

18

The Standard 英文虎報

Thursday, April 17, 2025

# City Talk

It was sad to see a 7.7-magnitude earthquake occur in late March in Myanmar.

Earthquakes, like huge wildfire and floods, are natural disasters and it is difficult to anticipate, but the resulting damage to life and property could be most devastating.

In theory, with good city planning, we should avoid constructing buildings in earthquake zones, on slopes, in flood plains and near forests. But the reality of life is that some people may be forced to live in such dangerous areas with ever increasing population, or simply because of their country's location.

In this instance, the side effect of a tall building under construction in Bangkok falling due to an earthquake occurring many hundreds of kilometers away raises a few interesting questions.

It is even more perturbing as other tall buildings in its vicinity did not suffer a similar extent of damage. Something may be amiss with this tall building.

While many people may speculate such collapse was a result of poor quality of construction undertaken by the building contractor, professional structural engineers who are knowledgeable in the design of building structures in earthquake-prone zones hold a much different perspective.

There is little information available to provide a detailed analysis of this Bangkok building failure, but photos clearly show that the building is over 30 stories tall, apparently of flat slab design, with a soft story at ground level.

Flat slab structures are those with floor

## Nuts and bolts

Edmund Leung

slabs sitting directly on top of columns. They are space efficient because there are no beams to support the slabs. Fitting of building services such as air-conditioning ducts, water supply and drainage piping and fire services system would be much easier since they do not need to penetrate through obstructing beams, thus significantly simplifying design and reducing construction time.

One big disadvantage of flat slab structures is that, although they should be able to take the vertical load amply if properly designed, their resistance to lateral load is weak since there are no beams – which could make the building structurally much stronger than slabs – to tie the columns together to form a robust framed structure.

The soft story, a technical term used by structural engineers, describes a story of columns with little or no stiffening by walls or bracing beams. It allows more open space, quite often on the ground floor, for large windows and doors for showrooms, restaurants and other purposes.

Under lateral load, the free-standing columns could be prone to sway sideways especially when they are tall and slender. Hence soft stories should be avoided for structures in earthquake-prone zones.

Apart from the weak lateral strength brought by its soft story and flat slab structural arrangement, the shaking load from

# Bangkok building collapse raises many questions



The Bangkok building collapsed on March 28 during the Myanmar earthquake. REUTERS, AP

the earthquake might have been amplified by resonance.

Every structure has a natural frequency. If the Bangkok building's natural frequency was close to that of the earthquake's vibrations – especially if those vibrations were very low-frequency – it could have vibrated in resonance with much greater intensity.

With a soft lower floor, flat slab floorings and possible resonance effects, the structure is likely to fail in an earthquake. What we saw on video widely screened by the media suggests that the tall columns at the soft ground story broke first and the whole structure fell upon losing support from below.

Such a result would have unlikely changed even if the building contractor used the best materials and workmanship.

As usual, a formal investigation on the causes of the collapse has started shortly after the incident and is ongoing. Equally important is for Thailand authorities to check whether the current building code needs revising to ensure that it is sufficient to cover earthquake scenarios.

If the code is already deemed sufficient, then the building regulatory system should be reviewed to ban weak lateral-resistant structures, such as that for the collapsed building, from being approved for construction in future.

In Hong Kong, tall buildings are designed to withstand heavy wind load from typhoons, but earthquake load is not usually considered. Wind load tends to bend the upper portion of the building structure while earthquake shakes the lower floors. Despite the difference,



catering for the heavy wind load should provide good lateral strength to the building structures to resist certain levels of earthquakes.

Public safety is supreme, and when engineers design or approve tall structures, they must pay special attention to the robustness of the structure to ensure it can withstand all conceivable situations, whether it be due to overloading, high wind, earthquake or other situations. There is no excuse for any oversight or neglect as the collapse of a tall building can be catastrophic.

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

## Legacy of storytelling excellence continues in 49th year of film fest

The 49th edition of the Hong Kong International Film Festival opened last Thursday at the Hong Kong Cultural Centre, marking the beginning of a 12-day cinematic journey that showcases the best of international and regional filmmaking.

HKIFF49's opening night showcased the world premieres of two poignant family dramas: *The Brightest Sun*, directed by Japan's Nakashima Tetsuya, and *Pavane for an Infant* by Malaysian filmmaker Chong Keat-aun.

The star-studded opening ceremony set a lively tone for the festival, highlighted by notable appearances from filmmaker-in-focus Louis Koo Tin-lok, director Nakashima Tetsuya, producer Yasunori Naruse, and Chong, along with actors Fish Liew Chi-yu and Ben Yuen.

To add an extra spark to the evening, celebrated Japanese actress Ando Sakura made a surprise appearance, delighting attendees as part of the festival's "Face to Face" program.

As one of Asia's most renowned and influential film festivals, the HKIFF has been a trailblazer in bringing Asian cinema to the global stage. In its early years, the festival's retrospectives and carefully curated selections unveiled the depth and diversity of Hong Kong and Asian filmmaking to international audiences, spotlighting stories that were often overlooked.

### CULTURAL EXCHANGE BERNARD CHARNWUT CHAN



Among those who attended the HKIFF49's opening ceremony are, from left, Malaysia's Chong Keat-aun and Hong Kong's Fish Liew, Ben Yuen and Louis Koo. AP

Over time, HKIFF has emerged as a gold standard for regional film festivals, earning widespread acclaim for its visionary programming, commitment to storytelling excellence, and unwavering support for cinematic innovation.

Today, the HKIFF is a cultural cornerstone in Hong Kong, attracting over 130,000 attendees annually. It offers an essential platform for filmmakers to debut their latest works while allowing audiences to experience an extraordinary selection of films.



This year's festival showcases an impressive lineup of nearly 200 films from 50 countries and regions, presented at various venues throughout the city. Audiences can also enjoy themed exhibitions, workshops and exclusive events.

HKIFF49 stands out with six world premieres, two international premieres, and 52 Asian premieres.

This year's edition also brings together celebrated filmmakers and artists from around the globe, including French director Leos Carax, Spanish filmmaker

Albert Serra, Finnish author Juho Kuosmanen, Golden Horse-winning actor Lee Kang-sheng, Japanese director Yaguchi Shinobu and actress Kishii Yukino.

This year's festival, which runs until Monday, showcases Hong Kong's cultural depth and upholds its tradition of celebrating creativity, supporting new talent, and connecting audiences.

**Bernard Charnwut Chan is chairman of Tal Kwun Culture & Arts Co Ltd**