SMALL SCALE MODELS, TIMBER CONSTRUCTION AND THE TEACHING OF ARCHITECTURE: A BRAZILIAN EXPERIENCE

Ivan do Valle¹, Akemi Ino², Anaïs Guéguen³

ABSTRACT: Timber construction demands institutional and educational support in order to divulge its traditions, techniques and constructive characteristics. The goal of this work is to present the results achieved by a group of Brazilian teachers that have been using small scale models as a tool in the teaching of architecture and timber constructions. With simple techniques and direct methodology undergraduate students deepen their knowledge of wood buildings by producing small scale models that reproduce real life situations from the building site. This experiment has been happening for 18 years in the University of Brasília and lately has been applied in the Institute of Architecture and Urbanism of the University of São Paulo.

KEYWORDS: Small scale models, Timber construction, Teaching of architecture

1 INTRODUCTION

The employment of small scale models as a teaching and learning tool of the timber construction culture, for students of schools of architecture, has shown itself to be a valuable reference and kindled the interest of students for the correct employment and good constructive techniques with the use of this material [1].

The teaching of timber construction, strongly advocated in the northern hemisphere [2], demands for more support of higher education institutions in Brazil, with aims to promote its constructive culture and its values from the viewpoint of environmental, social, economic and political sustainability.

The objective of this work is to present an experience in the use and application of small scale models as a means to enhance the repertoire of students of civil construction and related areas to the structural and constructive technologies, the correct use of materials and techniques and its correlations with the structural and architectonic project of the timber structures.

2 METHODS

The method of work has been applied for some time in the School of Architecture and Urbanism of the University of Brasília [3] and, in 2013, the Institute of Architecture and Urbanism of the University of São Paulo, as can be seen in figure 1, offers a course with the same theme and methodology.

Architectural projects built in wood are researched from the architectonic point of view, passing through the constructive techniques, up until the understanding of the structural system. This sort of deepening, by itself, represents a gain for the student, for it makes a differentiated approach of the building, making it closer to the work that will be represented in the small scale.

Specific techniques are taught to the students for the transposing of the studied project to its representation in the small scale model [4].

¹ Ivan do Valle, Universidade de Brasília, FAU-UnB, Brasília, Brazil. Email: vallefau@unb.br
² Akemi Ino, Universidade de São Paulo, IAU, São Carlos, Brazil. Email: inoakemi@sc.usp.br
³ Anaïs Guéguen, IAU/USP, Habis Researcher, São Carlos, Brazil. Email: anaisgueguen@gmail.com
Whenever possible, the confection of a small scale model of certain productive techniques of carpentry is asked of the student, bringing adequate and relevant language to the learning process, as the example in figure 2, bringing school and building, theory and practice, designer and carpenter closer together.

![Figure 2: Students working on a project](image)

### 3 RESULTS

Always applying the same material as in the real structure, and making approximations and simulations with the remaining materials, the students get to assimilate new knowledge and learn to work and design with wood in a correct and sustainable way.

The resuming of the teaching of timber construction in the schools of architecture of Brazil brings along with itself, not only a greater understanding of constructive techniques, but the rescue of a forgotten historical value, environmentally important discussions and the valuing of those who, despite the obstacles, continue to work with timber and maintain alive the production of good architecture built with this material.

The schools of architecture acknowledge the relevance of the teaching offered the students and strengthen the necessity of a greater effort and dialogue between the remaining participants in the productive chain of timber.

### 4 CONCLUSIONS

The rescuing of the constructive culture long employed in our country, and the new approaches from the sustainability point of view bring new relief to timber building and more motivation to the resuming and employment in the curricula of schools of architecture. The small scale model has been employed, not only as a motivation, for its ludic aspect, but also as an important teaching and learning tool of the timber constructive techniques and structural systems.

### ACKNOWLEDGEMENT

Special thanks to Pró-reitoria de Cultura e Extensão Universitária – PRCEU, of the university of São Paulo for sponsoring the realization of the *Course of Small Scale Models as a Tool for the Conception, Record and Divulging of the Timber Constructive Culture*; to the Institute of Architecture and Urbanism of the University of São Paulo, to the Habis Research Group that supported the initiative; and to the School of Architecture and Urbanism of the University of Brasília.

### REFERENCES


