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Suggested Change to Residential Compliance Manual

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4.3.1.2 §150.0(j)2 and 3, §150.0(m)9

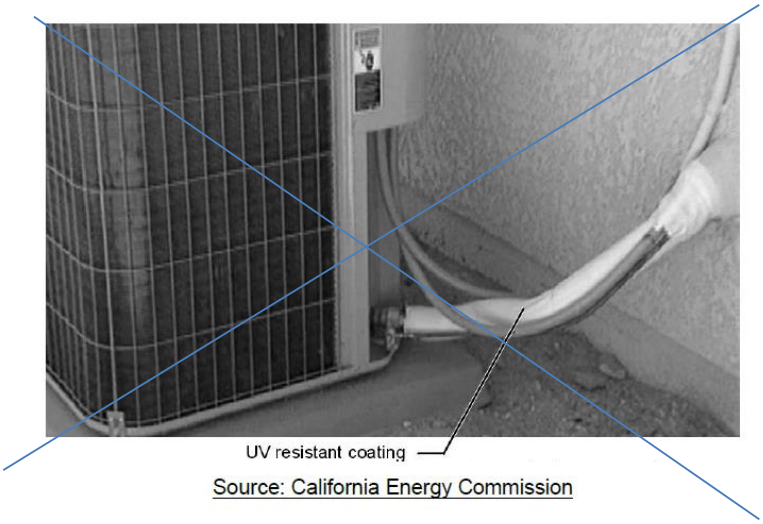
Proposed Change #1

~~Insulation used for the suction line must be protected from physical damage or from UV deterioration when it is located in outside conditioned space. Pipe insulation is typically protected by an aluminum or sheet metal jacket, painted canvas, plastic cover, or coating that is water retardant and UV resistant. Additionally, the insulation used for the refrigerant suction line of a heat pump must be Class I or Class II vapor retarding. If the insulation is not Class I or Class II, then the insulation must be installed at the required thickness that would qualify it as a Class I or Class II vapor retarder.~~ See §150.0(j) 3, and Figure 4-1 ~~Figure 4-1.~~

Insulation used for refrigerant suction lines located outside a condition space, must include a Class I or Class II vapor retarder. The vapor retarder and insulation must be protected from physical damage, U V deterioration, moisture and wind with a covering that can be removed for equipment maintenance without destroying the insulation system. Insulation is typically protected by aluminum, sheet metal jacket, painted canvas, or plastic cover. Adhesive tape should not be used as insulation protection because during preventive maintenance, removal of the tape will damage the integrity of the original insulation. See §150.0 (j) 3, and Figure 4-1.

Justification: This change clarifies to the designers, installers and inspectors that the Vapor retarder needs to be included with the insulation prior to the insulation system being protected and that the covering used to protect the suction line insulation needs to not only protect form weather damage but also from equipment maintenance without destroying the insulation. This change also removes language removed from the 2016 standard on required thickness to qualify as Class I or II Vapor retarder.

Figure 4-1.



Source: California Energy Commission

Vapor retarder & insulation protection

Vapor retarder & insulation protection

Justification –Photo should show suction line with an insulation system with a required vapor retarder. In addition it is against good practice (and against code in many jurisdictions in the US) to run the electric whips through the same penetration as the refrigerant lines.

5.3.5.2 Insulation Protection §150.0(j)3 If hot water piping insulation is exposed to weather, it must be protected from physical damage, UV, moisture and wind with an external covering that can be removed for maintenance without destroying the insulation ~~suitable for outdoor service. For typical cellular foam pipe insulation, this means protection with~~ Examples would be aluminum, sheet metal, painted canvas, plastic cover, or a water retardant ~~paint~~ coating that shields from solar radiation. ~~Insulation must be protected by an external covering unless the insulation has been approved for exterior use using a recognized federal test procedure~~. Adhesive tape should not be used as insulation protection because during preventive maintenance, removal of the tape will damage the integrity of the original insulation.

Justification: There is not a consensus standard testing procedure in this standard or any code for outdoor insulation degradation. Some insulation manufactures state that their insulation may offer a limited UV resistance but their installation instructions state that if the insulation is outdoor it need to be protected.

Thank you

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