pattern formed by several tiles, including mostly the hexagon tile (5") and the bow tie tile (4"), with a single decagon tile (6") at the center.

SUMMARY

[0003a] According to an aspect of the present disclosure, there is provided a kit, including a plurality of elements, each element from the plurality of elements being an elongate polygon, wherein: each element from the plurality of elements has at least two longer sides that are parallel to each other; each element from the plurality of elements has at least two shorter sides that are non-parallel to each other; a first shorter side of each element from the plurality of elements has a same first length; and the plurality of elements are configured to be arranged to form a girih strapwork pattern.

[0004] Various inventive subject matter disclosed herein relates to kits that include multiple rectilinear elongate polygonal elements having five unique shapes. In one example implementation, four of the unique shapes are concave polygonal elements. In some examples, when arranged with respect to one another, the elements of the kit form a girih strapwork pattern without requiring the use of the conventional girih tiles. In one aspect, respective elements in a kit may include bezels or boarders along longer sides (e.g., to enhance an over/under weaving effect of the girih strapwork pattern). In another aspect, one or more elements of a kit may be formed as a tray, and some of the trays may include various components or materials disposed in the tray (e.g., architectural surface materials, biological systems, various electronic components) to provide for a variety of creative designs and structural/sculptural installations for built environments, based on a girih strapwork pattern. In some implementations, one or more such trays may have beveled rims so as to appear light and thin when viewed (as part of an architectural installation involving significant "negative space" amidst a girih strapwork pattern).

[0005] The Inventor has recognized and appreciated that substituting kits of elements according to the inventive concepts disclosed herein in place of the larger traditional girih tiles is advantageous to designers and engineers insofar as the elements in such kits are a fraction of the size of the traditional girih tiles. Thus, such kits of elements reduce an overall surface area of required materials to otherwise create a girih strapwork pattern. Moreover, in some cases, the elements of the kit may be equipped or combined with various ornamental components (e.g., architectural surface materials of different types) or functional components (e.g., electronic components or biological systems) according to the inventive concepts disclosed herein; in such implementations, the streamlined size of the kit elements may reduce the total number of unique parts or materials needed for an architectural installation replicating a girih strapwork pattern.

[0006] It should be appreciated that all combinations of the foregoing concepts and additional concepts discussed in greater detail below (provided such concepts are not mutually

Claims

1. A kit, comprising a plurality of elements, each element from the plurality of elements being an elongate polygon, wherein:

each element from the plurality of elements has at least two longer sides that are parallel to each other; each element from the plurality of elements has at least two shorter sides that are non-parallel to each other;

a first shorter side of each element from the plurality of elements has a same first length; and

the plurality of elements are configured to be arranged to form a girih strapwork pattern.

2. The kit of claim 1, wherein at least one of the at least two shorter side of each element from the plurality of elements is at a first angle of 72 degrees with respect to one of the at least two longer sides of that element and at a second angle of 108 degrees with respect to another of the at least two longer sides of that element.

3. The kit of claim 1, wherein:

a first group of the plurality of elements has a first unique shape;

a second group of the plurality of elements has a second unique shape different from the first unique shape; and

at least one of the at least two shorter sides of each element from the plurality of elements is at a first angle of 72 degrees with respect to one of the at least two longer sides of that element and at a second angle of 108 degrees with respect to another of the at least two longer sides of that element.

4. The kit of claim 1, wherein the kit includes:

a first element from the plurality of elements having two shorter sides and two longer sides, a first interior angle of 54 degrees, a second internal angle of 126 degrees, a third interior angle of 108 degrees, and a fourth interior angle of 72 degrees; and

a second element from the plurality of elements, the second element being a concave

polygon having:

a first longer side that forms a first interior angle of 108 degrees with at least one of the at least two shorter sides,

a second longer side that forms a second interior angle of 216 degrees with the first longer side, and

another of the at least two shorter sides that forms a third interior angle of 54 degrees with the second longer side.

5. The kit of claim 1, wherein the kit includes:

a first element from the plurality of elements, the first element being a concave polygon having:

a first longer side that form a first interior angle of 108 degrees with at least one of the at least two shorter sides,

a second longer side that forms a second interior angle of 144 degrees with the first longer side, and

another of the at least two shorter sides that forms a third interior angle of 54 degrees with the second longer side.

6. The kit of claim 1, wherein the kit includes:

a first element from the plurality of elements having two shorter sides and two longer sides, a first interior angle of 54 degrees, a second internal angle of 126 degrees, a third interior angle of 108 degrees, and a fourth interior angle of 72 degrees; and

a second element from the plurality of elements, the second element being a concave polygon having:

a first longer side that form a first interior angle 72 degrees with at least one of the at least two shorter sides,

a second longer side that forms a second interior angle of 252 degrees with the first longer side, and

another of the at least two shorter sides that forms a third interior angle of 126 degrees with the second longer side.

7. The kit of claim 1, wherein the kit includes:

a first element from the plurality of elements having two shorter sides and two longer sides, a first interior angle of 54 degrees, a second internal angle of 126 degrees, a third interior angle of 108 degrees, and a fourth interior angle of 72 degrees; and

a second element from the plurality of elements, the second element being a concave polygon having:

a first longer side that form a first interior angle of 108 degrees with at least one of the at least two shorter sides,

a second longer side that forms a second interior angle of 144 degrees with the first longer side, and

another of the at least two shorter sides that forms a third interior angle of 72 degrees with the second longer side.

8. The kit of claim 1, wherein the kit includes:

a first element from the plurality of elements having two shorter sides and two longer sides, a first interior angle of 54 degrees, a second internal angle of 126 degrees, a third interior angle of 108 degrees, and a fourth interior angle of 72 degrees; and

a second element from the plurality of elements, the second element being a concave polygon having:

a first longer side that form a first interior angle of 108 degrees with at least one of the at least two shorter sides,

a second longer side that forms a second interior angle of 144 degrees with the first longer side, and

another of the at least two shorter sides that forms a third interior angle of 54 degrees with the second longer side.

9. The kit of claim 1, wherein the plurality of elements includes:

a first group of elements, a second shorter side of each element from the first group of elements having a second same length; and

a second group of elements, a second shorter side of each element from the second group of elements having a third same length, the third same length being different from the second same length.

10. The kit of claim 1, wherein:

each element from the plurality of elements has one of five unique shapes;

a first unique shape from the five unique shapes having two shorter sides and two longer sides, a first interior angle of 54 degrees, a second internal angle of 126 degrees, a third interior angle of 108 degrees, and a fourth interior angle of 72 degrees;

a second unique shape from the five unique shapes being a concave polygon having:

a first longer side that form a first interior angle of 108 degrees with at least one of the at least two shorter sides,

a second longer side that forms a second interior angle of 216 degrees with the first longer side, and

another of the at least two shorter sides that forms a third interior angle of 54 degrees with the second longer side;

a third unique shape from the five unique shapes being a concave polygon having:

a first longer side that forms a first interior angle of 108 degrees with at least one of the at least two shorter sides,

a second longer side that forms a second interior angle of 144 degrees with the first longer side, and

another of the at least two shorter sides that forms a third interior angle of 54 degrees with the second longer side;

a fourth unique shape from the five unique shapes being a concave polygon having:

a first longer side that form a first interior angle of 72 degrees with at least one of the at least two shorter sides,

a second longer side that forms a second interior angle of 252 degrees with the first longer side, and

another of the at least two shorter sides that forms a third interior angle of 126 degrees with the second longer side;

a fifth unique shape from the five unique shapes being a concave polygon having:

a first longer side that form a first interior angle of 108 degrees with at least one of the at least two shorter sides,

a second longer side that forms a second interior angle of 144 degrees with the first longer side, and

another of the at least two shorter sides that forms a third interior angle of 72 degrees with the second longer side.

11. The kit of claim 1, wherein:

each element from the plurality of elements has an exposed visible surface between the at least two longer sides that are parallel to each other; and

each longer side of the at least two longer sides of each element from the plurality of elements includes a bezel or a border that is visibly different than the exposed visible surface.

12. The kit of claim 1, wherein a first element from the plurality of elements is formed as a tray.

13. The kit claim 1, wherein a first element from the plurality of elements is formed as a tray having a beveled rim.

14. The kit of claim 1, wherein:

a first element from the plurality of elements is formed as a tray; and

the first element from the plurality of elements includes at least one magnet disposed in or on the tray to facilitate mechanical coupling of the tray to a support structure.

15. The kit of claim 1, wherein:

a first element from the plurality of elements is formed as a tray; and

disposed in or on the tray is at least one of:

an architectural glass component,

an architectural metal component,

an architectural wood component,

a biological system component configured to support living plant life,

a photovoltaic component;

a lighting component;

a video display component;

an audio speaker component;

a camera component;

an electronic sensor component;

a printed circuit board, or

an electronic power supply.