THE TRANSFORMATION OF THE "CONSERVATORIO SAN GIUSEPPE" INTO THE COSPICUA RESIDENTIAL HOME FOR THE ELDERLY, MALTA

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ABSTRACT

The transformation of the *Conservatorio San Giuseppe* , into the Cospicua Residential Home for the Elderly has become a landmark in the neighbourhood. It brings past and present together with its old church and stepped new development incorporating a colourful orange windbreak. It is an example of how an old building, originally an orphanage for girls, with limitations of location and orientation could be rehabilitated to incorporate energy efficient features.

Both the original structure and the new construction are load bearing with a high thermal mass to utilise a direct gain system. The building's original internal courtyard was retained and terraces included at higher levels to allow natural light into the home. The courtyard was roofed over by a glazed canopy to form an atrium, which serves as an extended living space. This makes up the most of solar gains whilst improving the internal environment. The central part of the canopy opens up in summer to cool the building and allow cross ventilation. Daylight was given prime consideration in the design concept. Features such as light-shelves were incorporated in the balcony openings.

KEYWORDS

Transformation, environmental-architecture, residential, direct-gain, energy-conservation, Malta

INTRODUCTION

The *Conservatorio San Giuseppe,* a detached block in Piazza Santa Margerita, Cospicua was originally built as an orphanage for girls. It was envisaged that the *Conservatorio* would be transformed into a Residential Home for the Elderly. This development was intended to inject new life into the area by rehabilitating the building as a high quality home for the elderly, while at the same time safeguarding the architectural heritage.

The concern for raising the energy efficiency of buildings in the Mediterranean and locally is growing Butera (1994), Fsadni (1996). Air-conditioning both for heating and cooling purposes is beginning to dominate the energy consumption of our island Fsadni (1998). In the process of rehabilitating the site, energy efficient features were incorporated into the design to obtain a comfortable internal environment and to reduce the running costs of the building.

BACKGROUND

The *Conservatorio San Giuseppe*, was founded in the late 18th century. The building was extensively enlarged and remodelled in the course of the 19th century. During the Second World War, the north façade was considerably damaged but was rebuilt in an austere, prison-like countenance. The *Conservatorio* reflected the trend of similar institutional buildings with daunting facades, enormous dormitory halls with high level windows, allowing views of the sky but otherwise shutting the outside world depicted in Figure 4. Even the roof had a high parapet wall, reaching above eye level. The building with its small church was abandoned for over 16 years and fell into disrepair.

Figure 1: The Cospicua Residential Home for the Elderly, Malta

Considerable parts of the original building were to be retained for their architectural and historical value. These included the Church of St. Joseph with its annexes - the inner and outer sacristies, the original entrance area to the *Conservatorio* including the main hall with decorated columns and octagonal skylight and adjacent spaces as well as the central courtyard with surrounding arched galleries, loggias and rooms. The external rooms of the building on three sides excepting the church, were to be demolished being deemed to be of no significant architectural value. They moreover added to the depressed atmosphere of the neighbourhood.

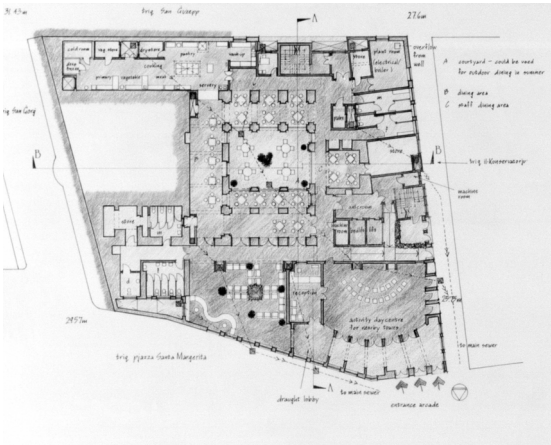

Figure 2: Ground Floor Plan

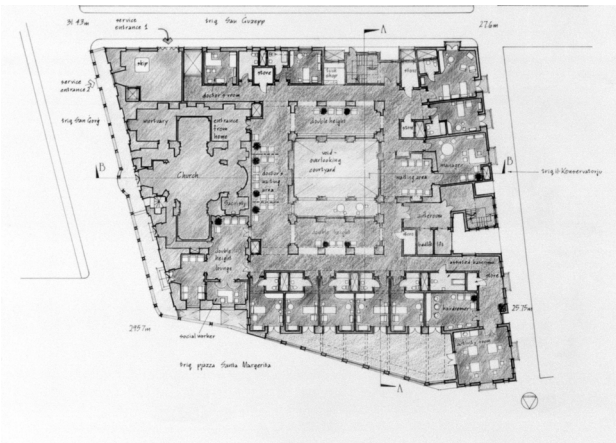

Figure 3: First Floor Plan

DESCRIPTION OF THE HOME

The Cospicua Residential Home for the Elderly is a landmark in the neighbourhood being the first new development in the area since the Second World War. The building offers an interesting skyline where the old church stands out. The stepped new construction with an orange coloured screen is reminiscent of sun drenched local limestone reddened with age. The screen acts as a wind break lending an identity to the place as illustrated in Figure1.

In any building, especially an Old People's Home, it is desirable to have interaction between the exterior and the interior where the facade is a mere filter and a continuation of the rich and varied activity that occurs in the street. This is achieved by introducing balconies, terraces and front gardens with pedestrianised areas.

The entrance to the Home is from Piazza Santa Margerita. The entrance floor level was previously used as a basement. However, this was easily transformed into the main floor since it fronted two streets and it was on the same level as the sizeable internal courtyard as shown in Figure 2. A passage adjacent to the street leads to the entrance lounge, the hub of activity of the home. At the back of the lounge area, the restored archways lead to the dining area. This is set in the retained part of the original structure surrounding the courtyard. The timeless quality of the massive internal arches provides a pleasant setting both during summer and winter. The kitchen and service access are tucked neatly at the back of the home. Another passage leads from the lounge to the vertical circulation area consisting of a panoramic lift, a bed-lift and a staircase. There is a second staircase at the back for emergency use.

The Home for the elderly caters for about 100 residents with a mix of single and double bed units on four floors, all having a shower en-suite as indicated in Figure 3. The home has various other facilities, amongst which there are the doctor’s room, the social worker’s room, assisted bathroom, laundry, and various lounges. A hairdresser’s room, TV room, activity room and a library/quiet room have been strategically situated with the best views to offer the best environment during day-time for the largest number of residents.

An otherwise dead rooftop area is enlivened by various facilities; an airy, covered, multifunction space for activities organised in the home both during summer and winter, a B.B.Q. area and sheltered terrace open to the exterior and to harbour and land views. These make up for lack of outdoor function space. The function space has its own regeneration kitchen and sanitary facilities.

An Activity Day Centre for the elderly residing in nearby towns has been incorporated at ground floor level. This has a separate entrance off the main gates, complete with a reception area. During the course of the works, a basement consisting of an additional hall and some storage space has been added to this Day Centre since the site conditions necessitated excavation up to 7m below street level.

THE TRANSFORMATION AND REFURBISHMENT OF THE CONSERVATORIO SAN GIUSEPPE

The design for the Cospicua Residential Home for the Elderly integrates the old with the new. The facade of the chapel was restored to its original dominant form. The existing upper storey was replaced by the new construction recessed from the façade. The previously half-concealed dome now stands out. The restorative intervention is stepped away from the

chapel, so as not to conflict with the height of the dome, while at the same time creating an interesting skyline as shown in Figure 5. The north façade fronts a large piazza and is exposed to local prevailing northwest winds. A screen punctured with openings was built to reduce the force of the wind. This also created another stepped building layer, echoing and emphasising the skyline.

Figures 4 and 5: Before and after-the building now offers an interesting skyline where the old church stands out.

The design of the home retained the original central part with the courtyard surrounded by loggias as illustrated in Figure 6. The residential area was developed at the outer border of the space with the corridor spaces hugging the central courtyard. Terraces on either side of the courtyard were introduced in the upper areas both to enhance the building but also to let daylight into all the circulation and lounge areas at the upper levels, and most important down to the level of the courtyard. The courtyard is sheltered by a transparent, laminated glass steel-framed structure to create a large atrium depicted in Figure 7 De Oliveira Fernandes, E. et al (1988), Sala M. et al (2000). During the hot summer months, the central part of the canopy opens smoothly to one side, letting in the cool summer breezes. It can be opened and closed or partially, according to need, at times twice in a day especially in the shoulder months. The courtyard has proven most responsive to our local sub-tropical Mediterranean marine climate. It helps to filter out dust and noise. It moderates the climate extremes both in summer and in winter and draws daylight into the residence Saxon, R. (1983). The atrium walls are left natural stone colour so that light would be reflected downwards. Also, there is a large area of wall in proportion to openings at the top, decreasing on the lower floors. This is designed to reflect daylight towards the lower levels illustrated in Figure 8. An existing south facing open gallery at first floor level provides shade from the overhead midday sun.

The building is of load-bearing construction with masonry walls of local globigerina limestone or concrete block-work plastered over. The floors are concrete slabs cast in-situ or pre-stressed. Thus the building has a high thermal mass. All the residents' rooms do not have a false ceiling while the flooring is of local traditionally made cement tiles so that when cooling breezes enter the rooms in summer, the actual mass of the building would be cooled, not merely the finishes. Where possible, the balconies were set deep into the building so that the balcony slab would not be exposed and act as a heating/ cooling fin. The retained original construction of the church and annexes as well as the central courtyard and surrounding galleries reflect the local traditional architecture of very thick limestone walls. In Malta, in the shoulder months, air temperatures are quite hot during the day but much cooler at night. Use is made of this large diurnal temperature variation by thermal mass to reduce the temperature

swings inside Fsadni (2002). Heat trapped in the central courtyard by the glazed canopy is also taken up by the mass of the building. The roof is insulated with aerated concrete and paved with light coloured concrete tiles. This reduces a major heat exchange path between the inside and the outside Fsadni (2002).

Figure 6: The central courtyard

Figure 7: The glazed canopy above the atrium

All the rooms have balconies onto the Piazza or the surrounding streets, with light-shelves to admit as much daylight as possible. All the external glazing is tinted light green in colour to reduce the ultra violet radiation when direct sunlight does enter through, to 80%. Direct sunlight is diffused over the surface area of masonry by using transparent white sheer curtains. To keep out the sunlight, thicker curtains can be drawn across the balcony openings.

Figures 8: The timeless quality of the massive internal arches at ground floor is highlighted by the natural light from the courtyard

Darker colours are chosen for masonry floors, pastel colours are used for walls, all lightweight construction has been painted a light colour Mazria E. (1978). Direct sunlight for long periods of time is avoided. The building is orientated with the new façade facing north. The existing old façade is the church elevation with massive walls facing east. The other two facades facing south and west are located in very narrow streets, the latter barely 3m in width, so that they do not receive much direct sunlight, especially on the lower floors.

An existing large water storage cistern, located at the back of the home, has been retained. It is about 12m deep and 30m in length, the collected water being used for secondary water and fire-fighting requirements. The well also keeps the lower part of the building consisting of kitchen, stores, circulation areas and boiler room cool in summer.

The restoration of the Church of St. Joseph included preliminary historical research and professional photographic documentation of the original building both internally and externally. The Girolamo Cassar School of Building then carried out Restoration works according to the method statement submitted to the Planning Authority. The laying of exterior hard-stone paving and installation of hard-stone bollards for the parvis completed the restoration work.

The central courtyard and adjacent spaces were also restored. The work was carefully supervised, the stones to be replaced being previously marked on site. The interior design of the courtyard and adjacent spaces was carried out in a sensitive manner so as to complement the architecture of the building.

CONCLUSION

The Cospicua Residential Home for the Elderly adopted various energy-saving measures. Little heating is required in winter reducing the load on the boiler to a minimum, while in summer, the load on the air-conditioning is decreased. Daylight design and energy saving light fixtures have a positive effect on the electricity consumption. In the design of this project, the architecture and the environmental quality of the building were given prime consideration bringing past and present together in a very sensitive manner, doing justice to the total costs amounting to 2.5 million Maltese Liri (approx. 6 million Euro). The home was opened on the 18th of December 1999.

References

Butera, F. M. (1994). Energy and buildings in Mediterranean countries: present and future. *Renewable Energy 5(II):* 942-949.

De Oliveira Fernandes, E. and Yannas, S. (1988*). Energy and Buildings for Temperate Climates – A Mediterranean Regional Approach PLEA 88*, Pergamon, Oxford, U.K.

Fsadni. M., Sayigh, A.A.M.,(1996). Climate Energy and Buildings in Malta, Proceedings WREC IV, Denver, USA, June 12-16, (III) 1405-1408.

Fsadni, M., Sayigh, A.A.M., (1998). Typical Climatic Conditions in Malta with Implications on Buildings Design, Proceedings WREC V Florence, Italy, Sept 20-25, (III) pp 1575-1578.

Fsadni M., Sayigh A.A.M. (2002). Experimental investigation of the thermal conditions of a building in Malta, Proceedings WREC VII, Cologne, Germany July 1-5

Mazria E. (1978). *Passive Solar Energy Book* .

Sala M., Gallo, P. Lusardi, A.P., Trombadore, A. (2000). Proceedings WREC VI, Florence, 1-7 July pp. 2690-2693.

Saxon, R. (1983). *Atrium Buildings – Development and Design* , The Architectural Press Ltd, London, U.K..