

# Reviewer report

|         |                                                                                                                                       |
|---------|---------------------------------------------------------------------------------------------------------------------------------------|
| Title   | A state-of-the-art review of modular volumetric timber buildings and their potential contribution to circular construction            |
| Summary | A review of modular timber building projects illustrating that they are used for flexible design and to meet carbon emission targets. |

## General comments

|                   |                                                                                                                                            |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Manuscript</b> | Overall well written, with some potential to improve regarding the structure of the paper                                                  |
| <b>References</b> | References are up to date                                                                                                                  |
| <b>Aim</b>        | The aim is not too clear or justified with evidence for the need of the study                                                              |
| <b>Methods</b>    | The methods are overall clear, with minor parts needing clarification. Parts of the methods should be described in the appropriate section |
| <b>Findings</b>   | Well presented, but not discussed in terms of implications and relevance                                                                   |

## Specific comments

### Introduction

Overall, the introduction can be improved. At present, the aim of the research is not entirely clear or justified.

| Line | Comment                        |
|------|--------------------------------|
| 66   | Typo : reduse should be reduce |

|             |                                                                                                                                                                                                                                                                                                                                          |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 69-71       | It is not clear what aspects of the design are going to be summarised in the paper at this point                                                                                                                                                                                                                                         |
| section 1.1 | The purpose of this section is unclear. If the purpose is to expand the definitions, this needs to be summarised further. If the purpose is to provide a “literature review” as the subheading suggests, there is no critical analysis. The authors are encouraged to consider if the subsection is needed or not and amend accordingly. |
| Line        | Comment                                                                                                                                                                                                                                                                                                                                  |
| 134         | This is an ambitious goal. The authors are encouraged to reflect as to whether this review can accomplish this goal.                                                                                                                                                                                                                     |

## Review and case selection methodology

- In general, this section is well written. However, the inclusion criteria of the case studies is not entirely clear (i.e., what exactly do the case studies should be reporting to be considered in the review?)
- It would also be useful to clarify how the case studies were analysed (what elements from them were the authors looking at and reporting)
- The process for the interviews discussed in section 5 should be described in this section as well, along with the process to analyse themes derived from them.
- Of particular importance for replicability is the difference between analysis processes resulting in two distinct sections of the paper (4 and 5). This needs clarification.

|          |                                              |
|----------|----------------------------------------------|
| Line     | Comment                                      |
| Figure 1 | There seems to be a typo in the keywords box |

## Principles of modularity in timber buildings

- Overall, the section is well written, but it seems misplaced. Is this better suited as background info, before the methods are explained? If so, how is this essential to conduct the review? Is there anything on this section that was developed by the authors as a framework to conduct the review? If so, this needs to be more explicit.

## **Analysis of the volumetric timber module in study cases**

- Generally, ok.

| Line         | Comment                                                                                                                                   |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| Figure 7 & 8 | These can benefit from further explanation in text (I.e. Figure 7 shows...). This is also applicable to other figures throughout the text |

## **Analysis of buildings made of volume timber modules**

- The only comments is related to a previous comment in the methods section. How is this analysis different from that in the previous section? Were different methods used? This can be clarified in the methodology to help readers understand the point of each chapter better.

| Line | Comment                                                                                                                                                                                                                                           |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5.1  | The reviewer wonders whether there are any guidance on construction codes that would advise designers regarding the ratios discussed in this section. It would be interesting to see whether current practice deviates from them if they do exist |

## **Results**

- The reviewer believes that the results have been presented in sections 4 and 5. This section should be conclusions instead and should focus more on the implications of the review, as well as discussing limitations and future work.