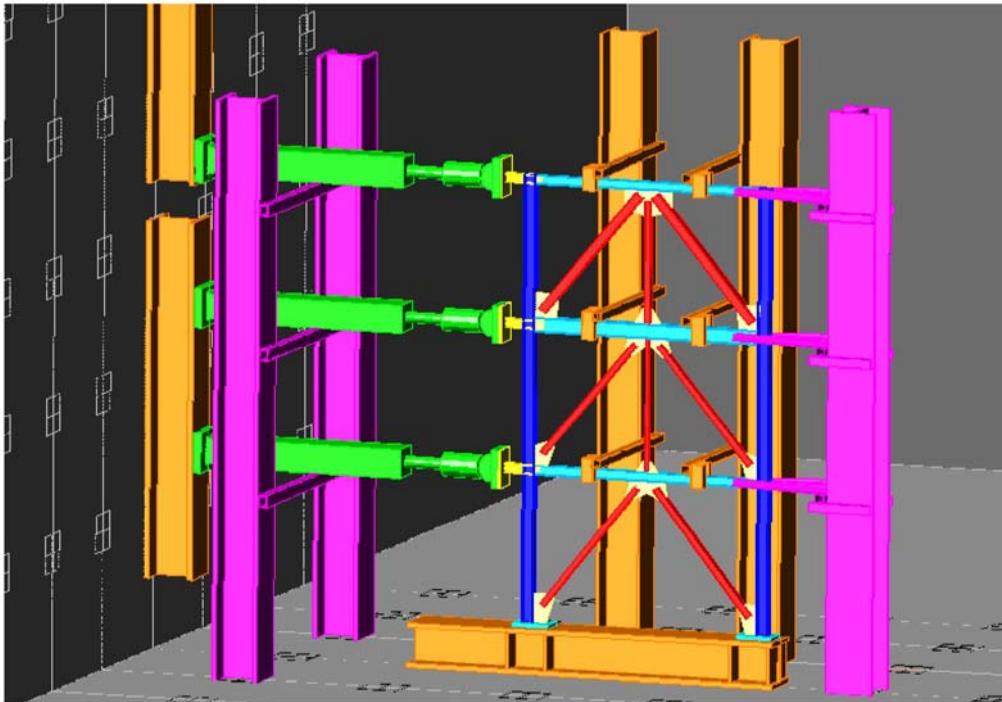


# Quasi-static test of the reduced-scale model of a suspended zipper frame

Prof. Roberto T. Leon, Prof. Reginald DesRoches and Walter Yang, Ph.D. student

Structural Engineering and Materials laboratory (SEML)  
School of Civil and Environmental Engineering  
Georgia Institute of Technology, Atlanta, GA 30332-0355  
rleon@ce.gatech.edu



Schematic view of 1/3 scale suspended zipper frame to be tested at Georgia Tech  
(Specimen columns are shown in dark blue, beams are light blue, and braces/zipper struts are red)

## Abstract

Quasi-static tests on a 1/3-scaled model suspended zipper frame will be carried out at Georgia Institute of Technology. The structure was designed to carry similar loading as the 3-story frames designed for the Los Angeles area for the SAC project. The testing will begin in early February 2005, soon after the shaking table tests of the zipper frames at the University at Buffalo. The purpose of this test is both to investigate the structural performance of such zipper frames and to contrast behavior under dynamic and quasi-static loads. Of particular interest are both the characterization of the force-displacement hysteretic behavior of the brace and zipper members (shown in red in the figure above) and the determination of the exact load path (i.e., buckling sequence and post-buckling strength) when this frame is subjected to lateral forces. Two frame tests will be conducted: one will follow the displacement history at the floor levels as obtained from the shake table tests at Buffalo while the other will be a monotonic pushover analysis. By comparing the experimental results with the analytical data, the validity of a proposed design procedure for suspended zipper frames will be verified. After these tests, a full-scale three-story suspended zipper frame will be conducted at Georgia Institute of Technology by the end of 2005.