

The Zinsco Electrical Panel, - Hazard Information

Field reports indicate severe failures of Zinsco electrical panels / circuit breakers

What are the hazards of Zinsco or Zinsco-Sylvania electric panels?

How should these panels be repaired: electrical panel replacement alternatives

What are the typical costs to replace a Zinsco or Zinsco-Sylvania Electrical Panel?

List of electricians familiar with Zinsco electric panel replacement

FAILURE MECHANISM - Failure Mechanisms for Zinsco Electric Panels and Circuit Breakers

Arcing and/or overheating, or a similar failure process occurs at the connection of the circuit breaker to the electrical panel bus damage the bus, the breaker, and the connection, making the electrical contact unreliable and leading to equipment failure.

Circuit breakers become damaged by arcing or overheating. Damaged circuit breakers are unlikely to perform properly in response to an overcurrent condition.

Aluminum electrical panel components appear to be an important factor in failures in this equipment

Moisture exposure appears to be a factor in failures in this equipment.

Types of Zinsco Panel and Circuit Breaker Failures

Circuit breakers may fail to trip in response to an overcurrent condition. This is a fire and shock risk.

Circuit breakers may "blow out" the side casing of the device in an electrical "arc explosion"

Circuit breakers may fail to drop power even when they are switched off [remains to be verified--DF] - that is, the breaker may appear to be switched to the "off" position but internally it may still be conducting power to the circuit.

www.inspect-ny.com/electric/Zinsco.htm

FPE PANELS

A Summary of the Problem: Federal Pacific Stab-Lok(R) Electric Panel and Circuit Breaker Hazards

FPE Stab-Lok(R) Circuit Breakers Fail to Trip

High failure rate: The central safety defect in FPE Stab-Lok(R) electrical equipment is that FPE Stab-Lok(R) circuit breakers fail to trip under overload or short-circuit conditions, at a failure rate much higher than comparable equipment made by other producers. This failure to trip occurs up to 80% of the time when the breakers are called-on to trip, depending on the individual breaker type and ampacity. The usual industry rate of failure of a circuit breaker to trip in response to an overcurrent or short circuit is much less than 1%.

Risk of fire or injury: When an overload or short circuit occurs in an electrical device, say an electric clothes dryer, the circuit supplying electricity to the device is supposed to be interrupted, electrical power cut off, by either a fuse or a circuit breaker. This interruption of electrical power is intended to minimize the resulting fire hazard of electrical overloads or short circuits.

A circuit breaker that fails to trip is unsafe fails to protect the electrical circuit and the building and building occupants where that circuit breaker is installed. This can lead to fire, property loss, and injury or worse.

[FPE Stab-Lok TECHNICAL REPORT](#) describes independent research explaining the hazards involved with FPE Stab-Lok electrical panels and includes a link to the most-current and easily-printable .pdf version of that document.

FPE Stab-Lok(R) Circuit Breakers Are a Latent Safety Hazard

A "**latent safety hazard**" means that the product itself does not *initiate* the unsafe condition. Rather, when the unsafe condition occurs (as just described above), the product, in this case an FPE Stab-Lok(R) circuit breaker, which is intended to interrupt electrical power, fails to do its job.

An impartial review of documentation regarding this issue, and discussions of the issue with forensic experts in the field, make clear that a latent hazard exists where FPE Stab-Lok circuit breakers continue in use. The hazard is worst for double-pole breakers. Published reports of actual tests that were performed indicate that under certain conditions it is possible for one leg of these circuits to attempt to trip the breaker, resulting in a jammed breaker which will afterward not trip under any load condition.

An FPE Stab-Lok Electrical Panel Should Be Replaced, not "Inspected by an Electrician" and not "Tested"

Having the FPE Stab-Lok panel evaluated by an electrician is unfortunately of absolutely no value. A visual inspection can not predict whether a circuit breaker is going to jam on the next occurrence of an overcurrent or short circuit. While a visual might pick up evidence of a previously burned circuit breaker or panel bus connection, the absence of such evidence is not any assurance whatsoever that the panel is safe.

Having the FPE Stab-Lok panel "tested" by an electrician is dangerous. For example, placing an overcurrent on an electrical circuit in the building could cause a fire to occur. Further, placing an overcurrent on a circuit "protected" by an FPE Stab-Lok circuit breaker may actually increase the chances that the circuit breaker will fail to trip in the future, even if it appears to work when tested. Aronstein's research showed a dramatic increase in the jam-up and failure rate in these circuit breakers after they had been exposed to a first "event" such as an over-current.

But Up to Now the Electrical Panel has Never Shown a Problem!

A statement by a building owner or occupant that no problem has been observed in a particular FPE Stab-Lok panel is absolutely no assurance that the panel is safe. It may simply be the case that the building has not experienced an over-current or short circuit on an electrical circuit. Or an over current may have occurred, tripped a breaker, but in doing so, increased the chance that next time the same breaker will fail to trip.

It would be dangerous for a building seller, for example, to warrant the future safety of an electrical panel in the building s/he is selling.

It would be dangerous for a building buyer to rely on the claim by a seller, real estate agent, or electrician that an FPE Stab-Lok electrical panel is "safe" since all independent research indicates that they are mistaken.

If it's an FPE Stab-lok electrical panel, it should be replaced, period.

Financial Assistance for Replacement of Electrical Panels

In general, financial aid is not available: Except for an almost-worthless class action settlement that affected some New Jersey homeowners, there is no financial relief offered by FPE nor by its successors to homeowners or home buyers for the replacement of these panels.

In some communities there may be generic financial aid for home repairs to elderly homeowners or to homeowners of limited financial means, such as the Christmas in April program or financial aid to seniors programs - check with your local city, town, county, or state financial aid offices. Some electricians may offer discounted services to seniors or to others of modest means. Ask your electrician.

Panel replacement choices can save some money: [FPE REPLACEMENT PANELS](#) contains some panel-replacement suggestions that can in some cases save a portion of the replacement cost.

How Did These Unsafe FPE Stab-Lok(R) Circuit Breakers Get Into Homes?

"In a class-action lawsuit against FPE/Reliance in New Jersey, the Court found that Federal Pacific Electric Co. (FPE) committed fraud by representing that their FPE Stab-Lok(R) circuit breakers met the applicable (UL) standard test requirements when in fact they did not. The Court's finding of fraud, published in 2005, indicates that FPE cheated on the tests that were required to obtain UL listings. The company improperly applied UL labels to circuit breakers that could not and did not meet the UL requirements. FPE covered up the defective performance of the circuit breakers by a long-standing practice of fraudulent testing. The Court's finding helps resolve the question as to how the defective breakers got into the marketplace and into homes." -- 2007 FPE Stab-Lok TECHNICAL REPORT, p.1, Dr. Jess Aronstein [available at this website].

Why Do Some People Say There is no FPE Stab-Lok(R) Hazard?

Most Circuit Breakers Are Never Called-on to Trip

In a home or on a circuit that has never been used, or has never experienced an overcurrent or short circuit, an unsafe breaker that would not trip when it should, will look just fine. That's because the circuit breaker has never been required to trip off. As Aronstein points out [2007 FPE Stab-Lok TECHNICAL REPORT, Dr. Jess Aronstein], the performance of such an electrical circuit would look equally fine if there were no circuit breaker installed at all, since it has never needed to be interrupted. Does that mean such an electrical circuit is safe and that it is protected as intended? No.

Companies, Attorneys, Realtors, Home Sellers, Home Buyers with Conflicting Interests

A home owner who intends to continue living in a home, or someone buying a new home, has a great interest in assuring that the home's electrical system is properly protected and safe, as does their insurance company. However in some circumstances such as wanting to push through the sale of a home without incident, or wishing to avoid admitting potential liability, or perhaps out of lack of accurate information, some people may still assert that this well-documented safety concern does not exist.

Some insurance companies now require that their policy holders replace FPE Stab-Lok(R) equipment in the home before they will issue homeowners insurance for the property.