

REMARKABLE HISTORIC TIMBER ROOFS. KNOWLEDGE AND CONSERVATION PRACTICE

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SPECIAL ISSUE INFORMATION

The study of historic timber roof structures has recently reached the widespread dissemination it deserves within the scientific community, considering its relevance for the more general issues of use, conservation, and safety of the built heritage.

The function of covering and protecting large spaces without intermediate supports (e.g., theatres, halls, church naves, factories, and warehouses) has been implemented using construction types of considerable ingenuity even more than static analysis. The outcomes are often unique in their kind and based on the wisdom and competence of engineers, architects, and master carpenters, who made their advancements following cultural, technical-scientific, and socio-economic factors.

The conservation of these valuable carpentry works for their safety poses interesting challenges since it is never trivial to operate on artifacts built in the context of extinct or radically evolved technical cultures. Their modifications over time, their state of conservation as well as the interaction with the rest of the building are often unknown and not easily predictable.

The “culture of timber structures” has its roots dating back to the origins of the history of construction and extends its branches to the industrial era when it was associated with and then substantially replaced by the “culture of metal structures”. This phenomenon crossed all of Europe, developing particular specificities in different geographical areas, but also became characteristic of other parts of the world. Today timber roofs represent a fragile heritage threatened by natural and anthropic actions, but they are mainly the subject of fragmentary and episodic research activities, often dictated by the occurrence of fires, collapses, damage, or imminent dangers.

This special issue has the ambitious goal of helping to outline the current international panorama of research on historic timber roof structures, especially those with great span or peculiar technical relevance. For this purpose, researchers and professionals are invited to send:

- General historical studies based on bibliographic and/or archival research, which also illustrate innovative approaches to knowledge and documentation;
- Studies on historical treatises and handbooks;
- Specific studies based on surveys and diagnostic investigations, which show new approaches to analysis or intervention;
- Critical description of significant case studies due to the complexity of the technical-construction choices or the importance of the building.

The areas of interest mainly concern buildings in Italy and Europe, including the architectural heritage of the 20th century. Still, contributions representing extra-continental experiences are welcome, given the interest in the different historical-technical backgrounds and the possibility of activating a comparison with the European experience.

3 main topics have been identified:

1 – Construction history

- Historical-typological profile of notable timber roofs, with a focus on structural concept, construction details, and joints;
- Material selection and historical methods of processing, assembly, and installation;
- Dissemination in Italy and Europe of knowledge through treatises and handbooks, or transfer of architects, engineers, and master carpenters.

2 – Surveys, investigations, and analyses

- Technical-diagnostic studies focused on updated survey and restitution techniques, aimed at defining performance evaluation models;
- Transformation of timber roofs over time, including partial or complete replacement or integration with elements made of different materials;
- On-site or laboratory investigations, aimed at understanding the state of conservation of timber elements;
- Comparative typological analysis;
- Structural analysis.

3 – Practice

- Technical-practical studies with particular attention paid to specific intervention criteria and techniques of conservation;
- Improvement and strengthening of large span roofs with an innovative approach to enhancing the safety and accessibility of roof spaces;
- Restoration of damaged or destroyed roofs according to the original structural concept;
- Improvement of the interaction with other elements of the building (e.g., ceilings, suspended elements, vaults);
- Reuse of original materials.