dwelling in transparency:
a study of the use of glass in public housing in Singapore

by
NG SIEW GHEE
HD 972032 Y

Abstract

As of 1998, more than 38 years since the Housing and Development Board (HDB) was set up, more than 86% of Singapore's 3,865,600 population live in HDB flats, 91.3% of which are 'owned' by the actual dwellers. With such success in providing public housing for the lower income groups, the next step for HDB will be to switch from quantity to quality, to cater for an increasingly affluent population. This would involve breaking away from the stigma that has been attached to local public housing, and fulfilling the higher expectations of a more affluent and educated society. This study contends that the envelope design of HDB flats, and in particular the use of glass, at present and in future, will facilitate this 'make-over'.

An Internet survey was carried out to ascertain the mass population's perceptions on public housing. It was noted that critics' views often differ from the respondents. The survey helped to filter out the real concerns of the flat dwellers. While random, it covers the main groups of people closely associated with the housing issue, namely the occupants and designers. The results of this survey will constitute the bulk of section 3.

Some questions that this study will attempt to answer include the following:

1. To what extent has the physical design of the blocks had an impact on the residents and would-be home-owners?
2. Are existing owners satisfied with their flats, and if not, why?
3. What are the prevailing perceptions/impressions of dwellers and designers on buildings that employ the use of glass extensively?

While 'comfort conditions' can be achieved by building forms and planning, designed to achieve optimum shading and ventilation, these very conditions can be maintained or improved in the dwelling units by means of the material properties of glass as well as its construction methods. Thus far, HDB's stance on 'affordability' has prevented glass-makers from making any in road into public housing even though tall office buildings all over the world bear their stamp. One hypothesis, therefore, is that glass has been overlooked due more to human bias rather than any other factor, be it bias on costs, safety etc. While the heat-retaining properties of glass has been well developed and documented, its heat-reflecting ones are sadly lagging behind, with the technology only recently being developed. This study will highlight various technical advancements that have since been developed in favour of its usage in the tropics.

---

1 Refers to the total population in Singapore in 1998; Singapore residents number 3,163,500
2 See Definitions
3 Any glazed area beyond the typical 1000mm glazed area above the mandatory 1000mm height window sill is considered additional features in an HDB flat, and such a flat-unit's price is adjusted upwards to reflect this.