



**SDI Review Form 1.6**

Journal Name:	<a href="#">Advance in Research</a>
Manuscript Number:	<b>Ms_AIR_18797</b>
Title of the Manuscript:	<b>Flexural Behavior of lapped connections in multi-span cold-formed Z-purlins</b>
Type of the Article	<b>Review Article</b>

**General guideline for Peer Review process:**

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound.

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**PART 1: Review Comments**

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
<b>Compulsory</b> REVISION comments	<p><b>Lines from 92 to 99</b> - Were there tested the influence of this decision?? It Could affect the length of the isolated lapped connections to the ultimate moment or shear force???? It is obvious that this length would affect, but in order to increase technical rigour of the study, maybe, could be interesting to discuss deeply this assumption.</p> <p><b>Table 1</b> - What was the used method to make the lap splice stiffer?? A brief description of the method finally applied and if it was according to national or international standards, would be adequate. In discussion point it is presented, but in order to clarify the exposition of the carried out tests, it would be interesting to make a brief description before the test set up was presented.</p> <p>And what about the lenght of lapped connection of 900 mm in combination with epoxy method. Was this novel technique useful with such lapped length? Why did is not tested with this configuration??</p>	<p>It should be noted that in general, instead of carrying out prolonged and expensive full-scale testing in order <b><u>to examine the behavior of lapped connection, regardless the length of span test</u></b>, it is sufficient to test the lapped connections of reduced section lengths. This length is affect ultimate moment, and its a structure concept for continuous beams, as shown in Fig.1.</p> <p>As clarified and description in table 1, the web stiffer of the lap splice was made by extending the section of spliced Z section members on both sides of the lap splice that with full section and reduced of its upper and lower flanges with the mention lengths as shown in Fig. 3.(m-p). The flange stiffer of the lap splice was made by applying four equal steel angle at flanges as shown in Fig. 3.q.</p> <p>For epoxy connection, as a result expected and clarified in Fig.13, lap length increased to more than twice the beam depth not affect the ultimate load, so, no need to examine the length of lapped connection of 900 mm.</p>



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	<p><b>Line 145-</b> Images are of poor quality. It results necessary to increase resolution of the whole collection of images and, particularly in the case of the Test Series B, in which is fundamental to see what was the arrangement of bolts finally used in the the carried tests.</p> <p><b>Line 153</b> - Same considerations as in the previous comment. In this particular case, it would be adequate if the positions of the epoxy reinforcement were pointed out on the images.</p> <p><b>Lines from 170 to 172</b> - It is not necessary provide raw results of those tension tests managed in order to get the mechanical parameters of pieces, but it would be interesting provide the main statistical parameters of such tests in order to know the variation between the results or the consistency of the properties finally used on the carried study.</p> <p><b>Lines from 208 to 211</b> - Tests carried out in laboratory, by using hydraulic jacks, could have some dispersion applications of the force. Maybe it would be interesting provide a graph or a table with these incremental steps in order to show how different where those step-force. Were they equal in the whole tests of those force steps or it varied along the tests?? It is a key point and too much relevant on the obtained results. It could play a key role on the obtained results</p> <p><b>Figure 5</b> – It is of poor quality and it is necessary to improve resolution and quality in order to clarify the exposition of the work done along the study.</p>	<p>It has been clarified image.</p> <p>It has been clarified image, also, it has been identified the positions of the epoxy reinforcement. The whole contact area between the two purlin are epoxy coated.</p> <p>All material tests were provided to get the mechanical properties of raw material, and we test three pieces to get the average value only.</p> <p>All the incremental steps of loads were clarified in Figs.14. to 18, also the measurements are taken by reading load steps intervals with the rate of (1) reading / second.</p> <p>It has been clarified the figure.</p>
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<p><b>Minor</b> REVISION comments</p>	<p><b>Lines from 88 to 90</b> - It sounds necessary to increase and discuss reasons that pushed to identify relevant parameters in this study. Are the based on the most important international or national standards?? Or derived from the technical or professional experience of the authors?? Are they based on results of previous researches?? If so, then, could be interesting to make a brief reference to those sources and identify the final parameters that have been proposed in this study.</p> <p><b>Table 1</b> - It appears necessary to argue why the lapped length of 300 mm was finally chosen for the study of the arrangement of bolts and not, for instance, the first one, which had the shortest lapped length and, consequently, it was the less stiff.</p> <p><b>Lines from 311 to 313</b> - Conclusion obtained on this lines reveals a lack of effectiveness in the technique. But in case of the bolted lapping, what kind of arrangement of bolts was used to get this graph? On the other hand, economic and practical aspects of the epoxy method had been managed along the laboratory tests?</p>	<p>As mentioned from previous works, and our main target to increase the ultimate load carried by lapped splice, we supposed these four parameters.</p> <p>The lapped length in this case not the major parameter (all comparisons between the arrangements were taken for the same length) i.e. all results taken in this length can be applied for any length.</p> <p>As shown in Fig.13, epoxy led to increase the ultimate load by 29.32%, 43.45%, 47.7% and 17.00% compared with that bolted specimens A180, A240, A300 and A600 (that with web bolts only) respectively, so, this technique was better than the conventional technique by using bolts. Also it is noted that epoxy lapping increase the ultimate load with (lap length / beam depth) ratio equal 1.81 and have a constant value with the increase of lap length.</p>
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<b><u>Optional/General</u></b> comments	<p>Article reports a whole series of a set tests of laboratory by studying 4 fundamental parameters of the lapped connections in multi-span cold-formed Z-purlins. Tests series were technically consistent and the results obtained are very interesting in order to take advantage of the present investigation, for example, improving the effectiveness of the lapped connections (by reducing the amount of material or length of the lapped connection or by distributing more efficiently the arrangement of bolts in those situations).</p> <p>Moreover, a new technique was introduced, epoxy method. However, there are no additional considerations in the use of such material (from a practical perspective, resistance to rain, raw conditions, etc.).</p> <p>The whole article results interesting and the obtained conclusions are consistent with practical considerations. However, prior to its publication, there are several minor an general changes that have to be done, according to previous comments. Finally, there are some grammatical mistakes along the texts that should be corrected by improving the English edition.</p>	<p>In practical, all this beams were covered by sheets , i.e. indoor contact</p>
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