Buckling-Restrained Braces and Applications

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Following 30 years since the first application of buckling-restrained braces (BRBs) in Japan, BRBs are now widely used as ductile seismic members and energy-dissipating fuses, particularly in regions of high seismicity such as Japan, US, Taiwan, mainland China and New Zealand. Although the design codes and standards of several countries contain provisions for the design and application of BRB systems, these do not necessarily address the detailed design of the device itself. Additionally, while researchers continually investigate novel types of BRBs, these exhibit a wide range of performance and are regularly governed by several key failure mechanisms and phenomena unique to BRBs.

This book is the first devoted specifically to BRBs. It includes an early history of BRB research and development, state-of-the-art design methods, a comparison of codified test specifications, and several application concepts for damage-controlled structures employing BRBs. The authors include young researchers from Japan, US, mainland China, Taiwan and Turkey, and therefore reflect an international perspective. This is intended as comprehensive reference for researchers designing BRB specimens, and for practicing engineers seeking to understand the detailed device behavior and international best practice, with key references cited for further study.