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ARCHITECTURE WITH ARCHITECTS: URBAN PROPOSALS FOR THREE VILLAGES IN THE PROVINCE OF TARRAGONA, SPAIN

ABSTRACT

In 1987 there were 668.000 hectares of urban land in Spain; by 2006 that had increased to 1.014.000 hectares, almost doubling urbanization in 20 years. Thousands of hectares of rural land have disappeared by applying a model of city-building with many shortcomings, such as priority for traffic above people, poorly used public space, mono-functional areas and low density. As a result there are sustainability problems (both environmental and economic), inefficient public transport, bad quality of the public realm and loss of 'place identity'. This study focusses on the fact that there still exist a large amount of land with an approved urban plan with the same deficient characteristics. This article shows the conclusions of a study of some villages in the province of Tarragona by students and professors from La Salle architecture school in Barcelona, on alternative ways for planning our built up areas. The aim was to establish a balance between both the history and the culture of the settlement and between high environmental quality and functional issues. The research project has resulted in a new method of interpreting and projecting the settlement and its landscape, which could be more widely applied.

KEY WORDS:

heritage conservation, sustainable urban development, landscape, urban planning

1. INTRODUCTION

In 1987 there were 668.000 hectares of urban land in Spain; by 2006 that had increased to 1.014.000 hectares, almost doubling urbanization in 20 years. But today there are 810.000 empty new homes, and because of the poor construction quality, some of them will need to be renovated before having been used. The results of the construction bubble are very

evident, as shown by the group Nación Rotonda (Roundabout Nation) on their website (**www.nacionrotonda.com**), where aerial pictures of dozens of Spanish neighbourhoods are compared before and after the boom. Where forests and farmland stood 10 years ago, there are now half-built homes, elaborate roundabouts and roads leading nowhere.

Similar is the project recently on show in the ICO museum in Madrid called Ruinas modernas (Modern ruins), an inventory of pictures of abandoned neighbourhoods made by the German architect Julia Schulz-Dornburg, which shows the excesses of urban speculation in Spain through aerial photographs and plans.

Thousands of hectares of landscape have disappeared by applying a model of city-building with many shortcomings, such as priority for traffic above people, poorly used public space, mono-functional areas and low density. As a result there are sustainability problems (both environmental and economic), inefficient public transport, bad quality of the public realm and loss of 'place identity'. Why is it that the result of years of planning and urban management by qualified professionals in different disciplines is so far from the cultural and human character that Bernard Rudofsky (1) found in "Architecture without architects"? Is it not possible to marry the functional requirements of a modern city with its ecological and human dimension?

This study focusses on the fact that there still exist a large amount of land with an approved urban plan with the same deficient characteristics as the ones shown by Nación rotonda. The economic crisis has stopped their implementation on the ground, but the intentions to urbanise in the same way still remains on paper and has been legally approved.

This article shows the conclusions of a study of some villages in the province of Tarragona by students and professors from La Salle architecture school in Barcelona, on alternative ways for planning our built up areas. The aim was to establish a balance between both the history and the culture of the settlement and between high environmental quality and functional issues.

Three small villages were analysed: Benifallet (725 inhabitants), Pratdip (848 inhabitants) and Freginals (482). All of them are located in a rural environment of high cultural and ecological value, sensibility is a most when transforming the space. Their local plans have already established the extension areas for the village and their characteristics, so, at first, the actual plans have been analysed in order to visualize the result if they were to be developed. Once problems have been detected, alternative projects made by students were focused on solving them.

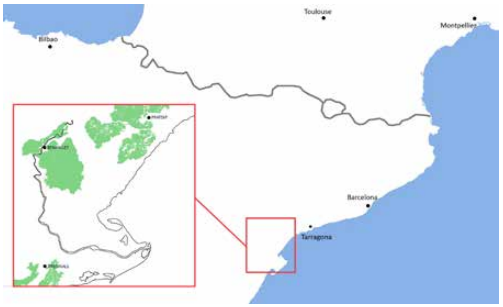
The research project has resulted in a new method of interpreting the existing settlement and making a future projection of it based on a first analysis of the place (the search of the genius loci), envisaging the urban fabric as an articulation of three dimensional space, the analysis of existing typologies and a multisensory perception of the total area.

2. MATERIALS AND METHODS

2.1 Sense of place. Urban planning in the rural environment focused on the local culture and history.

Tarragona is a province located in the south of Catalonia, along the Mediterranean sea. Benifallet (725 inhabitants) and Freginals (468 inhabitants) are located in the south of the province, in the river Ebre valley and at the foot of the Cardó-El Boix and Godall mountains.

Pratdip is a village with 700 inhabitants located in the centre of the province, at the foot of Llaberia mountains. All three of them were founded on pre-Roman settlements.



1. Location map.
source: Anna Peralta

Benifallet is spread out on the left shore of the Ebre river. Its oldest core was established on the high part of the valley to prevent the village from floods. During the 20th century the village expanded to the plain, on the river bank. Characteristic of the old village are its steep streets and beautiful and small Mediterranean houses with courtyard.

2. Plan and image of Benifallet.
source: Camil Bosch

Freginals is located on a small elevation of an interior plateau, and surrounded by the Montsià mountains. Due to its strategic situation, the village overlooks the fields around it.

3. Plan and section of Freginals
source: Aina Santesmases

Pratdip is located on the top of a steep hill, in the confluence of two ravines. For defensive reasons, the village was built on the hill, and very rich agricultural lands are spread out around it. Pratidp's architecture is modelled to guide and protect the access to the castle situated on the highest point of the hill.

4. Pratdip and its surroundings.
source: Alejandro Jacas

As you can see, all three villages have remained "untouched" and have not suffered the impact of urban speculation during the years 1998-2008. So, how must we plan the future development of such privileged settlements?

Firstly, we must understand the patterns that have led to their construction over the years. This is not only because of their historic or archaeological interest, but to comprehend the logic of how man has settled and built on this place.

In his PhD thesis, architect Steffano Cortellaro explains how the organisational logic of the rural environment is narrowly related to the construction of human settlements, and how its knowledge can provide fundamental skills to modern urban planning (2). In a similar way, Enrico Guidoni studied how typologies in old cities were the result of determined building techniques, and how the repetition of these typologies generates urban spaces of different characteristics and scales (3).

Camillo Sitte, in his book "City planning according to artistic principles" (4), puts the emphasis on the importance of the morphology of the empty spaces in the city, in generating centrality, views, tensions, visuals, hierarchy and order. This leads us to give priority to the design of the empty spaces in the city (streets, places, gardens..), as architect Louis Kahn and the Spanish artist Jorge Oteiza did.

Secondly, we must combine all the elements described above with the requirements of modern urban design, which are in constant evolution. Nowadays cities have to fulfil a lot of energetic demands, technical and design requirements related to services and supplies, economic issues that we must know and apply in order to achieve our project's viability.

In addition to these requirements, the objective of our discipline, urban planning, is to improve the conditions of life of people in general. The urban environment is the place for all inhabitants as a 'collectivity', the public realm where people enjoy life in communities, so public spaces in our cities must also be designed to accomplish peoples' requirements: priority to pedestrians, accessibility for elder people and children, human scale spaces... (Jan Gehl (5) , Aldo van Eyck (6))

Luigi Snozzi's work in Monte Carasso, a small suburb in Bellinzona, in the Swiss canton Ticino, is an example of integration of all the points we have explained above (7). It begun in 1978 when he was committed to design and build a new school. Right away, he changed the school location, that was supposed to be built on the roundabouts of the village, and designed it in the city centre, next to de cemetery. Since then he has been working in the urban development of Monte Carasso: he has simplified the urban plan to make the building requirements more flexible. At the same time, he has been capable of interpreting the identity of this place, identifying its scale and developing extremely modern projects that reinforce Monte Carasso as a historic and modern totality.

2.2 The study areas.

In all three villages we have a study area, that corresponds with future expansion zones set by the municipal urban plan. All of them are actually farm land:

In Benifallet, the study includes the lands at the south of the village. With a smooth topography, the area limits are: the river Ebre at west, the sports field and the school at east. Today these lands are used for fruit farming. It has a surface area of 2,7 ha, and the municipal urban plan envisages a future expansion of 106 new homes.

The study area in Freginals includes the terraced lands at the south-west of the city core, that are also being used for fruit farming today. The municipal sports area is located at the west of the study area, and the municipal school and nursery are located at its east limit. The south limit of the study area is the motorway that connects Freginals with the highway and the closest villages. It has a surface area of 1,5 ha, and the municipal urban plan envisages a future expansion of 88 new homes.

The study zone in Pratdip includes a small area of land at the west of the city core, that is being used for dry fruit farming, and a big area that contains all the irrigated farm lands surrounding the east side of the village. It has a surface area of 6,5 ha, and the municipal urban plan envisages a future expansion of 230 new homes.

2.3 The municipal urban plans.

During the years 2004-2010-2013, the municipal urban plans of these three villages were revised in order to fulfil their needs for the next 20 years. These plans establish the main lines to transform the three study areas, today dedicated to agricultural uses, into new built up areas.

5. Study area in Benifallet.
source: Anna Peralta

6. Study area in Freginals.
source: Anna Peralta

7. Study area in Pratdip.
source: Anna Peralta

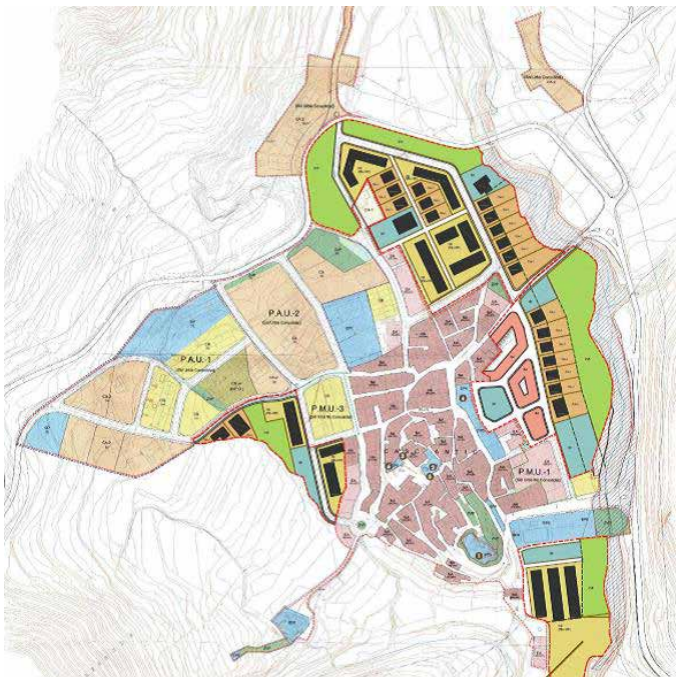
8. Benifallet's municipal urban plan.
source: Catalonia's planning register

9. Freginals's municipal urban plan.
source: Catalonia's planning register

Benifallet. A new expansion area composed by 6 blocks of approximately 40x50m has been established by the municipal urban plan. A new big roundabout (40 m diameter) is located at the end of the village. The plan also envisages a big avenue between today's highway and the river, that has approximately 20 m width by 130 m length. The buildings in this new expansion will be terraced houses of a maximum of 3 levels.

The new urban development in the study area of Freginals is organized by two parallel streets from east to west, that link the school and nursery to the sports field. The green zones are located in a line along the motorway. The buildings in this new expansion will be houses in a row of a maximum of 2 levels

Pratdips's municipal urban plan envisages a small expansion area at the east of the village core, where terraced houses of 3 levels will be built forming 3 blocks. In the rest of the expansion areas, the plan establishes that 2-level detached houses or houses in a row will be built. With this new development the agricultural lands around the village will disappear. The green zones are situated along the borders of the areas of study.



10. Pratdip's municipal urban plan.
source: Marta Bringola.

Firstly the students analysed proposals for building development in the study areas according to the municipal urban plan directives in order to identify the critical points to be improved. They concluded that:

1. The new streets were designed to give priority to fast car traffic above pedestrians, contrary to those in the traditional village
2. Public buildings and green zones were to be located at the worst places, on the border of the village.
3. The new parts of the village were dispersed. Detached/terraced houses would create low-density areas that would be unsustainable for the municipal services and have nothing in common with the traditional image of the village.
4. There was no affinity with the previous agricultural land system.
5. The new developments would be too big for the demands of such small villages, they should be implemented step-by-step in different phases.

2.4 Student's proposals

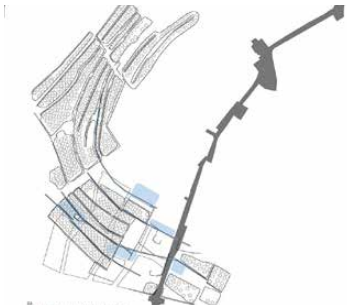
Starting from the list of critical points above, the students were then ready to put forward their own proposals. Their proposals had to respect the same maximum of square meters built, as well as the same minimum of public spaces as the in the municipal urban plans. They also had to follow the regulations of the Spanish urban planning laws.

The example below shows one of the proposals for the Freginals study area, made by the student Marc Gispert during the course 2011-2012:

1. TOPOGRAPHY AND FARM LANDS

Due to its terraced lands, the study area has a strong agricultural character. Walls made of stone have been used to transform this original steep lands into terraced fields where orange and olive trees are planted. To optimize land

movements, small squares will be situated on the existing terraces. The project will follow the lines and levels of the existing terraces and keep some of the existing buildings and trees.

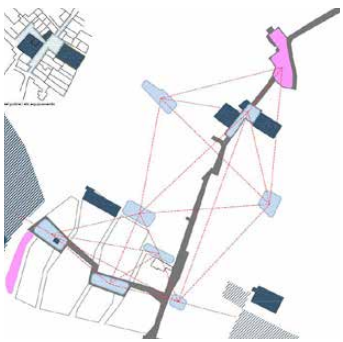


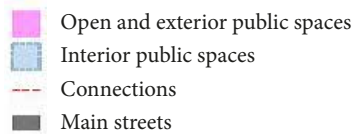
11. Topography and terraces outline.
source: Marc Gispert

2. SQUARES AND PUBLIC SPACE

The project creates small squares (that could be understood as street enlargements), similar to the way that the small squares configure the centre of the village. Due to topography these squares will have splendid views over the landscape.

There are two kinds of public space as a result of their location in the village





12. Squares and public space outline.
source: Marc Gispert

3 URBAN PATTERN

The new blocks follow the scale and proportions of the existing ones, but they are turned 90º in order to adapt to the topography of the study area. This blocks are going to be divided into bigger parcels than the existing ones.

The new north-south streets are steep, and so façades facing to them are narrow and staggered. The new east-west streets are nearly horizontal, so the façades facing to them are longer.

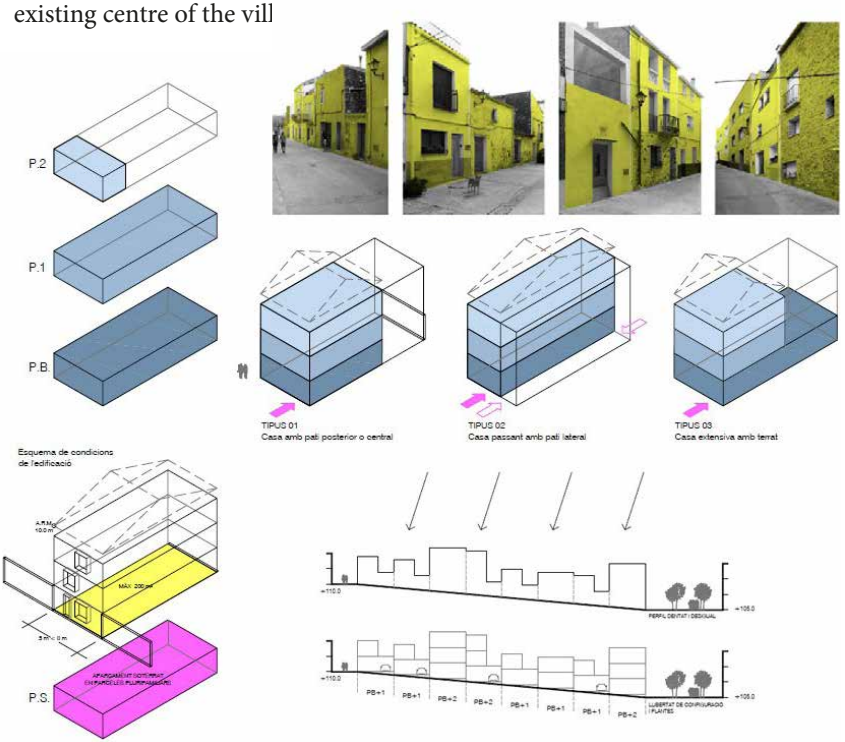
4. STREETS AND BUILDINGS

The steep streets are used to throw rain water out of the village. As in the old village, the new streets twist on themselves to control the space and obtain short views of the façades.

Buildings can be single-family houses or for several families. However, it is recommended to build a community parking underground.

The relations between maximum built area and the maximum volumetry allows flexibility to occupy the plot in many different ways, which provides multiple riche spaces and sunny patios and also dialogues with the skyline of the existing centre of the vill

13. Urban pattern outline.
source: Marc Gispert



14. Typologies scheme.
source: Marc Gispert

5. THE PROJECT

The public space is organized through two east-west streets that link the sports fields and the school area. When you walk along these streets you find a concatenated system of small squares.

North-South street have a strong slope (8-10%), and have the function to connect the new development with the existing streets of the village.

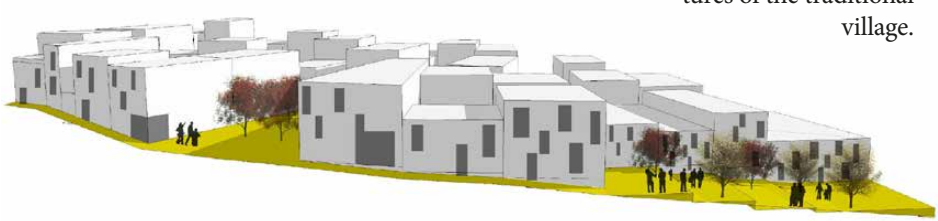
15, 16. Project scheme and terrace plan.
source: Marc Gispert

The image of the new extension is characterized by:

1. The public space is designed for pedestrians, although it can also be used by cars.
2. Different types and scales of buildings.
3. Staggered façades due to the high slope streets
4. The streets twist on themselves to get short views of the façades. When the street is open, you can get beautiful views of the landscape due to the topography.
5. The project can be developed on different phases to adapt to the market demand.

As we can see, the result is a project that looks for a modern language that strengthens the structures of the traditional village.

17. View from the west limit of the study area.
source: Marc Gispert



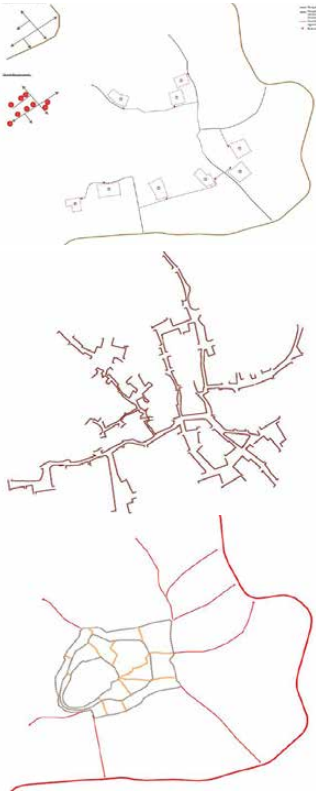
3. RESULTS AND DISCUSSION

During the last three courses, students and teachers at La Salle Architecture school have been researching alternative ways to plan our built environment, that can integrate the needs of new development with the history and culture of the settlement, and can find a balance between high environmental quality and functional issues. After thousands of projects had been discussed, a common method seemed to emerge. Although every new development project and every place have essential differences, there are common issues to be solved when working on such developments.

3.1 The public space and public buildings are the frame of the urban realm.

Public spaces (streets, squares, gardens etc.), together with public buildings, are the main structure of the city, we can say they are the skeleton of the Mediterranean urban system. This fundamental premise is not new: the Indian rules used by the founders of Latin American cities during the 15th century, describe, how they began the construction of the city by choosing the situation of the main square.

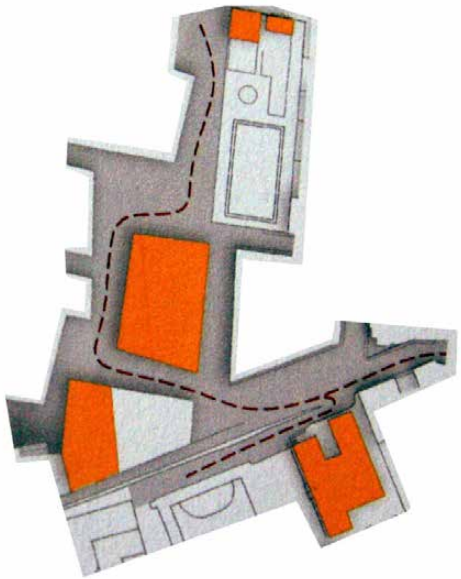
In the first place, we must know how the local system of streets and squares have been settled: their orientation, topography and water systems, measures and proportions. What we found during this research, is that, in the traditional Mediterranean city, a street is never a straight strip for car traffic, where pedestrians are limited to the edges. Mediterranean streets are a net, narrowly connected to the topography of the place. They can be described as an agglomeration of small spaces, a built topography where we find planes, ramps, stairs, widenings and narrowings, that create a rich system of open squares, intimate corners, short or panoramic views...



18. Pratdip's public space scheme.
source: Marta Bríngola

Secondy, public buildings (such as markets, libraries, administrative or religious buildings...) are complementary to the squares in this street system: public space is never organized in two dimensions, the buildings along it are its third dimension (Camilo Sitte describes in his book *City planning according to artistic principles* (4) the relation between buildings, monuments and squares).

When we walk in a street or a square with long views, the buildings that enclose that big space form its main character, so we must locate the best buildings (public buildings) in those strategic places.



19. Square and public building scheme.
source: Ferran Alabau

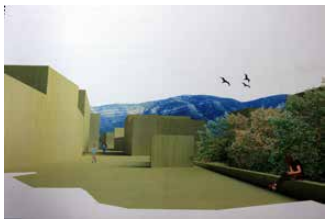
As we will see below, it is also important, when designing public spaces, to think about the activities that will take part on the ground floors of their façades, because main streets and squares must have open and liveable façades that invite movement along them.

Lastly, the streets, squares and public buildings system has to be precisely dimensioned in order to establish a dialogue with the existing city, and, at the same time, it must put up with the requirements of a modern society. We can't deny that a change of scale will be necessary in our new projects, we cannot design 3 meter streets or 4 meter-façade houses as they exist in the traditional village. For this reason it is important to analyse the existing public space system from the point of view of its proportions and volumetrics.

20. Comparative schemes of the existing and projected public space system in Pratdip, where we can find a continuity between both of them.
source: Marta Bríngola

21. Topography and farm lands around Freginals.
source: Albert Garcia

22. Connection between the terraced lands and the extension project. Freginals.
source: Albert Garcia



23. Project view.
source: Albert Garcia

3.2 Rural built landscape.

With a longer extension than the village centres we are studying, the agricultural lands that surround them have also been formed by human activity with skills that have been constantly improved throughout time. Our study areas belong to this rural realm.

When designing a new urban development, we must care about the logic of this landscape. Similar to the street network in the village, they are narrowly connected to the topography, orientation and water system. These "local construction rules" are a guide to know how to settle down in a new area.

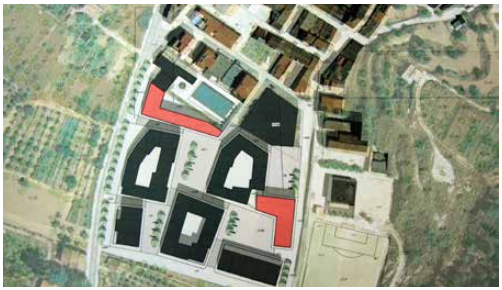
The study areas we are focused on are not blank papers, in them we find existing elements (vegetation, buildings, walls,...) that can have a great value for the memory of the place.

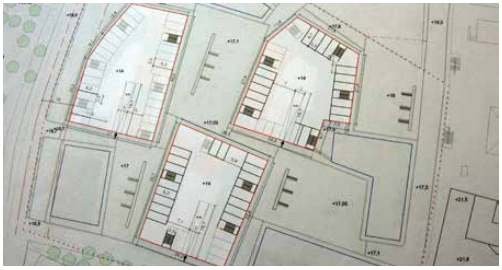
3.3 Typology: compact city. Ground floors and parking.

The Mediterranean city is compact: buildings are one beside the other, and the most luxury spaces are the empty spaces between them (patios, terraces, gardens, decks..). Attached houses help retain the interior temperature of the houses, and the patios assure a good cross ventilation.

Furthermore, attached architecture is used to build the blocks, and it can easily solve different levels between streets and difficult topography. Building aligned to the street is the most common way to regulate this kind of constructions. When we study the existing rules in the municipal urban plans, however, we find that the parameters given (street alignment, maximum depth and height of the building) generate a maximum volume that coincides with the maximum buildable area. As a result, all new buildings are squeezed into the maximum limits and have the same volume as their neighbours, generating a plain skyline of the city. It is very important to make flexible urban regulations, as we will see in the next page example.

Another problem we face in small villages extensions is that all ground floors are destined to accommodate parked cars, producing streets without activity along their façades, and become mono-functional residential areas. It is also important to design blocks where underground community parking garages could be built, so ground floors can be used for commercial activities, services or even residential uses that can interact with living in the streets.

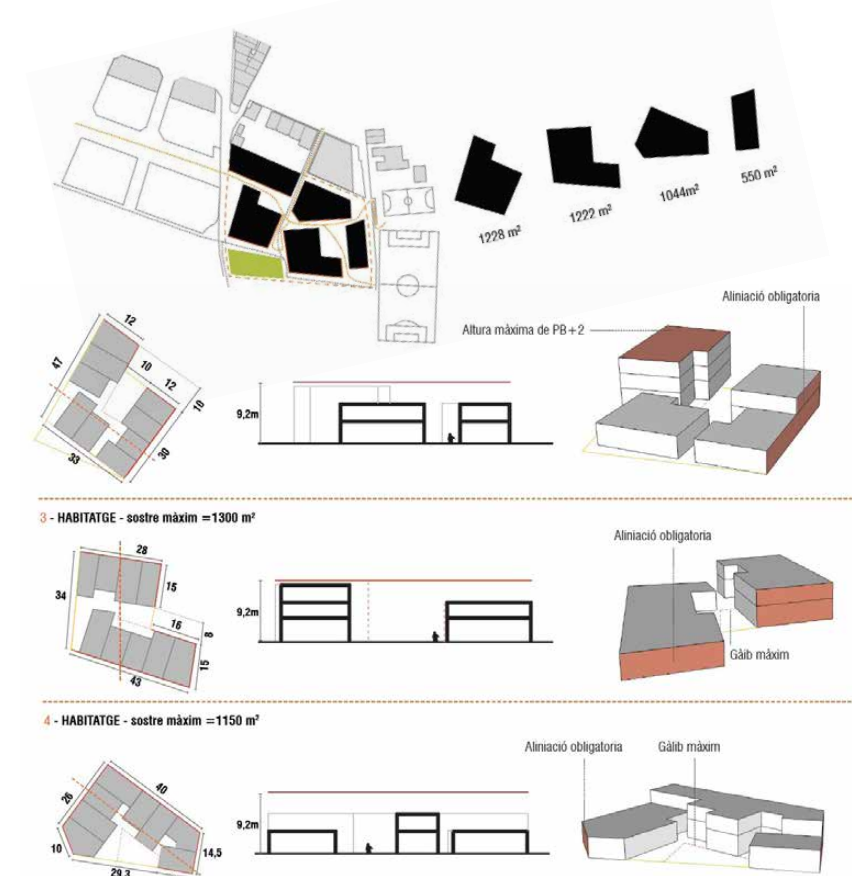




24, 25. Roof plan and community parking plan in Freginals.
source: Oier Pagaegi

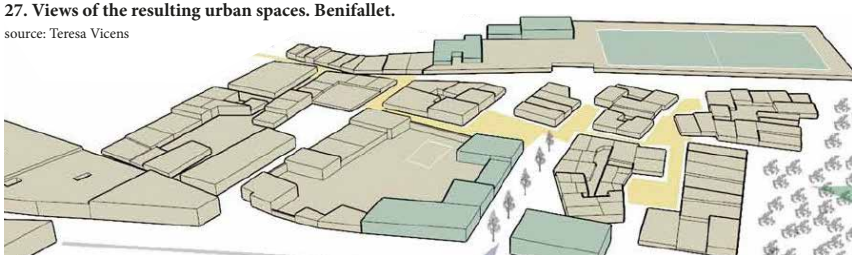
The next example shows how building regulations for the new project blocks have been defined in order to provide street aligned buildings with a maximum depth that assure an interior courtyard of determined measures. The most important point, however, is to define regulations that are flexible enough to give future designers many ways to project the building in the plot and best fulfil their client's needs.

In this case, the resulting staggered courtyards and skyline have a common volume with the traditional village in Benifallet.



26. New typologies schemes. Benifallet.
source: Camil Bosch

27. Views of the resulting urban spaces. Benifallet.
source: Teresa Vicens



28. Benifallet's project.
source: Josep Ninou

3.4 The city as an agglomeration of public spaces.

The combination of the concepts described above leads us to the conception of the urban projects as a three dimensional design of public spaces. This means we model public spaces (streets and squares) through the design of the buildings around them that give them shape and form. When we control this public space system at its different scales (territorial - local), its orientation, topography and materialisation, we guarantee a successful project.

Throughout the whole process we did not forget about the requirements and regulations for car traffic, accessibility of emergency vehicles, supply networks, etc., but we gave priority to pedestrians and the human scale in the street network design, as has been done throughout time in the old villages we are studying. People are the first beneficiaries of this work. To reinforce this concept the way the public space is built, the materials that are used, the plantations and the public furniture must fit into the concept of the whole project.

1 Bernard Rudofsky, Architecture without architects, 1964

2 Stefano Cortellaro, PhD thesis La construcción del territorio de Ibiza. Urbanismo, paisaje, arquitectura, 2013

3 E. Guidoni, Tipi, modelli, progetti nella città medievale. Casabella n. 509/510, 1985

4 Camillos Sitte, City planning according to artistic principles, 1926

5 Jan Gehl, The Humanization of Urban Spaces, 2006

6 Aldo van Eyck, The playgrounds and the city, 2002.

7 Luigi Snozzi; Gabriele Basilico, Monte Carasso: la ricerca di un centro, 1996