

# COOLTEK

Energy Efficient Home, Tiara Golf Resort, Melaka, Malaysia  
Stephanie & Harry Boswell, [cooltek@streamyx.com](mailto:cooltek@streamyx.com)



Summary by:

Gregers Reimann, IEN Consultants, [g@ien.com.my](mailto:g@ien.com.my), [www.ien.com.my](http://www.ien.com.my)

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## ROOF

- white metal sheets (15° pitch)
- aluminum foil (radiant barrier)
- 50 mm hard rockwool (insulation)
- aluminum ceiling (2.5 m height)
- large eaves (> 1 meter)

## WINDOWS

- double pane
- low-e
- argon gas
- non openable
- north/south orientation

## VENTILATION

- ground cooled intake
- no regulation



## SOLAR PHOTOVOLTAIC

- 4.8 kW<sub>p</sub> system under the Malaysian Suria1000 program
- 16 kWh/day (avr. production)



## WALLS

- 250 mm aerated concrete
- load bearing walls
- white

## SOLAR CHIMNEY

- fridge/freezer 'exhaust'
- 'pulls' exhaust air out

## SOLAR HOT WATER

- MicroSolar system

## AIR-CON

- 4 units
- shared condenser
- variable speed drive
- R410A HFC refrigerant
- COP = 3.2

## FLOOR

- 50 mm polyurethane insulation
- vapour barrier

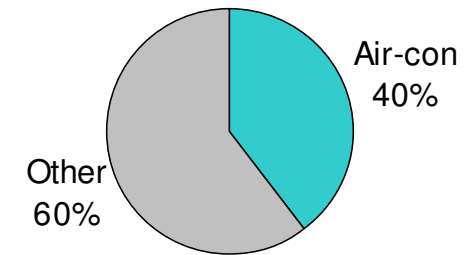
## DOORS

- double pane
- double seals (air tight)





**Electricity bill:  
RM 136 per month**



### **INDOOR CLIMATE**

- 24 hour air-con (1 unit sufficient)
- air-con set point 24 °C
- 55% relative humidity
- ground cooled (25-26 °C) ventilation

### **ELECTRICITY BILL**

- 1.8 RM per day for air-con only
- 136 RM per month total

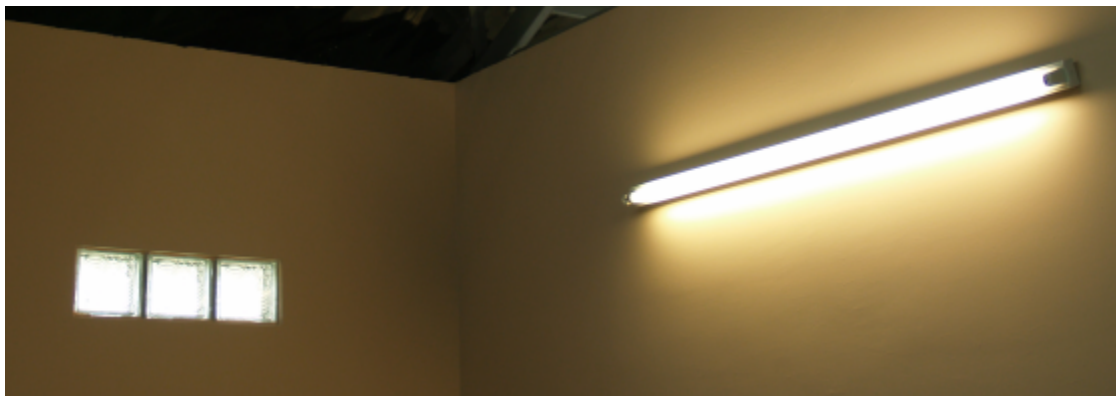
# Appendix

# Energy Efficient Lighting



## **LIVING ROOM**

- compact fluorescent light bulbs
- mirror reflector



## **GARAGE**

- fluorescent T8 tubes
- electronic ballasts
- daylight glass wall blocks

# Energy Efficient Windows



## **DOUBLE PANE WINDOWS**

- low-e (emissivity)
- argon gas filling
- pushed back in wall recess
- well shaded

