A tile overlay system and method for covering a defined base surface area with tiles of a predetermined size for placement in a predetermined pattern that forms a space between each tile. The tiles are placed according to a grid defined on the base surface area to form the predetermined pattern. Prior to placement of the tiles, a transparent liquid adhesive is applied over the base surface area which allows the grid to appear through the layer of liquid adhesive. While the adhesive is in the liquid form, a granular filler material is absorbed into the liquid adhesive to integrally bond therewith wherein the adhesive layer cures after the placement of the tiles, and after placement of the granular filler material thereby bonding the tiles and the granular filler material to the base surface area. Subsequently, a continuous transparent top coat is applied in liquid form over the tiles and granular filler material to form a continuous top surface that seals the tiles and the granular filler material.
TILE OVERLAY SYSTEM AND METHOD

[0001] This application claims the benefit of U.S. Provisional Application No. 60/498,883 filed Aug. 29, 2003.

BACKGROUND

[0002] This invention relates generally to coverings and overlays for horizontal surfaces including countertops and floors, and more particularly to tile overlay systems for such base surfaces.

[0003] Tile overlay systems have long been provided as a top covering for base surfaces such as floors and countertops. Accordingly, a wide range of coverings and overlays for countertops and floors are available. Many such coverings include individual “stone” tiles bonded to a base surface and spaced in a way to allow a cement based grout filler material to fill the uneven grooves between the individual tiles. Typically, this type of installation covers the base surface to the extent that the installer cannot see the base surface through the bonding material. Accordingly, the tiles have to be positioned by mechanical spacers or the like. In addition, the grout cannot be placed until the mortar bonding material sufficiently sets-up so that the installer can remove the mechanical spacers and work on the set tiles.

[0004] Examples of some early systems include U.S. Pat. No. 4,311,464 issued in January 1982 showing tiles cut and arranged according to a grid provided on a transparent sheet. Although a grid is employed, floor tiles in this system are laid in a bed of mortar, and require mechanical spacers for proper positioning.

[0005] Likewise, U.S. Pat. No. 4,659,409 issued in 1987 illustrating a method for preparing a floor covering by using a translucent template to simulate, on a reduced scale, the over-lay material required to fill a floor space. In the final steps, however, the tiles have to be positioned and grouted in a traditional manner.

[0006] Additionally, U.S. Pat. No. 4,744,194 issued in 1988 showing a method of laying tile like members on a floor by employing interconnected framework to space the floor tiles in a bed of mortar. Also, U.S. Pat. No. 5,000,890 issued in March 1991 disclosing a conventional method for resetting separated tiles using grout bonding material.

[0007] Alternatively, U.S. Pat. No. 5,271,200 issued in 1993 showing a tile display system comprising a metallic sub-flooring provided for placement of magnetic means to secure the tile to the sub-floor. This system, however, is complicated and does not provide permanent placement of the tiles.

[0008] Later, in April 1993, U.S. Pat. No. 5,201,130 issued disclosing a tile template having opposed arms at right angles to form a mechanical spacer. Like most of the above noted devices, the ’130 patent employs traditional materials such as mortar to set the tiles.

[0009] U.S. Pat. No. 5,806,270 issued in 1998 to showing a method of floor construction with a grid system utilizing interlocking grid members, cushion pads and grout strip members to form a floor. This construction requires many steps, and also employs grout material for setting the tiles.

[0010] In 1999, U.S. Pat. No. 5,930,974 issued showing a platform and support to permit an installer to walk over freshly tiled areas. Like the installations noted above, spacers and common grout materials are used to position and set the tiles. In addition, U.S. Patent application published in September 2002 discloses an apparatus for “mechanically” spacing tiles which are laid on a bed of grout in a traditional manner.

[0011] As noted above, most floor systems that employ individual tile members are installed in a traditional manner where tiles are spaced according to mechanical spacers over a bed of mortar that obscures the installer’s view of the base surface, and wherein a cement based grout is finally applied to fill in the spaces between the tiles.

[0012] Because such arrangements require the step of placing and removing mechanical spacers to properly place the individual tiles, the installation is costly and time consuming.

[0013] Accordingly, an improved tile system is needed that hastens the precise installation of tiles and filler material disposed between the same to form a durable integral top covering surface.

SUMMARY

[0014] One object of the invention is to reduce the time required to install a tile overlay floor system.

[0015] A second object is to reduce the cost of installing a tile floor system.

[0016] Another object is to improve the durability of a tile overlay floor system.

[0017] Yet another object is to provide a tile floor system installed by methods that an installer can quickly learn.

[0018] A further object is to enable the installer to lay the tiles in proper position, and then quickly thereafter fill the gaps between the tiles with a filler material.

[0019] Still another object is to provide a tile overlay system that sets-up to form an integral, continuous gap-free surface.

[0020] The invention is a tile overlay system for covering a defined base surface area. Typically, the tile overlay system comprises a plurality of tiles having a predetermined size for placement in a predetermined pattern that forms a space between each tile. In the present invention, the tiles are flexible, however rigid tiles could be substituted with equally satisfactory results.

[0021] In order to accurately place the tiles, a grid is defined on the base surface area for positioning the tiles over the same to form the predetermined pattern. Further, a transparent liquid adhesive is applied over the base surface area to allow the grid to appear through the layer of liquid adhesive. In this way, the installer can place the tiles, according to the grid, over the adhesive. In addition, while the adhesive is in the liquid form, a granular dry filler material is broadcasted and spread, over and in the space between the tiles. Because the granular filler material is dry, the same is absorbed into the liquid adhesive to integrally bond therewith, wherein the adhesive layer cures after the placement of the tiles, and after placement of the granular filler material thereby bonding the tiles and the granular filler material to the base surface area.
Finally, a continuous transparent top coat is applied in liquid form over the tiles and granular filler material to form a continuous top surface that seals the tiles and the granular filler material.

The foregoing and other objects, features, and advantages of this invention will become more readily apparent from the following detailed description of a preferred embodiment which proceeds with reference to the accompanying drawings, wherein the preferred embodiment of the invention is shown and described, simply by way of illustration of the best mode contemplated of carrying out the invention. As will be realized, the invention is capable of other and different embodiments, and its several details are capable of modifications in various obvious respects, all without departing from the invention. Accordingly, the drawings and description are to be regarded as illustrative in nature, and not as restrictive.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a finished tile overlay system with portions broken away to illustrate the corner area with adjacent walls extending upward from the base surface area that supports a tile overlay system.

FIG. 2 is a partial sectional view taken along 2-2 illustrating the relationship of the primary components of a finished tile overlay system in accordance with the present invention.

FIG. 3 is the first illustration in the series of FIGS. 3 through 8 which illustrate in sequence the steps required to install a tile overlay system in accordance with the present invention, wherein FIG. 3 is a perspective view with portions broken away to illustrate the corner area of a base sub-floor with adjacent walls extending upward therefrom, wherein the base sub-floor is ready to receive the tile overlay system.

FIG. 4 is a plan view of a placement grid design scribed or drawn on the base sub-floor wherein the grid is defined by sets of crossing, intersecting parallel lines.

FIG. 5 is a perspective view with portions broken away to illustrate the corner area of a base sub-floor having a placement grid design, wherein the sub-floor is covered with a substantially transparent, clear adhesive prior to receiving individual tiles.

FIG. 6 is a perspective view with portions broken away to illustrate the corner area of a base sub-floor having a placement grid design, wherein after the sub-floor is covered with a clear adhesive, individual tiles are placed according to the placement grid.

FIG. 7 is a perspective view with portions broken away to illustrate granular filler material being broadcast over the set tiles so that the filler fills the spaces and/or gaps between the individual tiles and flows into the wet adhesive.

FIG. 8 is a perspective view with portions broken away to illustrate top loose filler, not absorbed into the wet adhesive, being removed and brushed off the tiles, followed with a top coat applied over the entire tiled area to form a continuous integral finish and top surface ready for its intended use.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENT

The invention is a tile overlay system and method for covering a defined base surface area. Typically, the tile overlay system comprises a plurality of tiles having a predetermined size for placement in a predetermined pattern that forms a space, or a gap between each tile. In the present invention, the tiles are flexible, however rigid tiles could be substituted with equally satisfactory results. Moreover, it should be noted that for the sake of simplicity the following assumes that each individual tile is substantially alike and defines a tile surface. However each individual tile could be dissimilar in that it could incorporate a distinctive tile surface resulting from the way the tile is formed. For example, each tile could have a surface image which could include hand painted art, photos, or a distinctive troweled texture (not illustrated). Typically, the tiles are constructed as a composite comprising epoxy as a base.

In order to accurately place the tiles, a grid is defined on the (sub-floor) base surface area for positioning the tiles over the same to form the predetermined pattern. Typically, the base surface area lies within the boundary of walls.

Further, an adhesive is applied in transparent liquid form over the base surface area to allow the grid to appear through the liquid adhesive. In this way, the installer can place the tiles according to the grid, over the adhesive. In addition, while the adhesive is in the liquid form, a dry granular filler material is broadcasted in the space between the tiles. Because the granular filler material is typically dry, the same is absorbed into the liquid adhesive to integrally bond therewith, wherein the adhesive cures after the placement of the tiles, and after placement of the granular filler material thereby bonding the tiles and the granular filler material to the base surface area.

In a final application, a continuous transparent top coat is applied in liquid form over the tiles and granular filler material to form a continuous top surface that seals the tiles and the granular filler material.

Considering now in more detail, a tile overlay system in accordance with the present invention, typically the individual tiles are constructed to form a flexible material. For this purpose, a composite mixture of epoxy in combination with a filler is suitable. Importantly, there are many types of epoxies and fillers presently available and suitable for manufacturing tiles according to the present invention. Typically, the tiles are formed to be approximately 1/8 inch in thickness, and can have a tile surface shaped with a trowel as the epoxy mixture starts to harden or cure. Further, in the hardening process, the tile could be textured by adding a sand or the like, and skip troweled to make the tile surface take on the appearance of real stone. Accordingly, the tile surface can have raised areas, as well as low areas which enhance the tile surface to look like real stone (not illustrated).

Because an adhesive is employed to bond the tiles to a base surface area, a fabric backing can be applied to the bottom of each tile while the same is in the formation process. In this way, the fabric backing increases the strength of the bonding between the tile, and, as illustrated in FIGS. 1 through 8, a base sub-floor which defines the base surface area. Although such fabric backing could consist of almost any commercially avail-
able backing material, a fabric backing 48 made from polyester or polypropylene is employed in the present invention.

[0038] Turning now to FIG. 4, a grid 34 is laid out on the base sub-floor 46 prior to laying the tile 24. In the present system, the grid 34 comprises groups or sets of parallel lines 50 disposed at right angles and drawn onto the sub-floor with chalk, or the like. Parallel lines 50 are employed to define the predetermined tile laying pattern or grid 34, and to define the space 26 between the individual tiles 24. Specifically, the installer places the tiles 24 so that each edge 54 thereof align with one of the parallel lines 50 as illustrated in FIG. 4. Unlike conventional tile installations, the above noted installation procedure requires no mechanical spacers to properly place the tiles 24. This not only speeds installation by making it easier to lay tiles, but reduces the cost and time of installation.

[0039] Directing attention to FIG. 5, an adhesive 38 is placed to the base surface area 22 defined by the base sub-floor 46 prior to laying the tiles 24, and after drawing the grid 34. In the present invention, the adhesive 38 is clear, or nearly clear so that the installer can see the grid 34 through the adhesive 38 to lay the tiles 24 as illustrated in FIG. 6. An adhesive 38 for this purpose could consist of a clear epoxy mixed from two parts, ite., an epoxy base mixed with a hardener. After mixing the adhesive 38, the same could be applied by troweling the same over the base sub-floor 46. Because the adhesive 38 is in a liquid or semi-liquid state, it is self-leveling, thus creating an even thickness coating over which the tiles 24 are laid.

[0040] As noted above, after placing the tiles 24 over the adhesive 38, according to the grid 34, a granular filler material 40 is broadcast over the tiles 24 into the space 26 between the tiles 24 as illustrated in FIG. 7. Typically, a dry colored quartz 56 is employed. Because the quartz is dry, it mixes quickly with the liquid adhesive 38 and becomes embedded therein as the adhesive hardens. Importantly, this construction creates a monolithic like floor covering that is very strong and resistant to deterioration and wear.

[0041] Following this, and after the adhesive 38 sets up and hardens, the remaining granular filler material 40 is removed from the tiles 24. Turning now to FIG. 8, a top coat 42, is spread in liquid form to cover the entire floor surface to provide a continuous, hard, sealed coating that further creates a wear resistant surface. One coating provided for this purpose is a two-part type polyurethane mixed to cure and form a hard surface. Although, a polyurethane is employed in the present invention, many other coatings are available that could be applied to form a top coat as described above.

[0042] In addition to the above, variations of the above process can be used. For example, the material used to fill the space 26 between the tiles 24 could be any color dry granular material which can be absorbed into the adhesive 38. In this way, the installer could hand paint the hardened filler material to have the look of cement grout, prior to applying the top coat 42.

[0043] Having illustrated and described the principles of my invention in a preferred embodiment thereof, it should be readily apparent to those skilled in the art that the invention can be modified in arrangement and detail without departing from such principles. I claim all modifications coming within the spirit and scope of the accompanying claims.

What is claimed is:

1. A method for constructing a tile overlay system for covering a base surface area, the method comprising the steps:

   providing a plurality of tiles having a predetermined size for placement in a predetermined pattern that forms a space between each tile;

   marking the base surface area to define a grid thereon for positioning the tiles in the predetermined pattern;

   placing a transparent liquid adhesive over the base surface area to allow the grid to appear through the liquid adhesive layer thereby enabling placement of the tiles according to the grid;

   placing the tiles according to the grid which can be viewed through the transparent adhesive, wherein the adhesive layer cures after the placement of the tiles in the predetermined pattern to bond the tiles to the base surface area;

   broadcasting a granular filler material in the space between the tiles while the adhesive is in the liquid form so that the granular filler material is absorbed into the liquid adhesive to integrally bond therewith; and

   applying a continuous transparent top coat in liquid form over the tiles and granular filler material to form a continuous top surface that seals the tiles and the granular filler material.

2. A method for constructing a tile overlay system as recited in claim 1 further comprising the step:

   removing the excess granular filler material prior to applying the top coat.

3. A method for constructing a tile overlay system as recited in claim 1 further comprising the step:

   preparing a tile surface on at least one tile so that the prepared tile surface can be seen through the transparent top coat.

4. A method for constructing a tile overlay system as recited in claim 3 wherein the tile surface is prepared by hand painting the tile surface to exhibit a distinct appearance.

5. A method for constructing a tile overlay system as recited in claim 3 wherein the tile surface is prepared by fixing a photograph to the tile surface to exhibit a distinct appearance.

6. A method for constructing a tile overlay system as recited in claim 1 further comprising the step:

   marking the base surface area to define a grid thereon defined by a plurality of intersecting, crossing lines provided to assist in positioning the tiles in the predetermined pattern.

7. A method for constructing a tile overlay system as recited in claim 1 further comprising the step:

   marking the base surface area to define a grid thereon defined by a plurality of intersecting, crossing sets of parallel lines provided to assist in positioning the tiles in the predetermined pattern.

8. A tile overlay system for covering a surface area, the tile overlay system comprising:
US 2005/0076606 A1

Apr. 14, 2005

a plurality of tiles having a predetermined size for placement in a predetermined pattern that forms a space between each tile;
a grid defined on the surface area for positioning the tiles over the surface area to form the predetermined pattern;
an adhesive layer applied in transparent liquid form over the surface area to allow the grid to appear through the liquid adhesive layer to enable placement of the tiles according to the grid, wherein the adhesive layer cures after the placement of the tiles in the predetermined pattern to bond the tiles to the surface area;
granular filler material placed in the space between the tiles while the adhesive is in the liquid form so that the filler material is absorbed into the liquid adhesive to integrally bond therewith; and
a continuous transparent top coat applied in liquid form over the tiles and granular filler material to form a continuous top surface that seals the tiles and the granular filler material.
9. A tile overlay system as recited in claim 8 further comprising:
a tile surface prepared on at least one tile so that the prepared tile surface can be seen through the transparent top coat.
10. A tile overlay system as recited in claim 9 wherein the tile surface is prepared by hand painting the tile surface to exhibit a distinct appearance.
11. A tile overlay system as recited in claim 9 wherein the tile surface is prepared by fixing a photograph to the tile surface to exhibit a distinct appearance.
12. A tile overlay system as recited in claim 8 wherein the grid is defined by a plurality of intersecting, crossing lines provided to assist in positioning the tiles in the predetermined pattern.
13. A tile overlay system as recited in claim 8 wherein, the grid is defined by a plurality of intersecting, crossing lines provided to assist in positioning the tiles in the predetermined pattern.
14. A tile overlay system as recited in claim 8 wherein the tiles comprise a fabric backing disposed for contact with the liquid adhesive.
15. A method for constructing a tile overlay system for covering a base surface area, the method comprising the steps:
providing a plurality of tiles having a predetermined size for placement in a predetermined pattern that forms a space between each tile;
marking the base surface area to define a grid thereon for positioning the tiles in the predetermined pattern wherein the grid is defined by a plurality of intersecting, crossing sets of parallel lines provided to assist in positioning the tiles in the predetermined pattern;
placing a transparent liquid adhesive over the base surface area to allow the grid to appear through the liquid adhesive layer thereby enabling placement of the tiles according to the grid;
placing the tiles according to the grid which can be viewed through the transparent adhesive, wherein the adhesive layer cures after the placement of the tiles in the predetermined pattern to bond the tiles to the base surface area;
broadcasting a granular filler material in the space between the tiles while the adhesive is in the liquid form so that the granular filler material is absorbed into the liquid adhesive to integrally bond therewith;
removing the excess granular filler material prior to applying the top coat; and
applying a continuous transparent top coat in liquid form over the tiles and granular filler material to form a continuous top surface that seals the tiles and the granular filler material.
16. A method for constructing a tile overlay system as recited in claim 15 further comprising the step:
preparing a tile surface on at least one tile so that the prepared tile surface can be seen through the transparent top coat.
17. A method for constructing a tile overlay system as recited in claim 16 wherein the tile surface is prepared by hand painting the tile surface to exhibit a distinct appearance.
18. A method for constructing a tile overlay system as recited in claim 16 wherein the tile surface is prepared by fixing a photograph to the tile surface to exhibit a distinct appearance.
19. A tile overlay system as recited in claim 15 wherein the tiles comprise a fabric backing disposed for contact with the liquid adhesive.

* * * * *