

Historical Timber Structures in Adana-Tepebağ Settlement and Consolidation Approach with Modern Timber Prefabricated Systems

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Key Words: Timber, Prefabrication, Consolidation

Abstract:

Adana-Tepebağ settlement is located in the south-east part of the Anatolia close to the Mediterranean Sea. This settlement is located in the center of the city, composed of unique architectural heritage with different plan typologies of historical structures, used of varied materials such as timber, brick and stone. Traditional timber structural systems are widely used in this area.

In this research, proposing consolidation method for traditional timber structures with modern prefabricated systems in the frame of technological prefabrication criterions. Such as a number of joint details, lifting and storage properties and fabrication state of the construction element and minimum waste ideal of the timber material.

This research is done in a historical settlement in Adana-Tepebağ. The state of the timber structures is in a high damaged condition because of the lack of maintenance in a long period of time. Consequently, there is a need for consolidation method for the maintenance of historical structures in that area. These analyzing criteria are applied to a historical timber structure in that settlement on a case study for showing the progress of this methodological approach.

The progress of the methodology is composed of three main steps;

- 1-The damage and corrosion analysis of skeleton timber structure.
- 2-The decision method within the frame of technological prefabrication criterions of modern timber prefabricated elements on the damaged parts of this structure.
- 3-Data's which are collected from the previous two stages are analyzed and compared.

This methodological approach expected to be a rational decision method for consolidation of historical structures in Tepebağ settlement. Especially partly damaged timber structures consolidation is very critical in the frame of budget and the authenticity of the building.

Bibliography:

- APA., 1992. 'The Engineered Wood Association', Engineered Wood Construction Guide, U.S.A.
- Apak, K., 2009. "Ahşap Strüktürel Sistem Seçim Modeli ve Geleneksel Kıyıköy Konutları Üzerinde Değerlendirilmesi – Decision Methodology of Timber Structural System and Evaluation on Kıyıköy Settlement", PhD Thesis, Mimar Sinan Fine Arts University, İstanbul.
- Breyer, D., Fridley, K., Coben, K., 1999. 'Design of Wood Structures', McGraw-Hill, A.B.D.
- Falk, A., 2005. 'Architectural Aspects of Massive Timber', Doctoral Thesis, Lulea University, Sweden.
- Herzog, T., Natterer, J., Schweitzer, R., Volz, M., Winter, W., 2004. 'Timber Construction Manual', Birkhauser, Germany.
- Kafesçioğlu, R., 1955. 'Kuzey – Batı Anadolu'da Ahşap Ev Yapıları – Timber Houses in North-West Anatolia', İ.T.Ü., Mimarlık Fakültesi, İstanbul.