The Standard

Lahaina buildings were a disaster waiting to happen

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The world has seen many major disasters of late involving wildfires, with probably the most serious being the one in Maui, Hawaii.

This wildfire occurred in three locations, but probably due to geographic conditions, the one in the historic town of Lahaina caused the most damage.

At least 100 people died, and it is predicted that the total number of casualties will eventually be many times that, with tens of thousands made homeless.

This is likely to be the biggest fire incident in the United States this century.

Authorities believe it was caused by an unfortunate combo of hot, dry weather, winds driven by a hurricane, the geography around Lahaina, and the way its buildings were designed and constructed.

The first two may be unavoidable, but the geographic effects and the building construction could have been improved.

The town was built on the western side of Maui Island, facing the Pacific.

With mountains to its east, it provided breathtaking sceneries that attracted a lot of tourists, boosting the economy.

Unfortunately, when the wildfire raced through the town, the strong wind blowing toward the mountainside induced a recirculation of the hot air back into the burning town, sustaining the fire.

Lahaina's houses were mainly constructed with timber, which complemented the area's rustic idyll.

Unfortunately, timber burns much more readily than concrete and steel and the resulting fire load became huge.

These houses were also built close to each other. That is good, economic use of land but again not conducive to best practices in terms of fire prevention.

It is commonly believed that the fire started with overhead power lines falling on the dry hillside grass.

This is difficult to comprehend as the power supply should have been immediately cut off by protection devices built into the transmission line system to prevent causing a fire.

But the fact that the fire brigade had difficulties fighting the ensuing blaze as a supply of water was not available, and the warning sirens were inoperable due to the loss of power supply points to weaknesses in the original design of the infrastructure system which did not cater for emergency conditions.

This is almost laughable but for the very serious consequences that ensued, and most of us found it incredible to see what actually happened.

Once the wildfire began, it spread so quickly that residents were not able to pack up and leave in time.

They received no warning and only started to panic when they saw the fire and felt its intense heat, by which time the only escape was jumping into the sea. Even then, survival was difficult as that part of the island was totally engulfed.

The whole town is practically devastated and the only way to restore it would be to completely rebuild it, hopefully with better planning and design to comply with modern practice.

This catastrophic incidents teaches us at least two lessons.

Planning and design for any dwelling must include fire prevention. Buildings must be sufficiently distant, constructed with fire retardant materials and equipped with effective fire-prevention systems.

Also, small hill fires must be put out quickly to stop it from spreading.

Once a fire spreads and the heat generated becomes huge, extinguishing it will become much more difficult.

Wildfires are a common occurrence and unlikely to be totally prevented, but good engineering practice will ensure life and property can be protected effectively.

Veteran engineer Edmund Leung Kwong-ho casts an expert eye over features of modern life