



THE BUSINESS PARTNER  
FOR YOUR IDEAS



## SEISMIC BUCKLING BRACE

### MECHANICAL, CIVIL, & ENVIRONMENT

Heavy timber buckling restrained brace for enhanced seismic retrofitting and reinforcement of buildings and infrastructure.

#### TECHNOLOGY TYPE

Infrastructure  
Buckling Restrained Braces  
Seismic Damping

#### STAGE OF DEVELOPMENT

-Prototype developed.

- Experiments were carried out according to AISC-341 qualification testing requirements and demonstrated excellent performance which met and exceeded AISC requirements.

- Ongoing testing to validate performance.

#### IP PROTECTION

Provisional patent filed.

#### LEARN MORE

Reference Number: U-6510

#### Nick Wilkes

Technology Manager  
nick.wilkes@tvc.utah.edu  
801-587-0515

#### TECHNOLOGY SUMMARY

During intense earthquakes and other natural disasters, buildings experience significant damage, including deformation and buckling, due to non-linear displacement. Structural dampers absorb high amounts of energy and can prevent or reduce damage. One such device, a buckling restrained brace (BRB), absorbs energy through plastic deformation. However, conventional BRBs, typically concrete in a steel tube that perform well under large forces (200,000+ pounds) are heavy and have not yet been developed for small capacity applications.

The heavy timber buckling restrained brace consists of a steel core and heavy timber casing to prevent buckling, even for small capacity applications. It can be used in buildings, bridges, and other structures to dissipate seismic energy and prevent damage from natural disasters. It improves resiliency by acting as a fuse to protect the structure. This casing can be further fortified by adding compression screws to account for forces that run perpendicular to the grain.

#### FEATURES AND BENEFITS

- Lightweight and inexpensive compared to existing BRB types.
- More aesthetically pleasing than concrete.
- Enables use of BRBs for small capacity forces.
- Reduces structural damage from natural disasters.

#### INVENTOR PROFILE

**Chris P. Pantelides**, Ph.D., [Professor – Civil & Environmental Engineering](#)

DATE UPDATED: 7/25/2019