

Evaluation of Lippert Components, Inc. (LCI) Steel Strap ENG-2408-301
December 20, 2024

Mr. Lester Arauz
RADCO
18071 Mount Washington St Ste A
Fountain Valley, CA 92708-6100

Re: Evaluation of Lippert Components, Inc. (LCI) Steel Strap

Dear Mr. Arauz:

DrJ Engineering, LLC (DrJ) has been asked to provide a Florida professional engineering accepted engineering practice review with respect to the LCI Steel Straps. This work has been performed pursuant to our areas of expertise. The purpose of the DrJ review is to provide an engineering assessment of the conformance of the LCI Steel Straps with the 2023 Florida Building Code (FBC).

The straps are formed from flat or preformed cold rolled steel sheets that meet ASTM A653 standards. Straps are 0.0179" (26 ga) thick (without coating) with a minimum width of 1½" and available in varying lengths. LCI Steel Straps have a minimum yield strength of 36,000 psi and are coated with a minimum of G40 galvanized coating to ensure that the LCI Steel Straps meet ASTM A653 standards.

The LCI straps shall be used as a structural connection between roof and wall framing members, and wall and floor framing members. Table 2304.10.1 shall be used to determine the fastening schedule for various connections. An example of allowable tension loads for various wood species can be seen in **Table 2**. A maximum of 36,000 psi yield strength shall be used when determining the maximum working load. The strap shall be only loaded in tension along the lengthwise dimension. Bending of the strap is allowable to conform to lumber surfaces as long as there are no gaps created at the joint. The strap may not be used in a twisted condition.

Table 1. LCI Steel Strap Properties

Property	Value
Yield Strength	36,000 psi
Lengths	Varied
Width	1.50"
Thickness	0.0179" (26 ga)



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Table 2. Allowable Tension Loads for LCI Straps with Various Fasteners

Fasteners	# of Fasteners per strap	LCI Straps Allowable Tension Load (lbs)											
		SP (SG=0.55)				DF (SG=0.50)				SPF (SG=0.42)			
		Load Duration Factor											
		1.0	1.15	1.25	1.6	1.0	1.15	1.25	1.6	1.0	1.15	1.25	1.6
2¼" x 0.113" & 2" x 0.113" Nails	4	307	352	383	490	282	324	353	451	242	278	303	387
	6	460	529	575	579	423	487	529	579	363	418	454	579
	8	579	579	579	579	564	579	579	579	484	557	579	579
	10 or more	579	579	579	579	579	579	579	579	579	579	579	579

SI: 1 in = 25.4 mm, 1 lb = 4.45 N

- Values are calculated based on the tensile strength of the steel and the lateral capacity of the fasteners.
- Allowable tension loads apply for uplift when the straps are installed vertically.
- Assumes staggered nailing pattern so that nails are spaced a minimum of 1" apart, IE not aligned more than one at a time in the perpendicular to length direction.

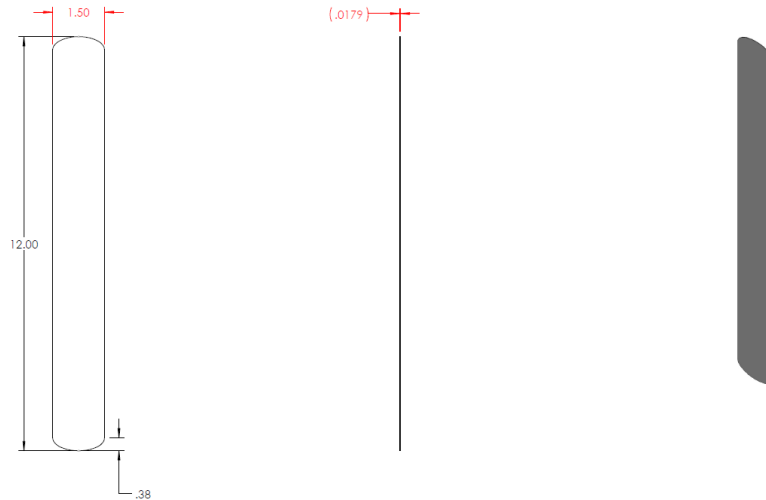


Figure 1. LCI Steel Straps

DrJ's procedures are fully compliant with the ISO/IEC 17065 certification process and DrJ's scope of expertise.

If there are any additional questions or concerns, we will gladly provide a Florida professional engineering¹ and ANAB ISO/IEC 17065 accredited² approved agency response. Pursuant to the 2023 FBC Code Section 1707.1³ we would sincerely appreciate knowing the specific sections of the adopted building code and/or professional engineering law that this engineering evaluation does not comply with so that we can cure any non-compliance. From specifics, we can then delineate a path forward for everyone involved to cure any violations, as this will serve everyone's free and fair market competition's best interests.

¹ **Approved Source.** An independent person, firm or corporation, approved by the building official, who is competent and experienced in the application of engineering principles to materials, methods or systems analyses. https://up.codes/viewer/florida/fl-building-code-2023/chapter/2/definitions#approved_source

² **Approved Agency.** An established and recognized agency that is regularly engaged in conducting tests, furnishing inspection services or furnishing product certification where such agency has been approved by the building official. https://up.codes/viewer/florida/fl-building-code-2023/chapter/2/definitions#approved_agency

³ In the absence of approved rules or other approved standards, the building official shall make, or cause to be made, the necessary tests and investigations; or the building official shall accept duly authenticated reports from approved agencies in respect to the quality and manner of use of new materials or assemblies. The cost of all tests and other investigations required under the provisions of this code shall be borne by the owner or the owner's authorized agent.



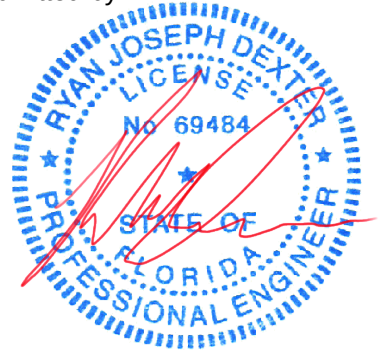
Our goal with the foregoing analysis is to provide both the accepted engineering analysis and regulatory compliance substance to support a systematic path to approval. Please contact us if we can help further in any way. If your request is time-sensitive, please contact Jill Zimmerman at (920) 988-7165. Thank you very much.

Prepared and Respectfully Submitted by:

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Reviewed and Respectfully Submitted by:

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December 20, 2024

Ryan Dexter

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