

abstract

Research project Municipal Department 39
„wood 5 plus“

Due to ecological reasons the building material wood gets more and more into the focus of planners these days. On the other hand the use of wood in building structures is limited because of its combustibility. Building regulations allow the use of wood only in buildings with relatively small heights and small dimensions that the escape routes can lead through building openings (windows, doors).

In the 1990's the Austrian wood industry intensified their lobbying to make inroads into the market of higher buildings with timber structures. Of course you cannot reduce the fire protection requirements in buildings, but the discussions about the use of wood in multi-storey buildings started and the topic got into the awareness of planners. The first reactions were the general possibility of using wood in buildings with four storeys and the clear commitment that fire-proof walls on plot boundaries must have a fire resistance class "brandbeständig – F90" and must consist of non-combustible building products in the essential parts of the wall construction. This means that the use of timber structures is allowed in buildings with four full storeys and a stacked storey respectively with two stacked storeys in certain cases. The analogy to the additional extension of attic storeys with the requirement "hochbrandhemmend – F60" leads to a large range of solutions concerning the constructions used in storeys above the fourth full storey.

In Vienna that have been the requirements before enact of OIB-Guideline 2 "Fire protection". Upper noted relief, relating to attic conversions, do not apply the use of non-combustible thermal insulation materials at steep roofs and similar attic elements. There is also no relief respecting resistance of roofing to flying sparks.

To improve the use of timber constructions higher than fifth full storeys, without reducing the current fire protection level, there are possibilities in the field of technical fire protection and the field of constructional fire protection. The easiest way is the method presented in this research project: For the time of 90 minutes simultaneously combustion of the constructional parts and components of a building should be prevented.

The analysis of pretests and the development of numerical methodes for combustion simulation lead to the information whether simultaneously combustion is due or not. This allows a feasibility evaluation at a very early planning phase, what can be a fundamental information by the assessment of building permits. For practical use testing standards are developed which will be released in ÖNORM B 3800-9 „Fire behaviour of building material and structural parts – Part 9: Test standard for partition walls and exterior walls in wood - requirements, testing and evaluation“.