

Traditional Settlements worth to be safeguard by means of temporary actions: The case study of a group of rural complexes in northwestern Crete, Greece

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Abstract

Analysis and study of Architectural heritage that survives either in fragments or as a whole in vernacular- traditional settlements in the country side, is one of the core subjects at the School of Architecture of the National Technical University of Athens, Greece. Some most fascinating organic formations originating in the middle ages that have been developing through time to the present day are being studied. They stand out for their excellent integration into their landscape, their immediate relation with the nature and for the sense of human scale they provide. Usually they are composed of very simple and modest dwelling units that are very similar but never exactly the same with one another. Small variations in the shape of the plan, the number of floors and the height, the way they are placed in the plot, provide an altogether special homogeneous ensemble. There, can be still be found evidence of original construction methods and techniques that employ building materials to be found on the site and exceptionally respond to such needs as varied climatic conditions, strong winds, shortage of water, or seismic risks. In other words, they could potentially provide a most valuable source of education and inspiration for undergrad architecture students since by studying them they could learn to appreciate architectural heritage and get familiar with traditional techniques of construction. This makes another good reason even for some very modest such settlements -that still preserve authentic elements in their structure and form -to be worth to be safeguard.

Rezumat

Analiza și studiul patrimoniului arhitectural care supraviețuiește fie în fragmente, fie în ansambluri în așezările vernacular-tradiționale din țară, este unul dintre subiectele principale ale Școlii de Arhitectură a Universității Naționale Tehnice din Atena, Grecia. Sunt studiate unele formațiuni organice fascinante provenind din Evul Mediu și care se dezvoltă de-a lungul timpului până în prezent. Ele se remarcă prin integrarea excelentă în peisajul lor, relația lor imediată cu natura și pentru sensul uman pe care îl oferă. De obicei, ele sunt compuse din unități de locuit foarte simple și modeste, care sunt foarte asemănătoare, dar niciodată nu sunt la fel una cu cealaltă. Variațiile mici în forma planului, număr de etaje și înălțime, modul în care sunt amplasate în teren, oferă un ansamblu omogen deosebit. Acolo pot fi încă găsite dovezi ale metodelor și tehnicilor originale de construire, care utilizează materiale de construcție locale și care răspund în mod excepțional unor nevois pecifice, cum ar fi condiții climatice diverse, vânturi puternice, lipsa apei sau riscuri seismice. Cu alte cuvinte, ele ar putea oferi o sursă de educație și inspirație dintre cele mai valoroase studenților arhitecți, deoarece prin studierea lor ar putea învăța să aprecieze patrimoniul arhitectural și să se familiarizeze cu tehnicile tradiționale de construire. Acest lucru

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constituie un motiv bun, chiar și pentru unele așezări foarte modeste - care păstrează încă elemente autentice în structura și forma lor - de a fi protejate.

Keywords: traditional settlements, temporary actions, traditional construction techniques, surveying, heritage documentation.

1. Introduction

The “Architectural Analysis of Traditional Settlements”, a core subject that has been included in the curriculum of the School of Architecture at the National Technical University of Athens for several decades, addresses issues related to the characteristics that define the individual physiognomy of rural or urban complexes with architectural, aesthetic and historical value that still preserve authentic elements in their structure and form. It is a course of the 5th semester and since the students have already been introduced to the notion of architectural heritage and to conventional survey techniques at the 4th semester, as a next task they are asked to analyze a whole ensemble that is composed of individual buildings and open space, streets, squares and plateaus; that is, a relatively small settlement. This is all about the *analysis and interpretation* of a big *composition of built and empty space* and the students are expected to find out its basic principles and values and then document and communicate them with such tools as sketches, scaled drawings, text and photographs. The course is a cross-curricular one supported by two areas of our School, the so called Morphology and the so called Construction, the first emphasizing on the form and the factors that define it and the second emphasizing on traditional building systems, techniques and materials. The work is done in groups of 10 students guided by two teachers -one from each area.

The main aim of the course is on one hand to educate the class to appreciate the values of traditional settlements, on the other to provide a way for the students to get familiar with traditional means and techniques of construction.

2. The values and qualities of traditional settlements

The most significant qualities of the vernacular settlements are considered to be:

1. Their direct relationship with the nature and their harmonious integration into their natural landscape.
2. The human scale that is predominant in them.
3. The uniformity of the whole. The value of these settlements mostly stands on the fact of the repetition of a rather simple dwelling unit that is never exactly the same but is always very similar to one another. From the repetition of these primary units with variations in the plan, the facade, their placement on the plot, is emerging a fascinating and charming complex characterized by an inexhaustible variety. That is to say that the individual buildings themselves may not be of an exceptional value but their composition in a whole and the relation of the open and the built space altogether form an entity that is unique and special.

3. Methodology and diagram of work

In order to “read” and analyze their subject the students use "conventional" means that require simple and inexpensive tools. This ensures immediate contact with the subject of the study. The personal experience gives the opportunity for observation, questioning and meaningful understanding of the form and the structure. It also allows for the deepest possible relationship and acquaintance with the subject of the study that actually means getting familiar and appreciating the

settlement. No topographic instruments or any sophisticated equipment are used since precision is not a priority for the purposes of the course.

The aim is: understanding, getting familiar, interpreting. To get there, the students need to walk around, up and down the settlement several times so that they gain acquaintance and the “atmosphere” of the place by means of personal experience. Then they are encouraged to start from the large picture and then step-by-step focus more and more in detail: From the map and the aerial photographs, to the network of roads, to the identification of individual residential units, to the detection of open public spaces, to open private spaces. Then they focus into the buildings, into the construction details and any other special features of the buildings. At the end the idea is to go back to the big picture, see the whole from a distance again and give some thoughts and arrive to some conclusions regarding the physiognomy and the character of the settlement. And whether these preserve or not fragments of authenticity. And to what degree.

The exercise is divided in two parts: the field work that takes place on the site during one week and the work in the class during the rest of the 12 weeks of the semester. The final result is presented in the form of a database available on line <http://5a.arch.ntua.gr>

3.1 The Elements that define the identity of settlement

Christian Norberg Schulz states that “*The structure of place ought to be described in terms of “landscape” and “settlement” and analyzed by means of the categories “space” and “character”. Whereas “space” denotes the three dimensional organization of the elements that makes up a place and “character” denotes the general atmosphere which is the most comprehensive property of any place*”[1].

In the framework of the course, the general image of the settlement and the landscape, its historical evolution, its geographical position, the economic activities of its inhabitants, the form of its tissue and the characteristics of its public spaces and its built fabric are considered to be the determinant factors that provide the unique identity for a settlement and that best describe its architectural character.

3.2 The diagram of work [2]

For practical reasons and in order to achieve homogeneous and comparable results for all of the settlements, the exercise is shaped in the form of a diagram of work with specific questions to be answered organized in the following four thematic units:

- A. General information about the settlement (general image, historical-economical data, protection status);
- B. Formation of the Complex. B1. Structure of the Settlement (linear, radial, fortified), relation of built and un-built space, neighbourhoods. B2. Public Outdoor Space B3. Private Outdoor Spaces – Courtyards;
- C. Built Fabric: C1. Dwellings, Buildings for special use, Landmarks C2. Architectural Typologies C3. Constructional Analysis C4. Description of local structural system and evolution;
- D. Conclusions.

4. The case study of some small and modest vernacular settlements in Crete

During the academic Year 2015-2016, half of the class attending the “Analysis of Traditional Settlements” course studied 15 modest rural settlements in the Northwestern coast of Crete, in the

administrative province of Kissamos. These are: Ano Kalathénes - Gregoriana - Drapanias-Kalyviani - Kera - Koukounara - Makronas - Merada - Palaiokastro - Polirinia - Potamida - Houdaliana. In each settlement, a group of ten students worked for five days in the period from October 26 to October 31, 2015. Five teachers [3] supervised the field work and later on, during the rest of the semester, in the class, the elaboration of all the material that had been collected in situ. The final outcome has come as a quite pleasant surprise, in the sense that despite their relatively small size and their rather “humble” architecture these settlements provided a lot of interesting - original and varied material to work on.

4.1 General information on the island of Crete [4]

Crete, the biggest Greek island, the fifth in the Mediterranean Sea, has an elongated shape spanning 260km from east to west and just 12-60 km from north to south - at its narrowest and widest point respectively. It is mountainous (35% above 500m, 40% 100-400m and only 25% with a high mountain range crossing from west to east that lavishes the island with valleys and fertile plateaus and at the same time creates a natural barrier between the northern and the southern coast. As a result the northern coast has always been inhabited -there are 5 main urban centers to be found there: Chania, Rethimno, Heraclion, Ag. Nikolaos and Sitia-while the southern coast rather isolated, has preserved more of a wild aspect also because some of the mountains there literally drop into the sea as a vertical wall.

Because of its strategic position in the Mediterranean sea Crete has suffered several attacks and in the course of its history has been occupied by the Romans, the Arabs, the Saracens, the Venetians and the Turks. Cultural influences and traces of the different historic periods, Byzantine, Venetian, Ottoman, and Neoclassic can be found spread all across the island boasting a rich architectural heritage. In particular the period under the Venetian Occupation (1204-1669), known as the Cretan Renaissance, a term referring to architecture but also to a most productive cultural life that flourished at that time, has been most significant for the island. Major fortifications - such as the three fortified cities, Chandax, Rethymno and Chania, harbors, majestic shipyards, imposing fortresses and other military installations, churches, monasteries, well designed squares and Renaissance-style public buildings were designed by Venetian architects.

At that same time feudal lords and bourgeois built beautiful villas in the country side and in the towns in Renaissance style. The masons of the time were well inspired by the texts and work of Palladio and Serlio. These Renaissance prototypes that have been used in the official Cretan architecture have however been adjusted to the local climate conditions, available building materials and techniques.

4.2 The architectural character of 15 settlements in the Kissamos region

The so called “official” architecture has influenced the “popular architecture” of the settlements in the country side and renaissance decorative elements -in simplified versions- can be found in some most remote and humble traditional settlements. Such settlements, although not so many any longer, can be still found around the island. Earthquakes and conflagrations have destroyed a big amount of them and so has the bustling economy that has contributed to the economic development of the island during the last decades.

Among the settlements studied, some stand out for their historical value -preserving fragments of roman installations -like Polirinia and Roka-, others for their excellent integration into their landscape and some others still preserve evidence of having originally been feudal establishments. Then all 15 of them share some features in common:

a. They are in an immediate proximity to the farming land. b.They have special buildings serving agricultural activities, eg olive-mills. c.They usually have no public buildings (churches, schools, etc.). d. They have no organized open-air public spaces like squares.

They have mostly been shaped by the addition of new buildings alongside the old ones, which have usually come to meet the growing needs of the family members. e. They often bring influences of the official Venetian architecture adjusted to the very small scale of the dwellings that make up the settlement. Often there is also one big “tower like” house, the mansion of the feudal lord that stands out for its size and imposing structure

4.2.1 The general image

“Whereas landscapes are distinguished by a varied, but basically continuous extension and enclosure, settlements are enclosed entities. Settlement and landscapes therefore have a figure-ground relationship. In general any enclosure becomes manifest as a figure in relation to the extended ground of the landscape. A settlement loses its identity if this relationship is corrupted, just as much as the landscape loses its identity as comprehensive extension”.

In some of the settlements studied, the landscape itself is stunning. “An impressive rock dominates the landscape of **Roka**, a semi-mountainous village built partly on the remains of an ancient city. The settlement developed on the foot of a limestone hill with intense slopes called the Troulis, that is the northernmost end of a series of hills, which is delimited to the east by a deep gorge and dominates over a corrugated plain full of olive groves that reaches the gulf of Kissamos. On the top of hill once stood the Byzantine fortress of Rokka after which the village seems to have been named”[5]. **Polirinia** extends on the hillside of the Magna Plateau where traces of Hellenistic houses, caves and graves can still be found. There the streets run parallel to the contour lines of the site. The surrounding landscape is dominated by shrubby vegetation and some olive groves originally planted by the Franks. **Ano Kalathenes** is perfectly integrated into its hilly environment, it has excellent views of the bay of Kissamos and the White Mountains and “an harmonious relationship with its natural environment also because the main building material of the dwellings there is stone extracted from the local quarries, thus a dialogue with the rocky landscape has been established”.



Figure 1: Roka



Figure 2: Polirinia



Figure 3: Lousakes

4.2.2 The Structure of the settlement

As far as the layout of the complexes is concerned that varies as a result of the natural relief of the site and their historical background. Drapanias has as a fortress like structure, Potamida expands along two linear axis while Polirinia and Lusakes, following the site contours, expand amphitheatrically. To convey the different schemes of the tissue the students use maps emphasizing the main and the secondary street axis, any open-air spaces and when possible the original nucleus and any later expansions.

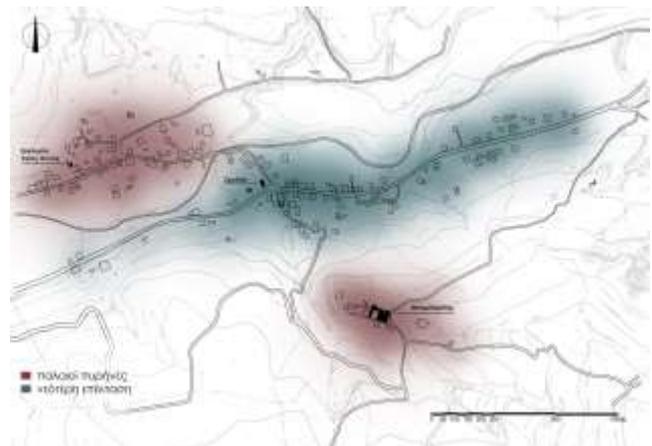
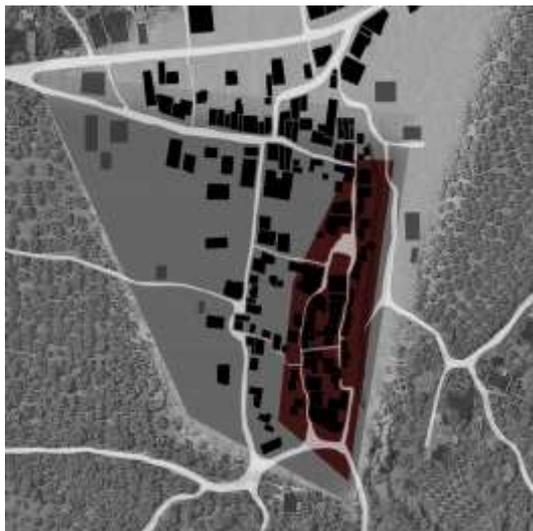


Figure 4: Tissue and street plan of Drapanias, <https://5a.arch.ntua.gr/project/12930/13659>

Figure 5: Development of Potamida along two linear axes, <https://5a.arch.ntua.gr/project/12930/13659>



Figure 6: Amphitheatrical layout of Polirinia, <https://5a.arch.ntua.gr/project/12931/13372>

Figure 7: Street network in Lousakes, <https://5a.arch.ntua.gr/project/12928/13263>

The relationship of the buildings with their adjacent open-air spaces, the play of the different heights of the buildings that define the skyline, the density of the built fabric, all contribute to the character of a settlement, thus they have been documented and represented through the street facades and the corresponding plans.



Figure 8: Street facade in Polirinia, <https://5a.arch.ntua.gr/project/12931/13373>

Cross sections of the streets in different parts of the settlement showing the proportion of the width of the street in relation to the height of their adjacent buildings and the human scale have also been used in an attempt to convey the feeling ones gets when walking around those streets.

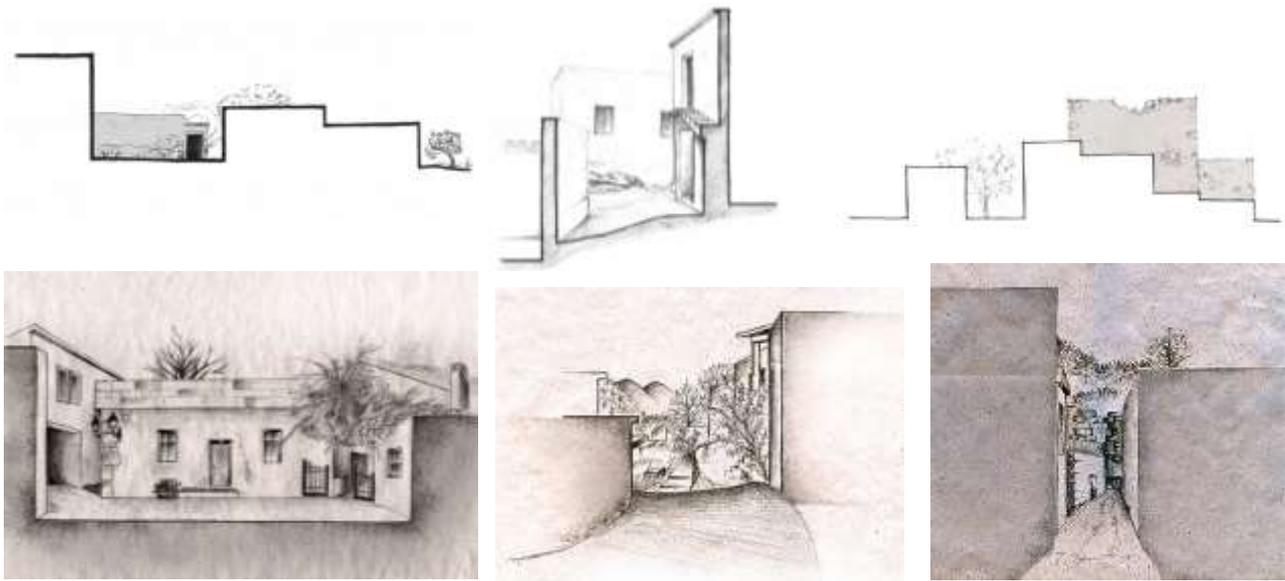


Figure 9: Cross sections in Lousakes and Polirinia



Figure 10: The courtyards in Lousakes, <https://5a.arch.ntua.gr/project/12928/13166>

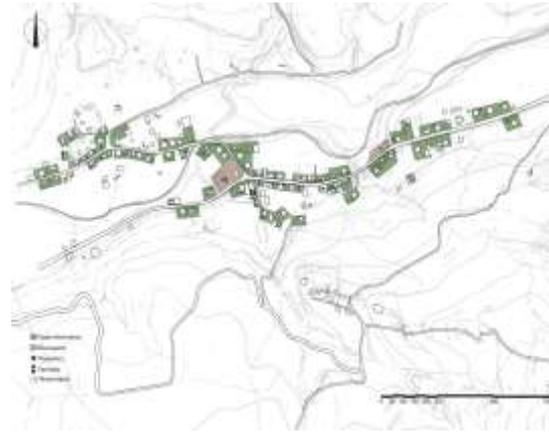


Figure 11: The courtyards in Potamida, <https://5a.arch.ntua.gr/project/12925/13300>

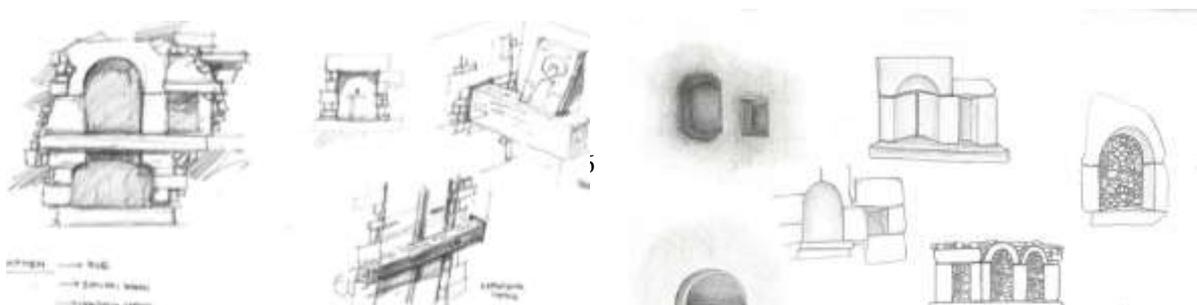
The size and shape of the courtyards, their layout in relation to the buildings and the street; their use and equipment has also been studied. In Lousakes, they are “open” with a direct visual relationship with the public street or the farming land. Their shape is usually irregular, what is left of the plot as an unbuilt space. In Potamida on the other hand, there is a clear differentiation between the public open space and the private one that is usually defined with a fence.

4.2.3 The Dwellings

In each settlement, typical residential buildings have been surveyed and other special ones that constitute landmarks or references for the settlements have also been registered. There has also been a classification of the most representative building types on the basis of the shape of their plan, the number and the layout of the rooms, the number of floors.

ΤΥΠΟΛΟΓΙΚΟΣ ΠΙΝΑΚΑΣ						
ΠΕΡΙΓΡΑΦΗ	ΚΩΔΙΚΟΣ ΜΟΝΑΔΑΣ	nr.22	nr.27			
<p>ΜΟΝΟΚΑΤΑΣΤΑΣΗ</p> <p>ΜΟΝΟΚΑΤΑΣΤΑΣΗ</p> <p>ΜΟΝΟΚΑΤΑΣΤΑΣΗ</p>						
<p>ΔΙΠΛΟΚΑΤΑΣΤΑΣΗ</p> <p>ΔΙΠΛΟΚΑΤΑΣΤΑΣΗ</p> <p>ΔΙΠΛΟΚΑΤΑΣΤΑΣΗ</p>		nr.17	nr.25	nr.30	nr.45	nr.49
<p>ΤΡΙΠΛΟΚΑΤΑΣΤΑΣΗ</p> <p>ΤΡΙΠΛΟΚΑΤΑΣΤΑΣΗ</p> <p>ΤΡΙΠΛΟΚΑΤΑΣΤΑΣΗ</p>		nr.24	nr.34	nr.32	nr.41	nr.48
<p>ΤΕΤΡΑΠΛΟΚΑΤΑΣΤΑΣΗ</p> <p>ΤΕΤΡΑΠΛΟΚΑΤΑΣΤΑΣΗ</p> <p>ΤΕΤΡΑΠΛΟΚΑΤΑΣΤΑΣΗ</p>		nr.11	nr.11	nr.18	nr.37	

Figure 12: Table of the most representative building types in Kera, <https://5a.arch.ntua.gr/project/12920/13924>



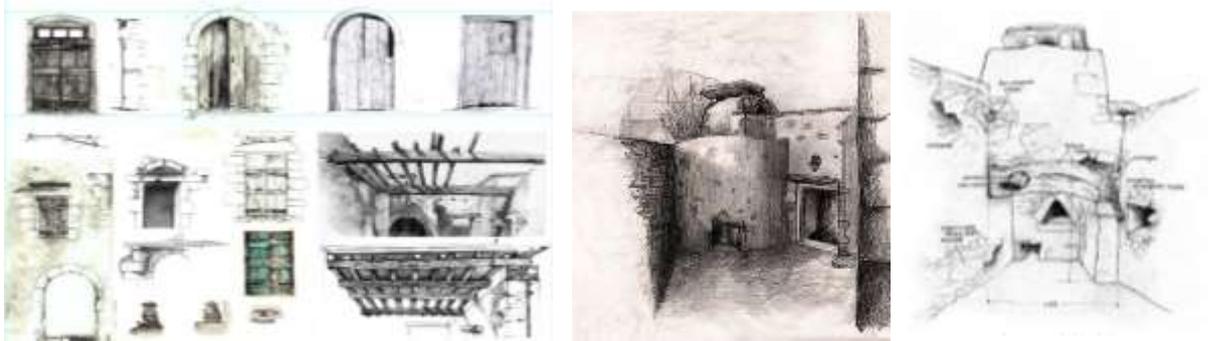
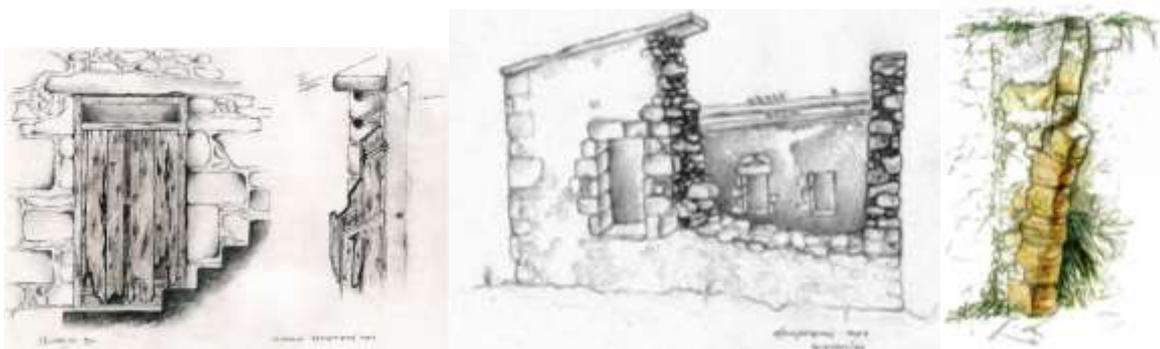


Figure 13: Doors, windows, chimneys and typical layouts of niches in Kalyviani, Polirinia.

The shape of the openings, any staircases, balconies, chimneys, ovens, and some niches typical in those villages have also been documented.

4.2.4 Structural Analysis

Each building has been approached as a complete structural compound consisting of individual structural members, construction systems and components. Ruins, in particular offered a lot of material regarding typical construction details and building methods. Vertical and horizontal load bearing systems, non-bearing structures, materials and joints have been documented in detail with sketches and measured drawings. The description of the most prevalent local structural system is represented through the axonometric section of one single building where most of the typical construction details can be found in an attempt to incorporate in one single drawing all the information collected during the structural analysis.



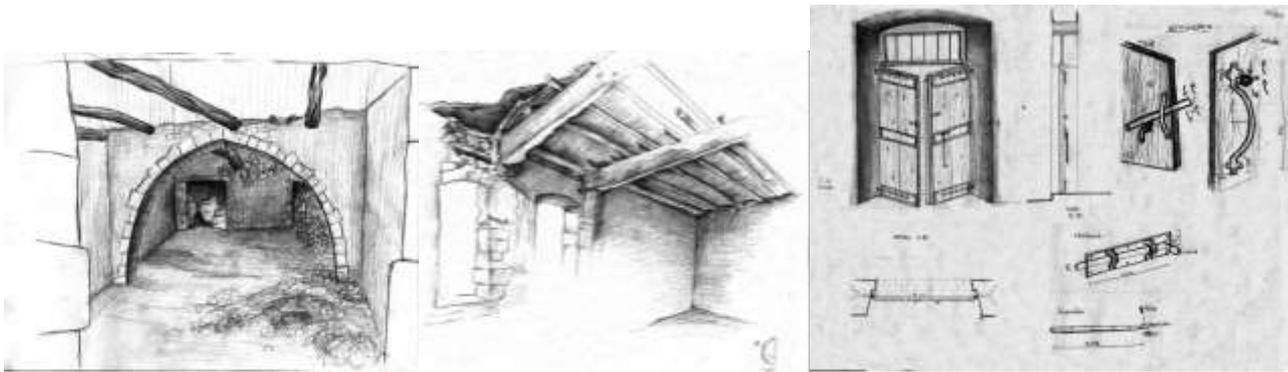


Figure 14: Walls, flat roofs & floors, doors & windows in Polirinia.

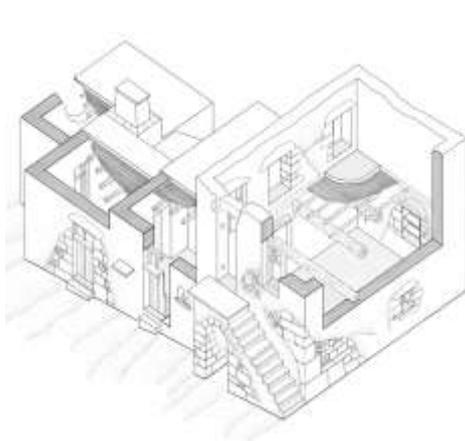


Figure 15: Axonometric section, Lousakes



Figure 16: Axonometric section, Polirinia

5. Conclusions

Despite their relatively small size the 15 villages of the Kissamos region that we have studied during the academic year 2015-2016 have proved valuable for the purposes of our exercise in the sense that they have provided us with plenty of valuable, diverse and original material covering all key factors that contribute to the identity of a place. For this architectural richness and for the fact that they still bear evidence of an epoch when everyone built the same, when people felt no need to stand out and show off with their houses and when some unwritten rules regarding where and how one should build were being respected, one could argue that they altogether constitute an architectural heritage that is worth to be preserved.

Nowadays these settlements are preserved in a rather medium state of conservation and generally speaking they do retain their authentic architectural character. Most of them are being used occasionally, during the olive harvesting season or during summer holiday and this partly explains the reason they have not suffered major interventions and no large scale new buildings have been constructed there. At the same time, a significant number of buildings have been abandoned and they suffer deterioration and/or stability problems. Some of them are already ruins, some others will most probably be ruins in the years to come if no appropriate measures are taken. For the purposes of our exercise, this state of preservation has proved most convenient: The general layout of the whole could be easily read, several dwellings still stand intact with minor deterioration problems, so they have let us arrive to conclusions as to which are the prevalent housing types in the area and finally several ruins have given us enough material to study the structural system and a large

number of construction details. On top of that, the fanciness and charm of the ruins have provided our students with plenty of inspiration to work on their subject.

But, similarly to a living organism these villages have their own dynamic and in one way or another they have to adapt and respond to the modern life needs of their inhabitants. It would be ideal if any such adaptations could be at the same respectful for what is already there. Nowadays, with the lack of economic resources one could not hope for any big plans to save and valorise such a modest case of patrimony. So, perhaps the most adequate way to safeguard this heritage would be by means of temporary actions. Is it not such an action? The visit of 150 students of the school of architecture that come to a place to study and document it? During the one week of our stay, students and local people have had the opportunity to interact and learn from one another and definitely, the inhabitants of these settlements have come to realize that their properties and their village have an architectural value and qualities that are worth to be preserved. And they have come to appreciate them, at least more than before our visit. This is may be just small step but it is a rather crucial one.

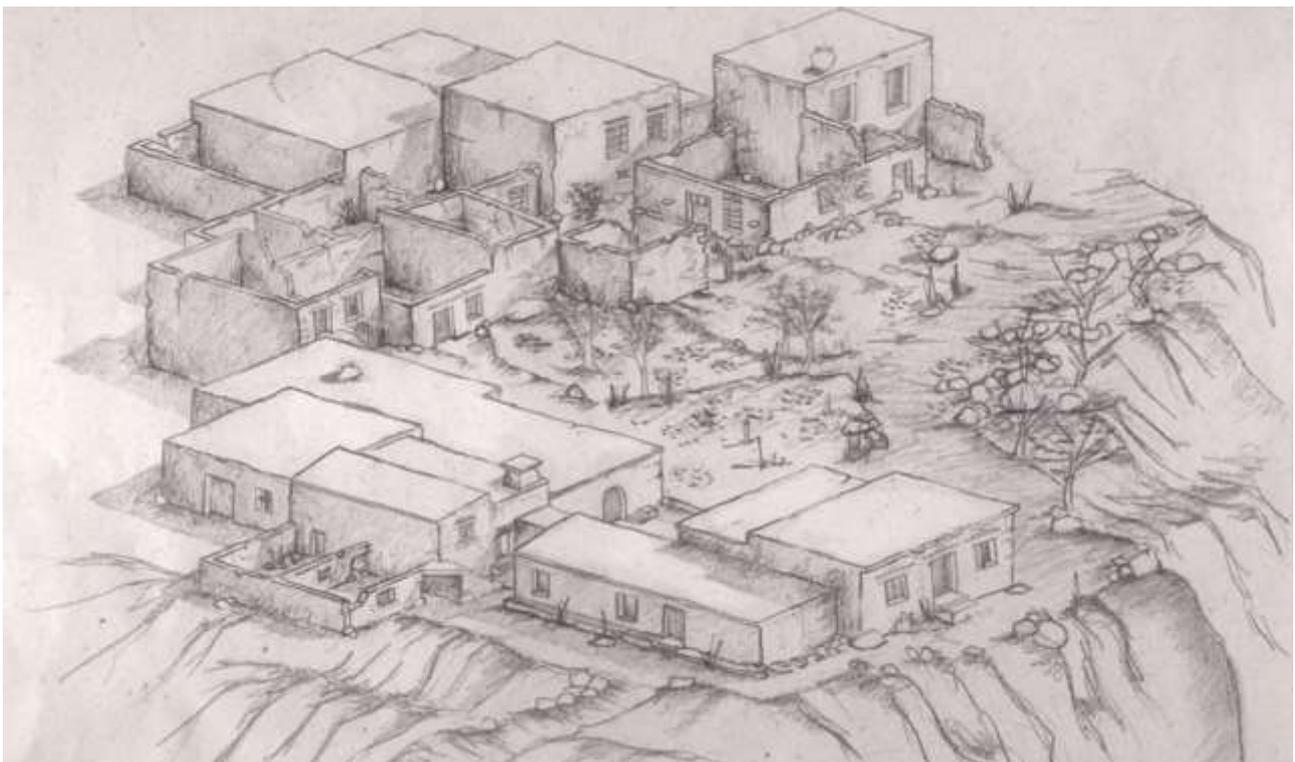


Figure 17: Axonometry of the neighborhood of Halepa, Koukounara,
<https://5a.arch.ntua.gr/project/12921/13404>

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[5]<https://5a.arch.ntua.gr/project/12926>