



IMAGE: FREEPIK

Quality cables key to ensuring safety

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BUET Professor
Md Ziaur Rahman
Khan

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Fires not only claim lives but also destroy property worth hundreds of crores each year and according to the Department of Fire Service and Civil Defence, electrical issues were to blame for 36.82 per cent of such incidents across the country last year.

Electrical issues, namely those stemming from a poor electrical network in buildings, use of low quality cables, outdated power connections with extra load and faulty transmission lines, were to blame for these fires.

LOAD ESTIMATION

The electrical design of a structure is typically carried out in our country by electricians who place less emphasis on safety due to a lack of knowledge. As a result, they usually do not adhere to standard practices, such as setting the capacity at 120 amps when the required load is 100 amps.

“This is a terrible and dangerous practice. After estimating the actual load for the civil structure, we maintain the safety factor two to three times higher,” said Dr Md Ziaur Rahman Khan, professor of the department of electrical and electronic engineering (EEE) at BUET.

Additionally, people take unauthorised connections, which puts pressure on the main line and causes wires to melt and catch fire due to overload, he added.

INFERIOR WIRE QUALITY

Wire quality is crucial for preventing short circuits and excessive heat in electrical network. Since inferior wires are being used ignoring the safety factor, heat is produced even during normal electricity flow.

“This might contribute to setting fires,” Rahman said.

Even if the material quality is high, there is no price difference between cables with copper or aluminium conductors. Some unscrupulous companies produce and sell low quality electric cables to make bigger profits.

So, customers concerned about costs search for low prices and ultimately purchase low-quality cables, according to A.K.M. Ahasanul Haque, chief operating officer (operation) of Partex Cables Ltd.

Besides, there is no regulating agency in Bangladesh that monitors the standard of electric cables being sold in the market, he said.

Other issues that can start a fire include overloading the system by using inverter goods, poor connections at junctions and low-quality electrical products, including extension cables, circuit breakers, switches, and switchboards.

REPURPOSING THE STRUCTURE

Without following the proper guidelines, many old residential structures are repurposed as factories in Bangladesh.

“Such negligence can result in catastrophic

consequences. Thus, the electrical design should be upgraded regularly by professionals after calculating the new load to bring any modification in the building; otherwise, it can cause fire incidents,” said BUET Professor Rahman.

Prioritising the garment industry, he mentioned that the Department of Inspection for Factories and Establishments (DIFE) under the Ministry of Labour and Employment would gradually start working on other sectors to ensure electrical safety.

A HUGE DRAWBACK IN THE SYSTEM

The Bangladesh National Building Code (BNBC) and the Electricity Act 2018 cover standards for electrical wiring design, equipment installation in buildings, and penalties.

However, the BNBC’s recommended electrical design is not adequately executed since the electrical engineer’s function in the building approval procedure is overlooked, said Dr Md Aynal Haque, professor and dean of the EEE department at BUET.

Building approval requires the signatures of an architectural engineer and a structural engineer but not an electrical engineer, which is a serious flaw.

So, a provision for an electrical engineer’s signature should be included to ensure accountability and responsibility among every stakeholder, added Haque, who is also president of the Electrical Safety Forum Bangladesh (ESFB).

HOW TO ENSURE PROTECTION

Experts also stressed on the importance of raising public awareness on electrical safety and providing training to technical manpower working at field level.

“Electrical safety issues are yet to go mainstream like structural issues in our country. People should be aware of electrical safety related to standard practices and get encouraged to follow them,” said Professor Rahman.

“To eliminate the scarcity of technical manpower, we should concentrate on providing them with appropriate training,” he added.

Although power lines at houses and businesses are supposed to be examined by specialists every three months, the rule is never followed, said Mohammad Manikuzzaman, assistant director of the Department of Fire Services and Civil Defence.

To minimise the fire incidents due to electrical issues, the use of quality flame retardant (FR) cables must be ensured in building wiring, power cable substations and other distribution lines. FR cables prevent the spread of fire even if a spark occurs due to a short circuit. The fire is put out within one metre as a standard factor of the cable.

Besides assuring the use of FR cables in electrical networks, the quality of the cable must be ensured otherwise the required protection will not be obtained.

Local cable makers now of international calibre

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Electrification Board, which go to Chinese vendors thanks to their lower offers,” he said.

The government is now emphasising on quality transmission and distribution to reduce the system loss. For this reason, the government has been purchasing cables from local manufacturers, which has helped the industry grow in the past decade, Rony added.

Rakib Ahmed, head of marketing at Bizli

Cables, a subsidiary of Pran-RFL Group, said the industry is growing due to the expansion of power grids across the country in the last five years.

He then thanked the entrepreneurs for catering to the cable demand and thereby saving foreign exchange in line with the government’s initiative for developing the power sector.

Bangladesh Steel Re-Rolling Mills (BSRM)

introduced a new construction cable called “Low Relaxation Prestressed Steel Strand (LRPC strand)” in a bid to cater to the Tk 3,000 crore market segment that is currently dominated by imports.

The country’s leading steel maker invested a total of around Tk 1,000 crore to establish an LRPC strand manufacturing unit under its new concern, BSRM Wires.

The LRPC strands are used in the

prestressing of concrete for different kinds of construction work.

LRPC strands are used in pre-stressed concrete girders for building roads, flyovers, river and railway bridges, prestressed concrete domes, hollow core slabs, steel beams and TT slabs, silos, hangars, aqueducts and viaducts, as well as railway sleepers.

There are currently a number of bridges, flyovers, and tunnels under construction

where LRPC strands are being used.

Tapan Sengupta, deputy managing director of BSRM, said the product is a new addition for the cable industry even though it is considered a construction material.

The industrialists also alleged that the Chinese companies who implement grid line projects use substandard products to save costs, which is not possible for local companies that work with quality cables.

How to ensure electrical safety in your home

01

Avoid overloading outlets
Make sure your outlet isn't being overloaded with too many devices and appliances using adapters and extension cords.

02

Unplug appliances not in use
It will not only prevent the use of unnecessary energy but also help protect appliances from surges and other electrical mishaps.

03

Use proper wattage
The recommended wattage is what keeps your lamps shining safely. LEDs are a great way to light up a room without all the wasted heat energy.

04

Run cords safely
Never run cords under carpets, rugs, doors or windows. Consult your electrician about adding new outlets around your home.

05

Get rid of damaged cords
Instead of trying to fix damaged cords, updating your extension cords will help prevent sparks, surges and electrical fires.

06

Keep away from water
Keep electrical appliances and tools away from water. Be sure that all outlets near a water source are GFCI receptacles.

07

Call a professional
If your lights are flickering, your circuits are tripped frequently, you see sparks or smell burning, it's time to call a trained electrician.