COOLTEK

Green and sustainable home

ASEAN ENERGY AWARD WINNER 2009

The aim was to construct a simple, easily maintainable home to be five times more efficient than a standard Malaysian house also running air conditioning all day.

75% of total energy needed is generated from the sun.

20 houses just like COOLTEK will consume only the same amount of energy as one standard Malaysian house.

Harry Boswell & Stephanie Bacon

SOLAR WATER HEATING

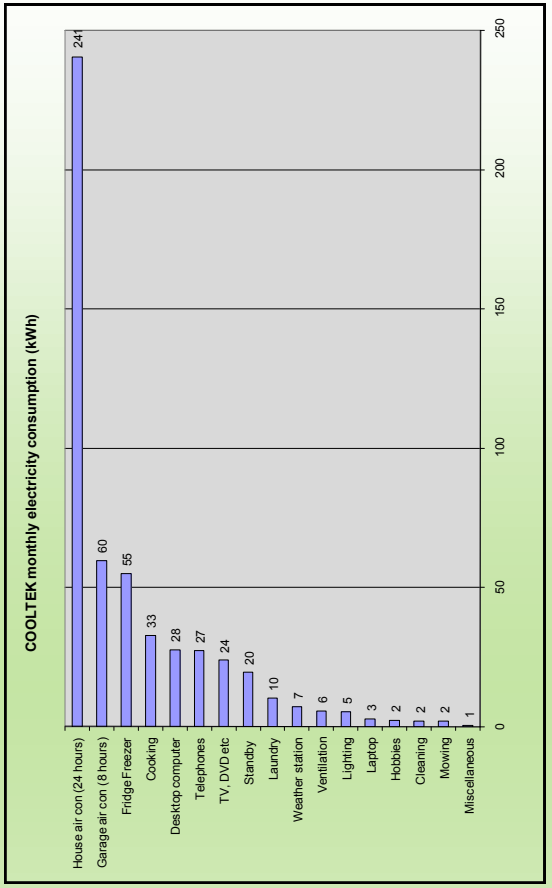
Water heated solely by a Malaysian designed and manufactured rooftop solar system. It uses glass vacuum tubes to produce an adequate supply of hot water of up to 95°C at the taps, even on dull days or early mornings.

ELECTRICITY FROM THE SUN

In October 2007, a 4.8 kW peak photovoltaic array was installed on the roof. Partially funded by the Malaysian Government and the United Nations Development Programme (56%), with the owners of COOLTEK contributing the remainder. The installation consists of forty 120Wp photovoltaic panels covering a total area of forty square metres and producing electricity, which is fed to the Malaysian electricity distribution grid. The panels also conveniently add shading to the roof.

The photovoltaic system is currently providing around 75% of the present COOLTEK power demand, see

http://pvmc.uitm.edu.my/pvmc/p1colltek.htm



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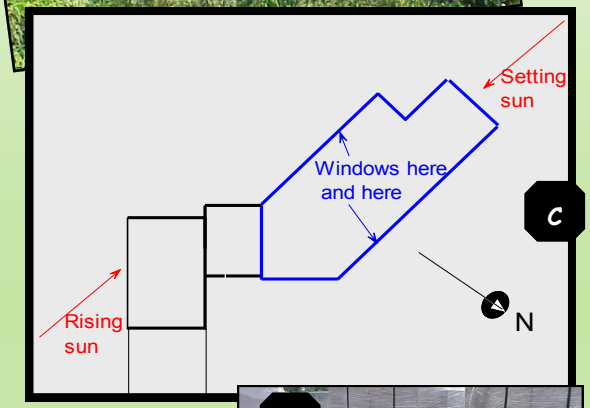
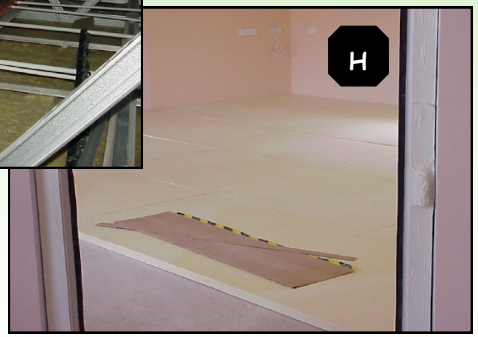
COOLTEK – HOW IT WORKS





LEAFLET SPONSORED BY
CSR BUILDING MATERIALS (M) SDN BHD
FREEPHONE 1800-88-1212

A. SHADED BY SURROUNDING TREES	Helps to stop the heat from the sun warming up the building.
B. PROTECTED BY THE WHITE STEEL ROOF, LINED WITH HIGH QUALITY ALUMINIUM REFLECTIVE FOIL	The white colour roof reflects much of the sun's heat during the day thereby reducing the radiation of heat down into the roof space. The wide roof overhangs shade the single storey walls and importantly the recessed windows. The complete steel roof structure allows most heat accumulated during the day to dissipate quickly after the sun sinks below the horizon.
C. ORIENTATED WITH WINDOWS FACING ONLY NORTH AND SOUTH	Avoids the direct sun, at any time, from entering the house through the windows.
D. VENTILATIED FROM BENEATH THE GROUND	Brings cooler and filtered fresh air into the house.
E. INSULATED WALLS OF 250 mm THICK CSR AERATED AUTOCLAVED BLOCKS, WITHOUT STEEL/CONCRETE FRAME	Resists much of the heat and sound from outside passing into the rooms, as well as keeping much of the air conditioned coolness from being lost.
F. DOUBLE GLAZED WINDOWS WITH LOW-E COATING AND ARGON GAS FILLED GAP	Ensures that heat cannot pass easily though to the inside of the house as well as resisting sound, stopping condensation and aiding security.
G. INSULATED CEILING WITH 50 MM DENSE ROCKWOOL BLANKET	Resists heat from radiating down into the rooms.
H. LAMINATED WOODGRAIN FLOOR WITH UNDER LAYER OF 50 MM THICK POLYURETHANE	Lessens the amount of air conditioned coolness being lost into the concrete floor slab.
I. EFFICIENT INVERTER AIR CONDITIONING UNIT	A multi split unit, with just one outdoor compressor and four internal units, chosen for its high energy efficiency and filled with ozone safe hydro fluorocarbon refrigerant gas.
J. ENERGY EFFICIENT EQUIPMENT AND APPLIANCES	For example; - LCD screens, microwave and induction cooking appliances, fridge/freezer location and all lighting is fluorescent.