

COAT-IN-PLACE ASSEMBLIES AND METHODS TO PROVIDE AN AESTHETICALLY PLEASING SPRINKLER ASSEMBLY AND METHODS

Priority Data & Incorporation By Reference

[0001] This application is an international application claiming the benefit of priority to U.S. Provisional Application No. 62/005,800 filed May 30, 2014, and U.S. Patent Application No. 14/538,500, filed November 11, 2014, each of which is incorporated by reference in its entirety.

Technical Field

[0002] The present invention relates generally to fire protection devices and more specifically to concealed fire protection sprinklers used preferably, for example, in concrete ceilings and/or other institutional, commercial or residential installations.

Background Art

[0003] Concealed-type fire protection sprinklers, which discharge a fire fighting fluid such as water, gas or other chemical agent, can be designed to protect a variety of occupancies, both commercial and residential. Generally, the concealed nature of these sprinklers obscures the internal components of the sprinkler from view for at least aesthetic reasons depending upon the given installation. Accordingly, these sprinklers can provide a flushed mounting that is aesthetically pleasing because of its low profile and concealment of internal components. Generally, this type of flush-mounted sprinkler includes a sprinkler body in which its internal operating components are concealed by a thermally responsive trigger. Surrounding the sprinkler body and a thermally responsive cover plate assembly is an escutcheon that conceals the sprinkler body projecting from the wall and/or provides a transition to the mounting surface. One example of an automatic sprinkler having a combined trigger and concealing device is shown and described in U.S. Patent No. 6,152,236. Another example of a sprinkler having a body in which its internal operating components are concealed by a thermally responsive trigger is shown in TYCO FIRE PRODUCTS LP Technical Data Sheet 651, entitled "RAVEN 5.6K Institutional Sprinklers Pendent and Horizontal Sidewall Quick Response, Standard and Extended Coverage." (August 2013). Currently, known escutcheons described in TYCO Data Sheet TFP651 come in three available finishes: white, grey, chrome coated or electropolished. In addition to its appealing shape, it may be desirable to paint the escutcheon at some point after installation. For example, if the wall or surface to which the sprinkler and escutcheon are

mounted is painted a new color, it may be desirable to change the color of the installed escutcheon accordingly. However, due to the close fit of the escutcheon around the cover plate, painting the escutcheon has been avoided to avoid paint from interfering with the thermal responsiveness of the cover plate or other operational components of the sprinkler.

Disclosure of the Invention

[0004] The present invention is directed to a sprinkler assembly and method of installation that can be subsequently coated or treated to provide an aesthetically pleasing installed appearance. One preferred embodiment of a method of installation provides for a sprinkler assembly having a sprinkler body, a thermally responsive trigger and an escutcheon for in-place coating of the escutcheon mounted preferably in an operative position over the sprinkler body and trigger installed and located in a cored through hole in a wall of a protection area. As used herein, "operative position" describes the installed relative position of a component(s) to another component or structure that is desired, designed, or required in order that the component(s) operates as intended when in service. The escutcheon includes a first end and a second end spaced from the first end along the sprinkler axis. The escutcheon preferably includes a first surface circumscribed about the escutcheon axis to define a central opening for receipt of the sprinkler body, a second surface extending radially and more preferably obliquely with respect to the escutcheon axis and a transition surface continuous with the first and second surfaces and circumscribing the escutcheon axis at the first end of the escutcheon. The escutcheon is preferably a pushed-on escutcheon for mounting about the sprinkler body; preferably defines with the body one or more voids between the sprinkler assembly axis and the first surface of the escutcheon. The preferred method further includes locating a coating-inhibitor preferably embodied as a cap in the voids about the thermally responsive trigger. The preferred cap has a base defining a center and a periphery with a cap wall extending along the periphery of the base to surround a cap axis extending through the center perpendicular to the base. The cap wall is preferably spaced from the transition surface of the escutcheon so as to expose the transition and second surfaces to the protection area. The preferred method includes coating at least the transition and second surfaces of the escutcheon; and removing the cap to place the sprinkler assembly into service.

[0005] A preferred coat-in-place assembly provides an aesthetically pleasing sprinkler. The coat-in-place assembly includes a sprinkler body having a thermally responsive trigger, an escutcheon and a coating-inhibitor preferably embodied as a cap. The sprinkler body has a proximal portion and a distal portion. A thermally responsive trigger is disposed substantially

perpendicular to the longitudinal axis of the sprinkler to conceal the chamber of the body. A preferred escutcheon has a first surface circumscribed about the escutcheon axis to define a central escutcheon opening for receiving the sprinkler body. The preferred escutcheon has a second surface extending radially and more preferably obliquely with respect to the first surface and circumscribed about the central escutcheon opening such that the second surface is substantially frustoconical and a transition surface continuous between the first and second surfaces. The first surface of the escutcheon is preferably centered about the distal portion of the sprinkler body to define a void between the sprinkler axis and the first surface of the escutcheon. A preferred coating-inhibiting cap has a cover surface and an outer periphery engaging one of the distal portion of the sprinkler body and the thermally responsive trigger to enclose and protect the trigger between the sprinkler body and the cap. With the peripheral surface of the cap extending into the void and being preferably radially spaced inward relative to the first surface of the escutcheon, the transition and second surface of the escutcheon are exposed for painting.

[0006] Another preferred method of coating a sprinkler assembly includes obtaining a coating-inhibitor and distributing the coating-inhibitor to use in a coat-in-place assembly that includes the sprinkler assembly. Obtaining the coating-inhibitor preferably includes obtaining a cap including a base defining a center point and a periphery about the center point. A cap wall extends along the periphery of the base about the center point and extends axially from the base, preferably substantially parallel to a cap axis passing through the center point perpendicular to the base. At least one tab preferably extends axially from one of the base or the cap wall. The preferred method includes locating the cap wall in the void about the thermally responsive trigger; and distributing the inhibitor for forming a coat-in-place assembly to coat at least the second surface and the transition surface.

[0007] Although the Disclosure of the Invention describes preferred assemblies and methods that can be used to coat an escutcheon and sprinkler installation as shown and described in TYCO Data Sheet TFP651, it is to be understood that other fire protection sprinkler and escutcheon installations can also be coated or treated using the features of the preferred assemblies and methods. The Disclosure of the Invention is provided as a general introduction to some embodiments of the invention, and is not intended to be limiting to any particular configuration or system. It is to be understood that various features and configurations of features described in the Disclosure of the Invention can be combined in any suitable way to form any number of embodiments of the invention. Some additional example embodiments including variations and alternative configurations are provided herein.

Brief Description of Drawings

[0008] The accompanying drawings, which are incorporated herein and constitute part of this specification, illustrate exemplary embodiments of the invention, and together, with the general description given above and the detailed description given below, serve to explain the features of the invention. It should be understood that the preferred embodiments are some examples of the invention as provided by the appended claims.

[0009] FIG. 1 is an illustrative embodiment of a preferred sprinkler assembly and coating-inhibiting-cap combination.

[0010] FIG. 1A is a detailed view of the preferred sprinkler assembly and coating-inhibiting-cap combination of FIG. 1.

[0011] FIG. 2 is a perspective view of a preferred embodiment of a coating-inhibiting-cap for use in the combination of FIG. 1.

[0012] FIG. 3 is a perspective view of another preferred embodiment of a coating-inhibiting-cap for use in the combination of FIG. 1.

[0013] FIG. 4A is an exploded view of a first embodiment for combining the sprinkler assembly and cap of FIG. 2.

[0014] FIG. 4B is an exploded view of a second embodiment for combining the sprinkler assembly and cap of FIG. 2.

[0015] FIGS. 5A-5C provide an illustrative embodiment of coating a sprinkler assembly using the cap of FIG. 1.

Mode(s) For Carrying Out the Invention

[0016] Shown in FIG. 1 is an installed preferred sprinkler assembly 10 mounted within and against a wall 5 with a preferred coating-inhibitor 100 engaged with the assembly. An installed sprinkler assembly 10 is coupled to fluid supply piping (not shown) and extends through a cored hole formed in the wall 5 to provide a preferred flushed mounting against the wall surface to protect an area internal to the wall, i.e., the protection area. As used herein, “wall,” unless otherwise indicated, can be either a vertically extending wall or an overhead ceiling of the protection area. Accordingly, the installed fire protection sprinkler assemblies can be in any one of a pendent or sidewall orientation.

[0017] Generally, each installed sprinkler assembly 10 includes a sprinkler body 12 with a thermally responsive trigger 14 surrounded by an escutcheon 16. The coating-inhibitor 100 is engaged with the sprinkler assembly to be disposed about and over at the least the thermally responsive trigger 14. As used herein a “coating-inhibitor” 100 is a structure provided for more

preferably engaging the sprinkler body 12 and/or the escutcheon 16 to surround and more particularly enclose and protect the thermally responsive trigger 14 and/or other internal operational components of the sprinkler assembly during a coating treatment, such as for example, painting. With the operational components protected, the escutcheon 16 and its external surfaces are exposed for treatment to provide an aesthetically pleasing sprinkler assembly. Accordingly, the preferred coating-inhibitor provides methods of preparing an installed sprinkler assembly for external treatment or coating application, e.g., providing a coat-in-place sprinkler assembly.

[0018] The sprinkler body 12, trigger 14 and surrounding escutcheon 16 of the preferred sprinkler assembly 10 are centrally and coaxially aligned along the sprinkler assembly axis A--A. The preferred escutcheon 16 has a first end 18a and a second end 18b spaced apart along an escutcheon axis coaxially aligned with the assembly axis A--A. The escutcheon has an internal first surface 16a surrounding and more preferably circumscribing the escutcheon axis to define a central escutcheon opening 22 for housing the sprinkler body 12 and trigger 14. The first surface 16a generally extends parallel to the sprinkler assembly axis A--A and can include additional features, as described herein, for engaging the sprinkler body 12. The escutcheon has a second surface 16b extending radially from the escutcheon axis and more preferably extending obliquely with respect to the first surface and preferably circumscribed about the central escutcheon opening 22 such that the second surface 16b is substantially frustoconical, preferably defining a first escutcheon diameter at the first end 18a and a second escutcheon diameter at the second end 18b that is greater than the first escutcheon diameter.

[0019] The escutcheon 16 also defines a transition surface 16c that is preferably continuous or contiguous with the first and second surface 16a, 16b. Moreover, the transition surface 16c preferably circumscribes the central opening 22 to define an inlet at the first end 18a to the central opening 22. The transition surface 16c is preferably curved or radiused between the first and second surfaces 16a, 16b but may be alternatively stepped or discontinuous. Accordingly in one preferred embodiment, the transition surface 16c can present a substantially convex surface to the protection area. Given the preferred flush type mounting of the preferred installed sprinkler assembly 10, the transition surface 16c is a visible external portion of the escutcheon 16 and therefore would be preferably accessible for painting or treatment in a manner described herein.

[0020] In the preferred method of coating and providing a preferably aesthetically pleasing installed sprinkler assembly, the coating-inhibitor 100 engages the sprinkler assembly

so as to leave the surfaces of the escutcheon 16 sufficiently exposed and accessible for coating either by hand or machine using a brush, roller, spray or any other application equipment to apply or dispose any one of a coat, paint, stain, wall paper, adhesive, fluid or any other coating material. Generally, the preferred cap 100 includes a base 102, a cap wall 104, and one or more engagement elements, such as for example, engagement tab(s) 106, to engage any one of the sprinkler assembly 10 or thermally responsive trigger 14. The cap 100 also preferably includes a handle portion 108 for manipulating the cap into and out of engagement with the assembly. The base portion 102 preferably includes the handle portion 108. Preferably the handle portion is formed with the base 102 and extends centrally and axially along the cap axis B--B in a direction opposite the cap wall 104. The handle portion 108 preferably presents an elongate member that can be grasped by hand for handling and manipulation of the cap 100. Alternatively, the handle portion 108 can be configured as a hook or eyelet (not shown) that can be engaged by a correspondingly shaped tool.

[0021] The preferred sprinkler assembly 10 provides for one or more voids, receiving openings, ports or slots into which the cap 100 may temporarily engage and remain during the coating process and be later removed to place the system into service. More particularly, the preferred assembly 10 provides for a void(s) between the sprinkler axis A--A and the escutcheon 16 to locate and/or house the cap 100. More preferably, the cap wall 104 and/or the cap engagement tab(s) 106 are preferably disposed in the void between the sprinkler body 12 and the escutcheon 16. Alternatively or in addition, the cap wall 104 and/or the cap engagement tab(s) 106 are preferably disposed in the void between the thermally responsive trigger 14 and the escutcheon 16. The engagement of the cap 100 and the sprinkler assembly 10 is preferably sufficient to maintain the cap 100 in place under opposing forces, such as for example, the force of gravity or the coating operation. Accordingly in one preferred aspect, the cap 100 forms one of a close, frictional or interference fit with one or more of the sprinkler body 12, trigger 14 and escutcheon 16. For example, the tabs 106 can engage receiving slots formed about the sprinkler body 12 in a manner described herein. Alternatively or additionally in a preferred arrangement, the first surface 16a of the escutcheon 16 defines an inner diameter proximate the transition surface 16c and the cap wall 104 defines an outer diameter less than the inner diameter of the escutcheon yet sufficient to form the preferred fit. In an alternative arrangement, the upper surface of the cap wall 104 can extend radially outward for engaging a portion of the first surface 16a of the escutcheon 16 to form the desired interference fit while engaging or not engaging the sprinkler body 12 and trigger 14.

[0022] The cap 100 and its wall 104 are preferably spaced and more preferably spaced radially inward from the transition surface 16c of the escutcheon to expose the transition surface and the preferably oblique second surface 16b for coating. The cap wall 104 is preferably substantially annular and substantially centered about the sprinkler axis A--A. The cap wall 104 defines a first radius R1 relative to the assembly axis A--A that is less than a second radius R2 defined by the first surface 16a of the escutcheon relative to the assembly axis A--A, to define a preferred annular gap therebetween. The preferred annular gap is sufficient to form the coat-in-place assembly for coating the external surfaces of the escutcheon including at least frustoconical second surface 16b and the transition surface 16c. More preferably, the gap is sufficient to permit a coating material, such as paint, to enter the gap and coat at least a portion of the first surface 16a of the escutcheon 16. Accordingly, the preferred annular cap wall 104 is dimensioned to be disposed about or otherwise circumscribe the thermally responsive trigger 14. Moreover, the annular cap wall 104 can be dimensioned to define a diameter greater than, equal to or less than the maximum diameter or width of the outer surface of the sprinkler body 12 so long as the preferred cap 100 and annular cap wall 104 protect the trigger 14 and internal operational components of the sprinkler assembly 10 yet provide the preferred gap relative to the first surface 16a of the escutcheon 16 to facilitate the coating process.

[0023] Ease of accessibility to the transition surface 16c becomes more desired when the painting operation is controlled at a distance, for example, when the sprinkler assembly is installed in a pendent arrangement at the ceiling and the painter is operating below with a roller brush. To further facilitate access to the transition surface 16c, the preferred cap 100 presents a low profile relative to the escutcheon and its first end 18a. Once installed, the base 102 of the cap defines an inner surface 102a exposed to the trigger 14 and an outer surface 102b exposed to the protection area. The outer surface 102b of the cap 100 is preferably axially spaced from the transition surface at a distance y to allow at least the second and transition surfaces 16b, 16c of the escutcheon 16 to be coated by roller or spray.

[0024] Shown in FIGS. 2 and 3 are respectively preferred alternate embodiments of the coating-inhibitor 100, 100', each of which is preferably embodied as a cap. In each of the preferred embodiments of the cap 100, 100' the base 102 preferably defines a center point of the cap and a periphery about the center point. The cap wall 104 extends along the periphery of the base 102 about the center point and extends axially from the base 102 substantially parallel to the cap axis B--B passing through the center point perpendicular to the base 102. The base 102 preferably defines a circular periphery and the wall 104 preferably circumscribes the cap axis

B--B. The base 102 and cap wall can define alternate geometries provided the cap 100 can engage the installed sprinkler assembly in a manner as described herein. In the preferred embodiment of FIGS. 2 and 3, the base 102 is perpendicular to the axis B--B such that the cap 100 defines a cap height h and internal cap depth that is constant over the surface of the base 102. Alternatively, the base can include a first portion disposed orthogonal to the cap axis, and one or more portions, such as for example a second portion, disposed between the cap wall and the first portion extending obliquely with respect to the cap axis such that the cap height h and internal cap depth varies over the surface of the base 102 with the cap base 102 tapering narrowly in the direction of the cap axis B--B. Preferred embodiments of the cap described herein are formed from a plastic material, preferably polypropylene, or alternatively polyethylene or other formable plastic material with the cap walls and base having a preferred thickness t surrounding the operative components of the sprinkler assembly. The preferred annular cap wall 104 defines an outer diameter and more preferably defines a preferred outer diameter ratio to cap wall thickness of 20:1 to 45:1.

[0025] At least one or more engagement tabs 106 extends preferably axially from one of the base 102 or the cap wall 104. In the preferred embodiment shown in FIG. 2, the cap 100 includes three tabs 106a, 106b, 106c extending axially from the cap wall 104. Alternatively, the cap 100 can include any one of two, four, five or more tabs. The preferred three tabs 106a, 106b, 106c are preferably angularly spaced about the cap axis to engage the correspondingly angularly spaced slots of the sprinkler assembly 10 formed between the sprinkler body 12 and the escutcheon 16. More preferably, the one or more engagement tabs 106 forms an appropriate fit within receiving slots formed about a preferred embodiment of the sprinkler body 12 and the escutcheon 16. In one preferred embodiment, two adjacent tabs 106 are preferably angularly spaced apart by 130 degrees with one adjacent tab preferably angularly spaced by 100 degrees. Each of the tabs 106a, 106b, 106c defines a length L , a width W , with the preferred thickness t for insertion in a slot formed along the outer surface of the annular wall of the sprinkler body so as to enclose the chamber and the trigger between the sprinkler body and the cover surface of the cap in a manner as described herein. Preferred embodiments of the cap 100 define a tab length to thickness ratio ranging from about 6:1 to 12:1.

[0026] Shown in FIG. 3 is an alternate embodiment of the sprinkler cap 100' in which a single central tab 106 extends axially from the first or inner surface 102a of the base 102. In one preferred aspect, the central tab 106 preferably tapers narrowly from the base 102 in the axial

direction. The central tab 106 is preferably configured for inserting or engaging and forming the desired fit within a central opening (not shown) in the trigger 14.

[0027] Accordingly, the configuration of the cap 100, the sprinkler body 12 and trigger 14 can define the manner in which the cap surrounds, engages and/or contacts the sprinkler body 12 and/or trigger 14, so long as the cap 100 and sprinkler body 12 cooperate to encompass and protect the trigger 14 and internal components of the sprinkler assembly 10 while leaving the escutcheon 16 and its external surfaces exposed for coating, painting or other surface treatment. The preferred cap 100 and its cap wall 104 can be spaced about the distal peripheral surface of the sprinkler body 12, engage the distal periphery of the sprinkler body 12; or engage the distal end surface of the sprinkler body 12.

[0028] The assemblies and methods described herein include a preferred method of providing an aesthetically pleasing sprinkler assembly having a push-on escutcheon. More preferably provided are methods of obtaining a coating-inhibitor for locating the cap in the void about the thermally responsive trigger; and distributing the cap for forming a preferably coat-in-place assembly to coat at least the second surface and the transition surface. As used herein, "obtaining" includes manufacturing, purchasing or otherwise acquiring one or more caps for protecting the trigger and operational components of the sprinkler assembly for coating. With the cap(s) obtained, the caps can be distributed, sold, exchanged or otherwise disseminated for use in new or existing sprinkler assembly installations to provide the preferred in-place treatments described herein.

[0029] Shown in FIGS. 4A and 4B are alternate exploded views of preferred sprinkler assembly installations. More specifically, in FIG. 4A the preferred sprinkler body 12 is coupled to a fluid supply line within a cored through hole of the wall 5. The sprinkler body 12 and thermally responsive cover plate 14 are installed at an appropriate depth relative to the mounting surface 5a so that upon actuation an internal fluid deflecting member is properly located from the mounting surface 5a to distribute water or other firefighting fluid to address a fire in the protection area. The sprinkler body shown is a preferred embodiment of a sprinkler body 12 having angularly disposed engagement slots 32 about the body 12. A preferred cap 100 engages the sprinkler body with the engagement tabs 106 fitted within the slots 32 of the sprinkler body 12. With the sprinkler body 12 installed and cap 100 appropriately engaged, an escutcheon 16 is preferably pushed over the combined cap and sprinkler body to its preferred operative position with the first end 18a of the escutcheon about the trigger 14 to permit proper thermal response by the thermally responsive trigger 14 and the second end 18b of the escutcheon flush against the

mounting surface 5a. With reference to FIGS. 5A-5C, the completed sprinkler assembly 10 with cap 100 encloses and protects the thermally responsive trigger 14 and the internal components of the installed sprinkler assembly 10 while exposing the visible surfaces of the escutcheon 16 for coating such as for example, painting or other aesthetically pleasing treatment. Once the paint or coating material has dried, the cap 100 can be removed and the sprinkler assembly and its system can be placed into service with the escutcheon coated as schematically shown.

[0030] Shown in FIG. 4B is an alternate installation. The preferred sprinkler body 12 is coupled to the fluid supply line within the cored through hole of a wall 5. Again, the sprinkler body 12 and thermally responsive cover plate 14 are installed at an appropriate depth relative to the mounting surface 5a so that upon actuation an internal fluid deflecting member is properly located from the mounting surface 5a to distribute water or other firefighting fluid to address a fire in the protection area. As shown, the escutcheon 16 is pushed over the sprinkler body and preferably pushed to its operative position with its first end 18a disposed about the trigger 14 and with the second end 18b of the escutcheon positioned flush against the mounting surface 5a to permit proper thermal response by the thermally responsive trigger 14. With the escutcheon 16 centered about the sprinkler body 12 and trigger 14, the cap 100 is inserted into the voids formed between the sprinkler body 12 and the escutcheon 16 and engage the preferred slots 32 formed about the sprinkler body 12. Referring again to FIGS. 5A-5C, the completed sprinkler assembly 10 with cap 100 enclose and protect the thermally responsive trigger 14 and the internal components of the installed sprinkler assembly 10 while exposing the visible surfaces of the escutcheon 16 for coating such as for example, painting or other aesthetically pleasing treatment. Once the paint or coating material has dried, the cap 100 can be removed and the sprinkler assembly and its system can be placed into service with the escutcheon coated as schematically shown.

[0031] Referring again to FIGS. 4A and 4B, the preferred sprinkler body 12 preferably includes a proximal portion 12a and a distal portion 12b. The proximal portion 12a of the sprinkler body preferably includes an external thread for coupling the sprinkler body to the branch or fluid supply line 40 of a sprinkler system containing a fire fighting fluid. Preferred embodiments of the sprinkler body 12 include an inlet, an outlet with an internal passageway extending therebetween from the proximal portion 12a to the distal portion 12b. The distal portion 12b preferably includes an annular wall 30 defining an opening preferably at the distal end of the body 12. The annular wall 30 includes an outer surface and an inner surface to define an internal chamber accessible by the opening. The chamber is preferably configured for

housing internal operational components of the sprinkler body 12, including for example, a deflector assembly 24 for distribution of the firefighting fluid discharged from the sprinkler body outlet in an actuated state of the sprinkler assembly. As previously described the outer surface of the annular wall 30 preferably includes one or more and preferably three or more tool engaging notches, as seen for example in FIG. 4B, which preferably define the preferred engagement slots 32 for receiving the one or more tabs 106 of a preferred cap as previously described.

[0032] In a preferred embodiment of the sprinkler assembly 10, the preferred thermally responsive trigger 14 includes a first plate member and a second plate member coupled to the first plate member to further form a thermally responsive cover plate assembly. The cover plate assembly 14 is preferably supported by the sprinkler body adjacent the opening at the distal end of the sprinkler body. In an unactuated state of the sprinkler body 12, the preferred thermally responsive trigger 14 conceals the distal opening and components of the sprinkler body 12 contained within its chamber.

[0033] A particular sprinkler body 12 and thermally responsive cover plate assembly 14 for use in the methods and assemblies described herein is the sprinkler body and thermally responsive link shown and described in TYCO FIRE PRODUCTS, LP Technical Data Sheet, TFP651. Further details of the preferred sprinkler body 12 and thermally responsive trigger 14 are shown and described in PCT International Patent Application Publications WO2008/067421 and WO2010/141948, each of which is incorporated by reference in its entirety. Exemplary installation and operation of a preferred sprinkler body 12 is shown and described in the referenced materials.

[0034] Still referring to FIG. 4A, a preferred push-on escutcheon 16 includes a plurality of radially disposed barbs 230 that engage the distal portion of the sprinkler body 12 and more preferably engage the annular wall 30 of the preferred sprinkler body 12 in the sprinkler assembly 10. The barbs 230 are preferably resilient with a central portion that is biased inward to engage the sprinkler body 12. In one preferred embodiment, the resilient barbs 230 can present a convex profile such that, collectively, the barbs 230 define an internal circumference that forms an interference fit about the sprinkler body 12. The escutcheon 16 can be alternatively configured to provide the self-centering arrangement about the sprinkler body.

[0035] While the present invention has been disclosed with reference to certain embodiments, numerous modifications, alterations, and changes to the described embodiments are possible without departing from the sphere and scope of the present invention, as defined in the appended claims. Accordingly, it is intended that the present invention not be limited to the

described embodiments, but that it has the full scope defined by the language of the following claims, and equivalents thereof.

Claims

1. A coat-in-place assembly to provide an aesthetically pleasing sprinkler assembly, the coat-in-place assembly comprising:
a sprinkler including a sprinkler body having a proximal portion and a distal portion, the body defining an internal passageway having an inlet and an outlet spaced apart along a longitudinal sprinkler axis, and a thermally responsive trigger disposed adjacent the distal portion along the longitudinal axis;
an escutcheon having a first end and a second end spaced apart along an escutcheon axis, the escutcheon having a first surface circumscribed about the escutcheon axis to define a central escutcheon opening for receiving the sprinkler body, the escutcheon having a second surface extending radially with respect to the first surface and circumscribed about the central escutcheon opening, the escutcheon having a transition surface continuous between the first and second surface, the first surface of the escutcheon being centered about the distal portion of the sprinkler body to define a void between the sprinkler and the first surface of the escutcheon;
and a removable coating-inhibiting cap for engaging with, via at least one of a friction fit and an interference fit, at least one of the distal portion of the sprinkler body, the thermally responsive trigger, and the escutcheon to enclose and protect the thermally responsive trigger, the cap including a handle portion for manipulation of the cap, the cap extending into the void and being radially spaced inward relative to the first surface of the escutcheon so as to expose at least a portion of the first surface, the transition and second surface of the escutcheon for coating.
2. The coat-in-place assembly of claim 1, wherein the cap includes a base defining a center point and a periphery about the center point; a cap wall extending along the periphery of the base about the center point and extending axially from the base substantially parallel to a cap axis passing through the center point perpendicular to the base and coaxial with the sprinkler axis.
3. The coat-in-place assembly of claim 2, wherein the cap further comprises at least one tab extending axially from one of the base or the cap wall.

4. The coat-in-place assembly of claim 3, wherein the at least one tab includes at least three tabs extending axially away from the cap wall, the three tabs being angularly spaced about the cap axis with two adjacent tabs being angularly spaced apart by 130 degrees.
5. The coat-in-place assembly of claim 4, wherein each of the tabs defines a length and a thickness for insertion in a slot formed along an outer surface of an annular wall of the sprinkler body to form the frictional fit.
6. The coat-in-place assembly of claim 5, wherein each of the three tabs defining a tab length to thickness ratio ranging from about 6:1 to 12:1.
7. The coat-in-place assembly of claim 3, wherein the at least one tab extends axially from the center point of the base so as to be surrounded by the cap wall, the at least one tab being disposed in a central slot formed in the thermally responsive trigger to enclose the trigger between the sprinkler body and the cap.
8. The coat-in-place assembly of claim 7, wherein the cap wall is disposed between the sprinkler body and the first surface of the escutcheon, the cap wall being spaced radially inward from the transition surfaces of the escutcheon to expose the transition surface for coating.
9. The coat-in-place assembly of claim 8, wherein the transition surface of the escutcheon presents a substantially convex surface.
10. The coat-in-place assembly of claim 2, wherein the cap wall is disposed between the sprinkler body and the first surface of the escutcheon, the cap wall being spaced radially inward from the transition surface of the escutcheon to expose the transition surface for coating.
11. The coat-in-place assembly of claim 10, wherein the transition surface of the escutcheon presents a substantially convex surface.
12. The coat-in-place assembly of claim 2, wherein the cap wall is disposed between

the trigger and the first surface of the escutcheon, the cap wall being spaced from the transition surface of the escutcheon to expose the transition surface for painting.

13. The coat-in-place assembly of claim 2, wherein the handle portion extends from the base axially in a direction opposite the cap wall.

14. The coat-in-place assembly of claim 2, wherein the base includes a first portion disposed orthogonal to the cap axis, and a second portion disposed between the cap wall and the first portion extending obliquely with respect to the cap axis.

15. The coat-in-place assembly of claim 2, wherein the first surface of the escutcheon circumscribes the central opening to define an inner diameter proximate the transition surface, the cap wall being substantially annular and defining an outer diameter less than the inner diameter to form one of the interference or frictional fit with at least one of the sprinkler body and the first surface of the escutcheon.

16. The coat-in-place assembly of claim 1, wherein the transition surface of the escutcheon presents a substantially convex surface.

17. The coat-in place assembly of claim 1, wherein the escutcheon comprises a second surface extending radially with respect to the first surface and circumscribed about the central escutcheon opening such that the second surface is substantially frustoconical, defining a first escutcheon diameter at the first end and a second escutcheon diameter at the second end that is greater than the first escutcheon diameter.

18. A method of providing a coat-in-place assembly, the method comprising: obtaining a removable coating-inhibiting cap, the cap including a handle portion for manipulation of the cap; and distributing the removable coating-inhibiting cap to use in a coat-in-place assembly that includes: a sprinkler including a sprinkler body having a proximal portion and a distal portion, the body defining an internal passageway having an inlet and an outlet spaced apart along a longitudinal sprinkler axis, and a thermally responsive trigger disposed adjacent the distal portion along

the longitudinal axis; an escutcheon having a first end and a second end spaced apart along an escutcheon axis, the escutcheon having a first surface circumscribed about the escutcheon axis to define a central escutcheon opening for receiving the sprinkler body, the escutcheon having a second surface extending radially with respect to the first surface and circumscribed about the central escutcheon opening, the escutcheon having a transition surface continuous between the first and second surface, the first surface of the escutcheon being centered about the distal portion of the sprinkler body to define a void between the sprinkler and the first surface of the escutcheon; and the removable coating-inhibiting cap being engaged with, via at least one of a friction fit and an interference fit, at least one of the distal portion of the sprinkler body, and the thermally responsive trigger, and the escutcheon to enclose and protect the thermally responsive trigger between the sprinkler body and the cap, the cap extending into the void and being radially spaced inward relative to the first surface of the escutcheon so as to expose at least a portion of the first surface, the transition and second surface of the escutcheon for coating.

19. The method of claim 18, wherein obtaining the removable coating-inhibiting cap includes obtaining a cap having a base defining a center point and a periphery about the center point; a cap wall extending along the periphery of the cap base about the center point and extending axially from the base substantially parallel to a cap axis passing through the center point perpendicular to the base; and at least one tab extending axially from one of the base or the cap wall.

20. The method of claim 19, wherein obtaining the at least one tab includes obtaining three tabs extending axially from the cap wall, the three tabs being angularly spaced about the cap axis with two adjacent tabs being angularly spaced apart by 130 degrees.

21. The method of claim 20, wherein the distributing includes distributing the cap for insertion of each of the tabs in a slot formed along an outer surface of the sprinkler body so as to enclose the thermally responsive trigger between the sprinkler body and the cap.

22. The method of claim 20, wherein obtaining the coating-inhibiting cap includes

each of the three tabs defining a tab length to thickness ratio ranging from about 6:1 to 12:1.

23. The method of claim 19, wherein distributing the cap includes distributing the cap wall for location within an annular gap formed between the sprinkler body and the first surface of the escutcheon, the cap wall being spaced from the transition surface of the escutcheon to expose the transition surface for painting.

24. The method of claim 19, wherein distributing the cap includes distributing the cap wall for location within an annular gap formed between the thermally responsive trigger and the first surface of the escutcheon, the cap wall being spaced from the transition surface of the escutcheon to expose the transition surface for painting.

25. The method of claim 19, wherein obtaining the at least one tab includes extending the at least one tab axially from the center point of the base so as to be surrounded by the cap wall.

26. The method of claim 25, wherein distributing the cap is for insertion of the at least one tab for insertion in a central slot formed in the thermally responsive trigger to enclose the thermally responsive trigger between the sprinkler body and the cap.

27. The method of claim 19, wherein obtaining the cap includes obtaining a handle portion extending from the base axially in a direction opposite the cap wall.