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Title:

Building codes and standards in earth building – The current situation in Germany

Abstract:

Building today is a complicated commercial process characterised by legalised agreements between all participants. For commercial building projects, all materials and structures have to conform to building standards and regulations. Material properties must be reproducible in standardised test procedures. This also applies to quality control in the production of earth building materials and structures. Building conservation is a part of this process.

In the last decade the use of earth in construction has become increasingly widespread in many countries. Building with earth can contribute to sustainable development by reducing environmental impact compared with other building materials or systems. This new consciousness has given rise to a growth in the number of earth building standards in recent years, although in absolute terms the number is very small compared with other typical building materials and systems.

25 different earth building standards from 14 different countries were examined. The standards provide varying degrees of technical information. With regard to their scope of application, the documents can be classified into three types, each dealing with a particular aspect: soil classification, earth building materials, earth construction systems.

In Germany, a revival of building with earth first came about in the 1980s as an awareness of ecological criteria grew. A product of this development was the creation of an earth building standard, the “Lehmbau Regeln” by the Dachverband Lehm e.V., the German national earth building association. This standard was approved by the German National Building Authority in 1999 and 2009.

At present, that part of the “Lehmbau Regeln” relating to earth blocks and earth mortars is being adapted to suit the national DIN and European building codes. This project includes the development of three DIN drafts for industrially produced, chemically non-stabilized earth building materials: earth blocks, earth masonry mortars and earth plaster mortars. A fourth document has been developed for soil as a substantial ingredient of earth-based building materials, defining procedures for the control of parameters during soil excavation. The project was accompanied by a three-year research programme at the Federal Institute for Materials Research and Testing (BAM) in Berlin. The drafts will be submitted in 2011 to the German NSB DIN for approval.