

Old Earth Buildings – Preserve or Demolish?



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ABSTRACT

Old earthen buildings are usually found in regions rich in fine-grained soil such as clay or loess. These materials were used to build walls as well as the subsoil on which the house is standing. Water, which is the most common cause of failure earthen structures, causes adverse changes both in walls and in the foundation soil. While the walls are usually damaged by rainwater, which gradually washes away the masonry, water in the footing causes a gradual reduction in ground bearing capacity, which can be general or local. As a result of water seeping into the soil in the footing bottom, the depth of which usually does not exceed 0.6 meters, there is a gradual deformation of the walls and their damage by cracks. Winter usually also takes its toll when the soil under the foundation freezes and the house is raised up slightly. After thawing of the soil the house sags again. Owners who find cracks in the walls do not associate them with the presence of higher levels of groundwater under the building, but mistakenly attribute the cracking to the earthen wall material. This leads to a hasty decision on the need to remove the earthen structure and replace it by a new structure made of modern materials as they do not realize that it would be sufficient to lower the groundwater level. Sometimes the mere reshaping of the surrounding terrain accomplishes this, in other cases it is the repair or replacement of horizontal sewer pipes under the house that solves the problem. It is always necessary to divert water away from the building as soon as possible. This preventive requirement is absolutely simple and clear, yet it is surprising how many houses, not only earthen, suffer from disorders caused by ignorance of this simple principle. Errors sometimes occur even in the design of new buildings, such as the location of a building in an inundation area, improper alignment of a building with the cardinal directions etc. Understanding the causes of faults, their effective removal and especially their prevention can prevent damage to the new and old buildings and thereby protect them from unnecessary demolition. After all, only a well-informed owner can prevent ill-considered demolition.

Keywords: Old earthen buildings, Strachotice, slup, Zlámanec.