IDA: ADVANCED DOCTORAL RESEARCH IN ARCHITECTURE

Antonio Tejedor Cabrera, Marta Molina Huelva (comp.)
IDA: Advanced Doctoral Research in Architecture

1.408 pp. 21 x 29,7 cm

ISBN: 978-84-16784-99-8

All right reserved. No part of this book may be reproduced stored in a retrieval system, or transmitted, in any form or any means without prior written permission from the Publisher.

EDITOR
Universidad de Sevilla

COMPILERS
Antonio Tejedor Cabrera
Marta Molina Huelva

DESIGN AND LAYOUT BY
Pablo Blázquez Jesús
María Carrascal Pérez
Daniel Longa García
Marina López Sánchez
Francisco Javier Navarro de Pablos
Gabriel Velasco Blanco

ADMINISTRATION AND SERVICES STAFF
Adoración Gavira Iglesias

Seville, november 2017

© 2017. IDA: ADVANCED DOCTORAL RESEARCH IN ARCHITECTURE
All manuscripts have been submitted to blind peer review, all content in this publication has been strictly selected, the international scientific committee that participates in the selection of the works is of international character and of recognized prestige, an scrupulous method of content filtering has been followed in terms of its veracity, scientific definition and plot quality.
COMMITTEES

CONFERENCE CHAIRPERSONS

Antonio Tejedor Cabrera, Coordinator of the PhD Program in Architecture and Director of the University Institute of Architecture and Construction Sciences, Professor Department of Architectural Design, University of Seville

Marta Molina Huelva, Secretary of the University Institute of Architecture and Construction Sciences, Professor of the Department of Building Structures and Geotechnical Engineering, University of Seville

ORGANISING COMMITTEE

María Carrascal Pérez, Department of History, Theory and Architectural Composition, University of Seville

Mercedes Linares Gómez del Pulgar, Department of Architectural Graphic Expression, University of Seville

Ángel Martínez García-Posada, Department of Architectural Design, University of Seville

Pilar Mercader Moyano, Department of Architectural Constructions I, University of Seville

Domingo Sánchez Fuentes, Department of Urban Planning and Spatial Planning, University of Seville

Manuel Vázquez Boza, Department of Building Structures and Land Engineering, University of Seville

CONFERENCE SECRETARY

Pablo Blázquez Jesús, Ph.D. student, Department of Architectural Design, University of Seville

Marina López Sánchez, Ph.D. student, Department of Architectural Design, University of Seville
SCIENTIFIC COMMITTEE

José Aguiar-Universidade de Lisboa
Benno Albrecht-Università IUAV di Venezia
Francisco Javier Alejandro Sánchez-Universidad de Sevilla
Dario Álvarez Álvarez-Universidad de Valladolid
Antonio Ampliato Briones-Universidad de Sevilla
Joaquín Antuña-Universidad Politécnica de Madrid
Ángela Barrios Padura-Universidad de Sevilla
José María Cabeza Lainez-Universidad de Sevilla
Pilar Chías Navarro-Universidad de Alcalá
Juan Calatrava Escobar-Universidad de Granada
María Carrascal Pérez-Universidad de Sevilla
Helena Coch Roura-Universitat Politècnica de Catalunya
Jorge Cruz Pinto-Universidad de Lisboa
Carmen Diez Medina-Universidad de Zaragoza
Fernando Espuelas Cid-Universidad Europea
Alberto Ferlenga-Università IUAV di Venezia
Luz Fernández-Valderrama-Universidad de Sevilla
Vicente Flores Alés-Universidad de Sevilla
Maria del Carmen Galán Marin-Universidad de Sevilla
Jorge Filipe Ganhão da Cruz Pinto-Universidade de Lisboa
Carlos García Vázquez-Universidad de Sevilla
Sara Girón Borrero-Universidad de Sevilla
Francisco Gómez Díaz-Universidad de Sevilla
Amparo Graciani-Universidad de Sevilla
Francisco Granero Martín-Universidad de Sevilla
Francisco Hernández Olivares-Universidad P. de Madrid
Miguel Ángel de la Iglesia-Universidad de Valladolid
Paulo J.S. Cruz-Universidade do Minho
Francesc Sepulcre-Universitat Politècnica de Catalunya
Ángel Luis León Rodríguez-Universidad de Sevilla
Mercedes Linares Gómez del Pulgar-Universidad de Sevilla
María del Mar Loren Méndez-Universidad de Sevilla
Margarita de Luxán García de Diego-Universidad P. de Madrid
Madelyn Marrero-Universidad de Sevilla
Juan Jesús Martín del Río-Universidad de Sevilla
Luis Martínez-Santamaría-Universidad Politécnica de Madrid
Ángel Martínez García-Posada-Universidad de Sevilla
Mauro Marzo-Università IUAV di Venezia
Pilar Mercader Moyano-Universidad de Sevilla
Antonello Monaco-Università degli Studi di Reggio Calabria
Marta Molina Huelva-Universidad de Sevilla
José Morales Sánchez-Universidad de Sevilla
Eduardo Mosquera Adell-Universidad de Sevilla
María Teresa Muñoz Jiménez-Universidad Politécnica de Madrid
Jaime Navarro Casas-Universidad de Sevilla
José Joaquín Parra Bañón-Universidad de Sevilla
Víctor Pérez Escolano-Universidad de Sevilla
Francisco Pinto Puerto-Universidad de Sevilla
Mercedes Ponce Ortiz de Insagurbe-Universidad de Sevilla
Juan Luis de las Rivas Sanz-Universidad de Valladolid
Carmen Rodríguez Liñán-Universidad de Sevilla
Javier Ruiz Sánchez-Universidad Politécnica de Madrid
Joaquín Sabaté Bel-Universitat Politécnica de Catalunya
Victoriano Sáinz Gutiérrez-Universidad de Sevilla
Santiago Sánchez Beitia-Universidad del País Vasco
Domingo Sánchez Fuentes-Universidad de Sevilla
José Sánchez Sánchez-Universidad de Sevilla
Juan José Sendra Salas-Universidad de Sevilla
Julián Sobrino Simal-Universidad de Sevilla
Federico Soriano Peláez-Universidad Politécnica de Madrid
Rafael Suárez Medina-Universidad de Sevilla
Miguel Ángel Tabales Rodríguez-Universidad de Sevilla
Antonio Tejedor Cabrera-Universidad de Sevilla
Jorge Torres Cueco-Universidad Politécnica de Valencia
Elisa Valero Ramos-Universidad de Granada
Manuel Vázquez Boza-Universidad de Sevilla
Narciso Vázquez Carretero-Universidad de Sevilla
Teófilo Zamarreño García-Universidad de Sevilla
LT 3
PATRIMONIO Y
REHABILITACIÓN
HERITAGE AND REHABILITATION / PATRIMONIO Y REHABILITACIÓN

Opela Barrera, Alfonsa

Estela Ruíz, Antonio

Quevedo Rojas, Carlos

p. 631-642: POWER PLANT REUTILIZATION STRATEGIES ENEL POWER PLANTS AND PORT OF GENOA Case-study / p. 643-655: ESTRATEGIAS DE REÚSO DE LAS CENTRALES ELÉCTRICAS. LAS CENTRALES ENEL Y EL CASO ESTUDIO DEL PUERTO DE GÉNOVA
Oliviero, Davide

Debernardis, Domenico; Robador González, María Dolores; Pagliuca, Antonello

Mascort-Albea, Emilio J.; Meynier-Philip, Mélaine

Delgado Guzmán, Guacimasa

p. 723-731: SUSTAINABILITY AND CONSERVATIVE REHABILITATION OF EXTREMADURAN PATRIMONIAL RURAL ARCHITECTURE AGAINST CLIMATE CHANGE, VEGAVIANA. CASE STUDY / p. 732-745: SOSTENIBILIDAD Y REHABILITACIÓN CONSERVATIVA DE LA ARQUITECTURA RURAL PATRIMONIAL EXTREMADURA CONTRA EL CAMBIO CLIMÁTICO, VEGAVIANA, CASO DE ESTUDIO
Bola Alonso, Inmaculada

p. 743-754: TOWARDS A METHODOLOGY FOR THE ASSESSMENT OF VISUAL IMPACT CAUSED BY RENEWABLE ENERGY FACILITIES ON THE LANDSCAPE IN CULTURAL HERITAGE SITES / p. 755-768: HACIA UNA METODOLOGÍA DE Valoración DEL IMPACTO VISUAL CAUSADO POR INSTALACIONES DE ENERGÍA RENovable EN EL PAISAJE EN EL ENTORNO DE LUGARES PATRIMONIO CULTURAL
Diego Rodríguez, Jesús Carlos; Chies Navarro, Pilar

Corcés Moreno, Jorge David

Sáenz González, José Antonio

Rincón Calderón, José María; Galán Marín, Carmen; Sanchez Fuentes, Domingo

Gutiérrez Pérez, Nicolás

Pulido Machaños, Luis

Yáñez Ventura, Marco Antonio; López García, J. Jesús

Fernández Martínez, Margarita María

Nuñez González, María

Tepa Muñoz, Noemí

Bañasco Sánchez, Pablo

Hernández Cruz, Ricardo Kevin

p. 989-998: PROPOSAL FOR AN INDICATORS SYSTEM OF URBAN INTEGRATION OF THE MARITIME PORTS HERITAGE / p. 999-1009: PROPUESTA PARA UN SISTEMA DE INDICADORES DE INTEGRACIÓN URBANA DEL PATRIMONIO PORTUARIO MARITIMO
De las Peñas García, Jesús

p. 1011-1020: EMPIRICAL METHOD APPLIED IN RESEARCH ON RESIDENTIAL ENERGY RETROFITTING / p. 1021-1031: MÉTODO EXPERIMENTAL EN LA INVESTIGACIÓN SOBRE REHABILITACIÓN ENERGÉTICA RESIDENCIAL
Escandón, Rocío; Blázquez, Teresa; Martínez-Huirves, Mónica; Suárez, Rafael; Sandra, Juan José

Bagnato, Vincenzo Paolo
"INTERVENTION IN THE HERITAGE OF RURAL COLONIZATION ARCHITECTURE. THE VILLAGES OF LOS MONEGROS"

Prieto Mochales, Luis, lprieto@monegros.net

Abstract: The colonization towns built by the National Institute of Colonization (INC) in the decades of the 40s to the 60s, already have more than 50 years of existence. The work carried out in the development of the doctoral thesis has sought to collect the patrimonial elements of the colonization architecture that have been studied and analyzed in the various research works on the subject, verifying the current state of these relevant and common elements of the colonization architecture. The aim of this study is to be able to propose guidelines and criteria for their conservation and to allow them to serve as guidance for interventions consistent with the values they contain.

In order to achieve these objectives, firstly, a number of representative cases have been selected, which cover most of these relevant common elements. Subsequently, the current status of the selected villages and the legal instruments that regulate their conservation and intervention have been analyzed.

The results and conclusions are thought to be reflected in final documents with a tab format summarizing the current state of the villages and the proposed criteria and intervention guidelines.

Keywords: Colonization; Heritage; Monegros; Actual state; Intervention.

1. INTRODUCTION AND DESCRIPTION OF THE TOPIC

The National Institute of Colonization (INC) was an agency under the Ministry of Agriculture of the Franco government. It was created by Decree on October 18, 1939. It has its roots in the suppressed National Service for Economic and Social Reform of the Land, existing in the Second Spanish Republic. From this body took advantage of some ideas, such as "The contest of preliminary projects for the construction of villages in the irrigable areas of the Guadalquivir and Guadalmedellato."

The equivalent institution to the INC in the Second Republic was the Institute of Agrarian Reform (IRA). Some of its structures and officials went to the INC.

The purpose of the colonization was the regeneration of the agricultural sector through irrigation. In order for the INC to achieve its goals, it was given several legislative instruments. The first, the "Law of bases for the colonization of large areas," promulgated on December 26, 1939.

The INC, in principle could only acquire the farms that were offered to him, reason why its work was limited. To make it more operational, the "Law of April 27, 1946, on the expropriation of rural estates because of social interest" was promulgated. Despite this law, colonization did not advance at the desired pace. To solve the problems effectively was promulgated the "Law of April 21, 1949 on the colonization and distribution of property in irrigable areas." It provided the remaining legislation and planning instruments, which allowed the construction of most of the colonization towns. These planning instruments were elaborated in each zone, the most outstanding are: General Plan of Colonization, Feasibility Study, Declaration of Interest, Plans of Works and Parcelation.

The plan of Colonization was the most important and it fixed the objectives and the agrarian and territorial structure that was wanted to carry out.

The INC, had an Architecture Service, the first head of the section was Germán Valentín Gamazo, from the creation in 1941, until 1943. He was later replaced by José Tamés Alarcón, who left office after his retirement in 1975.

The INC was organized in seven regional delegations, which coincided with the Spanish watersheds. The basin of each river was the unit of action of each delegation.

In the case at hand, the colonization towns of the Comarca de los Monegros belonged to the Flúmen-Monegros irrigation zone, which was included in the scope of action of the Ebro Regional Delegation. The Regional Delegation of the Ebro, had its soothes in Saragossa and comprised, Aragon, Catalonia (with sub sede in Lérida) and Navarra.

The head of the Regional Delegation of Ebro, from 1940 to 1946, was the agronomist Pedro Mela Mela. From 1946 until its extinction, the head stood it, the engineer Francisco de los Rios Romero.

The Architecture Service was directed by the architect José Borobio Ojeda, who took his position on December 13, 1943.
The 10 colonizing towns of Monegros are included in the Monegros-Flumen area of action of the Ebro Regional Delegation.

The existing theses and studies on the subject focus on the research and analysis of the colonization architecture projected and built in the colonization period, but I have not found any thesis that makes an investigation about the current state of this architecture, which exposes its patrimonial values and that establish tools and guidelines that serve as guidance to intervene in this architecture, respecting and adding architectural values to this built heritage.

The thesis, I believe, is novel in two respects, firstly with regard to the specific subject of the colonizing peoples of Monegros and secondly with regard to the approach, consisting of research to determine the patrimonial value of the rural architecture of colonization, in the specific case of the towns of the Region of Monegros and propose tools and guidelines for action to conserve and enhance these values.

In February 2005, a symposium was organized by the Andalusian Institute of Historical Heritage, with the theme: "The peoples of the Francoist colonization: patrimonial objective". The coordinator of the symposium was Víctor Pérez Escolano. In the introduction that Pérez Escolano carried out, it gathers the state of the question, until this date\(^1\). It also points to a path in the same direction as the research that I propose.

![Fig. 1 Monegros-Flúmen irrigation zone](image)

### 2. OBJECTIVES AND SCOPE OF ACTION

Without abandoning the study and analysis of the original documentary sources of the architecture of colonization, the starting point of the thesis are the results of the research already done by other authors on the colonizing work. These in-depth investigations have revealed the foundations of the colonization architecture: the principles and guidelines of the INC on which the peoples were projected, their antecedents, the influences of the foreign experiences and the architectural thought of the time. They have also documented in detail the analysis of the projected and constructed work.

In the existing research on the subject I have found the necessary information and analysis, as will be demonstrated throughout the research, which allows me to approach the objective of this thesis: To determine the patrimonial values of the colonization architecture, to fix it time the specific patrimonial architectural elements of each town that are susceptible of being conserved and to propose tools and criteria of intervention in the same. It is also the object of this thesis to apply these instruments in the specific case of the colonizing towns of Monegros.

The extensive colonizing work includes about 300 villages projected by 77 different architects. The INC issued a series of internal circulars\(^2\) in which a model in drafting the projects proposed, these guidelines refer basically to program needs, do not refer to management criteria or architectural composition of the building. This does not mean that, in order to save the peculiarities of each concrete action, there are no common elements and characteristics that allow the selection of cases that are representative of the great majority of these actions.

---


\(^2\) Circular 107, "Project Progress"; Circular 222, "Instructions for drafting town projects"; Circular no. 246, "Rules for determining the plan for the construction of new towns built by the INC"; Circular No. 285, "Rules for drafting new INC projects to be built with the INV"; Circular 300, "Structure of the new towns".
To determine the scope of action of the thesis, we have performed an analysis of the common elements of the colonization architecture and based on these we have made a choice of representative cases on which to develop the objectives of the doctoral thesis. On the other hand it has been studied the legislative scope and of existing instruments that regulate the conservation and the intervention in the towns.

2.1. Common elements. Selection of case studies

2.1.1. Chronology

Alfredo Villanueva Paredes and Jesús Leal Maldonado, in volume III of the "History and Evolution of Agrarian Colonization in Spain" (p.115). Establish three periods of construction of settlements, based in the technical documentation of the projects, with the intention of studying the typological evolution of housing in the towns of colonization. These periods that establish are: 1945-1950, 1950-1960 and 1960-1970.

During the 1940s, coinciding with the first period, there was an intense debate within the INC, to define the criterion to be followed in the general ordering of towns.

From this debate did not arise concrete guidelines to project the paths of the new colonization towns. The INC issued a series of internal circulars that basically affected aspects such as location, size, endowments, public spaces, etc., but did not involve guidelines on the architectural proposal or on the urban layout.

In the fifties the great activity of building of the Institute began, with the most varied urbanistic proposals and the incorporation of new architects who will mark with their proposals the guidelines of the new towns. Although the INC already had architects of the importance of Alejandro de la Sota or Jose Luis Fernandez del Amo, who took possession in June 1947 of the plaza of architect official of the INC, it is in the fifties when they begin to project and build the majority of towns.

This period lasted until the early 1960s. From this point on, the production of the INC declined and in the late 1960s it was much smaller and the proposals had an impact on the experiences of previous years. Greater production of projects consisted in the extension and remodeling of some built towns.

Revised technical documentation of projects and taking into account the characteristics of these three periods, we set as criteria for temporary election three periods: 1945-1952, 1952-1960 and 1960-1967.

We completed the selection criterion by choosing the samples so that the representation of the different regional offices where the INC was organized statewide.

2.1.2 Size

In Circular 246 of the INC, "STANDARDS FOR DETERMINING THE BUILDING PLAN OF THE VILLAGES OF COLONIZATION", the towns are classified by the size, the possibilities of extension and the program of the same.

One of the main issues that cause intervention in colonization towns is the need to expand them. This classification by size and program carried out by the INC can serve as a guide for analyzing the interventions that have been carried out in the villages and also to guide us in the guidelines or criteria that we can establish so that these interventions can be carried out while preserving the values of its architecture.

With this classification we know the towns projected for future growth and those projected with a "closed" route.

In this way we can establish criteria or guidelines for intervention in the paths, both to guide their growth and to preserve the characteristics of their paths.

It also serves as a guide to anticipate the type of growth that may be necessary in the future, taking into account the town's original needs program and comparing it with the new needs of today's society.

Smaller towns with less predictable growth may need to expand the provision of common facilities and spaces, although there is no significant population increase.

We have established as a criterion for choosing the size and the program of the town, by classification established by the INC.

---

2.2. Ordering principle

In the early years of the INC it was discussed the territorial scheme, organization and grouping of houses, and studied various aspects and characteristics that determine the type of settlement: the way grouping, the circulations of people and cars or shape of public spaces. The way in which the houses were grouped was widely debated in the 1940s within the INC⁴, it won by their advantages model concentrated or pooled settlement but scattered settlements or dispersed and intermediate formulas semi-concentrates settlements were also constructed.

Antonio Álvaro Tordesillas⁵ summarizes the advantages and disadvantages to each of the solutions, nothing that what are advantages for are inconvenient to the other.

Another differentiating aspect that characterizes the settlements is the separation of circulations between people and cars⁶. Just as in the type of grouping the INC was decided by the grouped housing solution, regarding the separation of circulations was not resolved officially, so it was the architects themselves who were taking part by one or another solution.

The separation of circulations could be understood from a hygienist point of view and also by the influence of some postulates of the Modern Movement collected in the Letter of Athens published in Paris in 1941, drafted by Le Corbusier⁷.

The concept of separation of circulations is carried out by the architects in different ways, from the total separation of circulations so that the traffic of cars and pedestrians never crosses to a partial separation, placing a secondary street for the circulation of cars, connected to the main road. The theme of the separation of circulations influences notably the urbanistic proposals.

Another element that characterizes the settlement is the character or form of the public space. Understood not only morphologically, but as the relationship of public spaces with the rest of the settlement.

On this aspect we highlight the reflection of Antonio, Álvaro Tordesillas⁶, which suggests that there is a chronological evolution in the approaches of the INC, which evolves the concept of civic center or main square towards a more open public space or heart of the city concept, in which the ratio of public space with its immediate surroundings and with the general ordination of the town is more complex and evolved than the traditional one of the greater place.

Fig. 2 La bazana, Alejandro de la Sota

2.3. Management model

The different studies carried out on the architecture of colonization coincide in the idea that there are no criteria or guidelines defined by the INC to carry out the approach of the layout of the towns. There are recommendations and instructions of a programmatic nature expressed in the INC internal circulars⁸, but these circulars containing guidelines to determine the model or the architectural form of the layout.

⁴ The advantages and disadvantages of grouping or raising isolated dwellings in the plots are enumerated by José Tamés Alarcón in his articles: "Urbanistic process of our interior colonization", published in the National Magazine of Architecture no. 83, November 1984, "Disposition of the housing in the new irrigation", in the supplement of Colonization of the magazine Agriculture nº6, Ministry of Agriculture, June 1947.


⁷ Benevolent L (1982). History of modern architecture. 5th Ed. P 584

Thus it is considered that it is the architects' doing that determines the solutions and proposals of the management models used. Without prejudging that there is no theoretical body that directs the proposals of the INC, Villanueva and Leal list a series of constants in the design of the towns.

Accepting that is doing architects is proposing that management models used by the INC, we can distinguish three stages that coincide with three groups of management models that bear a comparable characteristic.

In the first stage, which dates back to the early 1950s, the prevailing model is that of the traditional layout, it is a question of combining the circulatory and typological rationality with the recreation of traditional peoples.

From the first years of the fifties the first proposals of models of management with influence of the international architecture appear by some architects like Jose Luis Fernandez of the Master.

From these studies we draw a relation of models that help us classify samples.

Finally in the last stage of colonization there is a coexistence between the previous models, some characteristics of the traditional but evolved paths towards the rationalization of the paths and the postulates of modern architecture are maintained.

2.4. Urban plot

We understand by urban plot the urban structure that conforms the spatial and functional organization of the town. The one that allows to realize the grouping of houses, to size and to draw the vials, to locate the public spaces and the relation of these with the private spaces. Villanueva and Leal classify the different paths according to their geometry, qualify the urban mesh layout and distinguish rectangular, polygonal, curvilinear or mixed meshes.

In view of the models studied and classified we understand that the geometric mesh is not always the basis of spatial and functional organization, so we have proposed the following classification in which we believe that all typologies that appear in the villages of colonization. Although in some cases several overlapping plot typologies may appear, one of them usually prevails, giving meaning to the basic structure of the plot.

Fig. 3 La Vereda JL Fdez. Del Amo

---


2.5. Plot Type

The plot is the basic compositional and aggregation unit of the settlement structure of colonization peoples.
The plot has a similar composition in all the towns of colonization, although its structure adapts in each town
to the solution and characteristics of the urban plot.
The size of the plot in the villages from the first period up to the first years of the fifties was established
between 300 and 400 m², with dimensions of 12 to 14 meters of facade by 24 to 30 meters deep.
Later larger parcels appeared, as those of the towns of the Guadalquivir, with 600 m² and dimensions
of 15 meters of front and 40 meters of bottom. The plots of the workers are smaller because they have
no agricultural dependencies.
The elements that compose the plot are: the dwelling, the agricultural units and the patio.
The typology of the plot has been classified according to three aspects:
The situation of agricultural units inside the plot, if they are located on the facade or inside the plot.
The accesses to the plot, if they have a single access from a street or if they have two accesses
differentiated from two different streets.
The size of the plot if they are from the first era up to 450 m² or the second era, over 450 m².

2.6. Typology of housing

The housing of colonized settlements evolves through the different periods of construction of villages.
Villanueva and Leal studied the evolution of housing over three periods of building activity INC,
The construction of colonists’ homes is the main objective of INC’s building activity and the basis of
colonization.
The housing constructed by the INC was influenced by the different national and international debates
that on the rural and working house were given throughout XX century. Antonio Álvaro Tordesillas made
a presentation and an analysis of the various disquisitions which represented the basis of
housing in the Institute and that influenced their subsequent development.
To select samples based on the exposed documentation, we have taken as criteria of choice, size and
the program of housing and hygienic and functional solution.

2.7. The materials

The post-war economic situation and international isolation favored the use and use of local materials
and construction techniques, resulting in savings in transportation and labor.
The use of local materials and construction techniques leads to the characterization of the architecture
according to the region in which the village is built.
The construction techniques are quite similar throughout the geography, use of the load-bearing wall
as a supporting element and enclosure of the building, only in some towns of the last period appears a
second sheet and a chamber of air in the enclosure. The woodwork is made of wood. The slabs are of
wood beams and scrape in an early period and of concrete beams and ceramic bollards or of ceramic
elements armed in later times. The cover usually is of wood with hurdles in the first constructions and
of countersinks on horizontal forged in later times.
The differentiation of the materials of the load walls that have their expression in the facade are those
that characterize the differences of each region. The existing materials in each region and the
techniques with which these materials are worked, integrate the architecture in a natural way in their
environment.
The solutions range from the use of whitewashed to the work brick or masonry view and also to the
combination of both as in some towns designed by Fernandez del Amo.
The materials are a fundamental element in the compositional unit of the architectural set of the
colonization towns. That is why we have included in the classification cards of the towns the
characteristics of the finishing material of the facades, whether they are plasters or seen work.

13 Villanueva A, Leal J. pp 155-199
14 Tordesillas A. pp 164-188
15 Centellas M, pp 190-201
2.7.1. Architectural references

In order to analyze the values of colonization towns from the point of view of the language of the projected and constructed architecture, we will rely on the architectural thought of the time and the architects authors of the projects.

In Spain, in the fifties, in the midst of autarky, Spanish architecture once again valued history, regionalist tendencies were the most dominant positions in the panorama of national architecture. However, some architects who worked at the INC, adopted attitudes closer to rationalism. Among these architects there are those that have had an important meaning in the architecture of the second half of the twentieth century in Spain.

On the international scene, at the end of the Second World War a critical revision of the postulates of the Modern Movement takes place. It tries to reconcile the language of the modern architecture with the proposal of a modern architecture more linked to the nature and the place.

"The synthesis carried out in these towns is built on a common ground of convergence between tradition and modernity: the dialogue between technique and meaning, as a manifestation of an essentialization of language in different ways:

In popular architecture, the essence is manifested through the decantation of the permanent in the historical development of a constant search for the integration of architecture in the environment, guided by an inherent precision of any economic conception. In modern architecture, the search for abstraction demands in language the role of evidence of the basic constituent elements of the architectural work, and the economy is headed towards industrialization and functionalism. In this expressive threshold between technique and language is where we find a manifestation of this architectural work as a testimony of its current complex."

The use of the local materials does not respond so much to a regionalist or historicist will of the architects, but rather to a need for economic rationalization of the resources of construction materials and construction techniques.

"The materials, from the construction of the first settlements with adobe until the use of the iron and the cement, undergo a remarkable evolution in this aspect. There is an initial willingness to adapt to local construction techniques, mainly due to the shortage of construction materials throughout the decade of the 1950s. This forces us to adopt forms of construction that already at the moment in which they are realized are considered past. There is also a rejection of prefabricated cement, because of the negative experience involved in the cases that have been made, since the quality of the concrete was very poor. One consequence of the use of precarious materials, such as wood in roofs, is the need for repairs to which some of the first constructions carried out are seen."

Faced with the abstraction of geometry and the composition of volumes of cubic proportions topped with inclined planes of the covers. The materials and conventional construction techniques, show matérica composition of these volumes, the construction elements, walls, lintels, sills, etc. eaves expressively manifest tectonic condition. The tabs sort of people we have introduced a scale to assess the level of abstraction of popular, modern and m i x t or architectural language of peoples. With this scale, we want to be guided to make decisions regarding maintenance and intervention.

2.7.2. Elements economic and regulatory instruments

The conservation and intervention in the rural architecture of colonization, requires previously, to establish the patrimonial values that are susceptible of being conserved, in each concrete action. The patrimonial values of the architecture of colonization in each town, have specific characteristics specific to each action, derived from the place, the program, the author's proposals etc., but also share common values with other actions, which have to do with the period to which they belong, the attachment to the same architectural language, the influences of other similar colonizing experiences in other countries and the general guidelines issued by the Spanish colonization management agency, INC.

In this chapter, through the reflection on the concept of heritage in the colonization architecture, we seek to find conceptual tools and instruments that help to establish the patrimonial values to be taken into account in the conservation and intervention in rural colonization architecture.

---


17 Alfredo Villanueva Paredes and Jesús Leal Maldonado, describe the general characteristics of the buildings of colonization towns. (History and Evolution of Agrarian Colonization in Spain, Volume III, p 43).
2.7.3. The concept of heritage

The concept of cultural heritage is subjective and changing over time, it is society itself that gives the value of each cultural asset at every moment of history. The patrimonial value embodied in the various documents, applied in the case of towns of colonization, can help us to establish a relation of heritage values, attending to different concepts such as set, monument, element, etc.

In the Athens Charter of 1931, the concept of heritage refers to monuments as isolated and independent works, in the 1964 Venice Charter, the concept of monument as an isolated and independent work is surpassed to consider urban and rural areas. The Charter of Krakow 2000, abun given in this whole concept.

We will deepen in the concept of the heritage of colonization towns from two different aspects.
First, we will try to situate the value of the heritage of the colonization architecture in accordance with the current legislation, according to the laws and legal instruments that are applicable in each case. With this legal approach to the subject, we can determine which organisms are the ones that have competence for their protection and regulation and what legal instruments and architectural tools can be used to standardize the interventions in this heritage.

Secondly, we will delimit the concept of architectural heritage, within the general concept of cultural heritage of colonization, determining which architectural elements contain the cultural heritage values, both material and immaterial, of colonization towns.

The towns of colonization of Monegros, are part of the set of colonization towns of Spain, developed by the INC.

Some of the patrimonial values of these towns, go beyond the patrimonial values that can have each of them individually. Hence, we can have different scales of approach to the concept of colonization heritage in Monegros. Some of the patrimonial values are attributable to the values of the whole of the Spanish colonization, for which we take for granted the consideration of Spanish Historical Heritage. It is not up to the development of this work to argue the reasoning of this consideration, nor to determine in which juridical figure would correspond to frame this group in the law of Spanish Historical Heritage.

"Only by making a very broad interpretation of the Historical Set" we would have an uncomfortable place in this figure.

Leaving open the reflection that Juan Antonio Fernandez Naranjo makes on the possibility that the set of colonization settlements can be considered, with respect to the Spanish Historical Heritage Law "Historic Complex", but without entering it, for not being object of this doctoral thesis, if it seems convenient to establish the area in which the conservation and intervention of each particular village can be regulated.

Depending on the territorial scope of the analysis we choose as a reference, we can have different scales of approach to the concept of heritage in the architecture of colonization and find different legal tools and techniques to regulate their conservation and intervention.

To analyze these areas of activity, we will make a first classification in order to relevance of the equity of the peoples of colonization, so that we can place each town in the area of appropriate action.

Let's take as a reference, the classification made by the Foundation DOCOMOMO Ibérico for the selection of Iberian DOCOMOMO Register modern architecture.

The Registry is divided into several categories, the towns of colonization belong to the category of "modern living". This topic or category I was prepared in the Iberian DOCOMOMO Seminar, in the Proceedings. Several papers on the colonized villages are collected.

The registry is composed of works of Level A and Level B, thus distinguishing between works of national importance and local importance.

The relationship works both levels include several towns of colonization. A level between the towns found Villa de Calatrava and Cañada de Agra architect JL Fernández del Amo, declared Cultural Interest in April 2015 and pending the drafting of a Special Protection Plan. Are recorded at level B, among others, some towns made by José Borbó Ojeda, architect in charge of the management of

18 Law 16/1985 of the Spanish Historical Heritage
19 Art. 21.3. Law 16/1985. The Conservation of Historical Assemblies declared to be of Cultural Interest means maintaining the urban and architectural structure and the general characteristics of its environment.
20 Juan Antonio Fernández Naranjo, architect of the Cultural Delegation of Seville, analyzes the concept of heritage referred to the villages of colonization and the possibilities offered by the legislation for their protection. (PH Bulletin of the Andalusian Institute of Historical Heritage, n°52, February 2005, pp. 89-92).
21 Documentation and conservation of architecture and urbanism of the modern movement
the Regional Delegation of the Ebro and author of one of the towns in Monegros. Among the towns of this author are registered, Town of Figarol, in collaboration with fellow architect of the Delegation of the Ebro, Antonio Barbany Bailo and Village of Rada. Given this classification, we can identify two areas of action, a first field nationally regulated by the Spanish Historical Heritage Act, with development through the Special Protection Plans and a second regional and local levels.

Most of the towns of colonization of Spain, including those belonging to the region of the Monegros, would be included in the B level of this classification, according to their relevance. The appropriated levels for regulation and intervention in the conservation area, are the regional and local levels. Law 3/1999 of 10 March, of the Aragonese Cultural Heritage, establishes a classification of goods that make up the Aragonese cultural heritage, into three categories according to their level of interest and their corresponding degree of protection. The scale is greater to lesser extent and categories are: Assets of Cultural Interest, heritage properties Cultural Heritage and inventoried goods Aragonese Cultural Heritage. Within Cultural Interest, the Law distinguishes between real property, personal property and intangible assets.

Goods in Aragonese Cultural, of two categories Monument and the set of cultural interest, which in turn comprises different figures, among them are, the Historic23 and place of ethnographic interest24 .

Regulation of heritage properties, states that "Municipalities may apply to buildings that merit consideration Monuments of Local Interest25, the declaration system and the system of protection established in this law for Aragon Cultural heritage properties of interest, while the same property as declaration of cultural interest "does not occur.

Cultural Property not considered BIC or well cataloged, they may be included in the inventoried goods Cultural Heritage of Aragon.

It is not the aim of this work to determine the inclusion or not of the assets of the peoples of colonization in this or that category, but that is the subject of work to fix the assets that may be subject to qualification in one of these categories to proceed protection. It is also the subject of this work to determine the tools and instruments to intervene in the heritage of colonization towns of Monegros, so that conserve and enhance these values.

The Aragonese Cultural Heritage Law states that are primarily municipalities, through the General Urban Plans and Special Protection Plans26, those who are legally entrusted to regulate and ensure the protection and conservation of the property, with the support of the Provincial Cultural Heritage committees and oversight and jurisdiction of the Autonomous Community. According to the previous exhibition held, we can establish two considerations starting, one to fix the heritage values of these people and another to establish the framework in which they should raise the tools of analysis and intervention in equity.

The first consideration is determining the architectural heritage of the towns of colonization that concern us, is contained in the types of securities covered by the legislation: the Joint Cultural Interest, buildings that can be classified as Monument of Local Interest and architectural and artistic elements of which it is the architecture framework that can be included in a catalog or inventory of cultural heritage.

The second consideration corresponds to the determination that the tools of analysis and intervention for the conservation of heritage values must be articulated and included within the municipal urban planning, general plans, provincial subsidiary regulations, special protection plans, etc. which are the legal instruments establishing the rules of equity.

With this starting point, we ensure that the proposed heritage values remain under the law and that the tools that we set for intervention and conservation of these values can be implemented, to be included in planning instruments and urban management of municipalities, counties or autonomous community.

23 Article 12, Section B, epigraph a. Law 3/1999 of the PCA. "Historical Settlement, which is the continuous or dispersed grouping of real estate, which is representative of a human community for being a testimony of its culture or its history, which constitutes a coherent and delimitable unit with its own entity, although each element by does not have relevant values."

24 Article 12. Section B, epigraph a. Law 3/1999 of the PCA. "Place of ethnographic interest, which is that natural site, set of buildings or facilities linked to traditional forms of life, culture and activities of the Aragonese people, although they do not have particular aesthetic or historical values."


3. RESULTS AND CONCLUSIONS

The structure and working methods in general thesis is to propose a series of instruments that allow us, on the one hand: to analyze the scope of the thesis, the current state of the architecture of colonization and proposed guidelines and criteria for intervention and conservation of it and on the other hand: for the preparation of a series of documents containing the results of the analysis and conclusions.

The thesis includes material produced by the author, surveying, digital architecture analysis etc. Where detailed, for space not shown in this summary, urban evolution of the villages is analyzed in a way serve as an example in a record type.

4. REFERENCES


Centellas Soler M. (2010).” Los pueblos de colonización de Fernández del Amo. Arte arquitectura y urbanismo”. Barcelona


Ley 16/1985 del Patrimonio Histórico Español

Ley 3/1999 de 10 de marzo, del Patrimonio Cultural Aragonés.