

From the Care of the Simple Structural Analysis to the Care of the Final Technological Quality – The Conservation of “Santa Maria degli Angeli” Orphanage in Castelgrande (Potenza, Italy)

F.P.R. Marino*, F. Lembo and F. Baldantoni

* School of Engineering (SI-Unibas)
University of Basilicata
Campus Macchia Romana, 85100 Potenza, Italy
e-mail: francesco.marino@unibas.it

ABSTRACT

*The conservation work carried out on the “Santa Maria degli Angeli” Orphanage in Castelgrande (Potenza, Italy) following the earthquakes of 1980 and 1981, is a good example of the need to evolve and refine the concept of seismic consolidation and upgrade of monumental heritage. Also taking into consideration, in addition to the needs of current structural calculation, those related to the design of durability and of the overall technological quality. Built from 1878 around the original nucleus of a chapel, the seminary, later an orphanage, kindergarten, nursery school, workshop and sewing school, and summer mountain colony, constitute a precise landmark in the landscape of the ancient town of Castelgrande. Severely damaged by the earthquakes of 1980 and 1981, it was declared unfit for use and evicted. Immediately afterward, radical refurbishment works were carried out on it, with the creation of sub-foundations, injections and tackles with reinforced concrete slabs for the load-bearing walls, replacement of the floors in steel beams and bricks with reinforced concrete floors, replacement of the wooden roofs with others of the same configuration, but in steel beams and clay tables, with a reinforced concrete slab above. The works were not completed due to lack of funds. The building was acquired by the Municipality in 2000 and is still abandoned today. The works carried out present serious pathologies (in particular the corrosion of the reinforcement of the joist of the floors and of the steel beams), resulting from the lack of attention to fundamentals of materials science and of durability. The research conducted has verified, on the basis of current legislation and with reference to the current calculation methods, the Seismic Vulnerability of the building and proposed the necessary corrective actions, in particular the replacement of roofs with others, lighter and more durable, made of laminated, conditioned local *Quercus cerris* wood. A new destination has been proposed, linked to the presence of the Toppo di Castelgrande Astronomical Observatory, and its upgrade to nZEB has been designed, in respect of its monumental features.*