Abstract

Abandoned industrial buildings represent a significant part of the whole building stock, both in Italy and worldwide. These buildings, particularly those built in the last decades, have good potential for recovery and functional reconversion, by virtue of their typological and constructive characteristics.

In the light of the increasing need for sustainable urban regeneration, the theme of building reuse has acquired considerable importance in the last years. Global environmental policies seek to promote measures to reduce land consumption, including through the reuse of abandoned industrial buildings. Various intervention strategies are discussed in the institutional and academic context.

In this thesis we propose a methodology for feasibility assessment and planning of sustainable reuse interventions of abandoned industrial buildings. The methodology is based on Multi-Criteria Decision Analysis. The work is divided into five chapters.

The first chapter introduces the research topic: motivation, scientific framework, objectives and different phases of the research program are explained. The second chapter describes the historical evolution of forms, types and expressive languages of industrial architecture from the nineteenth century to the present day. In the third chapter the phenomenon of abandonment is examined; furthermore significant international and national experiences of refurbishment and conversion are described. The fourth chapter analyzes the potential reuse of industrial buildings in relation to functional, structural and energy issues. Also environmental, urban and socio-economic aspects are analyzed.

In the final chapter the methodology above-cited is formulated and two multicriteria models are developed. The first one called "Functional Adaptability Model" aims to evaluate the adaptability degree of the building to new uses. The second one, instead, aims to compare several technical alternatives in order to retrofit building envelope and is called "Multi-Criteria Model for Energy Retrofit and Environmental Sustainability". Finally, the methodology was applied to a former factory in the Solofra industrial district (Avellino province) in the Campania region of Italy.