

Abstract

There are 9,300 existing HDB residential blocks currently, about 6,000 blocks built prior to 1998 have roofs that come with a waterproofing membrane applied to the main reinforced concrete roof deck and laid with another layer of secondary roof slab, the remaining 3000-plus blocks built after 1998, only the secondary roof slab is installed to serve thermal insulation function. Those housing built after 1998 only needs minimum roofing maintenance as compare with the earlier batches of housing.

This photovoltaic solar roofing system may be a long term solution to improve current public roofing system. It is now timely, and considering the fact that initial investment cost of solar power has now dipped drastically and pricing is affordable for all. We are confident that ultimately solar power investment cost and electricity tariff rate will reach almost on parity, making mass implementation of this photovoltaic solar roofing system as secondary roof or main roof to be very attractive.

Our design of this roofing system is focus on resolving the current issue of 6,000 blocks of HDB flats having to do re-waterproofing carried out every 10 to 13 years. As for the remaining 3000-plus blocks, this roofing design is still applicable except without installing protective roofing sheet. This photovoltaic solar roofing system is applicable to any reinforced concrete flat roof of any buildings.

This system can also be constructed and served as main roofing for any proposed new housing building or commercial building. This system can create cost saving in overall building construction cost. For the purpose of functioning as main roofing, the adjustable prop shall be replaced with fixed concrete column or steel column.

We have designed this photovoltaic roofing system to address all issue of re-waterproofing at every 10 to 13 years cycle, minimise maintenance cost within 25 years, low cost, achieve thermal insulation comfort, easy installation and replacement, can generate some electricity power for usage and feasible for mass implementation on public housing and commercial building. (The typical details of our design and its components is as indicated in Drawings No.:ZC-01 to ZC-07).