K-FLEX TITAN™ COMPLIANCE WITH CA TITLE 24 SECTION 120.3 – REQUIREMENTS FOR PIPE INSULATION

The State of California 2016 BUILDING ENERGY EFFECIENCY STANDARDS FOR RESIDENTIAL AND NONRESIDENTIAL BUILDINGS, often referred to as CA Title 24 includes requirements for piping insulation in Section 120.3. These requirements are applicable to nonresidential, high-rise residential and hotel/motel buildings in the State of CA.

Insulation Protection requirements are listed in SECTION 120.3
Section 120.3 (b) 1. states that "Insulation exposed to weather shall be installed with a cover suitable for outdoor use. The cover shall be water retardant and provides (sic) shielding from solar radiation that can cause degradation of the material."
Discussion: While the code requires that the insulation have a distinct cover, it does *not* specifically state that the cover must be field (versus factory) applied, nor does it state that the jacket must be removable (versus fully adhered). K-Flex Titan has a jacket that is distinct from the insulation, i.e. is installed in a separate process at the factory (to differentiate from a "surface skin"), and is fully adhered.

Section 120.3 (b) 2. states that " Insulation covering chilled water piping and refrigerant suction piping located outside the conditioned space shall have a Class I or Class II vapor retarder. All penetrations and joints of which shall be sealed."
Discussion: K-Flex Titan covering meets the requirements of a Class I vapor retarder ($\leq$ 0.1 perm when tested per ASTM E96). Titan covering is $\leq$ 0.05 perm.

K-Flex Titan complies with the above CA Title 24 provision.

Note that the above provisions are also applicable to insulation installed in *unconditioned spaces*, not just exposed to weather. K-Flex Titan would be limited to a maximum 1" thickness in indoor applications due to ASTM E84 25/50 requirements. While historically no jacketing or vapor barrier has been required on elastomeric insulation in unconditioned spaces within a building, any vapor barrier meeting the above requirements would be acceptable if required by the AHJ.

It is important to understand the intent of this section, as well as how to comply with this new requirement. The intent of this section is to prevent premature failure of pipe insulation installed outdoors, which is a common occurrence if proper steps are not taken to protect the insulation. It is widely known that the elements, UV, wildlife and abuse can damage pipe insulation, which ultimately reduces the efficiency of the piping system that is insulated. By properly protecting the insulation, the service life of the insulation can be increased, and energy efficiency of the associated system can be maintained.

As this requirement is not merely concerned with UV resistance, an insulation material that is only listed as "UV retardand" or "UV resistant" *would not comply with these code requirements* and would not be acceptable for use in jurisdictions that have adopted these requirements without additional protection.

K-Flex Titan™: K-Flex Titan is a flexible, co-extruded jacketing material that is factory applied to K-Flex Insul-Tube or K-Flex HT pipe insulation. The polymeric jacketing material offers excellent abrasion, weather, and UV resistance while maintaining the insulation's flexibility, which makes it ideal for outdoor application.

K-Flex USA offers several products that will help installing contractors comply with this very important section of the energy code:

- **K-Flex CLAD WT and AL:** K-Flex Clad WT and Clad AL offer the best protection from UV, weather, wildlife, and mechanical abuse, and are recommended for commercial applications. The jacketing materials

are composite products comprised of a multi-ply laminate that are available factory adhered to K-Flex USA tubular insulation, or in roll form for field installation on a variety of insulations.

For additional information on how K-Flex USA products can help you comply with local building codes, please contact your K-Flex representative.