CEILING SYSTEM

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] The present application claims the benefit of United States Provisional Patent Application Serial No. US 61/696,424 filed September 4, 2012, the entirety of which is incorporated herein by reference.

FIELD OF THE INVENTION

[0002] The present invention relates to ceiling systems, and more particularly to a monolithic ceiling system formed with tiles.

BACKGROUND OF THE INVENTION

[0003] One type of ceiling system includes individual ceiling tiles which are installed in a suspended overhead support grid to collectively form a monolithic ceiling in appearance. The grid generally comprises an array of horizontal interlocking grid support members which may typically be arranged in a rectilinear pattern forming openings sized to locate and receive a portion of the tiles therein for attachment to the grid. The ceiling tiles are generally supported at their perimeter by the grid when fully mounted.

[0004] Variations in the aesthetic appearance of the ceiling system are desirable for creating customized designs.

SUMMARY OF THE INVENTION

[0005] Embodiments of ~~T~~the present invention seek to provides a ceiling system which allows~~~~ customized creation of user-selectable three-dimensional visual effects based on the mounting positions (e.g. horizontal orientation) of the individual ceiling tiles. The ceiling tiles may be configured with at least two opposing rebated peripheral sides having tegular edges configured for mounting to an overhead support grid. One embodiment includes a flush tegular edge when mounted and an opposing deep recessed tegular edge which creates a reveal that projects downward below the support grid. The bottom surface of the ceiling tile may therefore be angled and lie in different horizontal planes when mounted to the grid.

[0006] In various arrangements, the ceiling tile and mounting system may allows~~~~ creation of undulating ceiling configurations such as without limitation a facetted hill and valley, pinwheel, shingled effect, combinations thereof, and others via detachably mounting the ceiling tiles to the grid support members in different horizontal positions or orientations. In addition, the original visual appearance of the ceiling system may be readily changed later if

desired by simply changing the mounting position of some or all of the ceiling tiles in the grid.

[0007] According to ~~one exemplary embodiment,~~ a first aspect of the present invention, there is provided a ceiling system includ~~e~~sing an overhead support grid defining a grid opening configured for locating a ceiling tile therein, and a ceiling tile positioned in the grid opening. The ceiling tile has a top surface, a bottom surface, a first tegular edge engaging the support grid, and an opposing second tegular edge engaging the support grid. The first tegular edge has a configuration different than the second tegular edge. ~~In one preferred embodiment;~~ wherein, the ceiling tile has a substantially uniform thickness between the first and second tegular edges ~~wherein the top and bottom surfaces of the ceiling tile are substantially parallel~~ and the top surface of the ceiling tiles is angled with respect to the support grid when mounted therein. In one embodiment, the first tegular edge has a deep recess and the second tegular edge has a shallow recess, and may be a flush recess for locating the bottom surface of the ceiling tile in a substantially flush position with respect to the bottom of the support grid. The first tegular edge therefore sits lower in the support grid than the second tegular edge. When mounted in the support grid, the ceiling tile is seated in an angled position.

[0008] According to ~~another embodiment,~~ a second aspect of the present invention, there is provided a ceiling system includ~~e~~sing an overhead support grid comprising intersecting grid support members defining a grid opening configured for locating a ceiling tile therein, and a ceiling tile positioned in the grid opening, the ceiling tile having a top surface and a bottom surface oriented parallel to the top surface. The ceiling tile has a first peripheral side defining a downward facing first support surface engaging one of the grid support members and an opposing second peripheral side defining a downward facing second support surface engaging a second grid support members. The first and second support surfaces are configured so that the ceiling tile is angled in orientation with respect to a horizontal reference plane defined by the grid support members when the ceiling tile is mounted in the support grid. ~~In one embodiment,~~ and the ceiling tile has a substantially uniform thickness between the first and second peripheral sides.

[0009] According to ~~another embodiment,~~ a third aspect of the present invention, there is provided a customizable ceiling system ~~is provided. The ceiling system~~ includ~~e~~sing an overhead support grid comprising intersecting grid support members defining a plurality of grid openings configured for locating ceiling tiles therein, and a plurality of ceiling tiles each positioned in one of the grid openings. The ceiling tiles have a top surface and a bottom surface oriented parallel to the top surface. The ceiling tiles each have a first peripheral side defining a downward facing first support surface engaging one of the grid support members and an opposing second peripheral side defining a downward facing second support surface engaging a second grid support members. The first

and second support surfaces of each ceiling tile are configured so that the ceiling tile is angled in orientation with respect to a horizontal reference plane defined by the grid support members when the ceiling tiles are mounted in the support grid. The first peripheral side of each ceiling tile defines an outward facing end surface extending downwards below the support grid and creating an exposed visible reveal., wherein the bottom surface of each ceiling tile is substantially flush with the bottom surface of the support grid at the second peripheral side.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] The features of the exemplary embodiments of the present invention will be described with reference to the following drawings, where like elements are labeled similarly, and in which:

[0011] FIG. 1 is a perspective view of a ceiling tile for use in a ceiling system according to the present disclosure;

[0012] FIG. 2 is a bottom plan view thereof;

[0013] FIG. 3 is a first side elevation view thereof, the view taken from a first orthogonal direction;

[0014] FIG. 4 is an enlarged detail IV from FIG. 3;

[0015] FIG. 5 is an enlarged detail V from FIG. 3;

[0016] FIG. 6 is a second side elevation view of the ceiling tile of FIG. 1, the view taken from a second orthogonal direction;

[0017] FIG. 7 is a perspective view of an alternative embodiment of ceiling tile for use in a ceiling system according to the present disclosure;

[0018] FIG. 8 is a bottom plan view thereof;

[0019] FIG. 9 is a first side elevation view thereof, the view taken from a first orthogonal direction;

[0020] FIG. 10 is an enlarged detail X from FIG. 9;

[0021] FIG. 11 is an enlarged detail XI from FIG. 9;

[0022] FIG. 12 is a second side elevation view of the ceiling tile of FIG. 7, the view taken from a second orthogonal direction;

[0023] FIG. 13 is a first side elevation view of a ceiling system comprising an overhead support grid and ceiling tiles of either FIGS. 1 or 7, the view taken from a first orthogonal direction;

[0024] FIG. 14 is an enlarged detail XIV taken from FIG. 13;

[0025] FIG. 15 is a second side elevation view of the ceiling system of FIG. 13, the view taken from a second orthogonal direction;

What is claimed is:

1. A ceiling system comprising:

an overhead support grid defining a grid opening configured for locating a ceiling tile therein; and

a ceiling tile positioned in the grid opening and having a top surface and a bottom surface, the ceiling tile having a first tegular edge engaging the support grid and an opposing second tegular edge engaging the support grid, the first tegular edge having a configuration different than the second tegular edge;

wherein the ceiling tile has a substantially uniform thickness between the first and second tegular edges and the top surface of the ceiling tile is angled with respect to the support grid when mounted therein.

2. The ceiling system of claim 1, wherein the first tegular edge has a deep recess and the second tegular edge has a shallow recess, the first tegular edge sitting lower in the support grid than the second tegular edge.

3. The ceiling system of claim 2, wherein the ceiling tile is seated in an angled position when mounted in the support grid.

~~4. The ceiling system of claim 1, wherein the top surface of the ceiling tile is angled with respect to the support grid when mounted therein.~~

~~5~~4. The ceiling system of claim ~~4~~1, wherein the bottom surface of the ceiling tile is angled with respect to the support grid when mounted therein, the bottom surface being substantially parallel to the top surface of the ceiling tile.

~~6~~5. The ceiling system of claim 1, wherein the first tegular edge includes an end surface defining an exposed reveal that is visible below the support grid.

~~7~~6. The ceiling system of claim ~~6~~5, wherein the bottom surface of the ceiling tile is substantially flush with the bottom surface of the support grid at the second tegular edge.

~~8~~7. The ceiling system of claim ~~6~~5, wherein a top of the end surface of the first tegular edge is angled inwards towards a center of the tile.

~~9~~8. The ceiling system of claim ~~6~~5, wherein the end surface of the first tegular edge is not perpendicular to the top surface of the ceiling tile.

~~109~~. The ceiling system of claim 98, wherein the end surface of the first tegular edge is between 0 and 45 degrees to a vertical reference line perpendicular to the top surface of the ceiling tile.

~~1110~~. The ceiling system of claim 1, wherein:

the first tegular edge defines a downward facing first support surface engaging an upward facing support surface formed on the support grid, and

the opposing second tegular edge defines a downward facing second support surface engaging an upward facing support surface formed on the support grid, the first support surface being located at a greater vertical distance from the bottom surface of the ceiling tile than the second support surface such that the ceiling tile is angled with respect to the support grid when mounted therein.

~~1211~~. The ceiling system of claim 1, further comprising a third angled tegular edge and an opposing fourth angled tegular edge both disposed at a 90 degree angle on the ceiling tile to the first and second tegular edges.

~~1312~~. The ceiling system of claim ~~1211~~, wherein:

the third angle tegular edge defines a downward facing third support surface engaging an upward facing support surface formed on the support grid, and

the opposing fourth tegular edge defines a downward facing fourth support surface engaging an upward facing support surface formed on the support grid, wherein the third and fourth support surfaces are disposed at an angle to the bottom surface of the ceiling tile between 0 and 45 degrees.

~~1413~~. The ceiling system of claim 1, further comprising a third straight edge and an opposing fourth straight edge both disposed at a 90 degree angle on the ceiling tile to the first and second tegular edges, the straight and tegular edges defining four peripheral sides of the ceiling tile.

~~1514~~. A ceiling system comprising:

an overhead support grid comprising intersecting grid support members defining a grid opening configured for locating a ceiling tile therein; and

a ceiling tile positioned in the grid opening, the ceiling tile having a top surface and a bottom surface oriented parallel to the top surface;

the ceiling tile having a first peripheral side defining a downward facing first support surface engaging one of the grid support members and an opposing second peripheral side defining a downward facing second support surface engaging a second grid support members;

wherein the first and second support surfaces are configured so that the ceiling tile is angled in orientation with respect to a horizontal reference plane defined by the grid support members when the ceiling tile is mounted in the support grid, and the ceiling tile has a substantially uniform thickness between the first and second peripheral sides.

~~16. The ceiling system of claim 15, wherein the ceiling tile has a substantially uniform thickness between the first and second peripheral sides.~~

~~17~~15. The ceiling system of claim ~~15~~14, wherein the grid support members include a bottom flange that defines upward facing support surfaces which engage the downward facing first and second support surfaces of the ceiling tile.

~~18~~16. The ceiling system of claim ~~17~~15, wherein each grid support member includes a vertical web extending upwards from the bottom flange.

~~19~~17. The ceiling system of claim ~~15~~14, wherein the first peripheral side defines an outward facing end surface extending downwards below the grid support members and defining an exposed reveal that is visible below the support grid.

~~20~~18. The ceiling system of claim ~~19~~17, wherein the bottom surface of the ceiling tile is substantially flush with the bottom surface of the support grid at the second peripheral side.

~~21~~19. The ceiling system of claim ~~19~~17, wherein a top of the end surface of the first peripheral side is angled inwards towards a center of the tile.

~~22~~20. The ceiling system of claim ~~19~~17, wherein the end surface of the first peripheral side is not perpendicular to the top surface of the ceiling tile.

~~23~~21. The ceiling system of claim ~~19~~17, wherein the end surface of the first peripheral side is oriented substantially perpendicular to a bottom surface of the grid support members.

~~24~~22. The ceiling system of claim ~~15~~14, wherein the first support surface is located at a greater vertical distance from the bottom surface of the ceiling tile than the second support surface to produce the angled orientation.

~~25~~23. The ceiling system of claim ~~15~~14, wherein the first peripheral side is configured with a tegular edge.

~~26~~24. The ceiling system of claim ~~25~~23, wherein the second peripheral side is configured with a tegular edge.

~~27~~25. The ceiling system of claim ~~25~~23, wherein the second peripheral side has a straight edge.

~~28~~26. The ceiling system of claim ~~15~~14, further comprising a third peripheral side having an angled tegular edge and an opposing fourth peripheral side having an angled tegular edge both disposed at a 90 degree angle on the ceiling tile to the first and second peripheral sides.

~~29~~27. The ceiling system of claim ~~28~~26, wherein:

the third angle tegular edge defines a downward facing third support surface engaging an upward facing support surface formed on the support grid, and

the opposing fourth tegular edge defines a downward facing fourth support surface engaging an upward facing support surface formed on the support grid, wherein the third and fourth support surfaces are disposed at an angle to the bottom surface of the ceiling tile between 0 and 45 degrees.

~~30~~28. The ceiling system of claim ~~15~~14, further comprising a third straight edge and an opposing fourth straight edge both disposed at a 90 degree angle on the ceiling tile to the first and second tegular edges, the straight and tegular edges defining four peripheral sides of the ceiling tile.

~~31~~29. A customizable ceiling system comprising:

an overhead support grid comprising intersecting grid support members defining a plurality of grid openings configured for locating ceiling tiles therein; and

a plurality of ceiling tiles each positioned in one of the grid openings, the ceiling tiles having a top surface and a bottom surface oriented parallel to the top surface;

the ceiling tiles each having a first peripheral side defining a downward facing first support surface engaging one of the grid support members and an opposing second peripheral side defining a downward facing second support surface engaging a second grid support members;

the first and second support surfaces of each ceiling tile being configured so that the ceiling tile is angled in orientation with respect to a horizontal reference plane defined by the grid support members when the ceiling tiles are mounted in the support grid; and

the first peripheral side of each ceiling tile defining an outward facing end surface extending downwards below the support grid and creating an exposed visible reveal,

wherein the bottom surface of each ceiling tile is substantially flush with the bottom surface of the support grid at the second peripheral side.

~~32~~30. The ceiling system of claim ~~31~~29, wherein each ceiling tile has a substantially uniform thickness between the first and second peripheral sides.

~~33. The ceiling system of claim 31, wherein the bottom surface of each ceiling tile is substantially flush with the bottom surface of the support grid at the second peripheral side.~~

~~34~~31. The ceiling system of claim ~~31~~29, wherein a top of the end surface of the first peripheral side of each ceiling tile is angled inwards towards a center of the tile.

~~35~~32. The ceiling system of claim ~~31~~29, wherein the end surface of the first peripheral side of each ceiling tile is not perpendicular to the top surface of the ceiling tile.

~~36~~33. The ceiling system of claim ~~31~~29, wherein the end surface of the first peripheral side of each ceiling tile is oriented substantially perpendicular to a bottom surface of the grid support members.

~~37~~34. The ceiling system of claim ~~31~~29, wherein the first support surface of each ceiling tile is located at a greater vertical distance from the bottom surface of the ceiling tile than the second support surface to produce the angled orientation.

~~38~~35. The ceiling system of claim ~~31~~29, wherein the first peripheral side is configured with a tegular edge.

~~39~~36. The ceiling system of claim ~~31~~29, wherein the second peripheral side is configured with a tegular edge.

~~40~~37. The ceiling system of claim ~~31~~29, wherein the second peripheral side has a straight edge.

~~41~~38. The ceiling system of claim ~~31~~29, where at least some of the ceiling tiles are arranged in a pattern selected from shingled, faceted hills and valleys, or pinwheel.

~~42~~39. The ceiling system of claim ~~31~~29, wherein the ceiling tiles have a rectangular or square shape in top plan view.