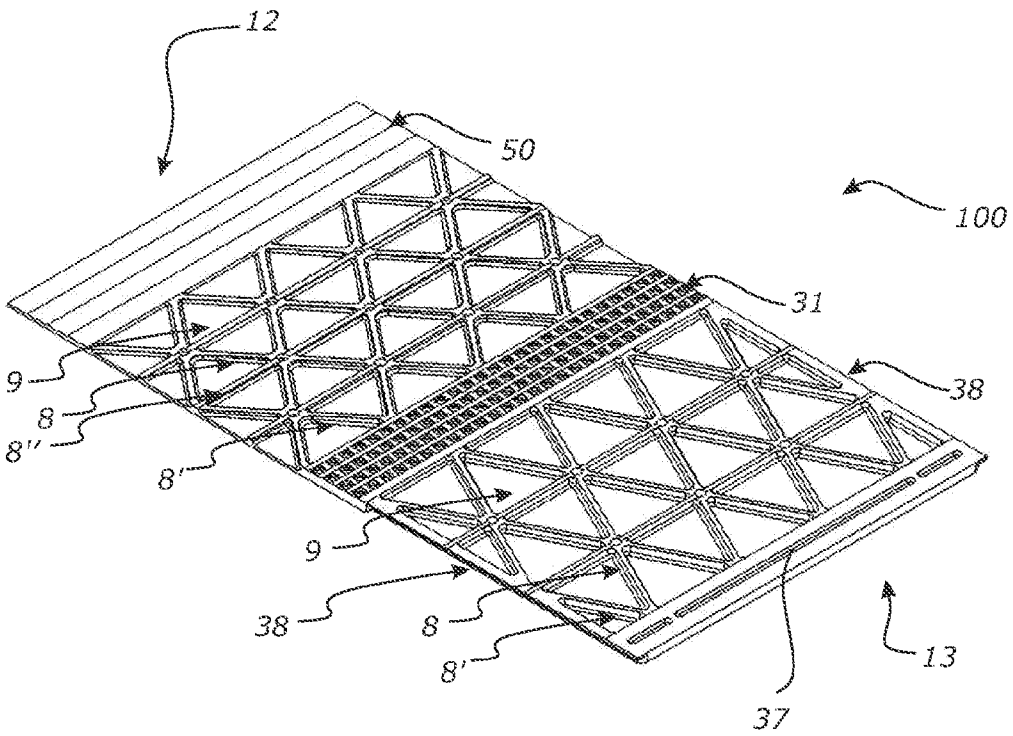


FIGURE 13B

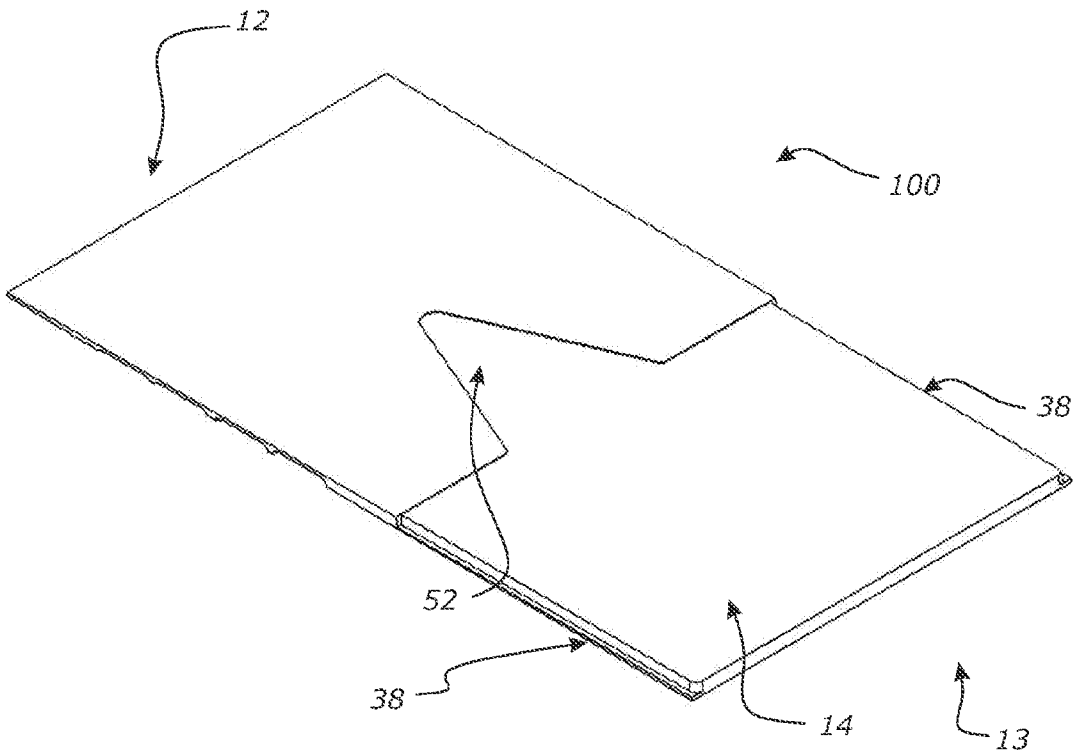


FIGURE 13C

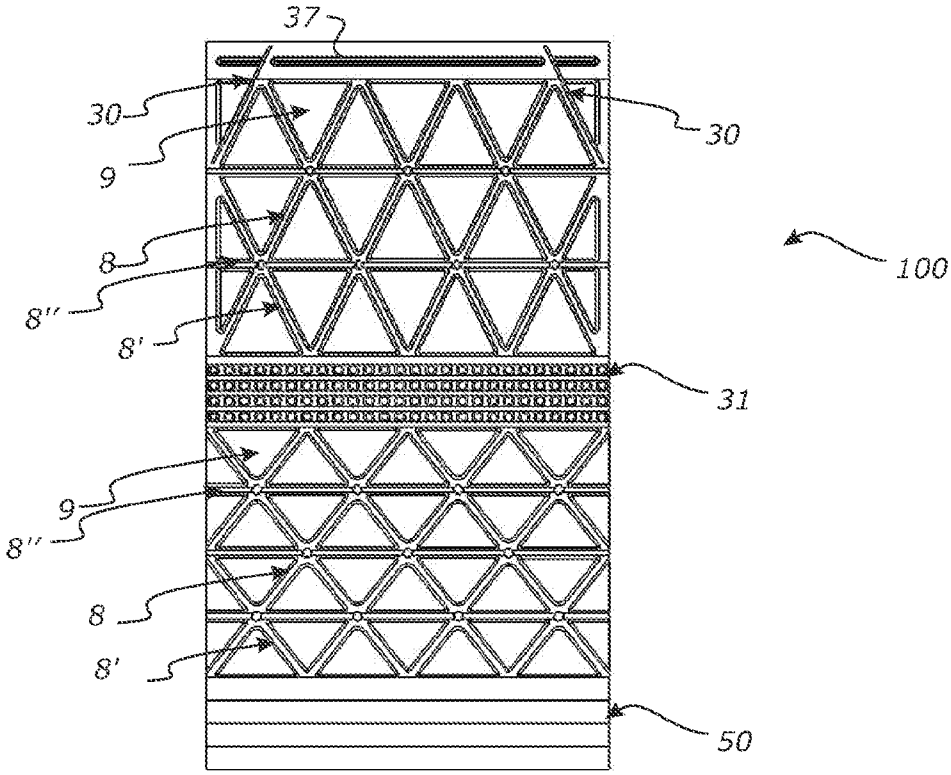


FIGURE 14A

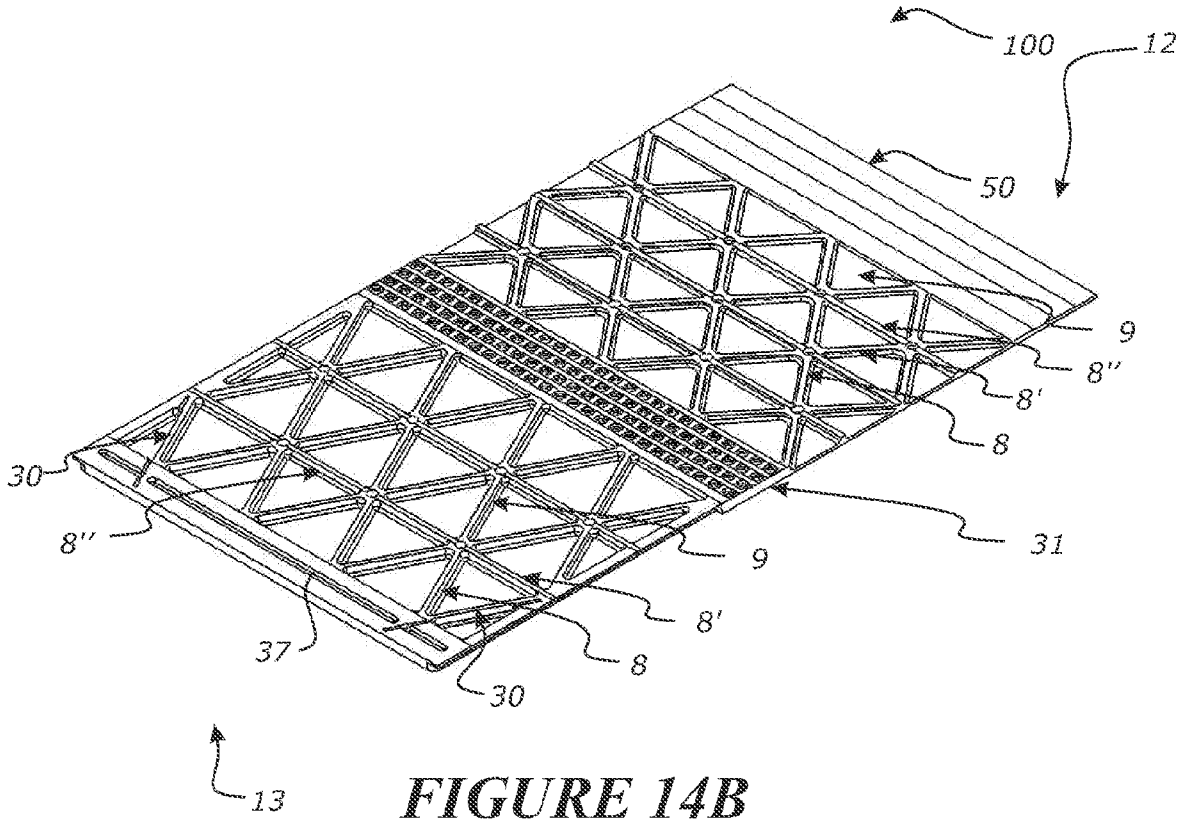


FIGURE 14B

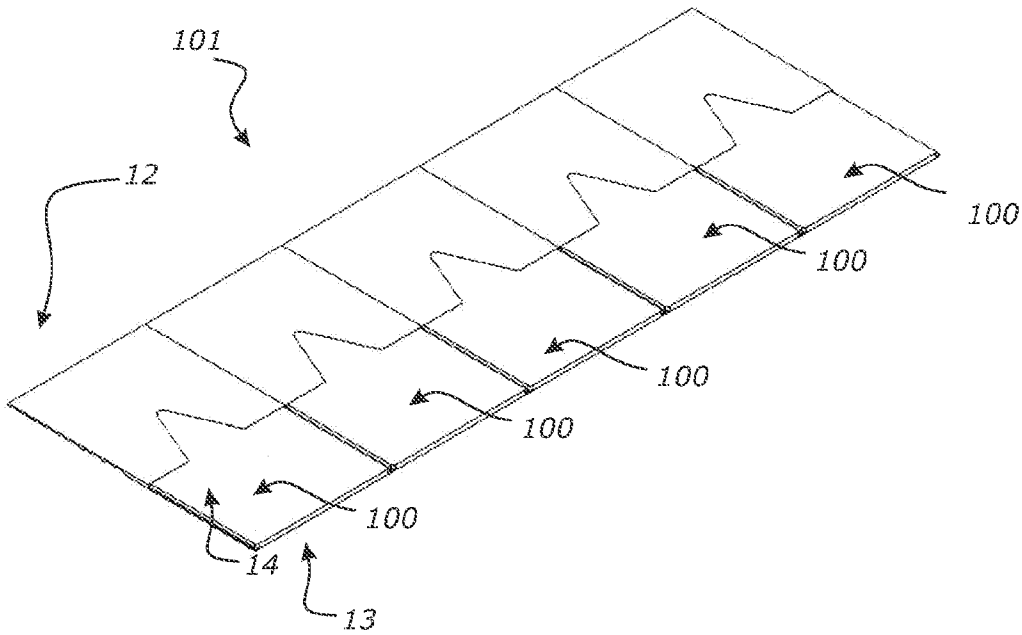


FIGURE 15A

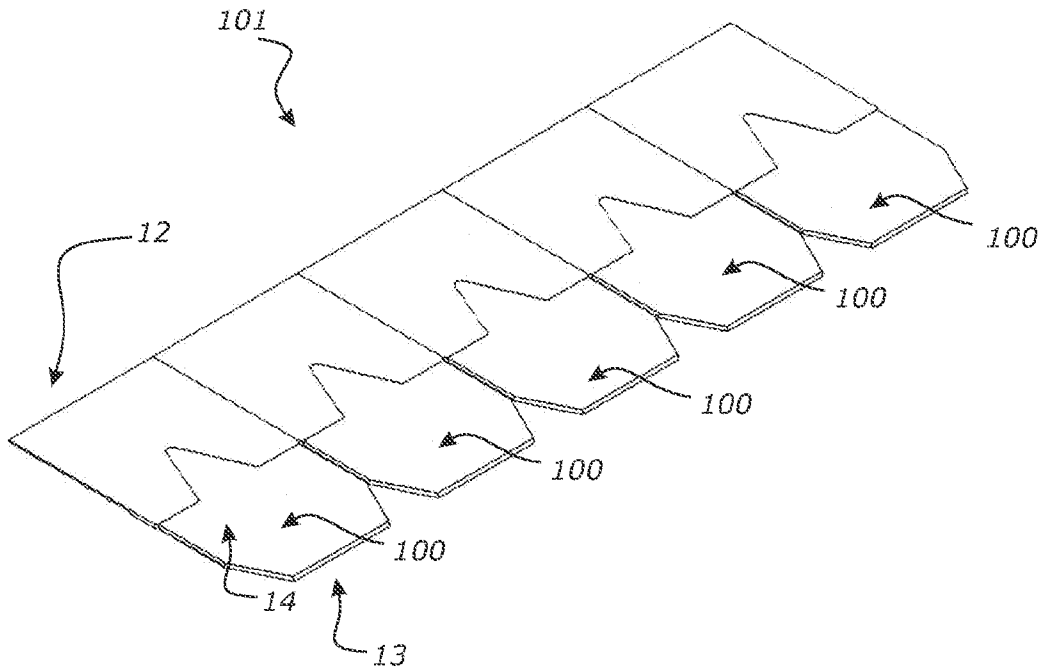


FIGURE 15B

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB2018/055405

A. CLASSIFICATION OF SUBJECT MATTER

E04D 1/30 (2006.01) E04D 1/36 (2006.01) F24F 7/02 (2006.01)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

LOGICAL DATABASES (PATENW) = EPODOC, WPIAP, TXPEA, TXPEB, TXPEC, TXPEE, TXPEF, TXPEH, TXPEI, TXPEP, TXPEPEA, TXPEPEB, TXPES, TXPUS, TXPUS0A, TXPUS1A, TXPUSEA, TXPUSEB, TXPWOEA; CPC/IPC SYMBOLS: E04D1/30, E04D13/064, E04D2001/305, E04D13/0445, F24F7/02, E04D1/36; KEYWORDS: RIDGE, HIP, VALLEY, JOINT, JUNCTION, JUNCTURE, BEND, FLASHING, CAP, COVER, BRIDGE, PANEL, MEMEBR, CONFORM, DEFORM, RIGID, FOLD, FLEX, CHANNEL, PASSAGE, NOTCH, CONDUIT, DRAIN, WATER, ALIGN, FIT MATCH, ADJUST, GABLE, SLOPE, PROFILE, PITCH, TILE, SHINGLE, PLIABLE , VENT, ANGLE and the like.

"ZINNIATEK " as the applicant and "HAYNES ANDREW LEO" OR "ROSARIA JUSTIN JASON" as the inventor AND E04D as the IPC classification in Database: ESPACENET. String search: “foldable shingle with drain channels” in Database: GOOGLE PATENTS.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
	Documents are listed in the continuation of Box C	

[X] Further documents are listed in the continuation of Box C [X] See patent family annex

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
18 October 2018	18 October 2018

Name and mailing address of the ISA/AU	**Authorised officer**
AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA Email address: pct@ipaustralia.gov.au	Bipin Sumant AUSTRALIAN PATENT OFFICE (ISO 9001 Quality Certified Service) Telephone No. +61262104068

INTERNATIONAL SEARCH REPORT C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		International application No. **PCT/IB2018/055405**
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X A	US 5971848 A (NAIR et al.) 26 October 1999 Abstract; fig. 1, 3, 4, 6, 7; col. 4 line to col. 5 line 1; col. 5 lines 45-51 Fig. 3; col. 5 lines 45-51	1, 3-7, 9, 11-15, 23-26, 28-29, 65-68 8
X	US 5094042 A (FREBORG) 10 March 1992 Abstract; fig. 7, 8, 10A; col. 2 lines 35-61	1, 3-5, 8-9, 12-15, 20-28, 30-36, 63-69, 71
X	US 1549723 A (MATTISON) 11 August 1925 Fig. 3; page 1 lines 60-70, 79-82	1, 3-5, 9, 12-15, 17-21, 23-26, 28, 65-68
X	US 2012/0096782 A1 (RAILKAR et al.) 26 April 2012 Abstract; fig. 1, 4; paragraph 20 lines 13-29	1, 3-5, 10-15, 20-26, 28, 65-69, 71
X	WO 2001/096687 A1 (VKR HOLDING A/S) 20 December 2001 Abstract; fig. 1; page 9 lines 9-28	1, 3-5, 9, 12-16, 23-26, 28, 65-68
X	US 2007/0144077 A1 (QUARANTA et al.) 28 June 2007 Abstract; fig. 1-3, 7, 8; paragraphs 29, 39, 49	1-5, 8, 12-15, 23-26, 28, 37-38, 63-69, 71
X	GB 2210072 A (WESTWOOD) 01 June 1989 Abstract; fig. 1, 3; page 2 'claims'	1, 3-5, 9, 12-15, 20-26, 28, 65-69, 71
X	US 2008/0229695 A1 (KALKANOGLU et al.) 25 September 2008 Abstract; fig. 1-4, 21-22; paragraphs 25-26; claim 3	1, 3-5, 9, 12-15, 17-19, 23-26, 28, 65-69, 71
A	US 2014/0318034 A1 (DEVPAT, LLC) 30 October 2014 Paragraph 52, figure 13	6, 7

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB2018/055405

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
the subject matter listed in Rule 39 on which, under Article 17(2)(a)(i), an international search is not required to be carried out, including

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a)

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

See Supplemental Box for Details

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
1-38, 63-69 and 71 (when appended to claim 69)

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.

☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.

☐ No protest accompanied the payment of additional search fees.

Supplemental Box

Continuation of: **Box III**

This International Application does not comply with the requirements of unity of invention because it does not relate to one invention or to a group of inventions so linked as to form a single general inventive concept.

This Authority has found that there are different inventions based on the following features that separate the claims into distinct groups:

•Group I: Claims 1 to 50 and 63 to 71 (when appended to claim 1) are directed to a ridge or hip member. The feature of *a substantially flexible zone and a substantially rigid zone on each side of the flexible zone* is specific to this group of claims.

•Group II: Claims 51 to 62 and 63 to 71 (when appended to claim 51) are directed to a roofing, cladding or siding member. The features of *an upper surface comprising an underlapping region configured to be covered in use by an overlapping region of an adjacent member, at least one cutting guide configured to allow for the resizing of the member and/or the removal of a portion of the member* are specific to this group of claims.

PCT Rule 13.2, first sentence, states that unity of invention is only fulfilled when there is a technical relationship among the claimed inventions involving one or more of the same or corresponding special technical features. PCT Rule 13.2, second sentence, defines a special technical feature as a feature which makes a contribution over the prior art.

When there is no special technical feature common to all the claimed inventions there is no unity of invention.

In the above groups of claims, the identified features may have the potential to make a contribution over the prior art but are not common to all the claimed inventions and therefore cannot provide the required technical relationship. Therefore there is no special technical feature common to all the claimed inventions and the requirements for unity of invention are consequently not satisfied a *priori*.

It is considered that search and examination for the second invention (Group II) will require more than negligible additional search and examination effort over that for the first invention (Group I), and therefore an additional search fee is warranted.

Where appended claims introduce features of one of the claimed inventions and yet are additionally appended to claims directed to any other of the claimed inventions, such claims will only be searched and reported on to the extent that additional search fees have been paid for all such claimed inventions. In Group I, claims 39-50, 70 and 71 (when appended to claim 70) introduce the features of Group II as identified above. Therefore these claims will only be searched and reported on to the extent that additional search fees have been paid for Group II. Since no additional search fees have been paid, claims 39-50, 70 and 71 (when appended to claim 70) are also excluded from the search in addition to the claims covered by Group II.

INTERNATIONAL SEARCH REPORT Information on patent family members	International application No. **PCT/IB2018/055405**

This Annex lists known patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document/s Cited in Search Report		**Patent Family Member/s**	
Publication Number	**Publication Date**	**Publication Number**	**Publication Date**
US 5971848 A	26 October 1999	US 5971848 A	26 Oct 1999
		CA 2269571 A1	22 Oct 1999
US 5094042 A	10 March 1992	US 5094042 A	10 Mar 1992
		US 5319898 A	14 Jun 1994
US 1549723 A	11 August 1925	US 1549723 A	11 Aug 1925
US 2012/0096782 A1	26 April 2012	US 2012096782 A1	26 Apr 2012
		US 8322089 B2	04 Dec 2012
		CA 2755006 A1	20 Apr 2012
		MX 2011011070 A	19 Apr 2012
WO 2001/096687 A1	20 December 2001	WO 0196687 A1	20 Dec 2001
		AU 6378801 A	24 Dec 2001
		EP 1297230 A1	02 Apr 2003
		EP 1297230 B1	01 Aug 2012
US 2007/0144077 A1	28 June 2007	US 2007144077 A1	28 Jun 2007
		US 7921606 B2	12 Apr 2011
		CA 2538774 A1	22 Jun 2007
		CA 2873588 A1	22 Jun 2007
		US 2010218433 A1	02 Sep 2010
		US 8281520 B2	09 Oct 2012
GB 2210072 A	01 June 1989	GB 2210072 A	01 Jun 1989
		GB 2210072 B	23 Jan 1991
US 2008/0229695 A1	25 September 2008	US 2008229695 A1	25 Sep 2008
		US 8453408 B2	04 Jun 2013
		CA 2587995 A1	22 Sep 2008
		CA 2775064 A1	31 Mar 2011
		US 2011185650 A1	04 Aug 2011
		US 8216407 B2	10 Jul 2012
		US 2012210661 A1	23 Aug 2012
		US 8820021 B2	02 Sep 2014
		WO 2011037575 A1	31 Mar 2011
US 2014/0318034 A1	30 October 2014	US 2014318034 A1	30 Oct 2014
		CA 2831303 A1	25 Apr 2014
		MX 2013012444 A	29 Apr 2014

Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.

INTERNATIONAL SEARCH REPORT Information on patent family members	International application No. **PCT/IB2018/055405**

This Annex lists known patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document/s Cited in Search Report		Patent Family Member/s	
Publication Number	**Publication Date**	**Publication Number**	**Publication Date**

End of Annex

Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.