

Industry Advisory

End Flare in 68-mil and Heavier CFS Structural Studs and Track

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One of the many valuable characteristics of Cold-Formed Steel (CFS) framing is its compatibility with the major sheathings, substrates, and finishing systems used in modern building construction. Like all framing materials, performance of CFS framing is dependent upon proper design, detailing, and installation methods.

To facilitate CFS performance that meets expectations of all parties involved in its construction, SFIA members participate in the SFIA Code Compliance Certification program, insuring they meet or exceed minimum code requirements. However, codes and standards do not always address every conceivable scenario that is encountered in the real world. Current AISI and ASTM standards do not define a tolerance for flare at the end of a stud, only a tolerance at a point “no less than 1 foot” from the end. With structural studs (i.e., not partition studs) that are 68 mil and heavier it is not unusual for there to be significant variation in the amount of end flare.

Although excessive end flare is not believed to be a universal or even a widespread problem, it is something that building owners, contractors, designers, specifiers, and others should be aware of in the process of design, specification development, and installation of CFS framing and related finish systems.

Roll forming induces stress into the steel as the stud or track is formed, and end flare is caused by the release of residual stress when the stud is cut. Less stress is required for forming materials 54 mil and thinner, thus they will tend to have a small amount of flare. However, the process of forming heavier materials will produce higher levels of residual stress and consequently have a higher potential for end flare.

SFIA conducted a survey in June 2018 of its manufacturer members and determined that the average tolerance under normal manufacturing conditions and speeds is just over 5/32 inch at the stud end. Two companies reported up to ¼ inch at the stud end. Under these conditions, the average variance could range from -1/8 inch at one foot in to +5/32 inch at the end of the stud, or up to +1/4 inch at the stud end depending on the manufacturer.

The average was obtained by eliminating one large outlier and averaging the remaining responses. Contractors and others should also realize that a broad range in what manufacturers can deliver is possible since the survey was only representative of 1/3 of the SFIA members who responded. Although all SFIA certified products meet the requirements in the standards of 1/8 inch not less than 1 foot from the stud end, when heavy thicknesses are necessary, additional attention to flare at the stud end may be necessary.

For more information on end flare or tolerance requirements, contact Pat Ford, SFIA Technical Director, at pat@steel framingassociation.org.