

### PROOF-OF-CONCEPT AND EXPERIMENTAL QUALIFICATION FOR A REPAIRABLE BUCKLING-RESTRAINED BRACE (BRB)

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**Abstract.** Reinforced concrete buildings designed and built before enacting modern seismic codes are considered seismically vulnerable, particularly when subjected to strong ground motions. These buildings require retrofitting to increase building strength, stiffness, and energy dissipation. Among the practical retrofitting methods is Buckling Restrained Braces (BRBs). An experimental investigation was carried out on a new type of BRB of circular steel core bar. The core is protected against buckling using a steel/mortar composite sleeve and novel end pieces that provide continuous restraint against buckling. The BRB core unit sample is stainless steel, with all threaded cross-sections. The BRB specimen underwent uniaxial cyclic loading following the AISC 341 qualification testing protocol. The experimental results showed that the BRB system successfully passed the qualification testing protocol by attaining the required cumulative displacements. In addition, The successful tests showed a stable hysteretic response in the tension and compression phase of loading and a significant ductility of  $\mu=4$ .

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#### References

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