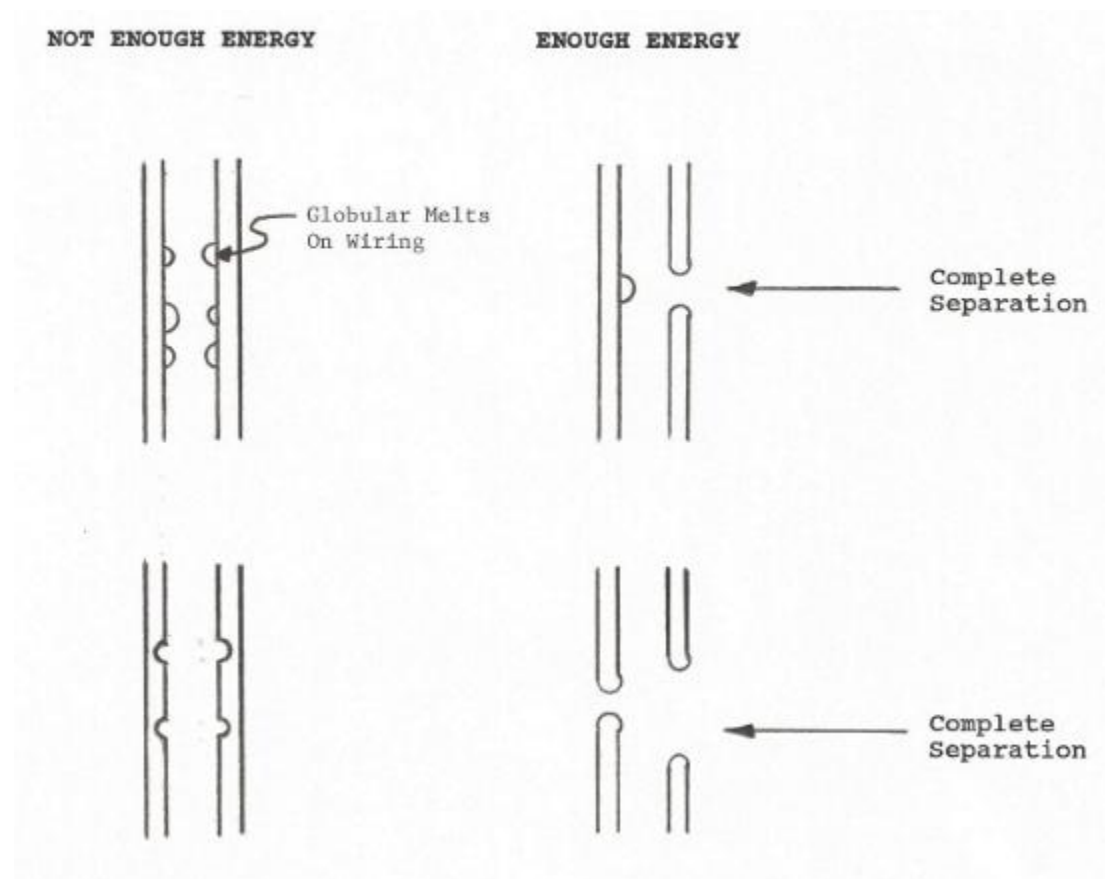


“KEEPING PACE” - #27

(Page 1)

ELIMINATING SOME SHORT CIRCUIT MELTS:

In 1988, I re-examined all the short circuit melts stored in my evidence at P.A.C.E. from cases where the short circuit had caused the fire. In every one of these 32 cases the short circuit arc had melted at least one conductor completely apart. Thus, if you find a short circuit location with only a small metallic melt or melts on the conductors, you may eliminate it from being the cause of a fire and be virtually certain that it melted as a result of the ensuing fire, in my opinion. These small melts can occur from a 0.004 second burst of energy and that is not enough energy to cause a fire, in my opinion.



The above explanation refers only to 120 volts, A.C., systems. 12 volts, D.C., systems are different. There the power in the arc is much less, but the arc continues for a much longer time. The peak temperatures is thus lower, resulting in less melting of copper, but the total energy is like in kind, and enough to cause a fire.

“KEEPING PACE” - #27

(Page 2)

Determining whether a metallic melt occurred as a result of a causative short circuit or an ensuing short circuit has always been difficult. This information should help you to identify many melts in building wiring as being a result of the fire.

POWER CORD SHORT CIRCUIT PLOY:

We have seen a number of long reports by experts where they end their report by concluding that the fire was caused by a short circuit in a power cord. They stop there, without saying that this was a manufacturing defect (because they know better). But they hope, in my opinion, that the product defendant will assume this is what they meant and pay for the damages. Don't be fooled. I published in the NFPA Fire Journal in 1984 that almost all power cord short circuits occur as a result of user abuse and not a manufacturing defect. Most experts know this, and none has published otherwise, to my knowledge.

OWNERS VS. TENANTS: (Revised):

Speaking of user abuse, when a tenant's power cord or extension cord short circuits to cause a fire, does the owner of the building have a valid subrogation case against the tenant? Bear in mind that the cord seldom short circuits to cause a fire immediately after it is damaged (when it does, someone quickly puts out the fire, because they are right there). Rather, the short usually occurs weeks or years after the cord is damaged (see Keeping Pace #16 and #20). Moreover, all the plastic insulation is almost always consumed at the arcing location. Thus, it is seldom possible to determine how the cord was damaged, or more importantly, exactly who damaged it. Some have opined that since a visitor could have caused the damage, there is no negligence probable on the part of the tenant.

What do you think?

Sincerely,



Frederick F. Franklin, P.E.
Forensic Engineer

PACE inc.

In-depth investigations based on evidence.

PaceForensic.com

PROFESSIONAL ANALYTICAL & CONSULTING ENGINEERS, INC

RickFranklin@PaceForensic.com • 3501 Tiffany Ridge Lane • Cincinnati, OH 45241 • 513.793.2771