

Industry Awareness Note: Creaking in tall residential towers in high winds

We have been made aware that in certain circumstances, typically during high winds, noise has been reported emanating through the building fabric in a small number of tall buildings. This noise is a consequence of natural movement of the building subject to the external weather conditions.

This statement is aimed at designers, developers, consultants and engineers to consider this phenomenon during the design process.

Design Advice

Many factors including aspect, building shape, wind speeds, geographical location, construction methodology can have an effect on movement of a building and resultant noise

Noise mitigation should be considered a critical part of the design process for any building, but particularly as the scale of the building increases.

The industry has been working to identify the most common source or sources of this noise and any methodology that could be used to reduce or eliminate this noise. Research is ongoing, but to date, no fully tested/proven mitigation technique for this phenomenon is commercially available.

Because current research studies are suggesting the phenomenon is most commonly emanating from friction within the internal building fabric when stimulated by the building's movement, it is an important responsibility of the structural engineers to determine the range of movements likely to be experienced by the building and to enable this to be provided to the system owners of the products being installed in the building during the design and tender stage.

As part of the overall solution, designers should engage with the respective system owners as soon as possible in the design process to allow the system owners time to consider and provide suitable detailing and/or other mitigating measures to accommodate three-dimensional movement as specified in the movement and tolerance report to reduce the risk of the noise phenomenon.

In the absence of a tested/proven solution being available it is not reasonable to include clauses at specification phase that identify this as a fault for which designers, contractors or manufacturers can be found liable in the future should noise occur.

Post Construction Advice

All tall buildings will experience movement due to weather events and it is important to stress that whilst noise may be heard, it is a common phenomenon in tall towers, it should not be a cause for alarm.

It is recommended that potential purchasers are warned that noise from the fabric of a building may be something that they will, on occasion, experience.

If noises are reported as a concern, seek verification from the developer or owner.