Air Suit - Housing Renovation, Hiroshima, Japan

Project description by author

This project offers a persuasive and inventive solution for the revitalization of the existing urban fabric with minimal financial risk. The scheme stands out particularly because of the degree of different building typologies within the chosen context. The proposal skillfully suggests how social reality in the city can be enhanced by a careful and systematic attitude to renovation rather than only insisting on new construction. A responsible ethical position concerning urban recycling is thereby forwarded that is beneficial on both an ecological and economic level. The use of light materials for the building envelope increases energy efficiency while reducing operating and maintenance costs. Such savings in turn make it possible to offer affordable housing to a broad range of users, including those who are most vulnerable. More than merely a cosmetic alteration, this technique of renovation assures that the living quality of the city is enhanced at the same time as the life expectancy of its buildings is increased. This solution offers a cost-effective measure to reactivating the urban environment that is at once context sensitive and socially stimulating, proving that the reuse of surviving urban structures need not be programmatically limited or aesthetically disappointing.

Contextual response and aesthetic impact

This renovation reduce huge amount of waste as compared to new building construction. Weight reduction of buildings and protection of structure from water and heat make building lifetime longer. Air buffer spaces improve energy efficiency in residential units without heat insulation materials. It helps to reduce construction materials.

Ethical standards and social equity

Recently in Japan, a lot of buildings are demolished before structural life-limit because of inconvenient equipment and old-fashioned plan and design. This project shows possibility of changing old building to comfort and convenient residential space with less materials and costs.

Economic performance and compatibility

We expect this renovation cost 60% of new building construction. Client will be able to supply good quality and reasonable residential spaces to local community with low financial risk.

Relevance to target issues (by author)

Quantum change and transferability

This project is prototype. This 40 years old building has many typical feature of reinforced concrete housing in this generation. Rectangular plan, linear coordination of housing units, grid framed reinforced concrete structure, balconies on south side of building, corridor on north side, no heat insulation, old and weak Mechanical ducts, old-fashioned utility etc. We tried to pick up common features and problems in these kind of old buildings, and improved and solved these with transferable technique. We can transfer this solution to many other buildings built in same period in Hiroshima.

This 40 years old residential building has typical typology of Japanese housing. There are grid frame structure, balconies on south side and corridor on north side. We consider this as prototype of housing renovation in this generation.

Aim of project

Reinforcement of structure: First, all reinforced concrete structures are reinforced with high strength concrete or steel. Secondly, reinforced concrete buildings in Hiroshima.

Disposal strategy in future: Conventional construction processes are now undemolished. Our proposal offers an alternative to this situation. The disassembly of building is conducted with low financial risk.

Construction process

January 2007

Construction process

Completion

Model, north façade

Concept of AIR SUIT

Details of south and north façade

Details of south and north façade

Model

Model

Model with north façade

Model with south façade

Model with north façade

Model with south façade