



## COST Action FP1101

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### Training school on Assessment and reinforcement of timber elements

2013, December 9<sup>th</sup> to 13<sup>th</sup>  
University of Mons, BELGIUM

### *Homework – 7.5 ECTS*

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*This document contains a description of the task to be performed by the students of the course “Assessment and reinforcement of timber elements” that will be held at the University of Mons, Belgium in December 2013. This written home-work has to be done after the Training School, by groups of 2 students coming from different Universities, and should be sent back to the local organizer (Thierry Descamps) for reviewing, no later than March 31st, 2014. The groups of students will be defined during the training school. All reports are requested in English and must have 15 pages maximum*

#### *Topics*

The assessment of one existing timber structure (new or old) in your home region. This could be a timber roof, a timber bridge, a timber or half-timbered house, etc. that presents some pathologies and needs intervention (reinforcements). If the proposed timber structure for this task is of major importance, only a part of it could be studied.

The work consists of the application of all concepts that have been developed during the training school, from the assessment to the reinforcement. You are required to get first-hand, on-site information on the object and look for significant details (photographs). All material for the work must be first-hand (not from internet or texts from the literature).

#### *Guidelines for the redaction*

The task consists of writing a paper “ready to publish” in a journal. A report shall be written by each group - each group consisting of 2 students and should follow the so called “IMRaD” rule (i.e. “Introduction”, “Methods”, “Results” and “Discussion”). In particular:

- **Introduction: Setting the scene.** The introduction must provide the reader with sufficient background information for them to put your work into context. It needn't and shouldn't be a

comprehensive literature review of the field: that is what review articles are for. Instead, it should present “the problem,” basically whatever the research question is, thereby defining the rationale for the study. The introduction should also briefly explain how you addressed this problem and what was achieved. Put another way, it should be clear from the introduction what related work has been done before, why the current study was performed, what you did, and what you found.

*Describe here the site, the current use of the timber structure and an overview of the structure, as well as its history (age, state of conservation, erection...). A comprehensive literature search should have been performed before launching into your study, on an on-going basis to ensure that you are up to date with all developments in your field of research. As with all references to the literature, the literature cited in the introduction needs to be current, balanced and relevant.*

- **Methods: What you did.** The methods section of your manuscript should contain sufficient information for a capable researcher to accurately repeat the experiments you describe. If essential information is left out, the exact conditions might not be replicated, leading to different results, potential misunderstandings, or worse, accusations of falsification. Thus, the methods section needs to be comprehensive:

*Describe here the methods you used to assess the structure. You can also make some links with lectures that have been done during the training school. Don't forget that visual inspection is easy to apply and gives a lot of information about the structure.*

- **Results: What you found.** The results section is possibly the most important section in your report. In this section you will describe the main findings of your research, which is what everyone who is going to read your report wants to know about. Also, whatever findings you obtained will determine how the introduction and discussion sections are framed, what target journals you can consider, and what direction(s) your subsequent research needs to take.

*Describe here the cracks, deflection, moisture, fungus...and all relevant pathologies observed on site. For each one, answer the question “How is it important for the stability of the structure?” In this part, you should highlight the weaknesses of the structure. For this, it is essential that you get “hands on” and gain your own experience when you encounter the structure (on site assessment). Finally, you should propose a model explaining the origin of the observed pathologies. A good understanding of the structure should allow you to propose and argue about the use of reinforcements. A proposition of reinforcement (if necessary), with the evaluation of its efficiency, should be done (you may use hand calculation methods and/or numerical/FE-analyses if required).*

- **Discussion/conclusions: What does it all mean?** The discussion section of your manuscript is critically important. It is where you pull together all the ‘threads’ of evidence you have presented in the results in the context of the background you presented in the introduction. A common mistake is to overlook the importance of this section considering it sufficient to merely present the results and allow the readers to draw their own conclusions. However, presenting your results without describing their implications leaves them open to interpretation and reduces the impact they could have. Journal editors want papers that will advance the field and generate an impact. Therefore, use the discussion wisely to maximize the impact of your findings.

*Here, among other things, discuss "how the proposed reinforcement fits the structural requirements" or "the potential risks for the future in relation with the proposed reinforcement"....*

## ***Template***

Your paper will be written with the following template for LaTeX provided by ASME (American Society of Mechanical Engineers). The use of this template is part of the work.

<https://www.asme.org/shop/proceedings/conference-publications/author-templates>

Templates for LaTeX are offsite - they are available via FTP, courtesy of the University of California, Davis. Authors will need to navigate through the different folders to find the template, which should be saved to the desktop for later use.

FTP: <http://iel.ucdavis.edu/code/ASME/>

Please use:

“LaTeX template for ASME journal papers submitted for publication, version 1.0”

Figure 1 gives you an overview of this template.

# The Final Version of an ASME Journal Article Created Using L<sup>A</sup>T<sub>E</sub>X<sub>2</sub> $\epsilon$ in ASME Format Submitted for Publication

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## ABSTRACT

*This article illustrates preparation of the final version of an ASME journal paper submitted for publication using L<sup>A</sup>T<sub>E</sub>X<sub>2</sub> $\epsilon$ . For the convenience of proofreading and editing, the final version shall be formatted in a single column. This article is formatted based on the contents in the article entitled "An ASME Journal Article Created Using L<sup>A</sup>T<sub>E</sub>X<sub>2</sub> $\epsilon$  in ASME Format for Testing Your Figures," which is a template for preparation of ASME papers submitted for review. An abstract for an ASME paper should be less than 150 words and is normally in italics. Notice that this abstract is to be set in 9pt Times Italic, single spaced and right justified. Please use this template to test how your figures will look on the printed journal page of the Journal of Mechanical Design. The Journal will no longer publish papers that contain errors in figure resolution. These usually consist of unreadable or fuzzy text, and distortion or rasterization of lines. This template identifies the specifications used by JMD some of which may not be easily duplicated; for example, ASME actually uses Helvetica Condensed Bold, but this is not generally available so for the purpose of this exercise Helvetica is adequate. However, reproduction of the journal page is not the goal, instead this exercise is to verify the quality of your figures.*

## Nomenclature

- A You may include nomenclature here.  
 $\alpha$  There are two arguments for each entry of the nomenclature environment, the symbol and the definition.

The primary text heading is boldface and flushed left with the left margin. The spacing between the text and the heading is two line spaces.

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\*Add all correspondence related to ASME style format and figures to this author

†Add all correspondence for other issues to this author

**Figure 1** : template to be used