IART-051
NEES Bracing Frame

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Abstract

The project will involve the creation of a bracing frame to be used on an ongoing basis for testing multi-bay, multi-story frame test specimens in the ATLSS laboratory. This bracing frame consists of steel members that are fabricated locally in Pennsylvania. The bracing frame will be erected inside the ATLSS Multi-directional laboratory and become a permanent fixture.

New forms of innovative structural systems can be evaluated using the bracing frame under various loading conditions. For example, the bracing frame will be used to perform testing of a five story, two-bay moment perimeter resisting frame under simulated seismic lateral load conditions in the near future. The test frame is a 2/3 rds scale model, having concrete filled steel tube (CFT) columns and steel wide flange beams. The frame will be tested under a range of seismic demand, beginning with low level excitation to evaluate the elastic response, to finally the maximum credible earthquake to evaluate strength and ductility. For each test the lateral loads will be applied in a pseudo static manner to replicate a displacement history based on analysis of the test frame.