Reducing risks and injuries

IECEE tests essential in reducing risks

It is safe to assume that there is at least one electrical appliance in every room of your house or apartment. If nothing else, there is at least a lamp.

Modern household appliances are smarter, may also have a Wi-Fi connection or can be controlled from your smartphone. They make life easier, lighten the burden of household chores and offer more time for leisure. However, as smart as they can be, they still use electricity and may represent a serious potential hazard to children and adults alike.

Electricity cannot be heard, seen or smelled. It can, however, be felt. Faulty appliances can cause hazards such as electrical, mechanical and thermal fire and radiation. They can overheat. It's crucial to be aware of the risks of using electrical appliances.

Poor maintenance is risky

Many electrical fires can be traced to faulty components such as cords, outlets and switches. Overloading extension cords or running several fixtures from a single outlet can also cause short circuits and fires.

Any switch or outlet that sparks or gives a shock when touched in the normal course of operation should be repaired or replaced immediately by an authorized competent technician using compatible components with the appropriate characteristics and ratings.

Negligence in the servicing and maintenance of electrical appliances is one of the major causes of accidents. It doesn't take much to provoke an electrical hazard. Therefore, it is essential to keep all electrical and electronic equipment in good working condition.

Burn hazards

Surface walls of many appliances can constitute serious burn hazards due to ineffective thermal insulation. Low-quality products normally have less insulation material. Their surfaces can cause serious burns, especially to babies and children. Hot oven doors are a typical example of a child hazard.

Products that cannot show third party certification may malfunction if, for example, a pendel-switch is of poor quality.

Electric shock

Electric shocks can come about as a consequence of heating, undue mechanical stress, humidity and moisture. Different environments can change how current travels through and over the surfaces of appliances. In warmer climates many cases of electrocution are due to fans that are badly earthed. People also get electrocuted because there are insufficient distances between live parts and accessible conductive parts such as touchable metallic surfaces.

Avoid counterfeit items

Counterfeit has reached the electrical and electronic sector and can have disastrous consequences because counterfeiters often use low-quality materials and avoid important manufacturing steps, thus drastically reducing the cost of their products. This allows counterfeiters to sell their products at prices that no genuine brand manufacturer can match. The use of such products can provoke overheat or short circuits and lead to fire, shock or explosion, ultimately causing injuries or deaths and property losses in the home and workplace.

Counterfeit products often look like very good copies of the original, thus making detection based on appearance extremely difficult. Inspecting suspicious products and performing the relevant safety tests is the only way to show that these fake products have failed to pass safety requirements and may cause serious accidents.

Proper testing of equipment, installations and components cuts risks of injuries and accidents

IECEE tests reduce risks

IECEE, the IEC System of Conformity Assessment Schemes for Electrotechnical Equipment and Components, tests all touchable surfaces of appliances, including those that are meant to be held, such as handles, knobs or grips. It also tests those parts that are held for short periods of time, such as switches or the outer walls of a given appliance. The tests are carried out to ensure that specified temperature limits are not exceeded.

Abnormal operation

Abnormal operation of an appliance can produce electric shocks, burns or fire hazards. Conditions of abnormal use form a part of IECEE tests.

Tests also take into account temperature controls that malfunction, moving parts, such as rotors, motors or contacts of a relay that block, and failure of electronic components or software. Sometimes, such abnormal operation requires a protective electronic circuit to mitigate the effects.

Dangerous parts

Not all hazards of operating electrical or electronic systems are obvious. The IECEE also looks at the accessibility of dangerous parts, such as rotors and blades. This is particularly important when small children, curious about everything, are keen to touch anything within reach.

The tests evaluate the crushing forces of doors and gates and the pinch points in playground equipment, for example. Many of these hazards can be reduced with sensors, such as infrared detectors, and pressure pads. The IECEE verifies the dimensions of these sensors, where they are placed and how they function.

The interaction of hazardous liquids and gases with electric systems, especially within non-conforming appliances, is the cause of many explosions every year. And then there are the mechanical hazards linked to the design of an appliance. Children can get trapped in refrigerators or tumble dryers. The danger needs to be identified and intuitive escape mechanisms applied.

Hazardous substances

The IECEE also tests for hazardous substances, radiation and toxicity that may harm users. Many hazardous substances are controlled by legislation, but low-quality products may not take into account such legislation. Appliances can produce toxic substances that will make them unsafe to operate in certain enclosed environments.

IEC standards

Many countries legislate with regard to household appliances to protect the health and safety of their citizens. IEC International Standards, in conjunction with IECEE, can help them to do so.

The core standard for domestic products is IEC 60335-1, *Household and similar electrical appliances - Safety - Part 1: General requirements,* covering generic hazards. Given the many domestic products on the market, IEC 60335-2, *Household and similar electrical appliances - Safety, addresses safety requirements for specific appliances,* taking account of the particular hazards related to that equipment. There are currently more than 100 publications in the IEC 60335-2 series.

IEC 60335-1, *Household and similar electrical appliances - Safety - Part 1: General requirements*

IEC 60335-2, *Household and similar electrical appliances – Safety*

British engineer Ron Sinclair appointed an MBE for "Services to Certification and Standards"

MBE

IECEx ExTAG Chairman and Baseefa leader honoured

Ron Sinclair, Managing Director of the private certification body Baseefa Ltd., was named an MBE (Member of the Order of the British Empire) on the UK's (United Kingdom's) 2011 New Year's Honours List for his *services to Certification and Standards.*

Sinclair, one of the UK's most widely-respected certification engineers, serves on many national and international IECEx, and ATEX committees. He was instrumental in setting up Baseefa Ltd. in 2001. IECEx is the IEC System for Certification to Standards Relating to Equipment for Use in Explosive Atmospheres. ATEX refers to the EU (European Union) directives for equipment for use in explosive atmosphere.

"I was gobsmacked when I received the letter from the [UK] Cabinet Office,"