

Rehabilitation of a traditional house in Kapedes.

Improving the house while maintaining its life.

Type of intervention

Restoration Rehabilitation / Renovation

Concerned elements on the intervention project

- 1. Foundations and underground structures
- 2. Vertical structures
- 3. Horizontal structures and vertical connections
- 4. Roof and terraces
- 5. Façade and building envelope
- 6. Finishes and completion elements
- 7. Integrate services
- 8. General strategies for building recovery

Site Historic House, Kapedes Village, Cyprus

Objectives Rehabilitation, intervention and energy retrofit.

Property Private: Nasso Chrysochou

Designer Architect: Nasso Chrysochou

Date Project 1986-1989



Background to the intervention

In rural settlements of Cyprus, the historic houses have only recently started to be studied in depth partly because of the creation of local universities which are studying matters of historicity, locality, bioclimatic issues, materiality etc. This creates an excellent opportunity to benefit from the lessons of the past, tried and tested and refined for thousands of years. In them are intertwined morphological features of imported characters adjusted to the local needs.

The central aspect of the conservation involved the adaptation of an almost two hundred year old house added to at various periods to be adopted to a modern lifestyle yet preserving all positive aspects of the original building:

- a) compliance with technical regulations, general and specific for the particular type of building, the containment of energy consumption
- b) the reduction, as far as possible, of the physical impact of the integrated services on the building structure of the building, reintroduction of plantation in courtyard for bioclimatic control.
- c) the use and exploitation of particular volumes and hollow spaces of the building for the creation of technical spaces dedicated to the systems
- d) The connection of the various separate parts allows the spaces to function as one.

Description of the building

The Nasso Chrysochou House, in Kapedes Cyprus, was probably built some time around the year 1862 in the local semi mountainous style typical of the region: Built of local stone on the ground floor and adobe on the second floors it consists of two parts that were, until its conservation, separate.

The older part was probably the lower rooms used as stables, store rooms and hay rooms. Onto this was added a large room divided with an arch as well as and three more rooms, built later on top of the stables, as shown by the sloping floor of the second floor which used to be a roof. An outhouse for cheese making was constructed in one part of a treeless enclosed courtyard.

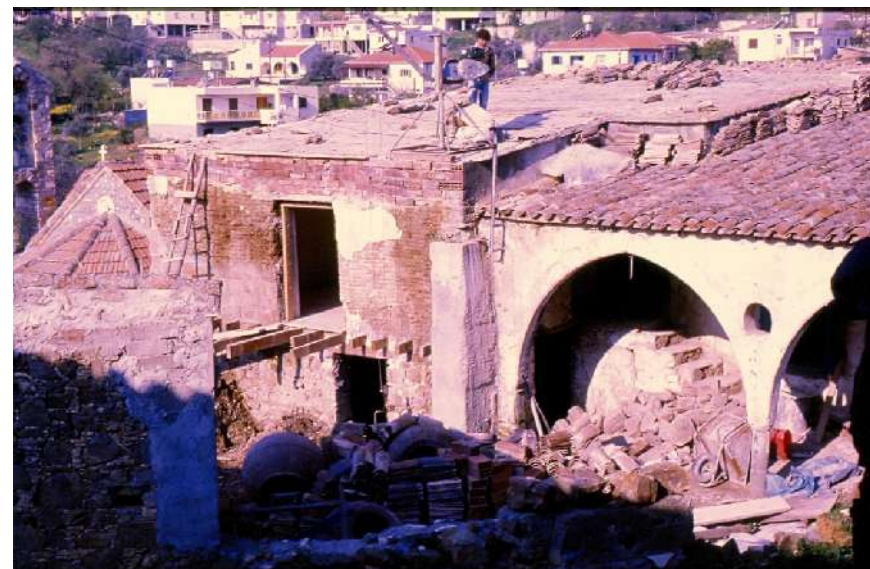


Fig.1: Façade of house during the renovation works.
© N. Chrysochou

The Diagnosis of the building (values and state)

Preliminary and preparatory investigations (AUDIT)

The explorative phase of the documentation includes both structural evaluations, and exploring spaces to hide the mechanical services without impacting the form of the building. It was also important to have the same bioclimatic values the original house had through the soil roofing under the tiles. According to a simplified approach to the problem, which used part of the aforementioned analyses, the audit phase consisted of taking note of the existing situation:

- absence of a heating/plumbing system
- absence of windows and doors
- absence of existing electrical and lighting systems;
- absence of a plumbing system.
- Absence of connections between the spaces meant the use of the external portico as a means of moving through the various parts
- The column supporting the portico arches was out of vertical plumb and the sandstone capital was dangerously eroded. It was obvious the foundation had shifted.





Fig.2-4: Openings between portico and upstairs rooms and large arched room and upper and lower side section of house.
© N. Chrysochou

For the summer period, the problem of the indoor climate is generally less relevant, given that the high thermal inertia of the walls and the reduced size of the windows compared to the total volume of the building guarantee good levels of comfort and avoid the phenomenon of overheating. During the cold season the problem of heating becomes more urgent.

There was no existing lighting system in the house and the windows were limited in the spaces that were downstairs and were used traditionally for storerooms and stables. The space that was used as a hay room which was later used as a bathroom had no windows at all.

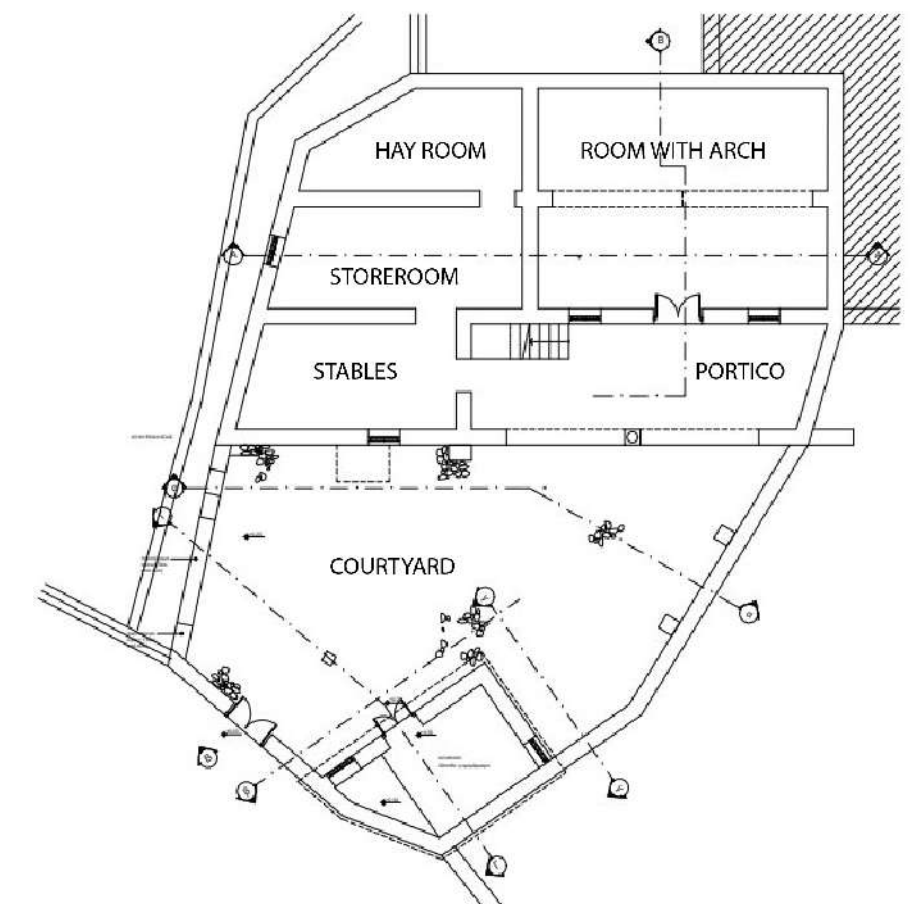


Fig.5: Existing Floor plan of house before conservation works.
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Fig.6: Side elevation of house. © N. Chrysochou



Fig.7: Pedestrian street elevation. © N. Chrysochou

Rehabilitation works

The most difficult and dangerous main structural work was the restoration of the column supporting the two arches of the portico. The arches were supported with scaffolding and the stone column was removed in order to construct a foundation. Upon digging for the foundation, a stone capital in reuse was discovered to have been used as a foundation stone. This was unearthed and once a proper foundation was built it was used as the base of the column while a new capital was sculpted by a famous local artist.



Fig.8: Portico looking at courtyard. © N. Chrysochou



Fig.9-10: The main column supporting the arches of the portico had its deteriorating capital replaced while a second capital discovered during excavations for its foundation was used as a base. © N. Chrysochou



Fig.11-12: The portico serves as an external but protected room. © N. Chrysochou

The various spaces of the stable, the storerooms and the main arched space were connected by new openings in order to make the house one contemporary unit as opposed to three separate parts.

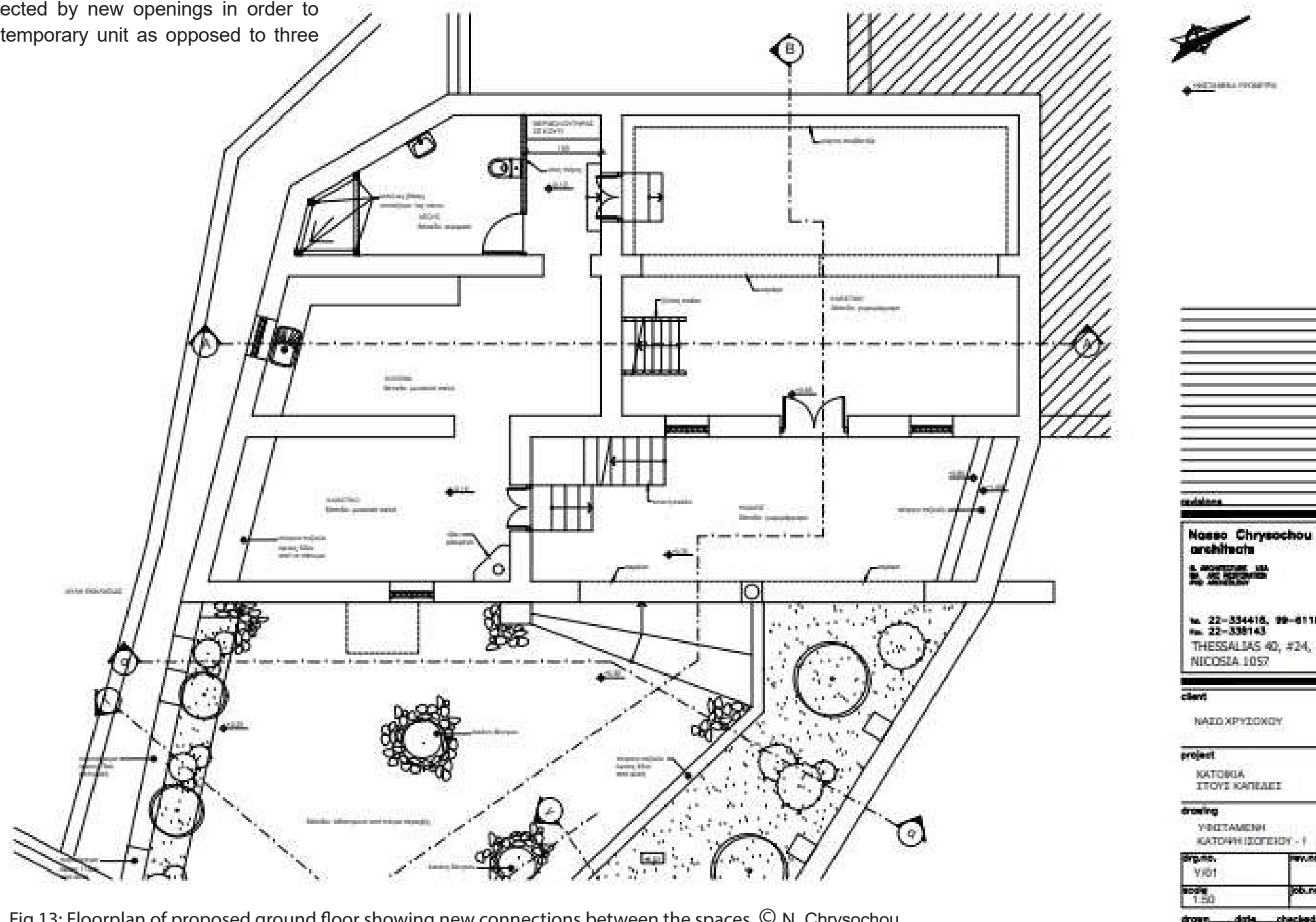


Fig.13: Floorplan of proposed ground floor showing new connections between the spaces. © N. Chrysochou

Plumbing-Water storage

The village does not have continuously running water therefore it was important to place a large water storage unit somewhere in the building at a high area so that gravity would create pressure. Also, the far southwestern corner room used as a hay storeroom had no windows. As its walls were of stone and two stories high, a window was punctured on the second floor and a shaft was cut out of the upstairs room in order to accommodate in it the water tank placed upon columns high into the roof space. The window in this shaft lights the bathroom space but also the upstairs room as a sandblasted glass screen allows light to enter without interrupting the privacy of the bath space below. As the water tank stands suspended in this shaft a built-in bathtub was created under it.

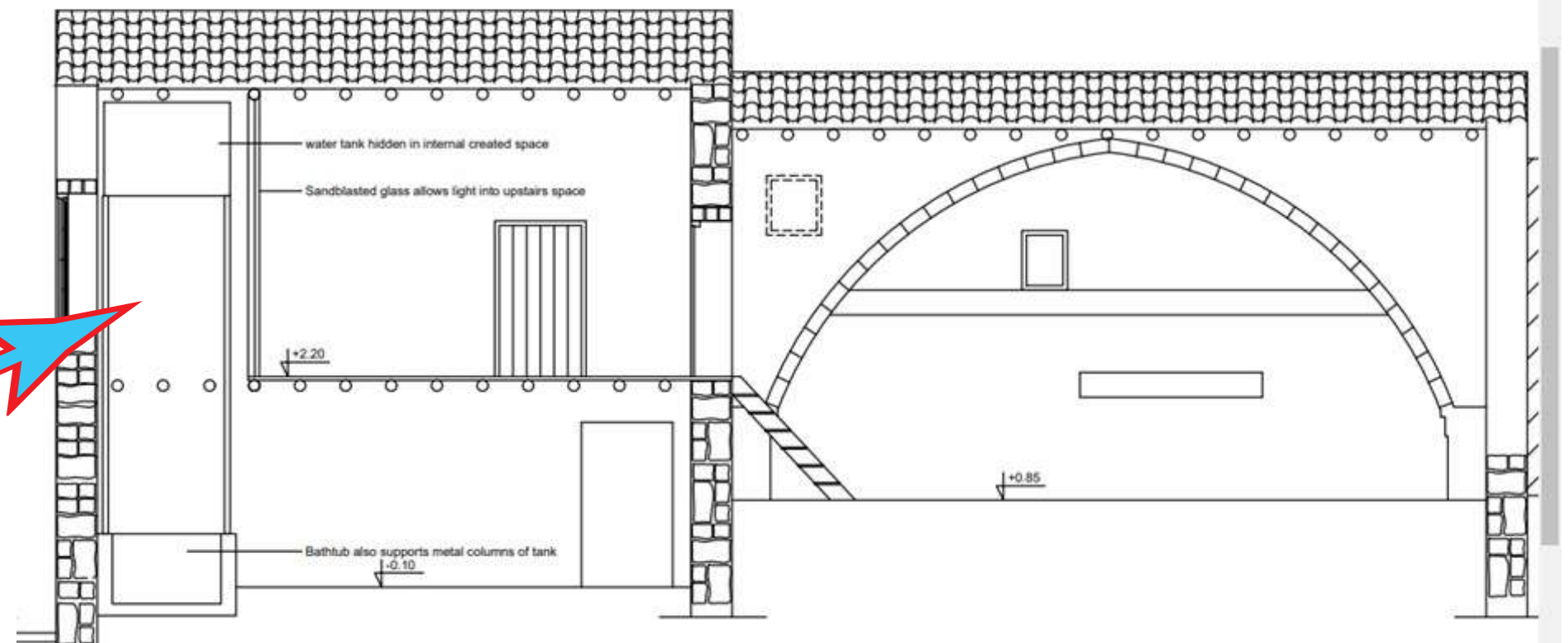


Fig.14-15: The space cut out of the upper room allowed the positioning of the water tank in a hidden space as well as the opening of a window in this space to allow lighting in a windowless room. (prior hay storeroom). © N. Chrysochou

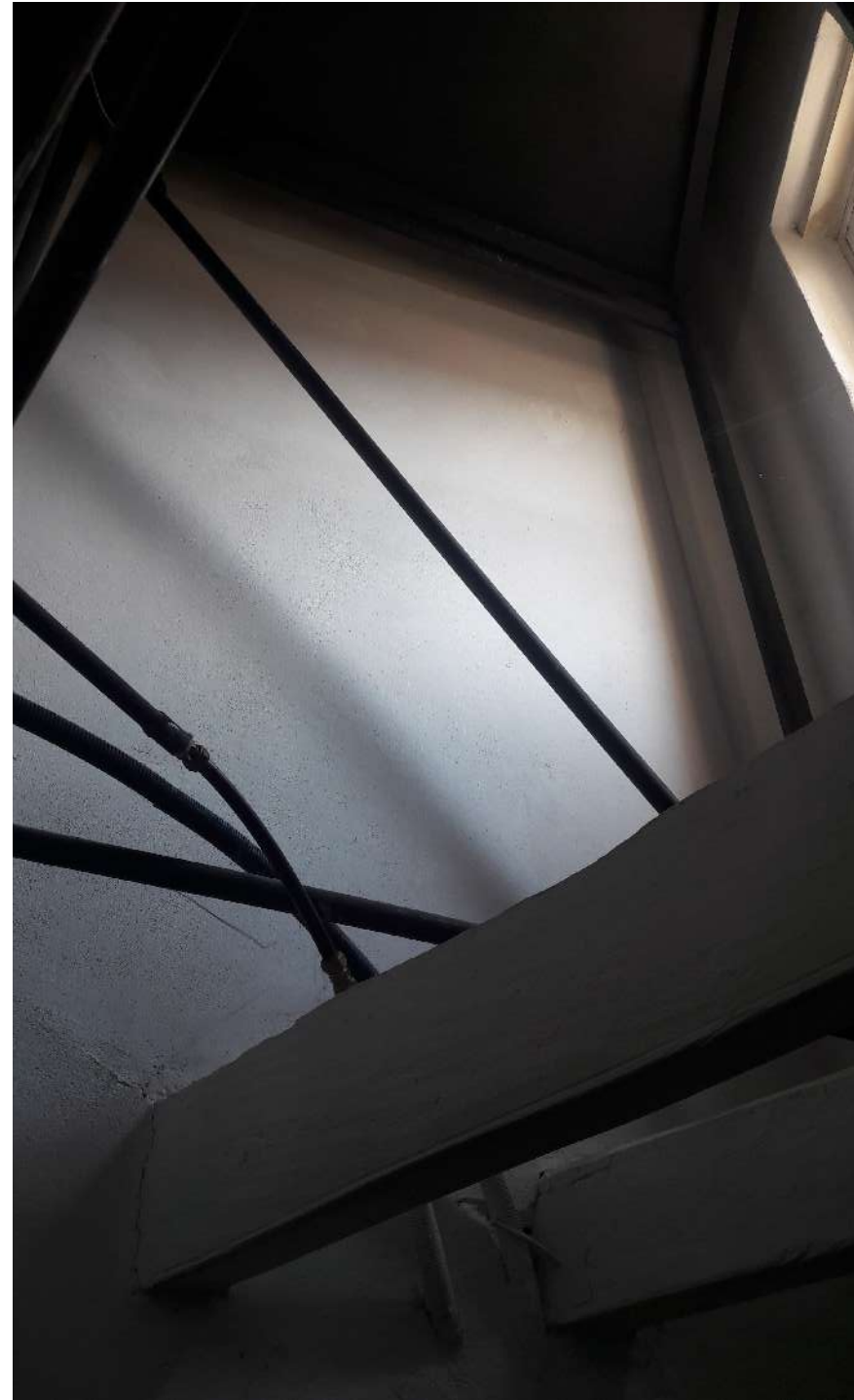


Fig.16-17: Space hiding tank (behind cupboard) is glassed in with sandblasted operable glass doors for servicing. © N. Chrysochou

Reuse of existing features



Fig.18: Reuse of features and items found in house such as trough and wooden bread boards which hide modern lighting.
© N. Chrysochou



Fig.19: Reuse of features and items found in house such as trough and wooden bread boards which hide modern lighting.
© N. Chrysochou

The stable trough was reused as a sitting bench, while lighting was hidden behind hanging wooden bread boards.



Fig.20: The large arched room had a wood burning stove inserted for heating. © N. Chrysochou

The heating is done through two wood burning stoves in the downstairs sitting room (prior stable) and the arched large space. Its chimney flute also warms the upstairs space.



Fig.21: Flue of downstairs fire place passes through upstairs bedroom to heat it. © N. Chrysochou

Planting for bioclimatic control.



Fig.22: Courtyard after planting. © N. Chrysochou

The garden was planted in such a way as to reduce heat gain both to the courtyard as well as the portico and the house. Deciduous trees were planted to provide shade in the summer but also sunlight in the winter. Once the leaves fall in the winter, the thick stone and adobe walls act as thermal mass collectors that retain heat and release it internally at night. There is at least a 4 degree cent. difference in the summer between the shaded courtyard and neighboring unplanted ones.

Connecting the three separate spaces

The intervention project is also aimed at implementing accessibility, through the introduction of stairs and openings to allow internal connections for the various spaces.





Fig.23-24: Openings connecting the portico with upstairs and large room with lower and upper spaces. © N. Chrysochou



Fig.25-26: Large room with arch used as living room. © N. Chrysochou





References

Architect Nasso Chrysochou



Fig.27: Upstairs bedroom. © N. Chrysochou

Assessment of the results

The conservation of the Kepedes house aimed to allow the reuse of a two-hundred-year-old abandoned house in contemporary times but allowing the conservation of the features, the bioclimatic aspects of the original, while modernizing the house with technological aspects which are well hidden and even add to the aesthetics of the house.

The house conservation followed the regulatory framework given by the Dept of conservation in Planning The performance improvement of the envelope through modern insulation in the roof and the realization of simple systems.