

To Whom It May Concern:

Re: Compatibility of NCFI Spray Polyurethane Foam with Electrical Wire Insulation

Summary:

Following extensive research into the compatibility of NCFI Spray Polyurethane Foam (SPF) with electrical wire insulation, we have not discovered any compatibility issues between the materials that we have tested. Furthermore, when tested under electrical loads, no deterioration of electrical insulation or thermal insulation has been observed.

NCFI Polyurethanes, therefore, concludes that NCFI Spray Polyurethane Foam insulation systems may be directly applied to commonly available insulated low-voltage and high-voltage electrical conduction and electrical signal wires when those wires are installed in a manner consistent with the applicable building codes.

Background and Test Summary:

On February 21, 2008, Sea Gull Lighting (Riverside, NJ) issued a letter reporting compatibility issue between one manufacturer's SPF and Sea Gull Lighting's Ambiance low voltage wire. This letter became widely circulated causing many authorities to question the application of SPF directly to various electrical wire types.

After discussions with Sea Gull Lighting, NCFI obtained a sample of the Sea Gull wire. In addition, NCFI obtained samples of every low-voltage and high-voltage wire that we could find in local building supply houses. Sea Gull Lighting indicated to us that the wire that experienced the problem in the field was left with a shiny surface with no residual insulation left on the wire.

The wires tested were:

1. Sea Gull Lighting Ambiance low-voltage cable
2. High-voltage, three-strand electrical cable for use in conduit (both 6 ga [green] and 12 ga [white and black] wires)
3. Low-voltage, 8-strand telephone wire (blue)
4. Low-voltage, 2-strand thermostat wire (brown)
5. Low-voltage, 2-strand, 16 ga speaker wire (clear)
6. High-voltage, 2-strand, 16 ga lamp chord (black)
7. Low-voltage, 75 ohm coaxial cable
8. Low-voltage, 35 ohm coaxial cable
9. High-voltage, 14 ga Romex (two wires plus grounding wire)

We embedded all of these wire types in SPF by spraying a one-inch thick pass of SPF on a plywood base, securing the wires to the surface of the SPF, then spraying an additional two passes of SPF on top of the wire samples to a depth of 2.5 - 3 inches (total SPF depth, under and over wires, was 3.5 - 4 inches).

After allowing the SPF to cure and cool, we removed the wire samples and examined them for deterioration.

No deterioration of any of the wires was observed.

As an added step, we sent a sample of the Sea Gull Lighting Ambiance cable to Sea Gull Lighting, still embedded within the SPF with a thermocouple attached. Sea Gull agreed to place an electrical load on the wire (at this point, the copper electrical cable was both electrically insulated and thermally insulated). The Ambiance cable (10 ga) is rated for indoor use only, 300 watts max. at 12 volts and 500 watts max. at 24 volts.

Sea Gull Lighting has verbally reported back to NCFI that no deterioration was observed due to electrical loads.

Conclusions:

No evidence of compatibility issues have been observed with any of the wiring systems tested.

If you have any questions on the above, we will be glad to discuss them with you.

Sincerely,

NCFI Polyurethanes, Div. of BMC

A handwritten signature in black ink, reading "Roger Morrison". The signature is written in a cursive style with a large initial "R" and a long horizontal stroke at the end.

Roger V. Morrison, P.E., R.R.C.
Senior Staff Engineer