# >Participation Of The Architect And The Users In The Building Process

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#### **ABSTRACT**

Most apartment buildings around the world might resolve the basic needs of the users, but they often fail to create a meaningful and humane building environment that responds well to human needs. Partly to blame is the fact that these buildings are mostly designed and built by developers without the active participation of the architect and the users in the building process Christopher Alexander's work sets forth a building process that attempts to create harmonious buildings responsive to human needs. He supports that "wholeness" and "order" exists in the built environment as a geometric quality and that this quality is dependent upon the building process that generates it. The more integrated the design and construction processes are and the more involved the architect and the users are in the making process the higher the building quality will be. Thus, he proposes an integrated building process where the architect and the users are working together in shaping their dwellings. This approach of making buildings is not often used in contemporary building and especially in the making of apartment buildings.

I applied Alexander's framework in an apartment building in Cyprus where most contemporary apartment buildings do not respond well to the users needs. This research was needed in an attempt to resolve this problem and help architects and developers in this difficult endeavor. The aim of the research was threefold. First, to establish a building process which could produce comfortable apartment buildings responsive to human needs. Second, to create a building within contemporary constraints of time and cost. Third, to make this building process financially viable for the modern-day master-builder and the developer.

In this paper I present the case study of the Korinthos apartment building in Nicosia, which has six three-bedroom apartments with a common entrance court and a subterranean parking. I designed the building and it was built with a small group of subcontractors under my management and the users were also actively

involved in the building process. The users had the opportunity to lay out their dwellings while the building was constructed. They adjusted and modified the interior and exterior spaces and chose finishes, colors and other fixtures to personalize their dwellings. I also personally became involved in construction and built things with my own hands like hand-made tiles, concrete handrails, a fountain, etc. These elements, inspired by the local arts and crafts, have added to the character and identity of the building.

A survey performed among the users indicated that the participation of the architect and users in the building process increased building quality and created more meaningful and personal dwellings. Furthermore, the findings indicated that this process can create apartment buildings within contemporary constraints of time and cost. The financial viability of the architects' participation in the building process was partially resolved and merits further investigation.

The study's findings allude to the importance of involving the users in the building process. Architects and developers must take the time to find out how their buildings can become 'homes', thereby resulting in a more responsive architecture.

Most contemporary apartment buildings around the world are produced by developers whose primary goal is to achieve maximum monetary gains. These buildings might resolve the housing needs of the people, but most often fail in creating meaningful, comfortable and humane building environments that are responsive to human needs. Partly to blame is the fact that these buildings are designed and built without the active input and participation of the architect and the users. This building process creates apartment buildings that are impersonal and lacking architectural identity.

Some architects have tried to resolve this problem of mass housing and lack of user participation and flexibility in construction. For example, Ralph Erskine's¹ architecture was based on the expressive process of habitation and the strong sense of community identity. John Habraken's² "support structures" were attempting to provide user sovereignty over the housing process. Lucien Kroll³

was an early advocate for participatory design in housing and J.F.C. Turner<sup>4</sup> attempted to create a humane environment in self-help housing.

The most holistic approach in trying to resolve this housing process is probably put forth by Christopher Alexander.5 Through his work he sets forth a building process that attempts to create harmonious buildings responsive to human needs with the participation of the architect and the users in the building process. He supports that "wholeness" and "order" exist in the built environment as a geometric quality and that this quality is dependent upon the building process that generates it. The more integrated the design and construction processes are, and the more involved the architect and the users are in the making process, the higher the building quality will be. Thus, he proposes an integrated building process where the architect and the users are working together in shaping their dwellings.

Alexander's approach of making buildings is not often used in contemporary building and especially in the making of apartment buildings. I applied Alexander's framework on an apartment building case study in Cyprus where most contemporary apartment buildings do not respond well to users needs. This research was needed in an attempt to resolve this problem and help architects and developers in this difficult endeavor. The Korinthos apartment building was designed by myself and built with a small group of subcontractors under my management, while getting the users and myself actively involved in the building process. The building is located in Nicosia and has six three-bedroom apartments with a common entrance court and subterranean parking.

# **METHODOLOGY**

My hypothesis was threefold. First, that the active participation of the architect and the users in the building process has the ability to create a harmonious and humane apartment buildings. The method employed to test the first hypothesis was a research survey.<sup>6</sup> The owners of the apartments were asked to answer a questionnaire whose purpose it was to assess the quality of the apartment building and whether their participation increased the quality of their dwellings. A verbal interview of the dwelling owners followed the questionnaire.

My second hypothesis was that the architect and user participation in the building process could be implemented without increasing the allocated construction cost and time of the building. The method used for testing this hypothesis is a comparative method

of analysis. The Korinthos apartment building cost and time were compared with those of six other apartment buildings governed with same or very similar parameters.<sup>7</sup>

My third hypothesis was the architect and the developer could financially afford this participatory process. This hypothesis was very relevant to the work and was included as an adjunct hypothesis because it merited some analysis and investigation. I have attempted through calculations and negotiations with the developers to come up with a working plan as to how the implementation of this integrated process can take place.

# CASE STUDY-THE KORITHOS APARTMENT BUILDING

The Cypriot apartment building form was "transplanted" to the island from Europe in the early 1950s and has not changed much since then.8 The building is often "sitting" on a pilotis, the dwellings are identical at all levels and the materials used are reinforced concrete, masonry in-fill walls, and aluminum and glass windows (Fig. 1). A big "boom" of this type of building took place on the south side of the island after the 1974 war with Turkey. Almost 40 percent of the island was occupied and approximately 200,000 refugees were displaced from the north side of the island to the south side. 9 To resolve the housing shortage following the invasion, the government sector and the private sector began producing dwellings in greater numbers to meet the needs of the population. 10 These type of buildings remain mostly unchanged till today.

The building process employed for the production of these buildings is one where the architect and the users are not actively involved in the making process. The developer provides the schematic design or strict design guidelines to the architect who proceeds to design the building in a "mechanical" fashion. The construction documents are then given to the contractor to construct the building. Changes of the building form are avoided because they usually cost money and delay completion time. The supervising architect is merely ensuring that construction is proceeding according to drawings and specifications. Also, the users are absent from the building process. They usually come too late into the process to choose building finishes that they like or need. No one is consciously trying to adjust and modify the rooms, the door or window openings, or details to create a more comfortable environment.

Therefore, contemporary apartments in Cyprus do not constitute 'home' in the sense that they are non-normative, that is, the acceptable standard is a freestanding detached single-family house and thus, apartments do not meet this norm. Apartment dwellings are considered transient housing for young people and newlyweds who. once they become more financially comfortable, move into single detached custom-made homes. Therefore, since apartment dwellings are viewed as transient housing, they are



Fig. 1. Contemporary apartment building in Nicosia, Cyprus.

built in a generic impersonal way to appeal to a wider audience. Most users are also not known from the outset of the project so it is very difficult for architects to design dwellings for absent users. Furthermore, since apartment dwellings frequently change owners, it is even more difficult for architects and developers to address users needs and create personalized environments.

In contrast to the contemporary building process, 11 the active participation of the architect and the users in the building process was more pronounced in traditional construction. Traditional buildings (Fig. 2) were made with care and for the purpose of providing comfort to their inhabitants. 12 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 and techniques, were respected and helped to create the form of the building. Furthermore, buildings shared a common



Fig. 2. Traditional buildings in Nicosia, Cyprus

integrated sequence of design and construction. The master builder designed and built in a single organic process with the help of the users. They would get together on the site and layout the building in such a way so that the needs of the users will be best served. Their building process had a tremendous freedom and flexibility. Every space and detail was worked out till it had the right proportion, and it felt right (Fig. 3)

This process had the ability to create buildings where the users felt comfortable and whole. But, in looking at traditional building processes we look for inspiration and understanding of how humane environments were created. These processes cannot be employed today the same way they were employed then. The social, economic, and political conditions along with the building culture were vastly different from the ones we are living today. For example, in the past the clergy were mostly the clients



Fig. 3. Traditional Cypriot water fountain who built religious buildings and their main aim was to create timeless structures, while today we have developers who build residential and commercial projects and their main aim is monetary gain. Furthermore, the building culture is different. For example, in Cyprus legally the architect cannot be a builder because it is perceived as a conflict of interest. Therefore, there is a need to interpret most building processes anew so they can be viable and can resolve

contemporary problems and constraints.

The Korinthos apartment building <sup>15</sup> (Fig. 4) is a three-floor structure with six apartment dwellings and a subterranean parking. In the apartment building process employed I took responsibility for the building's design and construction. The client of the project was a developer <sup>16</sup> who set strict construction budgets and timelines, which I had to meet. The 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 the needs of the users and site

conditions. The construction budget was distributed on the various building operations so that special entities and details could be part of the building. I



Fig. 4. The Korinthos apartment building managed the subcontractors and encouraged them to participate in the building process in a creative and innovative way. I worked with the users to adjust and modify their dwellings to create a living environment according to their needs and aspirations. I monitored building operations and consulted with the users to move the money around in the various operations in order to increase the quality of the building and finish the project on budget and on time. Furthermore, I made things with my own hands that went onto the building. This way, part of my art and craft touched the building.

# THE ARCHITECT'S PARTICIPATION IN THE BUILDING PROCESS

A. The architect was the construction manager of the building and carried construction responsibility. I was continuously and personally involved in the making process in a fashion similar to traditional master builders. I hired the subcontractors of the various trades and worked closely with them by encouraging them to participate in the making process in a creative and innovative way. I took control of the money and distributed the budget on the various building operations. During construction I monitored operations on a daily basis and moved money around in order to increase the quality of the building and finish the project on budget and on time.

B. He performed building changes so that to increase the quality of the building.

During construction I proceeded to make the necessary changes both inside and outside the building to increase the buildings' "quality", "feeling" and "comfort" while remaining within the budget and cost constraints of the project. In contemporary construction, building changes are avoided since they usually produce scheduling problems and increase cost. But changes should not necessarily mean delays

and cost overruns. If the subcontractor is instructed to change something prior commencement of operation or at a moment when no further 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 I made sure of two things. First, the information was provided to the subcontractors ahead of time so there were no delays in the construction process. And second, I kept a close eye on the budget and moved money around from one operation to another so that the construction cost was kept within the allocated one.

C. He employed a handcrafted process of building and made things with his own hands that went onto the building.



Fig. 5. The architect making concrete tiles.

In order to increase the feeling of ownership and belonging and create a memorable building with a local identity, I provided some special handcrafted entities. These special elements were very simple and unique, like:

- 1. Exterior concrete tiles with flower.
- 2. Ornamented columns and beams.
- 3. Lattice concrete guardrails at verandahs.
- 4. Concrete brackets at balconies.
- 5. Flower planters.
- 6. Arched entranceway into the building.
- 7. Water fountain.
- 8. Concrete benches in the entrance court.
- 9. Exterior beams with small tile inserts.
- 10. Glazed tiles with numbers.

Some of these elements were made by myself (Fig. 5), like the concrete tiles with flowers, 17 fountain, flower boxes (Fig. 6), and guardrails. Subcontractors made some of these elements and local artist made some others like the glazed tiles with numbers (Fig. 7).

D. He employed inexpensive materials and innovative construction techniques in an effort to keep the budget under control.

The special entities that went onto the building did not cost extra money that the developer needed to provide over the allocated budget. These entities were budgeted within the original distribution of the budget. There was a conscious attempt to provide these entities with the least money. This meant that I built mock-ups, performed experiments and tried to use innovative techniques and cheap materials to come up with economical solutions. Concrete, which is a cheap material, was used in almost all details. Polystyrene and chipboard were used as inserts in formwork (Fig. 6) to create interesting concrete forms and shapes. Some glazed tiles were used as dwelling numbers and also some stone was used for wall caps.



Fig. 6. Flower planter under construction.

E. He experimented with the color on the site to find the most harmonious ones for the building.

My active participation in the process extended in trying to find the most appropriate colors of the building by spending time on the site and experimenting with various colors. Paints were not specified from a color catalogue but were applied directly on specific areas of the walls and were left for few days. After many experiments, it was decided to paint the exposed superstructure of the building white to also bring out the details of the building, and the walls "yellow-peach" color.



Fig. 7. Ceramic hand-made tile with number



Fig. 8. Layout of block walls. 154<>>>>> 2003

F. The architect worked with the users to create a dwelling responsive to their needs and comforts.

I assisted the dwelling owners in participate in the making process of their own apartments and create a dwelling according to their own personal needs and aspirations.

# THE USERS' PARTICIPATION IN THE BUILDING PROCESS

A. The users worked with the architect to lay out the walls of their dwellings.

Once the reinforced concrete superstructure was completed the users and myself moved in and began the layout of the walls. The superstructure of the building could not be modified. But the users, according to their needs and liking, could change the interior layout of the rooms, along with the door and window openings. We started out by laying out the terra-cotta block walls as designed on paper. The subcontractor laid a few courses of block first (Fig. 8) and we walked around to get a feeling of the place. Then we began modifying wall layouts to adjust room sizes and also to achieve the right level of community and privacy between rooms (Fig. 9).

In some cases some walls had to come down after the owners changed their mind about something. Most window sizes changed from those designed on the drawings in order to achieve the essential daylight and also take advantages of the views. Some windows increased in number and some decreased. The door locations were also checked and changed as needed so that they would properly connect the interior room with the exterior spaces and allow good circulation. Once the wall location and openings were finalized the subcontractor moved in and completed their construction. During the layout of walls I was constantly on the site to facilitate the process and assist the users in arriving to a successful and functional solution, answering their questions, transferring the information to the builders, and keeping track of the cost. Four days were allocated to work out the layouts so that there were no construction delays with the builders. Some of the changes that took place (Fig. 9) were the following: connect two bedrooms and make them into one. modify wall enclosure of kitchens, eliminate small verandahs and increase size of bedrooms, increasing or decreasing the size and layout of bathrooms, changing layout of kitchen and dining. Finally, location and number of electrical outlets, switches and air conditioning units were changed according to the

wishes of the users.

B. The users chose material finishes, cabinetry work and interior colors of their dwellings.

The developer had set certain fixed prices for material finishes, cabinetry work and other fixtures. The users used those budgeted amounts to choose items of their liking. Some users requested extra amenities like fireplaces and built-in furniture for which they had to



Fig. 9. Sketch before and sketch after changes.

pay extra money. Furthermore, some users worked with the interior colors of their dwellings. Again, my role was to participate in this process and assist the users to create an environment according to their needs and wishes.

C. Some users provided sweat equity in their dwellings for which they received credit.

Some of the owners provided some physical work themselves in order to save some money. Some of the operations they provided were painting and also landscaping for the entrance level dwellings. Some users opted to hire some subcontractors themselves, like cabinetmakers and pay the difference or receive credit according to the budgeted amount of the operation. This worked very well because they felt pride of ownership and belonging.

# POST OCCUPANCY EVALUATION

A research survey<sup>18</sup> was performed to determine whether the participation of the architect and the users in the building process increased the humane quality of the building and succeeded in creating a responsive architecture. The owners<sup>19</sup> were asked on aspects of design and construction, on building quality and identity, and the extent of community and privacy of their apartments. For example, to the question, "Why did you decide to buy this apartment?" the majority said they liked the building and mentioned the architectural design, layout, uniqueness and identity of the building as the major determinant factors. To the question, "Which are the elements that create an identity to the building" all the interviewees confirmed that the handmade details helped to create a feeling

of identity and belonging to the building. The neighbors were very happy with the building and during construction they kept visiting the site. Somehow the building managed to develop a feeling of "community" in the neighborhood. Passers-by stopped their cars to look at the building, giving compliments to the owners. One of the builders brought his family to the site often and kept saying that no other builder works this way. Two prospective clients indicated that they were attracted by the beauty and simplicity of the building and commented that it had attributes found only in the traditional urban architecture of Cyprus. And finally, a little girl whose mother works across the street refers to the building as "the little palace".

#### TIME AND COST

Six other contemporary apartment buildings in Nicosia, with similar variables<sup>20</sup> to the Korinthos apartment building were selected to perform a cost and time comparison.21 Four apartment buildings had a cost higher than the Korinthos apartment building and two had a cost lower. The average cost of the six apartment buildings was three percent higher than the cost of the Korinthos apartment building.<sup>22</sup> 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 building subcontractors caused the four months delay. Even though they were promptly notified to resume construction they showed up on the site very late. For example, the formwork and steel reinforcement subcontractors delayed construction by ten weeks. This problem can be resolved if the developing company is building more projects simultaneously. This way most subcontractors will be working almost exclusively for the developer, thus it will be easier to manage them and resolve scheduling problems and delays. Therefore, if we subtract four months of delays caused by the subcontractors then the construction time of the Korinthos apartment building is the same as the other buildings. This could lead one to interpret that the new process can be implemented within contemporary time constraints. But if one attributes the delays to the new building process then it could lead one to believe that this process cannot be implemented within contemporary time constraints.

## FINANCIAL FEASIBILITY OF THE PROCESS

In Cyprus the majority of developers do not allocate much money for the construction management of their



Fig. 10. The Korinthos apartment building

projects.<sup>23</sup> Therefore, the construction management performed on this type of buildings is very limited and has a negative effect on the built quality. On 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.<sup>24</sup> The developer said that 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 their investment was safeguarded.<sup>25</sup>

### **IMPLICATIONS OF THE STUDY**

The participation of the users and myself in the building process of the Korinthos apartment building in Cyprus (Fig. 10) has indicated that this process can create a humane and responsive apartment building environment without increasing building cost.

Architects who are going to implement this process should keep in mind that their participation and that of the users should not delay the building process and the work of subcontractors. They should also devise building techniques that are flexible and accommodating of changes without increasing construction cost. Furthermore, the architect's financial compensation in providing this service has to be paid particular attention to. One way of resolving this problem is to shift some of the design fee into the construction management or construction supervision fee.

The developers also have to realize that this extra service by the architect needs to be compensated for and should try to resolve it in a creative way for their own benefit. They should also note that the more personalized and responsive to user needs the dwellings will become, the easier and quicker their buildings will be sold. Therefore, developers should try and bring the users into the process the earliest possible. They should also find ways of assisting the users to personalize their dwellings so that to contribute towards creating

a feeling of ownership and belonging. This building process will also help them in increasing their financial gains since they will be established as sensitive developers who strive to produce apartment dwellings that have high building and humane quality. Lastly, both architects and developers should work hard to provide extra personal touches and handmade parts to the building to bring it a little closer to the notion of home.

#### **NOTES**

- <sup>1</sup> Ralph, Erskine, The Byker Development, Newcastle: City of Newcastle upon Tyne, 1981.
- <sup>2</sup> N. J. Habraken, Supports:An Alternative to Mass Housing, Praeger Publishers, New York, 1972.
- <sup>3</sup> Lucien Kroll, The Architecture of Complexity, Batsford, London, 1986.
- <sup>4</sup> John F.C., Turner, Housing by People: Towards Autonomy in Building Environments, Marion Boyars, London, 1976.
- <sup>5</sup> See Professor's Alexander's manuscript, The Nature of Order, Berkeley, 1996.
- <sup>6</sup>The main aim of the survey was to determine whether the Korinthos Apartment Building had achieved an increased humane quality in comparison to other contemporary apartment buildings in Cyprus. The questionnaire was prepared by myself and was approved by my advisor, Professor Christopher Alexander.
- <sup>7</sup> For example, all the buildings chosen for comparison were in the same geographical location, they were of the same approximate size, they had the same number of floors, they were constructed with the same develop-design-build procurement method, they were all completed at the same time, etc.
- <sup>8</sup> See for example Oscar Newman, Defensible Space, London, 1973, Doreen Yardwood, The Architecture of Europe: The Nineteenth and Twentieth Centuries, Chicago, 1991, and Alice Coleman, Utopia on Trial, London, 1990.
- The Almanac of Cyprus 1996, Press and Information Office, Republic of Cyprus, Nicosia, Cyprus, 1996, p.29.
   Dwellings Completed 1976-1984 in government and private sectors

Category 1976 1977 1978 1979 1980 1981 1982 1983 1984

G. Sect. 1,845 3,142 3,077 3,153 2,423 2,672 2,513 1,561 880

P. Sect. 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

Construction and housing report 1984, Department of statistics and Research, Ministry of Finance, Republic of Cyprus, Nicosia, Cyprus p.69

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- <sup>11</sup> The author has investigated apartment building processes for his Ph.D. studies at the University of California, Berkeley. His dissertation is title: Apartment Building Process: The Design and Construction of the Korinthos Apartment Building in Cyprus. University of California, Berkeley, 1998. His Ph.D. advisor was Professor Christopher Alexander. <sup>12</sup> Sinos S., Vernacular Architecture of Cyprus, Athens, 1976.
- <sup>13</sup> G. Papacharalambous gives a detailed account of the making of a traditional dwelling in his book, The Cypriot Residence, Nicosia, 1968, p.7-21.
- <sup>14</sup> For example, in Cyprus an architect can not 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.
- <sup>15</sup> The construction budget of the project was set at CY£200.000 (Cyprus pounds two hundred thousand) and the construction time was set at 16 months. The total building area is 844 m2.
- <sup>16</sup> The developer was "Pontikis and Christophorou Developers Ltd.", a company which belonged to the author's family.
- <sup>17</sup> The daisy has been widely used in traditional Cypriot arts and crafts.
- <sup>18</sup> 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.
- <sup>19</sup> 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.
- <sup>20</sup>The apartment building variables, which were use 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, infill 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.

<sup>21</sup>Comparison of apartment building Construction Cost (£/m2) and Construction Time (months)

Apartment	Actual		Factored	Actual
Factored				
Buildings	Cost	Cost	Time	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
Meletiou	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 apartment 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. The average construction cost of the six apartment buildings was 253 £/m2 and the construction cost of

the Korinthos apartment building was 245 £/m2.

<sup>23</sup> 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 and in addition this person works on sales,

finance, and other aspects of the business.

- <sup>24</sup> 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.).
- <sup>25</sup> I proposed a financial viability plan to the developers, which leads me to believe that when employed, will resolve the financial problem of the process (the plan can be provided upon request).