

Architectural Identity and the Apartment Building in Cyprus

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INTRODUCTION

The westernized apartment building form appeared in Cyprus in the early 1950s. At this time the urbanization of Cypriot cities had begun and the need for speculative mass housing started taking place. The first Cypriot architects who studied in post-war Europe returned to the island and set up their practice. The first apartment buildings were of the "typical" westernized style where the building was "sitting" on a pilotis: the dwellings were identical at all levels and the materials used were reinforced concrete, masonry in-fill walls, and aluminum and glass windows. The building design and construction processes employed for this type of building were new to the island in that the traditional master builder approach was no longer employed.



Fig. 1. Contemporary apartment building in Nicosia, Cyprus

The architect designed the building on the drawing table and the constructor produced the building through a set of drawings and specifications. The new buildings had an "international style" and had nothing to do with the local building culture of Cyprus. The production of the apartment

building continued to increase, especially so after the 1974 war with Turkey when approximately 200,000 refugees were displaced from the north of the island to the south (1). To resolve the housing shortage the government and private sectors continued producing apartment dwellings in greater numbers (2). The apartment building form and making process, however, remained mostly unchanged, creating apartment buildings that lacked humane qualities and a local architectural identity (Fig. 2).



Fig. 2. Traditional buildings in Nicosia, Cyprus

BUILDING METHOD AND THEORETICAL FRAMEWORK OF THE NEW APARTMENT BUILDING PROCESS

The author's work (3) is related to the building methods and theoretical framework of Christopher Alexander (1996). The main aim of Alexander's work is to establish design and construction processes that can create harmonious buildings. Alexander assumes that "wholeness" and "order" exists in the built environment as a geometric quality and supports that this quality is dependent upon the design and construction process that generates it. The more integrated the design and construction is, the highest the building quality is. Thus, he proposes an integrated building process where the architect is both the designer and the maker of the building and he carries construction responsibility. The building process he proposes is guided by the human feeling, and the main aim of its operations is to increase the "quality" and "comfort" of the various spaces, rooms and details. This approach of making buildings has opened up a unique field of research and the author's work aims to contribute to this new field.

The work of the author relates to some extent to broader theoretical themes as they relate to mass housing's user participation and flexibility in construction. For example, Ralph Erskine's (1981) architecture based on the expressive process of habitation and the strong sense of community identity, John Habraken's (1972) "support structures" affording user sovereignty over the housing process, Lucien Kroll's (1986) early advocacy for participatory design, and J.F.C. Turner's (1976) attempts to create a humane environment in self-help housing. The author's building process also relates to the broader practical themes of the design build process. For example, it relates to some extent to Steve Badane's (1997) design build approach to buildings, but the primary emphasis is on sustainable building and the way environmental issues affect the building form. Samuel Mockbee (1997), designs and builds low-cost houses with his students in Alabama for poor people and his main aim is to investigate and implement low-cost housing techniques. John Connel (1997), founder of Yestemorrow Design Build/School in Vermont is also designing and building his own small-scale projects and is focusing in the self-help aspect of the design and build process.

THE TRADITIONAL BUILDING PROCESS VS. THE CONTEMPORARY APARTMENT BUILDING PROCESS

The author investigated traditional building processes and contrasted them to contemporary ones. The aim was not to copy old forms or obsolete processes that are not feasible today. The aim was to understand the essence of timeless building principles which can also be applicable today once they are modified and adjusted to the realities of the contemporary building industry and economics (4).

Traditional buildings shared a common integrated sequence of design and construction (5). The master builder designed and built in a single organic process and the building process had tremendous freedom and flexibility. Every space and detail was worked out till it had the right proportion, and 'felt' right. Ornament was an integral part of the building form, it arose out of the construction process and it represented motifs from Cypriot life and environment. The needs of the owners and the local building patterns, along with the nature of the site, the available building materials and the traditional construction methods were respected and helped to create the form of the building. This process had the ability to create humane building quality with strong Cypriot architectural identity (6).

Most contemporary apartment buildings in Cyprus are produced by the developer whose primary goal is to achieve maximum monetary gains. He provides the design guidelines to the architect who proceeds to design the building in a "mechanical" fashion. Any special building entity is excluded from design to reduce cost and increase profit. The contractor constructs the building in a mechanical fashion following drawings and specifications. Changes of the building form are avoided because they usually cost more money and delay completion time. The supervising architect (7) simply ensures that construction is proceeding according to construction documents. During construction there is no personal input and participation. No one is adjusting and modifying things to create a more comfortable environment. This building process creates apartment buildings that are not harmonious and do not have strong local architectural identity.

THE NEW APARTMENT BUILDING PROCESS

In the new apartment building process the author had the role of the traditional master builder and took responsibility for the building's design and construction. The new design process used Cypriot building patterns appropriate to Cypriot lifestyle, weather conditions, and culture. Furthermore, it employed an apartment building layout where the exterior and interior building spaces were created incrementally, step by step, responding to site conditions and human needs. The construction budget was distributed on the various building operations so that special entities and details could be part of the building. The architect managed the subcontractors and encouraged them to participate in the building process in a creative and innovative way. He monitored operations daily and had the freedom to move money around in the various operations as he saw fit in order to increase the quality of the building and finish the project on budget and on time. He encouraged the owners to participate in the making process and create a dwelling according to their needs and aspirations. Furthermore, he made things with his own hands that went onto the building. This way, part of his art and craft touched the building.

The building processes employed for the making of the Korinthos apartment building (8) were the following:

1. Apartment building pattern language
2. Building Design Layout
3. Construction Budget Distribution
4. Humane Construction Operations
5. Building Changes
6. Handcrafted Details with Feeling
7. Color of the Building
8. User Participation

THE KORINTHOS APARTMENT BUILDING DESIGN AND CONSTRUCTION PROCESS

1. Apartment Building Pattern Language

A pattern language was created for the Korinthos apartment building (Fig. 3) that was specific to the social and cultural needs of the Cypriot people as well as climatic conditions. For example, a spacious verandah was provided to accommodate outdoor living that lasts for more than six months of the year due to warm weather. Furthermore, the pattern language included patterns that eliminated problematic ones present in contemporary apartment buildings (9). Some of the problematic patterns were (Fig. 1): monolithic building form; lack of gardens and outdoor communal spaces; one entry for pedestrians and cars; small and dark entrance lobby; small verandahs not able to support a comfortable social life; dark rooms not providing essential daylight; rooms lacking good connection to the outside through balconies or verandahs; lack of dwelling entities that can make it "personal"; lack of exterior entities that can make the building "unique" and "belonging" to the land. The entrance lobby, for example, was small and dark in most contemporary apartment buildings. In the Korinthos building it was spacious and well lit. Since the vertical circulation was also dark and uncomfortable the author provided one which was open to views and fresh air. Some other patterns employed were ones that could provide an identity and character to the building. For example hand-made tiles with Cypriot motifs, columns and beams with special details, and heavy and solid front doors.

Below are some of the apartment building patterns used:

1. Ground level apartments with gardens
2. Iron entrance gate
3. South facing entrance court with fountain, benches and flower planters
4. Large living room with a bay window
5. Rooms connected to the outside
6. Exterior concrete tiles with flower
7. Ornamented columns and beams
8. Lattice concrete guardrails at verandahs
9. Iron guardrails at balconies
10. Concrete brackets at balconies
11. Flower planters
12. Arched entranceway into the building



Fig. 3. The Korinthos apartment building

13. Small tile roofs
14. Hand-made glazed tiles with numbers

2. Building Design Layout

The building site had certain characteristics in terms of views, landscape, terrain, existing neighboring conditions, pedestrian traffic, vehicular traffic and so on. All these conditions were respected, enhanced and helped the design of the building. First, the outdoor communal space was placed facing south-west towards the park and was embellished with a water fountain, concrete benches, and flower planters. Then, the building was placed next to the open space to better define it and enhance it. The character of the building began to emerge. Hand-made concrete tiles, adorned with a daisy (10) were placed on the third-level exterior walls, bay windows for the living rooms, beautiful columns and beams at certain corner locations etc. The pedestrian entrance and the car entrance were separated, with the parking placed underground and the pedestrian entrance placed at the quieter of the two streets fronting the building. The apartments were laid out with the social spaces at the front overlooking the park and the private spaces at the back for more privacy and quietness (Fig. 4).

The vertical circulation, which was open and well lit, was placed in the middle of the two apartments overlooking the

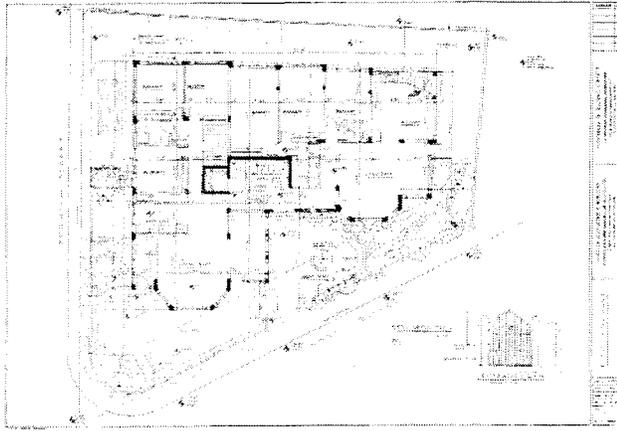


Fig. 4. Entrance level floor plan

park. There was an attempt to provide most rooms with a connection to the outdoors through verandahs, balconies and terraces (11). Each apartment dwelling had a large verandah and most rooms had a small balcony for better connection to the outdoors.

3. Construction Budget Distribution

Most contemporary apartment buildings tend to be monotonous structures with no identity, lacking special details. The same even quality appears at windows, columns, verandahs, wall treatments, etc. An apartment building though, can be beautiful irrespective of budget because it is the proper distribution of money on the building entities that is the key. This is very often encountered in traditional dwellings of Cyprus where master builders knew that too much intensity or evenness was not desirable and focused on few entities crucial to the life and character of the building.

For example, we see in a traditional building (Fig. 5) that the brackets of the balcony and the opening of the entrance door are ornamented while the other elements are simple and inexpensive. The budget of the Korinthos apartment building was distributed on the various operations so special entities, like the water fountain and the benches, were part of the construction budget and were not considered extra items. This was achieved by making some things cheaper, like using tile flooring instead of marble. Furthermore, some of these entities were made in an innovative and inexpensive manner. For example, instead of using the commercially available metal numbers at dwelling entrances we made ceramic glazed ones that were works of art and cost half the price of the metal ones.

4. Humane Construction Operations

In contemporary construction most operations are mechanical in nature and are based on the practical aspects of the making process. For example, the builder is constructing columns, beams, walls etc. by following drawings and has no personal input in enhancing the space. In the new apartment

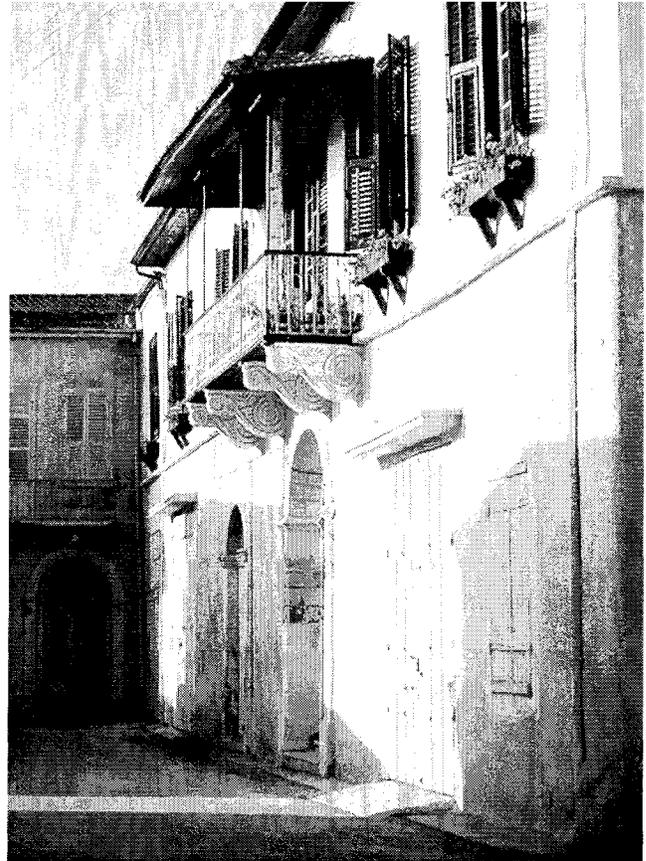


Fig.5. Traditional urban building with an uneven built quality

building construction process, the author was actively focusing in the creation of rooms, spaces, and entities, aiming to achieve the optimum level of comfort. This approach was very similar to the one used in traditional building where the builder was creatively building things by using his initiative and sensibility. For example, in the Korinthos apartment building the "mechanical" operation of building terracotta block walls became a "humane" operation where most room dimensions changed from those designed on the drawings to achieve the maximum potential. The door and window sizes and locations were also modified in order to receive essential daylight, take advantage of the views and properly connect the interior with the exterior spaces and allow good circulation.

5. Building Changes

Traditional master builders had the freedom to change the building form as they went along. This freedom helped to adjust and modify spaces and increase their comfort level. In contemporary construction though, building changes are avoided since they usually increase cost and time completion. But changes should not necessarily mean delays and cost overruns. If the subcontractor is instructed to change something before starting work or when no delays will be accrued, then no problems will be created. Furthermore, if changes are made with great budget sensitivity, then the

overall building cost will remain within budget. During the construction of the Korinthos apartment building the changes that took place varied in scale and were in the hundreds. Sometimes the changes increased the cost, sometimes decreased it, and sometimes did not affect it at all. But the author made sure of two things: That the information was provided to the subcontractors ahead of time and that a close eye was kept on the budget so money could be moved around between operations to properly control construction costs.

6. Handcrafted Entities with Feeling

In order to increase the feeling of ownership and belonging and create a memorable building with a local identity, we need to provide something special, something unique which comes from the heart. These special elements will stand out because of their simplicity, uniqueness and beauty. The creation of hand-made entities was predominant in traditional dwellings but absent from many contemporary ones. A small number of these entities were developed for the Korinthos building. They include:

1. Exterior concrete tiles with flower
2. Ornamented columns and beams
3. Lattice concrete guardrails at verandahs
4. Iron guardrails at balconies
5. Concrete brackets at balconies
6. Flower planters
7. Iron entrance gate

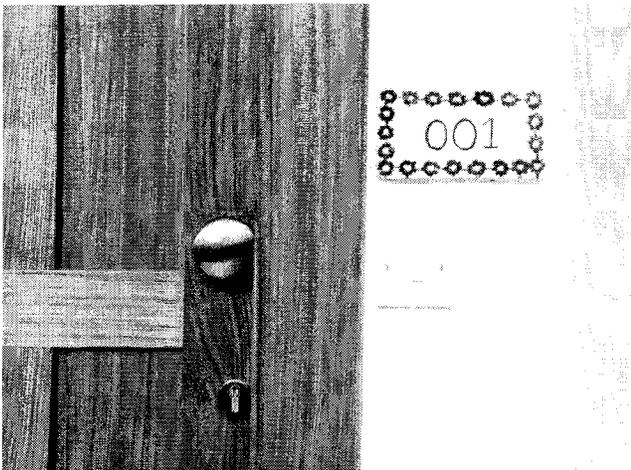


Fig. 6. Ceramic hand-made tile with number

8. Arched entranceway into the building
9. Water fountain
10. Concrete benches in the entrance court
11. Heavy and solid front doors
12. Glazed tiles with numbers (Fig.6)

7. Color of the Building

Finding the most appropriate and harmonious color of the building is a very difficult process and requires some experimentation. Most contemporary apartment buildings are usually painted white. My original vision of the Korinthos

building was to have three colors: light gray, light terracotta, and light yellow. The lower walls of the building were to be a light yellow, a color that is very often used in Cypriot architecture; the superstructure was to be light gray; and the upper walls light terracotta. The author began experimenting with these colors, but quickly saw that they were wrong. He began realizing a white color for the superstructure which would "bring out" the details of the building. He proceeded with white on the superstructure and introduced a little red in the yellow to move it closer to peach to complement the hand-made concrete tiles. After many experiments a "yellow-peach" color was chosen and the painting subcontractor was instructed to paint part of the building and leave it for a few days to see whether it felt appropriate or not. It became apparent that the combination of the above colors was successful and it was used on the building.

8. User Participation

When apartment dwellings are built with the participation of their owners they tend to be more "personal." The participation of the users introduces "variety" in the building that is difficult to achieve when the architect works by himself. Therefore, the building process should accommodate the involvement of the owners not only for choosing some finishes but also for laying out their apartment. At the Korinthos apartment building some of the owners bought their apartments early in the construction process and were involved in the layout and design of their dwellings. During the layout of walls my role was to facilitate the process and assist the owners in arriving to the optimum solution. Some of the changes that occurred were adjusting room dimensions, adjusting location and size of door and window openings, and modifying wall layouts to adjust privacy between rooms. In some cases some walls had to come down after the owners changed their mind about something. Furthermore, the users chose kitchen cabinets, wardrobes, built-in furniture, floor and wall finishes, and the colors of the various rooms.

RESEARCH SURVEY AND PEOPLE'S RESPONSE

A research survey (12) was performed to determine whether the new process increased the humane quality and local identity of the Korinthos apartment building (Fig. 7) in comparison to other contemporary apartment buildings in Nicosia. The owners (13) were questioned on aspects of design and construction, building quality and identity, and the extent of community and privacy.

The survey responses indicated that the humane quality and identity of the Korinthos apartment building was higher than in other apartment buildings. For example, to the question, "Why did you decide to buy this apartment?" the majority stated architectural design, layout, uniqueness and identity of the building as the major determinant factors. To the question, "How would you compare your apartment building and dwelling with other contemporary ones of the same price range?" The response was that the quality of the



Fig. 7. The Korinthos apartment building

building is superior; it is "priceless"; it is above competition by far; it is unique and artistic; it has its own character; it stands out from the rest; and there is nothing like it anywhere in Cyprus.

Another question posed was, "Which are the elements that create an identity to the building?" All respondents confirmed that the handmade details helped create a feeling of identity and belonging to the building. It should also be noted that the neighbors are very happy with the building and that during construction kept visiting the site. Passers-by stopped their cars to look at the building, giving compliments to the owners. One of the builders often brought his family to the site and kept saying that no other builder works this way. And finally, a little girl whose mother works across the street refers to the building as "the little palace".

TIME AND COST

The author selected six other contemporary apartment buildings in Nicosia, with similar variables (14) to the Korinthos apartment building to perform a cost and time comparison (15). Four apartment buildings had a cost higher than the Korinthos building and two cost lower. The average cost of the six buildings was three percent higher than the cost

of the Korinthos apartment building (16). Therefore, the new process was implemented within the cost of contemporary apartment buildings. The same buildings used for cost comparison were also used for time comparison. The Korinthos apartment building took 20 months to be constructed while the average construction time of the other six buildings was 16 months. The author attributes this delay to subcontractors often not being reliable or punctual. If this problem can be managed with stricter contractual agreements, then the problem can be resolved.

FINANCIAL FEASIBILITY OF THE PROCESS

In Cyprus the majority of developers do not allocate much money for construction management of their projects (17). Therefore, the construction management performed on this type of buildings is very limited and has a negative effect on the built quality. In the Korinthos apartment building the construction management fee offered by the developing company was very low since the service was provided on an experimental basis (18). The developer said he could pay a modified version of a construction management service once the financial analysis of a project indicated that adjustments could be made and the return on investment was safeguarded (19).

EPILOGUE

The new apartment building process employed for the design and construction of the Korinthos building (Fig. 7) in Cyprus indicates that this process can create a more humane apartment building environment and is feasible within contemporary building cost. It shows that the participation of users in the process helps to improve environment and increase feeling of ownership and belonging, and creates a building that is well received by the neighborhood and the community. There are, however, some unresolved issues which merit further work. First, the process took more time to be completed in comparison to contemporary construction time duration. Second, the financial compensation of the construction management service was not substantial and



Fig. 8. Front view of the building

the feasibility of the service remains unresolved. Third, the uniqueness of the design caused problems with the planning department who wanted to eliminate certain characteristics. Fourth, the "dynamic" and "experimental" aspect of construction caused discomfort and problems to the client and the builders.

One important aspect of the process is whether it can be generalized and be implemented on a wider scale. The author's work in Cyprus and the United States suggest that the building process put forth can be applicable, in some version, at most places and cultures independent of density and construction methods. The process employed by the author is one particular version of the increasingly popular design build process employed for housing production in most parts of the world. Its uniqueness, though, is that its primary emphasis is to increase the humane quality of the housing environment. Its main weak points are the construction duration of the building process and the financial compensation of the architect builder's practice. These two problems though can be resolved. The more experience the architect builder gains and the better the subcontractor teams are, so the time gap can close. Also, the financial compensation of the architect builder can be worked out as long as he can manage a minimum number of buildings a year while the human and beautiful results of the process are still maintained. Even though the Korinthos apartment building was well received by the neighborhood and community there is still the need for broader master planning in both physical and policy terms in order to create a humane apartment building environment on a larger scale.

NOTES

1. Republic of Cyprus, *The Almanac of Cyprus 1996* (Nicosia: Press and Information Office, 1997, p.29).
2. Table of dwellings completed by government sector and private sector between 1976-1984:

Category	1976	1977	1978	1979	1980	1981	1982	1983	1984
Government	1,845	3,142	3,077	3,153	2,423	2,672	2,513	1,561	880
Private	1,698	3,400	5,102	6,346	6,586	6,159	6,436	5,726	5,447
Total	3,543	6,542	8,217	9,499	9,009	8,831	8,949	7,287	6,327
3. The author has investigated apartment building processes for his Ph.D. studies at the University of California, Berkeley. His dissertation is titled: *Apartment Building Process: The Design and Construction of the Korinthos Apartment Building in Cyprus*. (Berkeley: University of California, Berkeley, 1998). His Ph.D. advisor was Professor Christopher Alexander.
4. For example, in Cyprus an architect cannot be a licensed contractor due to legal restrictions. One way of working around this problem is for the architect to partner with a licensed contractor and retain the management of building construction.
5. For example, see Stephanos Sinos, *Vernacular Architecture of Cyprus* (Athens: Stephanos Sinos, 1976).
6. George Papacharalambous gives a detailed account of traditional dwelling construction in his book, *The Cypriot Residence* (Nicosia: Center for Scientific Research, 1968, p.7-21).
7. My father Loizos Pontikis, a licensed general contractor, attests that for the fifteen apartment buildings he has built so far, the architect was not hired to perform construction supervision.

8. The construction budget of the project was set at CY£200,000 (Cyprus pounds two hundred thousand, CY£1=US\$1.8) and the construction time was set at 16 months. The total building area is 844 m². The developer was "Pontikis and Christophorou Developers Ltd.", a company which belonged to the author's family.
9. The author focused on the small-scale apartment buildings in Nicosia, Cyprus with low to medium-density; buildings with three to eight floors, having approximately six to twenty dwellings each.
10. The daisy has been widely used in traditional Cypriot arts and crafts.
11. The connection of interior rooms to the outdoors was very prevalent in the traditional architecture of the island as the weather permits outdoor living for the most part of the year.
12. The detailed questionnaire and answers of the survey can be provided upon request. The questionnaire was prepared by the author and approved by his Ph.D. advisor.
13. The owners of the apartments looked at other contemporary apartments before deciding on the Korinthos building. For this reason they were good candidates for assessing the humane quality of this building.
14. The apartment building variables, which were used to choose the six apartment buildings for comparison, were the following:
 - a. Location- all buildings were located in Nicosia
 - b. Time- the buildings were constructed at the same time period
 - c. Plot area- they were constructed in a plot area of 550 m² to 600 m²
 - d. Size- they were of similar building area (830 m² to 880 m²)
 - e. Floors- they have three floors, two dwellings at each floor.
 - f. Parking- entrance level (pilotis) or subterranean parking (six cars)
 - g. Construction system- they used the same construction system (reinforced concrete frame, in-fill block walls, stucco and plaster)
 - h. Specification finishes- they had same or similar specifications finishes and items.
 - i. Develop/design/build- that they were designed and constructed by an individual entity for developing purposes.
15. Comparison of apartment building Construction Cost (£/m²) and Construction Time (months)

Apartment Buildings	Actual Cost	Factored Cost	Actual Time	Factored Time
Korinthos	245	245	20	20
CyField	190	235	12	12
Pelekanos	230	260	18	19
Barbas	245	260	14	15
Lemka	260	270	18	18
Meletioui	245	255	16	17
Miliotis	205	235	15	16

- The Korinthos apartment building has used the most expensive finishes of all the buildings compared. The factored cost is the adjusted one, made after the cost difference of the specification finishes is taken into account. The Korinthos building has a subterranean parking, which has added approximately six weeks to the duration of construction. The factored time is the adjusted one, made after the construction duration of the parking structure was taken into account.
16. The average construction cost of the six apartment buildings was 253 £/m² and the construction cost of the Korinthos apartment building was 245 £/m².
 17. Small-scale developers build two or three small projects a year. To keep their expenses to a minimum they hire one construction supervisor who manages all projects as well as working on sales, finance, and other aspects of the business.
 18. The construction management fee for the Korinthos apartment building was five percent of the construction cost. The fee used in countries like America, England or Japan ranges from 18% to 22% of the construction budget depending on the scale of the project (information was provided by the Center for Environmental Structure, Berkeley). In Cyprus, the management fee for

construction ranges from 12% to 15%, depending on the scale of the project (information provided by Cybarco Ltd., Chapo Constructions Ltd. and Atlas Pantou Ltd.).

19. The author proposed a financial viability plan to the developers, which he believes when employed, will resolve the financial problem of the process (the plan can be provided upon request).

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