

Research Update

January 15, 2004

Research Team Releases Three New Research Reports on Projects Sponsored by the Steel Framing Alliance

Work was completed on the project by the NAHB Research Center to make a **Long Term Energy Comparison Between Steel and Wood Homes**. The objective of this test program was to compare the energy consumption and estimate the total R-value of the three sets of houses built in the previously completed *Cost and Energy Comparison Between Steel and Wood Homes* project. Work is completed and the latest of three reports, *Steel vs. Wood Framing Thermal Comparison - Fargo Demonstration Homes*, dated October 2003; has been issued.

Work was also completed on the project by the University of Waterloo to evaluate **Alignment of Steel Framing Bearing Stiffeners**. The objectives of this project were (1) to gain a more thorough understanding of floor joist behavior when there is misalignment in the load path for the range of products and limitations of the AISI Prescriptive Method standard, and (2) to propose modifications to the alignment framing tolerances in the AISI General Provisions standard, as necessary. A total of 110 tests of various floor joist assemblies were completed and a final report, *The Strength of Stiffened CFS Floor Joist Assemblies with Offset Loading*, was issued in December 2003. Based on the findings of this work some significant conclusions about the behavior of the assembly were reached and a change was recommended to the wording of the AISI General Provisions standard that will limit the amount of offset that is allowed.

Work was also completed on the project by Dr. Reynaud Serrette to develop a methodology for **Estimating the Response of Cold-Formed Steel Frame Shear Walls**. The objective of this project was to develop elastic shear stiffness coefficients and general (piece-wise linear or continuous) deflection expressions for shear wall configurations permitted in the proposed AISI Lateral Design standard. The final report, *Estimating the Response of Cold-Formed Steel Frame Shear Walls*, was released in December 2003.

Three new research and development projects have been initiated, including:

- **Load Bearing Top Track** – To provide alternatives to the in-line framing requirement by adding details and span-load tables for new load bearing top track options to the AISI Prescriptive Method standard.
- **Wall Stud End Gap Tolerance** – To experimentally study the influence of the wall stud end gap on strength and serviceability and propose an acceptable tolerance for design.
- **Gable End Walls** – To create the documentation necessary to include provisions for gable end wall framing in the AISI Prescriptive Method standard.

Work also continues on completing a number of research and development projects, including:

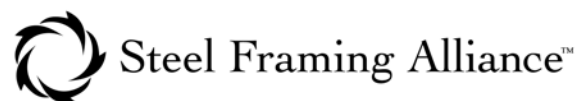
- **Fire and Acoustic (Residential)** – To compile a report summarizing the existing fire and acoustic details used in steel-framed homes.
- **Fire and Acoustic (Commercial)** – To test steel floor assemblies to establish needed fire and sound ratings.
- **Corrosion of Galvanized Fasteners** – To study the effects of corrosion of galvanized fasteners on cold-formed steel-framing connections.

The Steel Framing Alliance's core value of "maintaining leadership in construction technology through innovation" is the primary driver behind these research initiatives. The ideas and involvement of builders, contractors, designers and suppliers in this process is essential to its success.

The Research Team serves the Steel Framing Alliance as a technical advisory group, facilitating the timely technical review of research and the dissemination of its findings. We welcome Don Allen, representing the Steel Stud Manufacturers Association and Dr. Reynaud Serrette, representing the Light Gauge Steel Engineers Association to the team. For more information, contact the Research Team Leader, Jay Larson, jl Larson@steel.org, 610.691.6334.

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