Report of the Practice Committee
December 3, 2008

The Practice Committee consists of representatives of the design and construction industry familiar with the components under study in this project, steel stud and gypsum board partitions, ceilings, and sprinkler systems. The Practice Committee is expected to:

- Participate in the design and performance of experiments
- Provide input on simulation tasks
- Identify Potential Barriers to Implementation
- Identify Key Target Audiences
    - Subsystem/Component Manufacturers
    - Professional Organizations
    - Code Committees
- Develop Outreach Programs
- Initiate Code Changes

The original members were as follows:
William Holmes, Structural Engineer, Rutherford & Chekene
Dennis Alvarez, Manager of Research and Technology, US Gypsum Corp
Russell Fleming, National Fire Sprinkler Association
John Gillengerten, Structural Engineer, California Office of Statewide Health Planning and Development
Praveen Malhotra, Research Specialist, FM global Research
Robert Wessel, Assistant Executive Director, Gypsum Association

In the first year, an expert in the manufacture and installation of steel studs was added: Don Allen, Executive Director of Steel Stud Manufacturer's Association

In the first year, testing of steel stud and gypsum wall partitions was scheduled. The Practice Committee was tasked to identify typical design and construction construction details and key variables that may affect seismic performance. Many variables were identified including:

- Stud type and gauge thickness
- Stud-to –track connections
- Sheathing-to-track connections
- Plan Geometry (returns, L-shapes, box shape, etc.)
- Continuous floor to floor or discontinuous configurations and intermediate connection points and details
- Wall Mounted Equipment
- Loading direction (in-plane vs. out-of –plane)

Over forty possible test configurations were identified and then reduced to a recommended sequence of eight configurations with adjustments expected depending on the results of each test.

The first test series included a slip track at the top connection, which is judged typical of commercial partitions throughout the U. S. This slip track allowed in-plane movement and protected the main partition from drift damage, as expected. Previously, fragilities of typical partitions have been based on fixed tracks top and bottom, which led to large in-plane deformations and damage. This test series will lead to changes in these typical fragilities. However, the slippage of the main partition also created an incompatibility with the perpendicular return legs of the partition configuration which can not move out-of-plane and significant damage at the intersection resulted. After completion of the first sequence of testing that includes consideration of major variables, various details will be tested to develop a detail that both allows slip and minimizes damage at corners. Such a detail could result in a major reduction of seismic damage due to drift. When this detailed is identified, it will be recommended for inclusion in industry codes and standards.

In November, 2008, two details were tried to minimize corner damage due to drift. The first detail eliminated connection of the tracks to the slabs near the corner (within 24"). This detail minimized damage up to a moderate drift of about 1%, but still significant damage occurred at maximum expected drifts of 3% to 4%. A simple detail that only eliminated connection of the top tracks acted similarly, but only minimized damage up to about 0.6%.

A more elaborate detail that provided space for differential movement at the corner worked much better but required voids in the wall at the corner to allow movement. The corner was "complete" only at the finish level using a small metal angle to close the corner gap. The void in the wall could compromise sound or fire separations at the corners.

Costs of damage under various conditions have not been estimated, but complete documentation of the tests that will enable development of costs is available.