

Arrigoni Bridge Lighting

I Bridge Description

The Arrigoni Bridge spans the Connecticut River, linking Middletown and Portland, Connecticut. The bridge is 3428 feet long, and has two 600-foot steel arch spans, the longest of any bridge in Connecticut. Arrigoni Bridge was completed in 1939, with additional work in 1988 and 1993, including a current repainting project. Designed by Leslie G. Suymer of the State Highway Department and William G. Grove of the American Bridge Company, Arrigoni Bridge won first prize in the large bridge category in 1938 from the American Institute of Steel Construction.



I Design Alternatives

The project is currently in the concept design phase. The LRC is investigating the feasibility of using electrodeless lamps for the bridge lighting. Electrodeless lamps provide very long life (up to 60,000 hours), and, because they do not have electrodes, the lamps will withstand continuous exposure to vibrations. One of the design concepts includes using the lamps as a “necklace” to accentuate the steel arches.

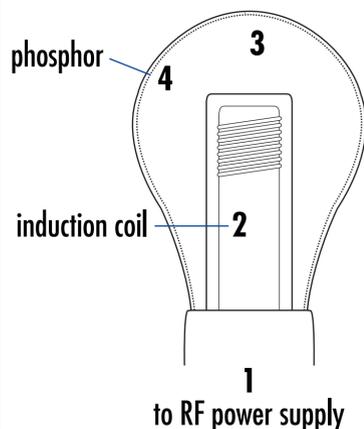
I Project Description

Northeast Utilities (NU) commissioned the LRC to develop design concepts for lighting the Arrigoni Bridge using new and innovative technologies. NU believes that a successful demonstration of exterior lighting design using new, energy-efficient technologies could result in positive economic and environmental benefits to Middletown and Portland. In addition, the project could help provide exciting tourism opportunities for the Connecticut River Valley.



Electrodeless Lamp (Inductive Discharge Lamp)

The Genura, the QL, and the E-Lamp operate using the principle of induction. These lamps are also called electrodeless fluorescent lamps because they produce light in the same way that a fluorescent lamp does but without the electrodes.



1. Radiofrequency (RF) power supply sends an electric current to the induction coil (a wire wrapped around a plastic or metal core)
2. The current passing through the induction coil generates an EM field.
3. The EM field excites the mercury in the gas fill. The ionized mercury emits ultraviolet (UV) radiation.
4. When struck by UV radiation, phosphors coating the inside of the glass bulb emit light.

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