

Research project:

**Agricultural buildings in timber without preventive chemical treatment (Use Class 0)
– special constructive measures with reference to DIN 68800**

Time period:

36 months, 06.2014 - 05.2017

Funded by:

Bayerische Landesanstalt für Wald und
Forstwirtschaft
Hans-Carl-von-Carlowitz-Platz 1
85354 Freising



Short description:

Wood plays an important role in agricultural construction in Bavaria. In rural areas, this natural and renewable material is increasingly available. It is the preferred building material for many farmers, because they often own forest and because wood can be utilized for a variety of construction types and uses.

As an organic material, wood must be protected by structural-technical measures against agents of deterioration (fungi, insects). In order to ensure adequate safety against these organisms, an effective wood preservation is of paramount importance. Depending on the environmental conditions, the current German standard for wood preservation DIN 68800-1:2011-10 defines different Use Classes GK 0 (dry) to GK 5 (constantly damp). According to the specifications of this standard, stables for example, can theoretically be classified into Use Class GK 2 to GK 3. Spruce, the primarily used wood species for agricultural buildings is, according to DIN 68800-1, Table 5, not suitable for Use Classes GK1 or higher without preventive chemical treatment. A multitude of chemical wood preservatives excludes their application in areas with direct contact to animals. By construction consulting practice, the application of chemical wood preservatives is not recommended against the background of a possible accumulation of hazardous substances in the food chain.

The discrepancy given by the objective to avoid chemical wood preservatives in the context of the proximity to the food chain against the absence of clear normative rules to determine the Use Class of agricultural buildings leads to situations which are currently difficult to evaluate for clients, planners and check engineers.

The objective of this project is to determine by monitoring the climatic conditions that typical agricultural buildings (e.g. stables, storehouses for hay or wood chips) are exposed to. Based on the results, constructive measures in combination with the selection of appropriate wood species shall be specified that ensure a durable protection of timber in typical agricultural buildings.

It is intended to either define constructive measures to obtain a classification into or equivalence to Use Class 0 or to lower the applicable Use Class as low as to enable avoiding the use of preventive chemical treatment by using native heart wood with increased resistance (from e.g. larch, pine, Douglas fir).

A construction catalogue would be comparable with the “special constructive measures” given in the standard DIN 68800-2:2012-02 that allow the classification of constructions into Use Class 0. Such guidelines could possibly be introduced to complement DIN 68800-2:2012-02, Appendix A, allowing its application also in terms of an approval by building-authorities.

Research Organisation:

Technische Universität München
Lehrstuhl für Holzbau und Baukonstruktion
Arcisstraße 21
80333 München

LfL - Bayerische Landesanstalt für Landwirtschaft
Institut für Landtechnik und Tierhaltung
Prof.-Dürrwaechter-Platz 2
85586 Poing-Grub

Contact TUM:

Andreas Gamper M.Sc., Tel.: 089-289-22086, E-Mail: a.gamper (at) tum.de
Yuan Jiang M.Sc., Tel.: 089-289-22376, E-Mail: yuan.jiang (at) tum.de
Dr.-Ing. Philipp Dietsch, Tel.: 089-289-22416, E-Mail: Dietsch (at) tum.de

Contact LfL:

Dipl.-Ing. Architekt Jochen Simon, Tel.: 089-99141-390, E-Mail: jochen.simon (at) lfl.bayern.de