

Ecoweek2010
designing a zero-carbon emission house
Loutsa, Attica, Greece

ΥΠΕΚΑ
Kaloumenou Eleana
Zerboudaki Eleana
Des Broses Frederic
Theodorou Anastasia

ΕΠΙΒΛΕΠΟΝΤΕΣ – ΚΑΘΟΔΗΓΗΤΕΣ - ΕΙΣΗΓΗΤΕΣ

Μωραϊτης Κων/νος Αρχ. Καθηγητής ΕΜΠ

Παπανδρέου Βασίλης Αρχ. Μηχ.

Ξενάκης Μενέλαος Αρχ. Μηχ.

Κολίρη Μυρτώ Αρχ. Μηχ.

Ευθυμιάδης Απόστολος Η/Μ Μηχ

Μαντάς Δημήτριος Η/Μ Μηχ.

Μαλτέζος Γρηγόρης Μηχ.

Γκύλλης Γιάννης Χημ. Μηχ.

Παπαχριστόπουλος Κων/νος Αρχ. Μηχ.

ΟΜΑΔΑ ΥΠΟΣΤΗΡΙΞΗΣ ΥΠΕΚΑ / ΔΟΠΚ / Γ' Τμήμα

Μαρκοπούλου Σοφία Αρχ. Μηχ. Δ/ντρια ΔΟΠΚ

Αλεξάντερ Λώρεν Γραφίστρια

Ανδρεαδάκης Ανδρέας Μηχ. ΤΕΙ

Κοσμόγλου Φούλη Αρχ. Μηχ.

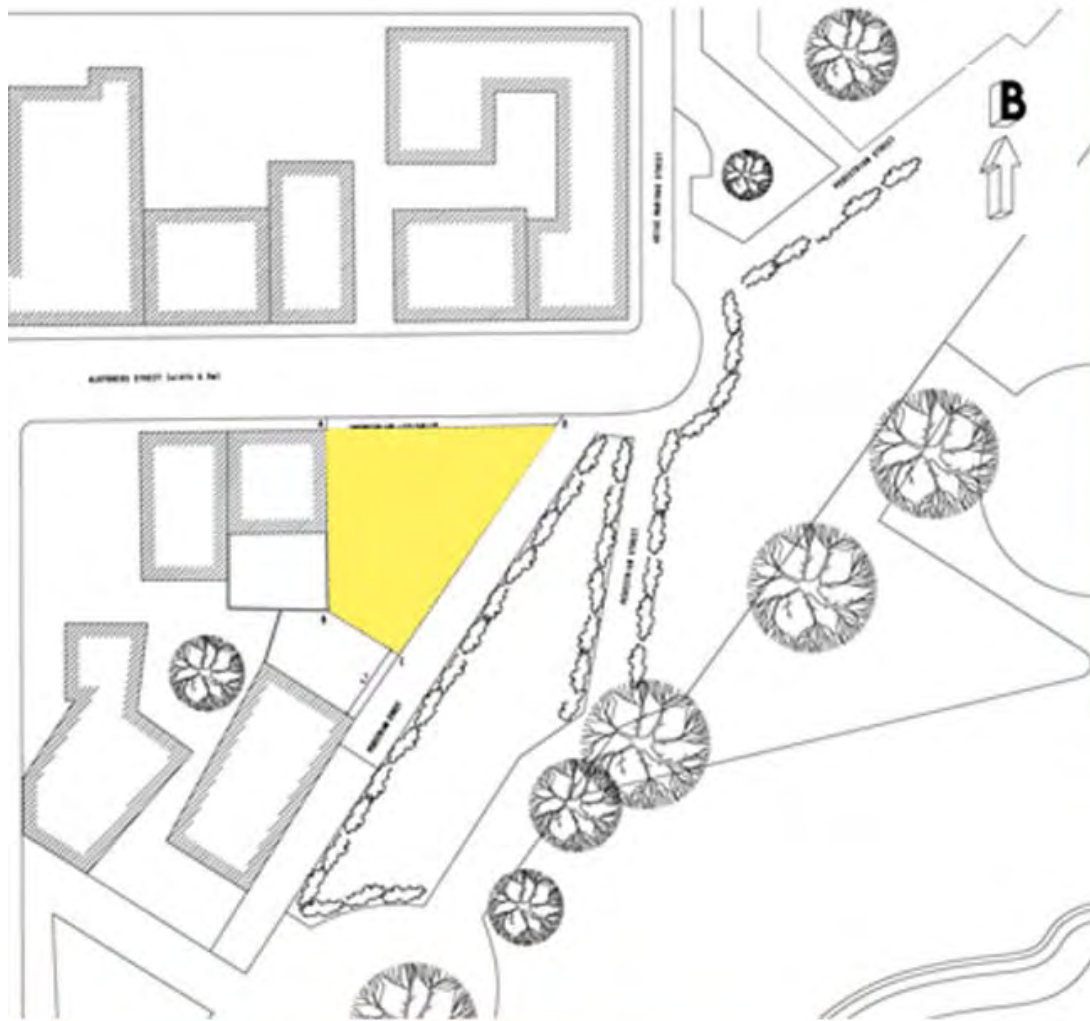
Μπαρκούρας Ηλίας Αρχ. Μηχ.

Μόμτσιου Κατερίνα Αρχ. Μηχ.

Ναούμ Μάγδα Πολ. Μηχ.

Παπαδοπούλου Μαρίκα Αρχ. Μηχ.

Παπαδάκη Καλλιόπη Αρχ. Μηχ. ΥΠΕΚΑ / ΔΕΕΑΠ



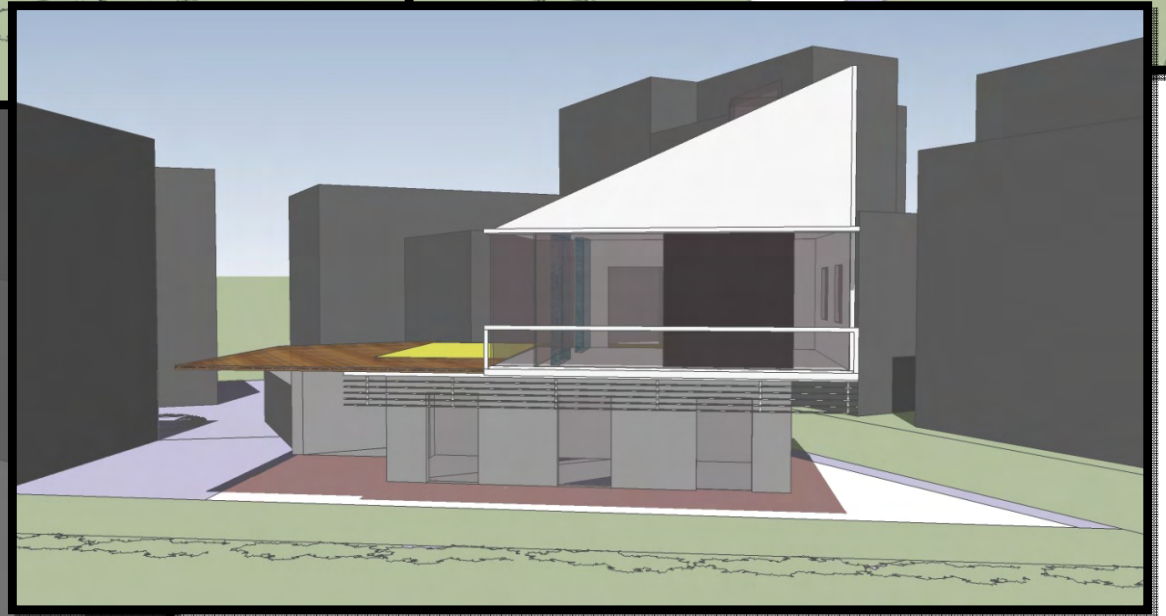
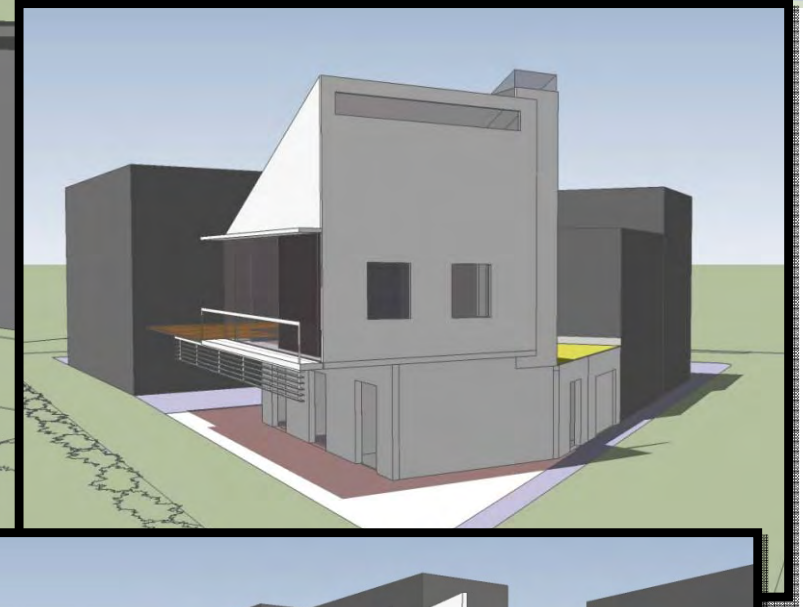
The plot is oriented south with unobstructed sea views. The shape of the plot is polygonal. In the building surroundings are low in construction. Solar gain on the plot is strong and gives the site potential energy earnings. The proximity of the sea provides additional indirect radiation. The North winds that blow in the area can be used for cooling and ventilation of the building. The building orientation should be protected from radiation in the summer.

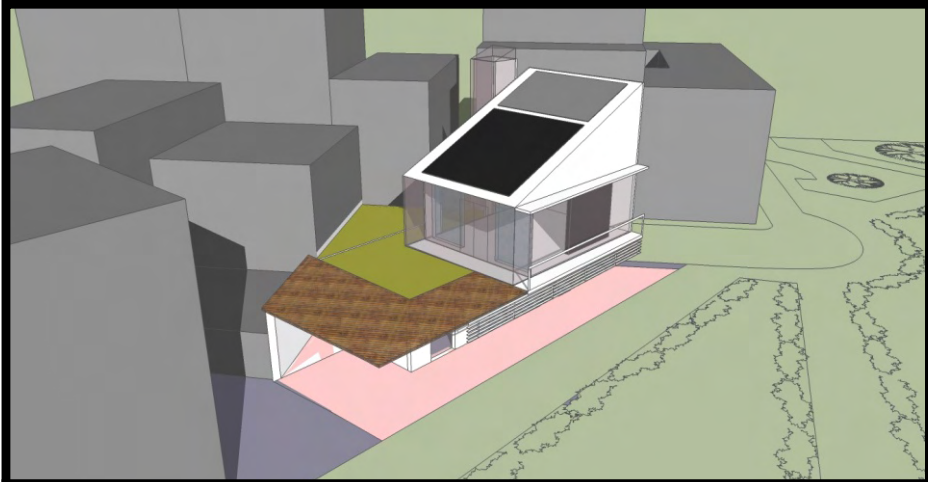




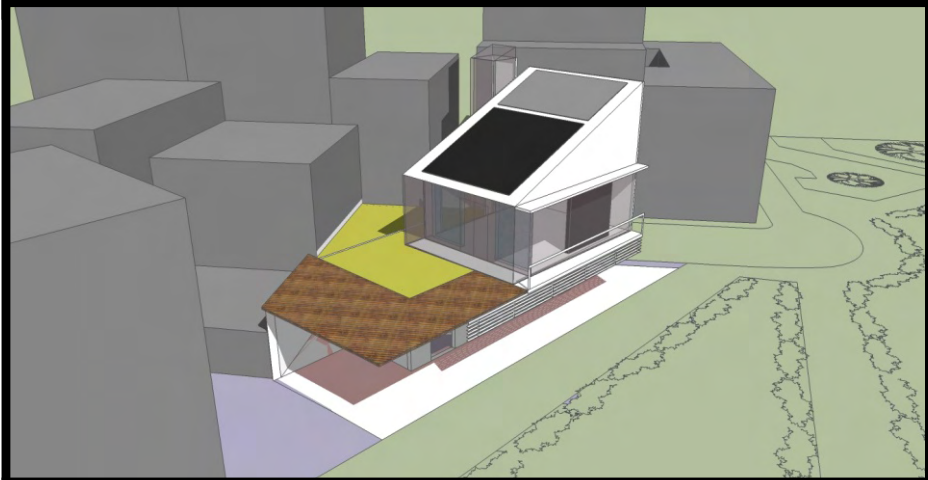
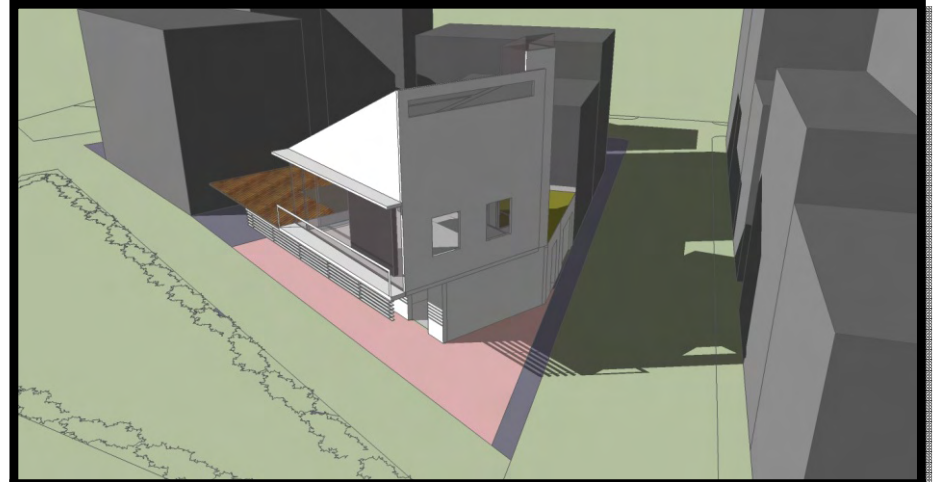


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YPEKA Kaloumenou Eleana /Zerboudaki Eleana /Des Broses Frederic /Theodorou Anastasia

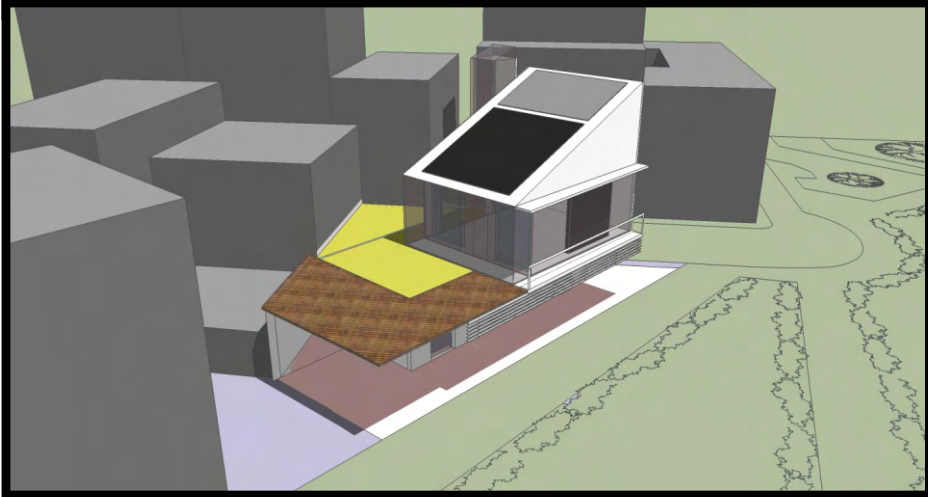




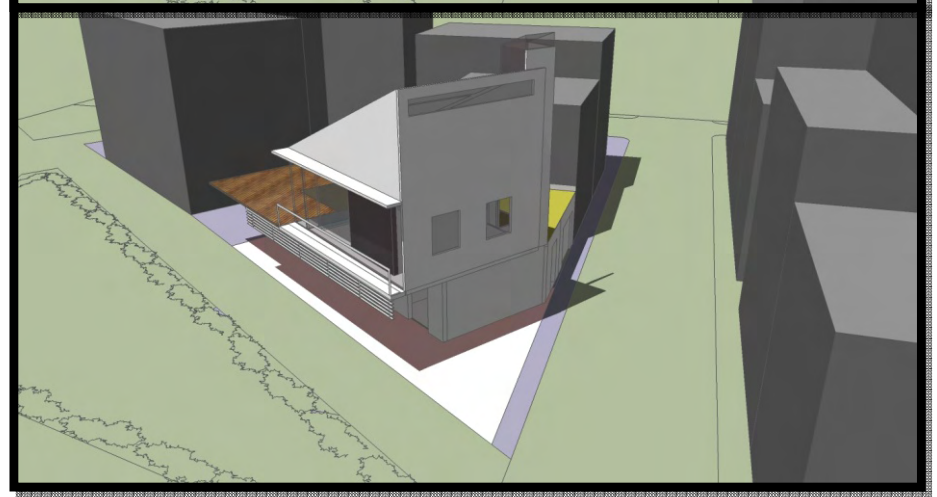
21december

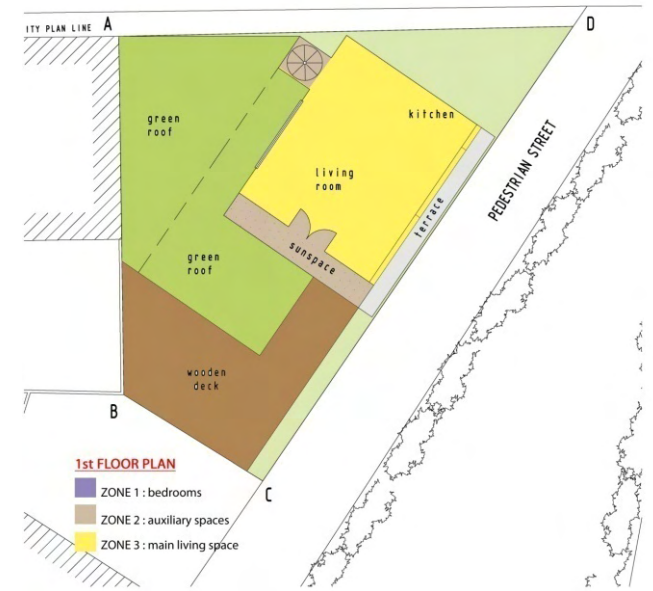
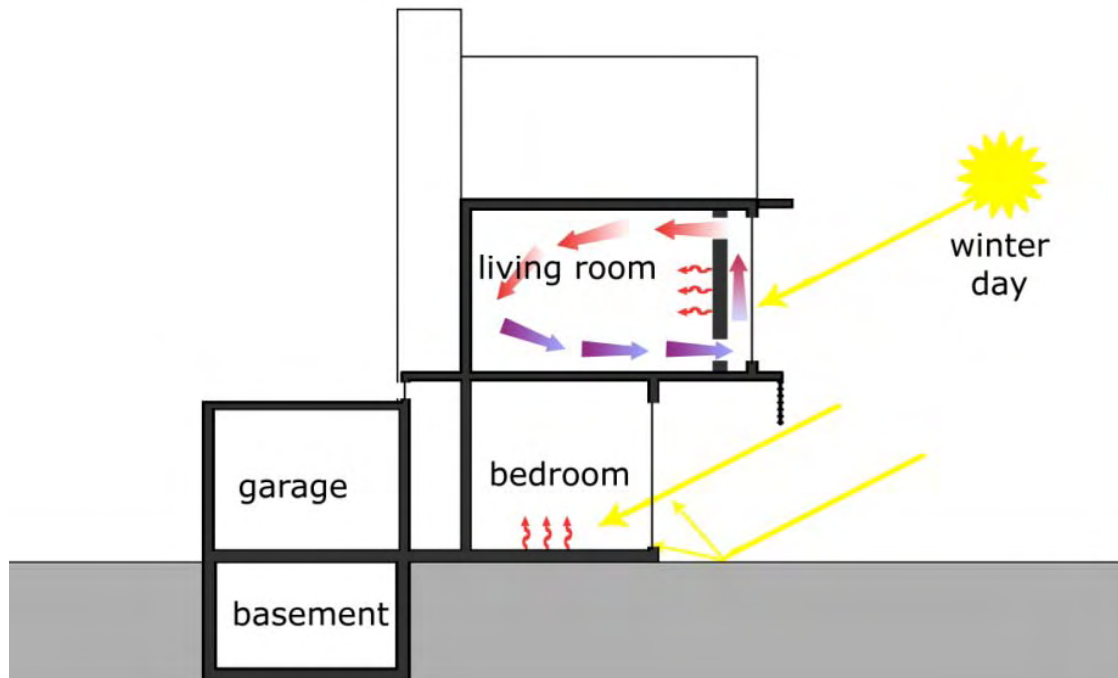
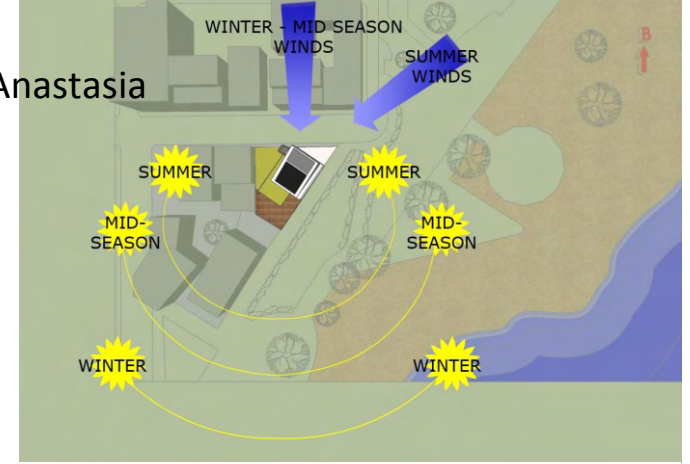
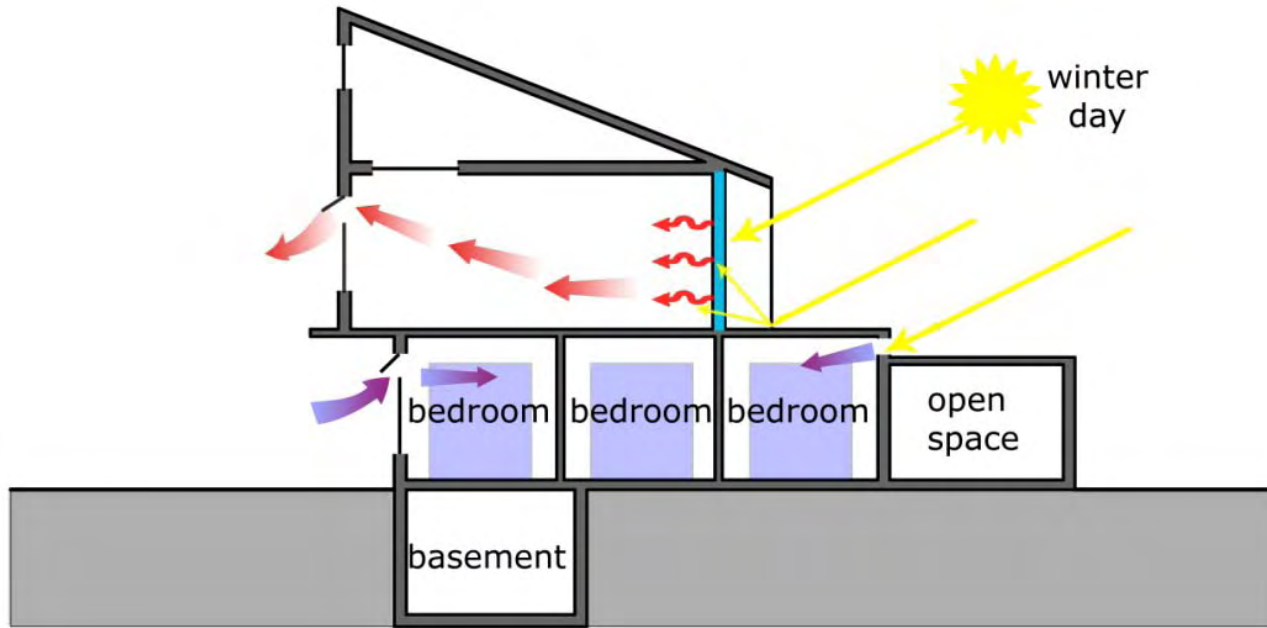


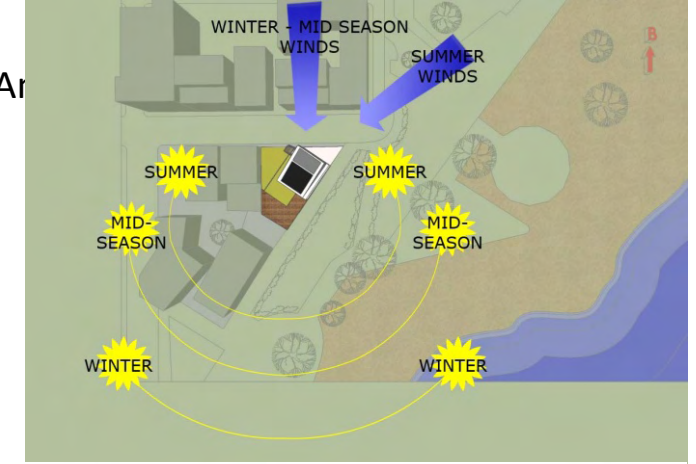
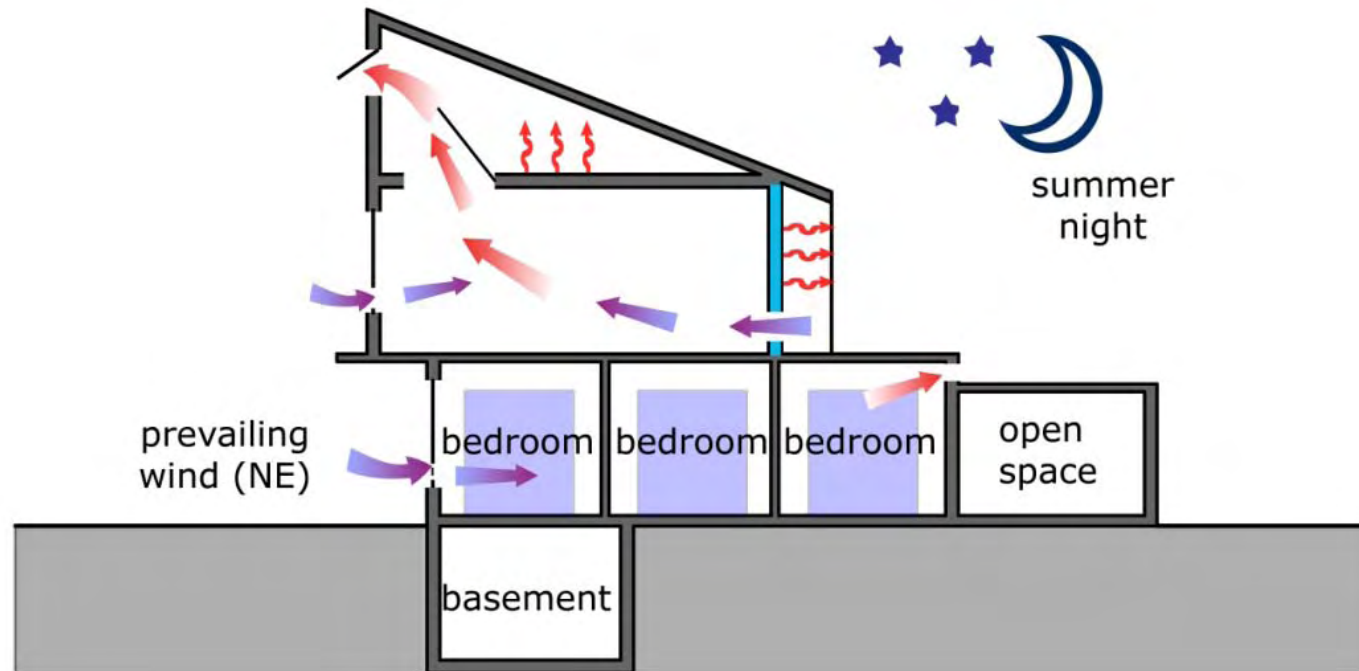
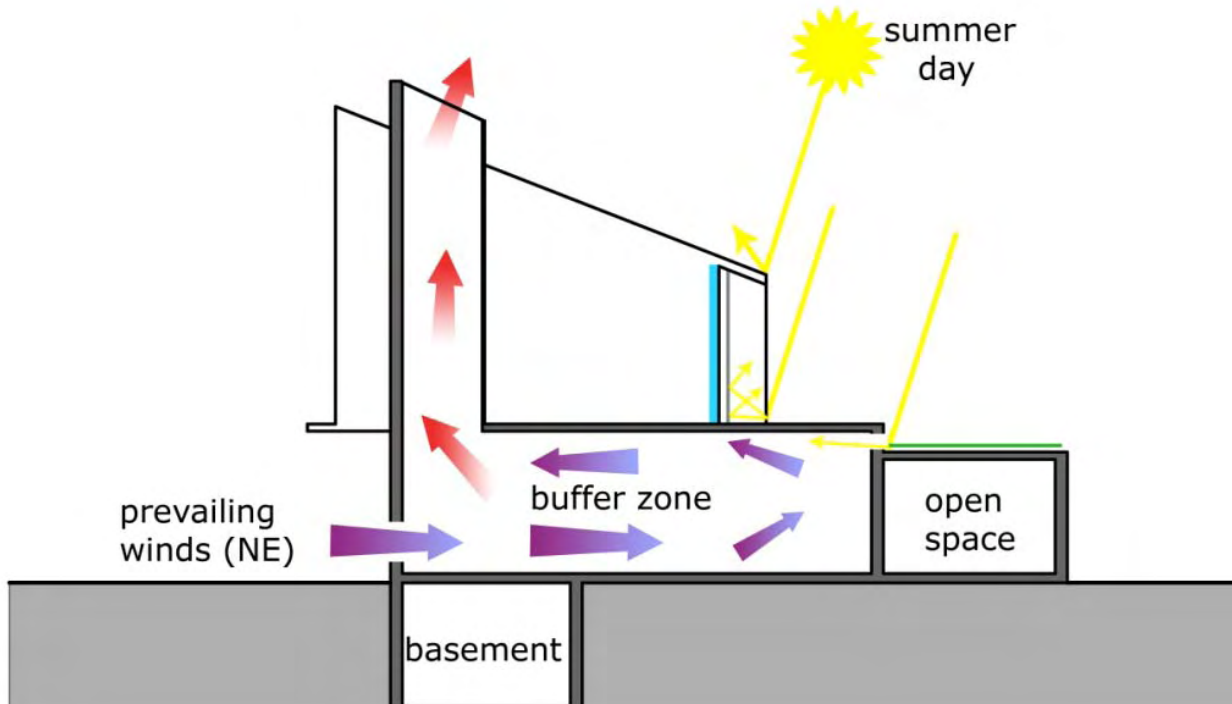
21march



21june







Active design strategies

1. Thermal solar - flat plate collectors:

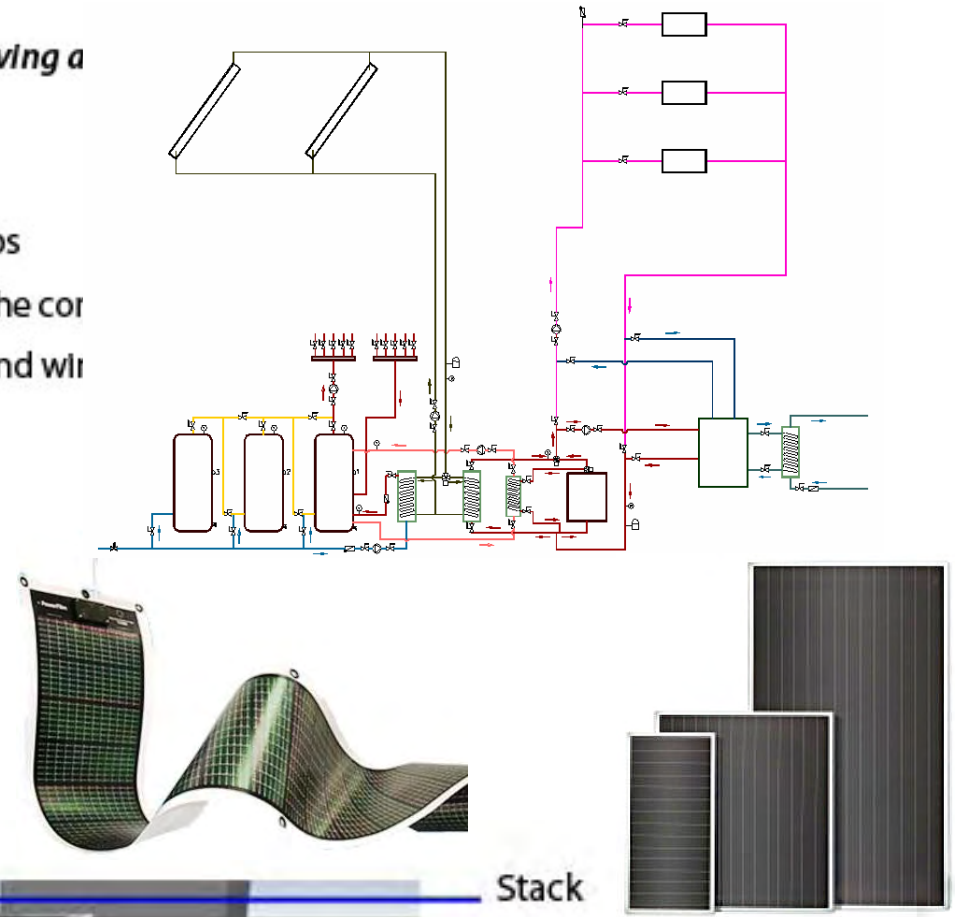
- hot water for bathing etc
- hot water for heating combined with underfloor heating and supplementary oil boiler
- hot water for absorption cooling

2. Photovoltaic thin film panels - 11% efficiency, 25 sq.m. surface = 3kw/y installed capacity

- Lighting, appliances, pumps, converters etc. excluding cooking

Supplementary Energy Saving a CO₂ Reduction Strategies

1. energy saving light bulbs
2. recycled aggregates in the cor
3. wood frames in doors and wll
4. local building materials

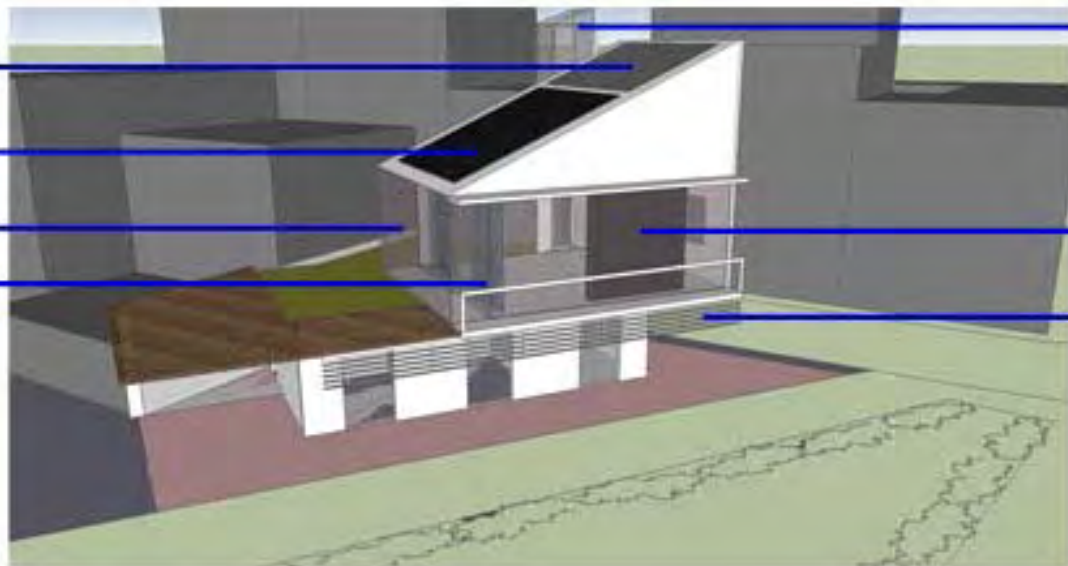


Flat plate collectors

Thin film PV

Sun Space

Water filled glazed walls



Stack

Trombe Wall

Horizontal fixed louver

