



## Outrigger Design for High-Rise Buildings

An output of the CTBUH Outrigger Working Group  
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- Addresses the need for design guidelines, based around the role and impact of outrigger systems in tall buildings
- Written by CTBUH, experts in tall building technologies
- This new edition features updated design considerations to reflect current practices, expanded systems organisation and examples, and updated recommendations and suggestions for future research

The Council on Tall Buildings and Urban Habitat's Outrigger Working Group has addressed the pressing need for design guidelines for outrigger systems with this guide, now in its second edition, providing a comprehensive overview of the use of outriggers in skyscrapers. This guide offers detailed recommendations for analysis of outriggers within the lateral load resisting systems of tall buildings, for recognising and addressing effects on building behaviour and for practical design solutions. It also highlights concerns specific to the outrigger structural system, such as differential column shortening and construction sequence impacts.

In this edition, a new chapter explores the use of 'hybrid' outrigger systems that can 'tune' the stiffness of outrigger trusses, use leverage of the outrigger arms to drive non-linear damping devices, and use yielding materials that absorb seismic energy. Several project examples are explored in depth, illustrating the role of outrigger systems in tall building designs and providing ideas for future projects. The guide details the impact of outrigger systems on tall building designs, and demonstrates ways in which the technology is continuously advancing to improve the efficiency and stability of tall buildings around the world. The new second edition features updated design considerations to reflect current practices, expanded systems organisation and examples, and updated recommendations and suggestions for future research.