

## The Industrialised Adobe Manufacture and the Specific Testing Protocol in the Villaficana (Macerata, Italy) Restoration



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### ABSTRACT

Macerata (Central Italy, Marche Region) is characterized by a particular ancient settlement, Villa Ficana; it was built during 19<sup>th</sup> century with earth technologies (*cob* and *adobe*) and it's one of the few totally earth made quarters in Central Italy. Most of its buildings are small private houses (two storeys 5x5 m cells, with an outside stair). (See Anna Paola Conti paper) The original building technique was *cob*, known in Italy as "massone" (See Anna Paola Conti paper). Somewhere else traces of adobe were find as well. Nowadays only some houses are inhabited, whereas others have been "declassified" to storings or laboratories for occasional works and eventually most of them are abandoned.

In 2004 Villa Ficana was recognised as a unique regional architectural and historical heritage, so the Macerata Municipality started all the necessary procedures to restore it. (See arch. Anna Paola Conti abstract) One of the problems was about the complete re-building of one old collapsed house. The decision leded to study how to re-introduce it accordingly to contemporary economic, manufacturing and building codes context (Macerata is a seismic zone, too). At the beginning it was thought to rebuild it using the traditional *massone* technique, with an experimental aim to "industrialize" it, but then building problems compelled passing to the adobe technique. Moreover it was necessary to find a local bricks-kiln able to produce all the adobes required; then they had to be characterised to guarantee both the physical and mechanical behaviours (especially in the case of a Public project as Villa Ficana was). The problem was the lack of a specific national code to refer to, so it was set up an experimental protocol to analyze the production. The protocol was about some tests to be done inside the factory at first and then to be approved by official laboratory tests. It was referred to the major existent earthen building codes, guidelines, national and international researches as the personal experience. The whole procedure concurred to give the required assurances in order the adobe performances. It was the first Italian experience on this (industrial) scale. Now the new house has been completed representing the first Italian example of a new adobe building in seismic zone, built accordingly to a Public Project.

### KEY WORDS :

cob, adobe, standardization, restoring, testing