

HISTORICAL MILITARY HERITAGE AND SOCIAL HOUSING: A SUSTAINABLE OPPORTUNITY

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INTRODUCTION

This study aims to prove that the restoration and refurbishment of ancient cultural buildings could represent a key opportunity for Social Housing. It specifically references historic military sites already decommissioned or are likely to be decommissioned in the coming years. During this relatively peaceful period military sites all around the world, especially in Europe¹ and in the USA², are being transferred to civilian use. This means that entire quarters, villages and large architectural complexes are going to be available for new purposes. Military decommissioning is not only an Italian issue so an international debate is required.

Italian military sites are very often located in areas with outstanding landscapes or inside historic centres. The buildings are usually well designed and of safe construction. They are also characterised by a simple style with interesting ornamental features and they are often declared national monuments. Moreover, many of these buildings are modular and some have already been residences of military personnel. For this reason, they are potentially ideal for conversion into housing.

The case study of Sardinian military heritage is relevant to the topic and a strategy a sustainable conversion of these sites is urgent. In order to manage this process a detailed knowledge of the entire heritage is necessary, both in terms of historical and material aspects of the buildings.

The present paper illustrates the commencement of a specific scientific research project dedicated to the investigation into possible adaptive reuse of military sites as housing. This is only one aspect of a wider study dedicated both to the maintenance of military sites still in use and to the reuse of decommissioned areas.

The first part of the research focuses on the inventory of Sardinian military heritage and the definition of a knowledge plan designed to guide the planners in the conversion process. The second part is dedicated to opportunities and general criteria for housing conversion. Finally, the paper references a Sardinian case study. Unfortunately, there are not any examples of this kind of reuse in Sardinia or indeed Italy, so that it is not possible to show a real case history. However, some practical examples are discussed here as a possibility of future projects.

THE KNOWLEDGE PLAN FOR MILITARY HERITAGE REUSE

Italian military heritage offers an interesting variety of architectural typologies such as coastal towers, bastions and fortresses, strongholds, citadels, garrison stations, barracks, former prisons, World War II sites and NATO headquarters (Fig. 1-2).

The island of Sardinia has a strategic location in the Mediterranean which has led to it being ruled by various foreign powers throughout its history. This has resulted in an extraordinary variety of military architecture³. The earliest types of defensive architecture are those related to the four medieval autonomous kingdoms called 'Giudicati' (XI-XIII centuries). In this period, the contemporary alliance of these kingdoms with Pisa and the Republic of Genoa for the defence of the coasts from the Arabs had the direct effect of attracting important merchant families because of the foundation of fortified citadels mainly located on rocky hills. The most important citadel is the one in Cagliari⁴.

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Architecture_MPS; Liverpool University; Liverpool John Moores University
Liverpool: 08—09 April, 2015



Figure 1. Ancient Sardinian defence structure: Acquafredda Castle in Siliqua (CA), Burgos Castle (SS), Cagliari fortified citadel



Figure 2. More recent Sardinian defence structures in Cagliari: the St. Ignazio fortress, Monfenera military complex, Buoncammino prison

From around 1570 several coastal towers were erected at the behest of the Spanish Crown, as part of a defensive plan against the Saracens. The Royal Administration of Towers, established in 1581 by Phillip II of Spain, managed the entire defensive system. This institution continued during the Savoy period (from 1720 to 1861) before being finally abolished in 1842.

The new military forces related to the unification of Italy constructed new military stations such as garrisons, prisons, large complexes and entire villages. In addition, during World War II several sites were fortified and at the beginning of the 1950s NATO base camps were installed.

A database system has been prepared to store a census and details of this wide defence heritage⁵. The database considers the following general information: identification, qualification of typology, chronology, historic notes, illustrations and technical information. Current and historical uses are also considered in order to reconstruct the historical military network each asset belongs to; this is particularly relevant for the conservation of the authenticity of the historic military sites.

The database also includes the recording of the state of conservation and specialist assessment on historic and artistic values. This is really useful for the definition of possible future redevelopment.

Furthermore, each building is required to be analysed in detail by means of a geometric, material and morphological survey. For this reason, the first step of the study is a new architectural survey of each building. It is often the case that sites lack a sufficiently detailed survey. Plans, facades, sections, constructive details are absolute necessities to enable site reuse.

The historical knowledge of the building and the different phases of construction is also essential⁶. Information can be found by the archival investigation and by the analysis of documents related to past worksites.

Historical plans and documents can then be compared with the current situation to define the chronology of structures. It is possible to overlap the current survey with several ancient plans belonging to different periods. This is very useful technique for recognising items in the plan evident in the historical and current surveys as well as identifying elements illustrated in the ancient plan that no longer exist. Infrared thermography is a very useful technique to visualise extinct elements which become apparent due to the differences in specific temperature of materials. Infrared thermography is also useful for checking electrical, water and gas services, for identifying constructive elements, for studying heat transmission and the presence of humidity, etc.

However, the core of the study is the definition of the different types of constructive elements. The database considers examination of the foundation, masonry, roof, window, paving, plaster and decorations. The examination also foresees the assessment of the fitness for purpose as well as the

CONFERENCE: HOUSING – A CRITICAL PERSPECTIVE

Architecture_MPS; Liverpool University; Liverpool John Moores University

Liverpool: 08—09 April, 2015

evaluation of damages by means of a sequence of codes. This accurate and complete survey is the only method to reveal the possible historical assets that are available for preservation.

With this purpose, a scale of historical and artistic interest has been defined in order to identify the consequent level of possible transformability. This scale includes four degrees of interest, identified by the codes 'Isa', 'Isc', 'Ite', 'Iti'⁷.

Isa has the highest degree and refers to 'historic and artistic interest'. In this case, the item is authentic and has relevance for material, style, technique and aesthetics. As a consequence subjects with this code have the highest priority for preservation.

'Isc' is the code for 'historic and constructive interest'. Sites with this code have original and authentic constructive and structural elements. They represent material evidence of historical construction and of the coeval material culture and are worthy of restoration and preservation. Masonries, walls, roofs and other technical elements very often have a remarkable historical and constructive interest.

The third level is 'Ite'. This refers to the 'testimonial interest' and includes architectural elements or finishing preserved in their material authenticity. They are testimony to material culture so should be preserved through the restoration or through the preservation of the typology where the element is no longer able to fulfil its functions.

The final code is 'Iti' which refers to 'typological interest'. This categorises architectural elements that no longer exist but are recognizable via historical and archival documentation. For example, something rebuilt in the same position and for the same purpose as the previous element. Although, because it has been totally changed, it does not present any direct interest in material and constructive aspects it should be preserved in order to keep memory of the ancient structure.

The database set up for this project also records the state of conservation and includes a vulnerability data sheet with a similar set of codes to the above. The sequence of codes, associated to a single element gives complete information on its condition and effectiveness and qualifies possible degradation. Figure 3 is an example of an analysis of a paving, using the illustrated double code.

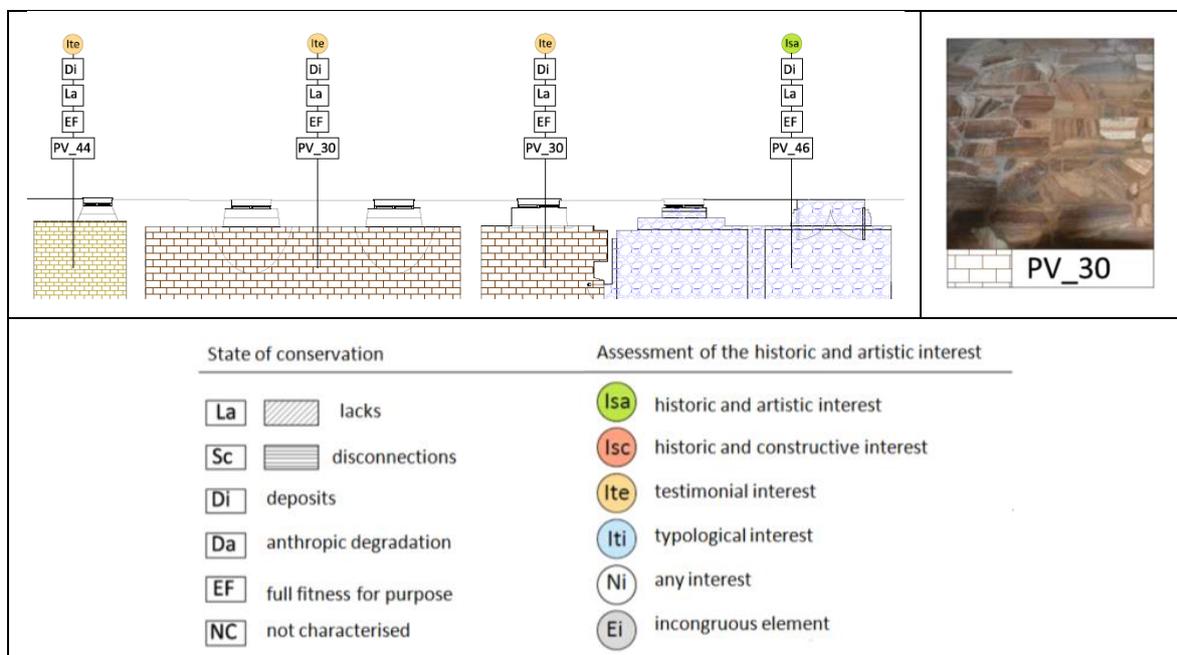


Figure 3. The codes for the evaluation of the state of conservation (symbols in square) and the scale for the definition of and historical and artistic interest (symbols with circle). Example for paving.

At the end of this complex codification of each constructive elements, the planner can count on a detailed map of 'restrictions' and 'degree of freedom'. Every planned transformation for the adaptive reuse is supposed to be coherent with this fundamental assessment. This means that only incongruous

CONFERENCE: HOUSING – A CRITICAL PERSPECTIVE

Architecture_MPS; Liverpool University; Liverpool John Moores University

Liverpool: 08—09 April, 2015

components of the buildings or items of any interest could be removed or replaced, while every interesting component of the historic building has to be preserved. Following these criteria, the quality of the reuse project can be easily evaluated by checking the correspondences between demolitions and transformation and the just described assessment degree of historical interest.

OPPORTUNITIES AND CULTURAL CRITERIA FOR HOUSING CONVERSION

Italian military properties become regional property at the time of disposal and, on request, they can be transferred at a symbolic price to municipalities to be used for public purposes. Nationally, several plans have been presented in recent years concerning the conversation of military heritage into civilian use. These have often been oriented towards student housing. These innovations come from the latest law for Italian economic enhancement⁸, which contains advantageous measures for military decommissioning with social housing aims. This is a unique opportunity for refurbishing abandoned military monuments whilst keeping them in a good state of maintenance and providing much needed low cost housing at a time of economic crisis.

For this reasons Turin, Rome and other municipalities are working hard to achieve this goal⁹, following interesting international examples such as the German cohousing project of Vauban in Friburg¹⁰.

The main problem is that refurbishment entails providing facilities to improve the quality of the building and to create better living conditions. The transformation could involve environmental, sanitary, functional, structural and energy supply measures. Every choice requires awareness, effectiveness and consideration to the fact that buildings involved in this process are very often monuments.

What are the criteria for the conversion and reuse?

The Venice Charter for the conservation of cultural heritage (1964) recommended compatible reuse in order to limit demolitions and damage to cultural structures. In fact, in article nr. 4, it declares that *It is essential to the conservation of monuments that they be maintained on a permanent basis*, and moreover, at article n. 5 it states that *The conservation of monuments is always facilitated by making use of them for some socially useful purpose. Such use is therefore desirable but it must not change the lay-out or decoration of the building. It is within these limits only that modifications demanded by a change of function should be envisaged and may be permitted.*

The reuse of ex-military sites for social housing could ensure the maintenance of these historic buildings and, at the same time, ensure that social housing is of the highest quality of historical architecture in terms of values and materials. Undoubtedly, this kind of strategy needs the synergic work of a multidisciplinary team of restorers, architects, historians, designers, economists and sociologists. However, results have to meet the needs of both politicians and residents.

This theoretical construct of sustainable and integrated conservation comes from the Amsterdam Declaration (1975) and represents our starting point. It states that *Conservation requires a pool of qualified planners, architects, technicians and craftsmen to prepare conservation programmes.* Furthermore, integrated conservation involves the responsibility of local authorities and calls for citizens' participation.

In practice, the main and most important and generally recognized criteria include the following action: to maximize conservation; to remove incongruous elements; to discover solutions that come from the building; to act for addition, never for subtraction; to ensure reversibility and distinctness; to carefully check and manage the worksite; to use consolidated techniques that have already passed the proof of time, to consider and plan future maintenance.

An analysis of the context is also necessary, especially in case of reuse of entire headquarters, where only an accurate master plan could avoid the creation of slums or dormitory quarters.

Turning to technical compatibility of this adapting reuse, the strong point is that military bases and especially barracks offer inner spaces – room's dimension, staircase features, windows and doors sizes, wall's thickness, structure's stability – that easily fulfil the higher standards for a comfortable living. In addition, the general symmetry of plans makes the buildings easy to be divided into different

CONFERENCE: HOUSING – A CRITICAL PERSPECTIVE

Architecture_MPS; Liverpool University; Liverpool John Moores University

Liverpool: 08—09 April, 2015

living units. Furthermore, the repetitiveness of the project in the entire national territory¹¹ stimulates the outline of a general programme of conversion.

SARDINIAN CASE STUDY

What kind of Sardinian military architecture can be considered for residential purpose?

Among the typologies above mentioned, the ones, which can be considered most compatible with a residential use, are barracks, built by the end of the nineteenth century and in the beginning of the twentieth century, but also the big complexes related to Italian Army or NATO base camps.

An interesting case study is that of the Carabinieri station barracks. The Corps of the Royal Carabinieri was instituted in Turin by the by Royal Warrant of the King of Sardinia, Vittorio Emanuele I, on 13th July 1814. This military Corp had the dual function of first-line national defence and policing using special powers and prerogatives. The Force was given a territorial task and was organized into divisions, one for each province. The divisions were called Companies and they were subdivided into Lieutenancies which commanded and coordinated the local police stations, and were distributed throughout the national territory to maintain direct contact with the public¹².

Carabinieri barracks were designed to house the Marshal (the head of the station), his family and the military stationed in the municipality. They consist of small buildings that are usually located in the historic centres of small municipalities, close to the Town Hall and the church to form a sort of institutional square.

These buildings are usually characterized by great stability and simple decorations. Typically, they have a modular plan which was designed by the central government and repeated all over Italy. Constructive features, such as the thickness of the walls and strong building materials, ensure excellent performance levels. The only adjustments that may be required are windows and main services such as electricity, plumbing, air-conditioning, etc.



Figure 4. Carabinieri barracks in Sardinia (CA): the case of Ballao (abandoned), Villasalto (used for social activities) and Narcao (still military)

Several barracks are now owned by Municipalities. Many of these are still abandoned and only a few have been restored and reused. Their reuse has mainly been oriented to public, representative and cultural functions such as town halls, museums, charitable and voluntary association premises and schools. Very often reuse has caused heavy transformations such as consolidations, demolitions and enlargements works.

The best restoration work is that of Villasalto (CA) station, carried out in 2007, where the original building has been converted into a public library and offices for volunteers. This restoration work has maintained structures, shape and dimensions of rooms, original staircases, roofs and decorations.

It has not been possible to find a Sardinian example of barrack already converted into social housing. This fact seems to be strange, if we consider the above mentioned modularity of this buildings and their historical residential use. The only examples are the projects for the Carabinieri station of Dolianova and Guasila, but they haven't been carried out.

In the last thirty the municipality of Dolianova, a small village near to Cagliari, has developed significant social intervention which includes social housing plans. The project for the conversion of

CONFERENCE: HOUSING – A CRITICAL PERSPECTIVE

Architecture_MPS; Liverpool University; Liverpool John Moores University
Liverpool: 08—09 April, 2015

the barracks into housing was called 'The Social Courtyard' due to the traditional type of residences widespread in Italy.

This ex-military complex is composed by two main buildings of two floors each, some ground floor rooms and two courtyards. The reuse of this architecture as housing seems possible with minimal transformation, following the criteria of conservative restoration. The only new works are in regard to energy efficiency, bio architecture and environmental sustainability. The buildings are particularly adaptable to small residences for young couples, elderly persons, small families in economic difficulties. The historic city centre location is particularly convenient for community services. This project dates back to 2010 and can be considered a good starting point for Sardinian housing in terms of aims and criteria, but it is affected by several technical and cultural problems to be solved, mainly related to a very lacking preliminary knowledge plan and to the inadequate assessment of cultural values.



Figure 5. Old Carabinieri military base in Dolianova (CA): plan of the ground floor with the typical presence of the inner courtyard and the facades of the two main buildings.

Turning to future researches, it seems interesting the case study of the old garrison and Carabinieri station of Macomer (NU)¹³, also used as school in the Fiftens. It is located in the historic centre of a small town in the north of Sardinia and it consists in two main buildings of two floors, resting on an area of around 255mq. The urban plan for the historic centre allows in this area the project of public services and indicates for the building a conservative restoration, with a low degree of possible transformability.

The architectural complex, probably build in XVI century and later transformed, is currently abandoned. The plans of the two floors are regular and easy to be divided into six small residential units, restoring traditional techniques (Figures 6 - 7). The illustrated preliminary study is the first step of the investigation protocol for the definition of its sustainable reuse that is still in progress.



CONFERENCE: HOUSING – A CRITICAL PERSPECTIVE

Architecture_MPS; Liverpool University; Liverpool John Moores University

Liverpool: 08–09 April, 2015

The aim of this cooperation should be the definition of possible scenarios, in order to discover and understand advantages and disadvantages of each transformation and define concrete reasons for investment by public and private institutions.

ENDNOTES

¹ Paola Pellegrini and Christina Conti, 'La valorizzazione delle caserme dismesse, un metodo per affrontarne la restituzione all'uso', *TECHNE* no. 3 (2012): 224-237.

² Christopher Preble, 'Creative destruction? Case of defence conversion in United State' in *Defense Sites II. Heritage and Future*, ed. Carlos Brebbia and Celia Clark, (Southampton: WIT press, 2014), 399-410; Michael Buhler, 'Hororable Discharge', New life for World War II Sites in the San Francisco Bay Area, <<http://www.nps.gov/nr/travel/wwiibayarea/preservation.htm>> [accessed March 19, 2015].

³ Foiso Foiso, 'Castelli della Sardegna medievale' (Milano: Silvana Editoriale, 1992); Donatella Rita Fiorino and Michele Pintus, 'Verso un Atlante dei sistemi difensivi della Sardegna' (Napoli: Giannini, 2015); Fernando Luigi Codonesu, 'Servitu militari modello di sviluppo e sovranità in Sardegna', (Cagliari: CUEC, 2013).

⁴ Donatella Rita Fiorino, 'Stratigraphic Evidence in the Ancient Urban Walls of Cagliari (Sardinia-Italy)', in *Defense Sites II. Heritage and Future*, ed. Carlos Brebbia and Celia Clark, 257-268 (Southampton: WIT press, 2014).

⁵ Antonella Negri, 'Tecnologie Informatiche per la conoscenza e la conservazione', in Trattato di Restauro - Secondo aggiornamento, ed. Giovanni Carbonara (Turin: UTET, 2008, vol. X), Monica Deidda, Donatella Rita Fiorino, Giuseppina Vacca, 'Gestione urbana e programmazione della conservazione: l'apporto dell'ICT', in Proposte per Stampace. Idee per un piano di conservazione del quartiere storico cagliaritano, ed. Caterina Giannattasio and Paolo Scarpellini, (Rome: Gangemi, 2009), 147-152; Donatella Rita Fiorino, "Tools for Monitoring and Managing Historical Buildings: the Innovative Use of the SICaR/web System," in *Arkos* no. 11-12, (Rome: EdItinera, 2015), 13-29. Donatella Fiorino, 'Restauro e tecnologie in architettura' (Rome: Carocci 2009).

⁶ Donatella Rita Fiorino, 'Chapitre II. Conservation et entretien, in AA.VV., in Manuel Technique des interventions pour les jouissement des sites fortifiés (Genova: Sagep 2013), 32-53.

⁷ The complex protocol of investigation has been developed during the research programme financed by the Sardinia Regional Government (P.O.R. Sardegna F.S.E. Operational Programme of the Autonomous Region of Sardinia, European Social Fund 2007-2013 - Axis IV Human Resources, Objective I.3, Line of Activity I.3.1 "Avviso di chiamata per il finanziamento di Assegni di Ricerca"). The illustrated codification was successfully tested on the Cascino military base (Cagliari) during a specific research study on chronological evolution of the architectural complex and the preliminary assessment of single constructive elements for the definition of the restoration project. General research coordinator for the knowledge plan: D.R. Fiorino; commissioner: Italian Ministry for Infrastructures and Transportation – Agency for Public Works.

⁸ National Italian Law n. 164, November 11, 2014.

⁹ Housing Sociale: nuova vita per l'ex caserma Lupi di Toscana, Accessed September 27, 2015.

<<http://www.ilsitodifirenze.it/content/205-housing-sociale-nuova-vita-lex-caserma-lupi-di-toscana>>; Federico Camerin, "Torino: se le ex caserme diventano social housing," Accessed March 22, 2015.

<http://www.millenniourbano.it/torino-se-le-ex-caserme-diventano-social-housing>>.

¹⁰ Ulrike Sommer and Carolin Wiechert, 'Lernen von Vauban. Ein Studienprojekt und mehr...', (Aachen: Lehrstuhl für Planungstheorie und Stadtentwicklung, 2014).

¹¹ A specific document entitled 'Determinazioni' (Disposals) indicated the main features of the military buildings planned for hosting a Carabinieri station. They can be consulted at <www.carabinieri.it>.

¹² AA.VV., *Carabinieri: Storia dell'Arma, 1814*, (Vicenza: Gualandi, 1960); Angelo Archivio and Guido Bartolo, *'Carabinieri in Sardegna'* (Oristano: S'Alvure, 2006).

¹³ A first study of the old garrison in Macomer (NU) has been carried out by the Eng. Francesca Meloni with the supervisor of the lecturer Donatella Rita Fiorino Fiorino, during the academic course of Restoration at the University of Cagliari (2014/2015).

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Architecture_MPS; Liverpool University; Liverpool John Moores University

Liverpool: 08—09 April, 2015

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