ARTICLE THAT APPEARED IN JERUSALEM POST ~10/97:

# Blowing a fuse over the electricity system

By RUTHIE BLUM

Having grown up in New York City, I'd never known that there was such a thing as a fuse box, let alone where it was located. In those days, as far as I could tell, hot water was one of nature's elements which just happened to flow freely from the left side of the tap. And appliances ran by mere virtue of having been plugged into an outlet.

It was not until I moved to Israel that I learned to plan a shower, and "stagger" my machines. Very quickly I learned to locate my fuse box, wherever I was living. I even came to know which little levers controlled which circuits – information invaluable when planning a shower, doing the laundry and baking a cake simultaneously.

What I did not know at the time was that the standard amount of amperes provided by the Israel Electric Corporation for regular home use (as opposed to restaurant/factory use) was a single phase of 25 amps. What I also did not know was that most heavy-duty appliances in Israel use up to 16 amps each. No wonder, then, that more than one large machine in operation at any given time was extending the limit. Hence, the fuse tripping and hence the necessary "staggering."

A few years ago, the IEC Consumer Division issued new regulations regarding the supply of electricity to individual homes. This was to "answer a growing demand" among Israeli consumers and to "improve the quality of the supply of electricity." According to the new regulations, homes built after December 1988 would be eligible for an electricity "upgrade" to 40 amps on a single phase; homes built subsequent to that date would automatically be equipped with 40 amps – now the "standard." Three phases could and can be installed (from 25 amps per phase and above) without regard to these regulations.

A short while later, I began renovating a dilapidated old house, in which the electrical wiring was in an atrocious state and needed total overhaul. This would be the perfect opportunity to take advantage of the new IEC regulations. Instead, I was urged to install three phases. The high cost of installation would be a small price to pay – I was told by several mavens (among them a friend employed by the IEC) – for the luxury of never tripping a fuse.

Taking "three-phase" to mean a "triple" supply of electricity, I was sold on the idea, and went ahead with it. For the next few years, all was well with circuit and fuse box. Happily, I ran dishwasher and washing machine, oven and boiler with little ado.

According to consultant electrical engineer Jonathan Greenstein, the smooth running of my electrical system had to do with proper balancing more than with three phases. Apparently the heavy-duty appliances in my home ended up being balanced appropriately between the three phases. Had my dishwasher and washing machine been on the same 25-amp phase, I would still have had to deal with fuse tripping. In other words, though I imagined that my house was being supplied with 75 amps, it was actually giving me less use of these amps than if I had installed a single phase at the same number of amps.

So, what's the catch? The IEC will not allow homes to have a single phase providing more than 40 amps, though it will allow us to have three phases with as many amps as we want. According to Greenstein, this is as much hogwash as it is whitewash. It is also a waste of electricity potential, since it is extremely rare for individual families to require large numbers of amps on each phase but important to have enough amps in the home to service modern household appliances.

In the UK, for example, homes can have up to 100 amps on a single phase, which is equivalent to the 200 amps available in the US. In Israel, he claims, there is no reason not to follow suit, other than the "good ol' boy" network of "protectionism for the country's electricians and electrical engineers."

Greenstein has been leading a personal crusade to convince the IEC to change its system. As of yet, he has been given no satisfactory reply to his questions.

In the meantime, let us beware of the following:

When purchasing an appliance, always find out the number of amps it uses. While Israeli appliances are never more than 16 amps (with the exception of the Atmor electric shower, which is 20-22 amps), American and English appliances are up to 45 amps. (Such appliances would not suit a home here, unless it had three phases of over 45 amps each).

Also keep in mind that standard circuits in this country are 16 amps. (The circuits are the smaller "branches" of the phase.)

Before planning the electrical system of a home you are building – or before upgrading your existing system – consult with an electrical adviser. It is imperative that all major appliances be balanced properly on circuits and phases.

And finally, beware of the dangers involved in three-phase electricity:

Firstly, a loose neutral wire in the main fuse panel can cause the voltage level on each of the phases to swing violently. This can cause certain appliances to burn out.

Secondly, there is greater danger of electrical shock prior to the tripping of the *mimsar pehat* (the anti-electrocution lever). For real safety, you'd need an anti-electrocution device on each of the three phases.

For further details and information about your current current, you can contact Jonathan Greenstein at POB 4525, Jerusalem 91044. Phone/Fax: (02) 566-3510.

**You are invited to offer personal stories about goods and services in this country. Write to: Ruthie Blum, POB 81, 91000 Jerusalem.**