

## **Bioclimatic Devices in the Historical Rural Building: A Carried out Analysis on Some Rural Architectures in Puglia**

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**Abstract :** The developing research aims to define in general the criteria of environmental sustainability of rural buildings in Puglia and particularly in the manor farm. The main part of the study analyzes the relationship / dependence between the rural building and the landscape which, after many stratifications, results clearly identified and sometimes also characterized in a positive way. The location of the manor farm, in fact, is often conditioned by the infrastructural network and by the structure of the agricultural landscape. The manor farm, without the constraints due to the urban pattern's density, was developed in accordance with a logical settlement that gives priority to the environmental aspects. These vernacular architectures are the most valuable example of how our ancestors have planned their dwellings according to nature. The 237 farms, analysis' object, have been reported in cartography through the GIS system; a symbol has been assigned to each of them to identify the architectural typology and a different color for the historical period of construction. A datasheet template has been drawn up, and it has made possible a deeper understanding of each manor farm. This method provides a faster comparison of the most recurring characters in all the considered buildings, except for those farms which benefited from special geographical conditions, such as proximity to the road network or waterways. Below there are some of the most frequently constants derived from the statistical study of the examined buildings: southeast orientation of the main facade; placement of the sheep pen on the ground tilted and exposed to the south side; larger windowed surface on the south elevation; smaller windowed surface on the north elevation; presence of shielding vegetation near the more exposed elevations to the solar radiation; food storage's rooms located on the ground floor or in the basement; animal shelter located in north side of the farm; presence of tanks and wells, sometimes combined with a very accurate channeling storm water system; thick layers of masonry walls, inside of which were often obtained hollow spaces to house stairwells or depots for the food storage; exclusive use of local building materials. The research aims to trace the ancient use of bioclimatic constructive techniques in the Apulian rural architecture and to define those that derive from an empirical knowledge and those that respond to an already encoded design. These constructive expedients are especially useful to obtain an effective passive cooling, to promote the natural ventilation and to built ingenious systems for the recovery and the preservation of rainwater and are still found in some of the manor farms analyzed, most of them are, today, in a serious state of neglect.

**Keywords :** bioclimatic devices, farmstead, rural landscape, sustainability

**Conference Title :** ICSAUD 2017 : International Conference on Sustainable Architecture and Urban Design

**Conference Location :** Bali, Indonesia

**Conference Dates :** October 23-24, 2017