Performance-based Structural Design against Thunderstorm and **Tornadic Loads: Recent Numerical and Experimental Developments**

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Abstract

- Non-stationary wind storms such as thunderstorm downbursts and tornadoes present challenging structural engineering problems due to non-stationary, transient flow fields leading to intense wind loading.
- Performance-based wind engineering (PBWE) methods promote flexibility, cost-effectiveness, and sustainability in engineering design for wind phenomena.
- Recent implementations of PBWE utilize analytical methods are inadequate for complex non-stationary wind events.
- applies the PBWE methodology to vertical structures (buildings, towers, etc.) subjected to loading from nonstationary wind phenomena.

Non-Stationary Wind Phenomena



and tornado (right – Time magazine, bystander photograph)







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