

# Villa Bio

## Figueres, Spain

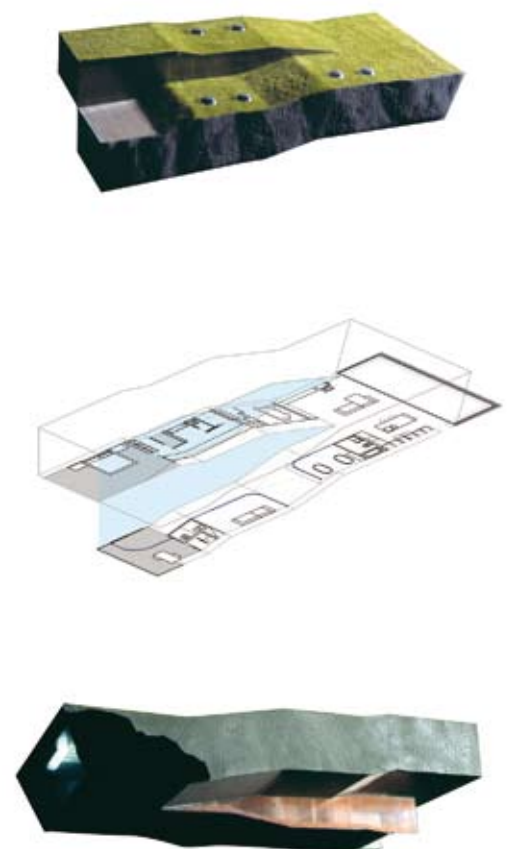
### Cloud 9

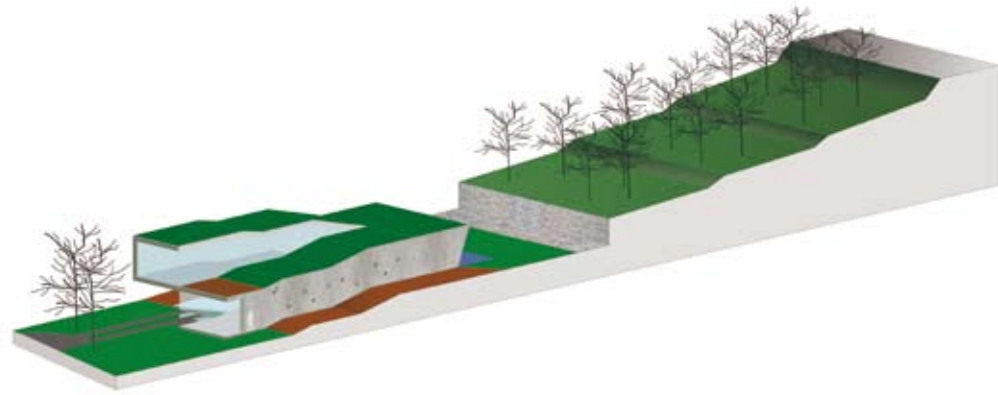


Enric Ruiz Geli, director of Cloud 9 studio since 1997, was born in Figueras, Spain in 1968. After a degree from the ETSAB of Barcelona completed his training abroad. Visiting Visual Artist at the ZKM in Karlsruhe, with a scholarship from Krtu, Generalitat de Catalunya. From 1995 to 2000 he was associate set designer for Bob Wilson: "Danton's Tod", Salzburger Festspiele and "Time Rocker", Thalia Theater, Hamburg. He has directed theater projects, scenography, ephemeral architecture, exhibitions, interventions and events, in which he investigates and experiments with new forms of communication between space and society, from fiction to reality. At the same time, he applies these investigations in the form of prototypes and "case studies" with the goal of bringing digital architecture to the real world, applying CAD-CAM construction processes. He is curator of the Spanish Pavilion of the V Biennial of Architecture in São Paulo. His most renowned architectural projects are: Morphorest, Forum of Cultures, Barcelona; Villa Bio, Figueres; Aviary, Marine Zoo, Barcelona, Barcelona City Council; Hotel Habitat, Barcelona for Habitat Imobiliary group that is scheduled to open in 2008.

location: Hostalets de Llers, Figueres (Girona), Spain  
 completion of construction: July 2005  
 architect: Enric Ruiz-Geli  
 interior design: Manel Soler Caralps  
 structure: Manel Raventós  
 technical planner: Arantza Garetaonandia  
 constructor: Antonio Diosdado  
 installations: Joaquim Ribes Quintana  
 natural roof: Jardines Burés  
 landscape design: Joan Madorell  
 glass work: Cricursa  
 glassrocks: Emiliana Design Estudio  
 steel work: Aluminis Empord  
 visuals: Laia Jutglà  
 pavement: Pavindus  
 moving surfaces: Panelite  
 fixed surfaces: Japlac  
 site area: 359 sqm

photo by Yoshio Shiratori





Il tetto della villa è ricoperto di roccia vulcanica, materiale tradizionalmente utilizzato in queste zone come isolante termico e come componente per fabbricare il cemento alleggerito. La roccia vulcanica è impiegata in Spagna nell'architettura da esterni per la sua porosità, poiché, mescolata con altri componenti, ossigena il substrato su cui cresce la vegetazione.

Inoltre, per via della sua scarsa densità, è comunemente utilizzata come componente di base per tetti-giardino al posto della sabbia o della ghiaia. La roccia vulcanica è particolarmente diffusa nel nord della Spagna e può avere origine locale o provenire da altri paesi, come la Francia. In questo edificio i massi più grandi hanno solo scopo decorativo.

La copertura non ha un sistema di irrigazione. Quando piove, l'acqua viene raccolta e drenata e l'innaffiamento delle piante avviene per risalita capillare. Le specie presenti sono adatte ai climi mediterranei: quella più diffusa è la *Astenia Cordifolia* (dall'Africa meridionale), ma ci sono anche altre specie come la *Lavandula Angustifolia*, il *Thymus Vulgaris* ed il *Rosmarinus Officinalis*. Queste piante hanno la funzione di isolare l'interno della casa sia dal caldo che dal freddo, con un risparmio notevole di energia.

La struttura della copertura della Villa Bio è stata così realizzata: sopra uno strato impermeabile ne è stato sovrapposto uno di geotessile, materiale permeabile usato sia per proteggere gli strati resistenti all'acqua che per drenare.

Questo primo strato di geotessile è stato ricoperto di roccia vulcanica, usata come isolante e drenante, sopra la quale è stato aggiunto un altro strato di geotessile e infine il materiale organico elaborato dalla Bures S.A. appositamente per questo progetto.

Questo ultimo strato preserva il manto verde da una eccessiva evaporazione ed aiuta a limitare l'erosione. Il sistema usato per la copertura di Villa Bio è stato sviluppato da Imma Garcia e Silvia Bures, ed è frutto di una ricerca congiunta tra la Bures S.A., compagnia specializzata nella fornitura di substrato da copertura, e la sua filiale, la compagnia Jardimper, specializzata nella progettazione ambientale sostenibile.

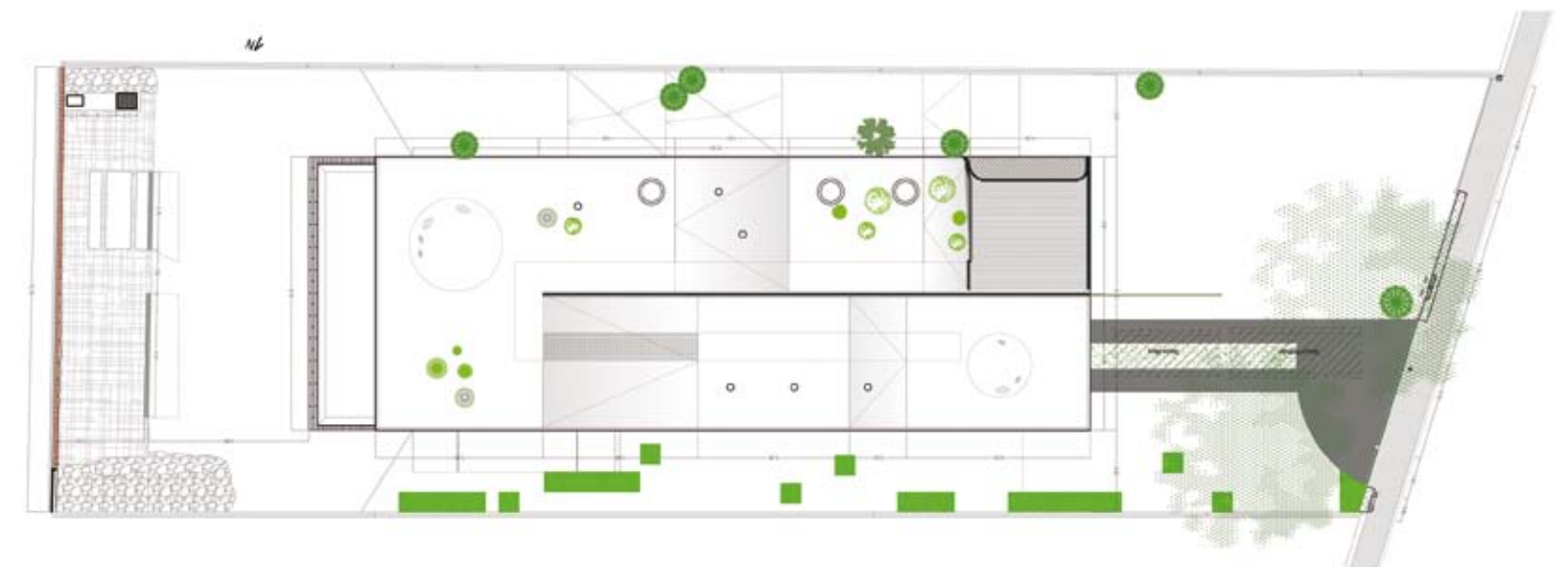
The roof was covered with volcanic rock, being this a material that has been traditionally used in our areas as heat insulator and to make light concrete in construction. Volcanic rock is used in Spain in landscaping because of its porosity, because when it is mixed with other components, it adds aeration to the growing medium. Furthermore, because its density is very low, it is commonly used as a component of growing media for green roofs instead of sand or gravel. Volcanic rock is used in the North of Spain and it can be of local origin or from other European countries, like France. Bigger volcanic rocks were used in this case for decoration.

The cover does not have an irrigation system. As the roof collects rainwater, water is kept on the drainage layer and it is used for watering the plants through capillary rise. Plants that were used are adapted to mediterranean climates. The main species is *Aptenia Cordifolia* (South Africa), and there are also other Mediterranean plants like *Lavandula Angustifolia*, *Thymus Vulgaris* and *Rosmarinus Officinalis*. This type of roof provides insulation from hot and cold weather. These systems are used to save energy.

The process for the Villa Bio cover make-up was: we extended a layer of geotextile over the waterproof layer on top of the building.

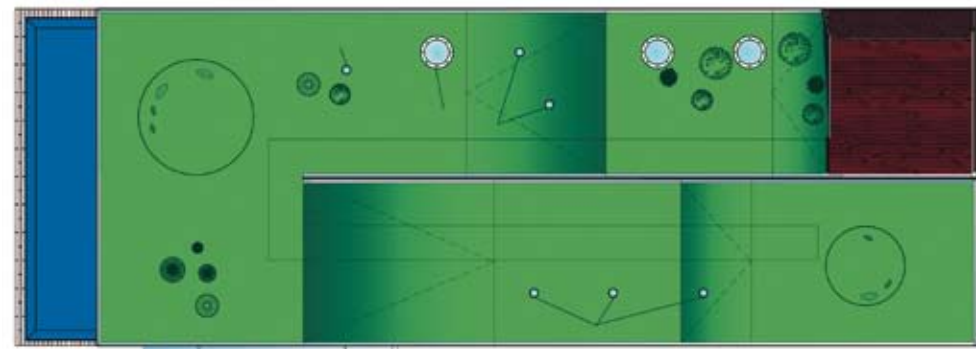
The geotextile is a permeable fabric which is used to protect the waterproof layer and also to separate two different layers of substrate materials, being used as well for drainage purposes. This first geotextile fabric was covered by a layer of volcanic rock. Over the volcanic rock that was used as insulator and drainage layer, we put another geotextile fabric, and then the organic substrate especially developed by Bures S.A. This final layer keeps the cover from excess of evaporation and helps control erosion.

The system used in the Villa Bio cover was developed by Imma Garcia and Silvia Bures, from a joint research project between Bures S.A., a Company specialized in manufacturing growing media, and its filial Company Jardimper, specialized in sustainable landscaping.

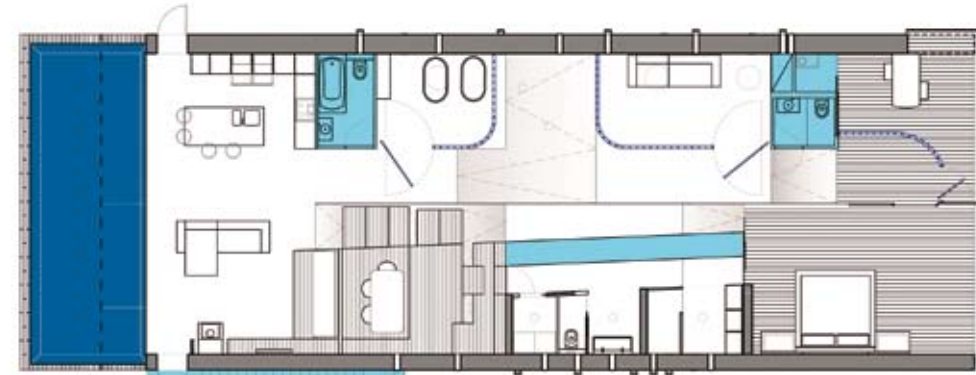


site plan

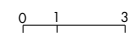
0 1 3



first level plan



ground level plan

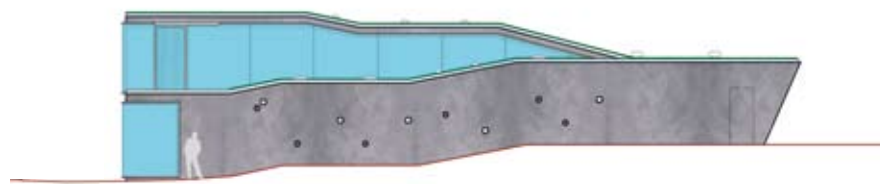
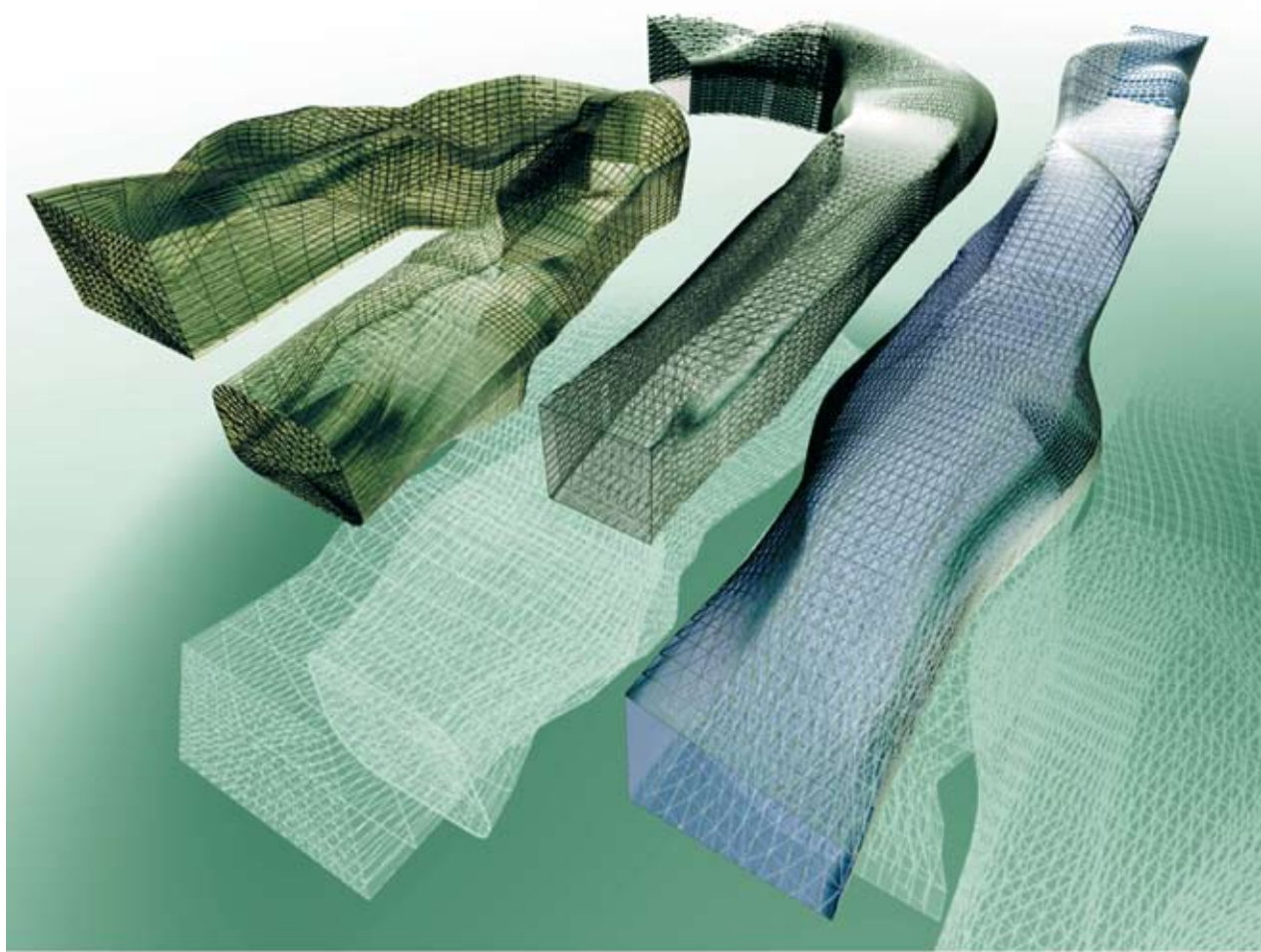


section C-C'

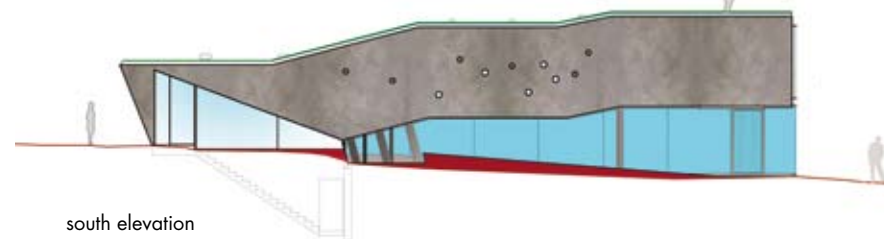
section D-D'

section B-B'

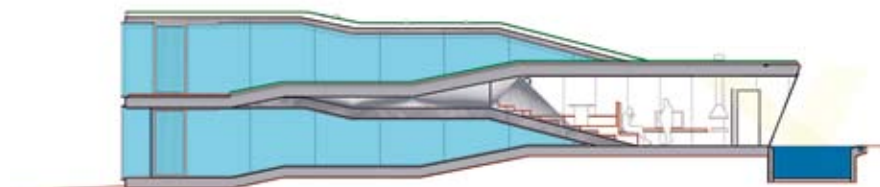
section A-A'



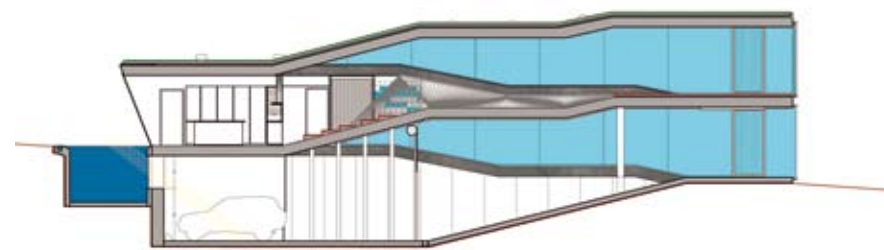
north elevation



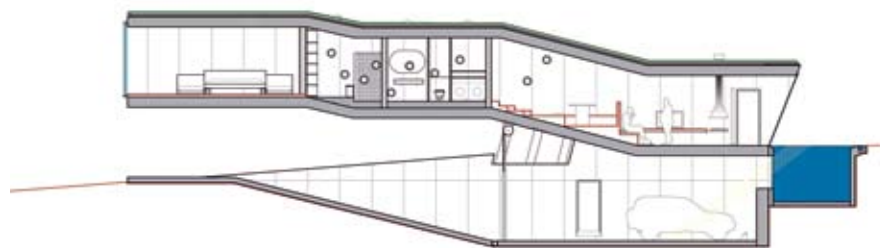
south elevation



section C-C'



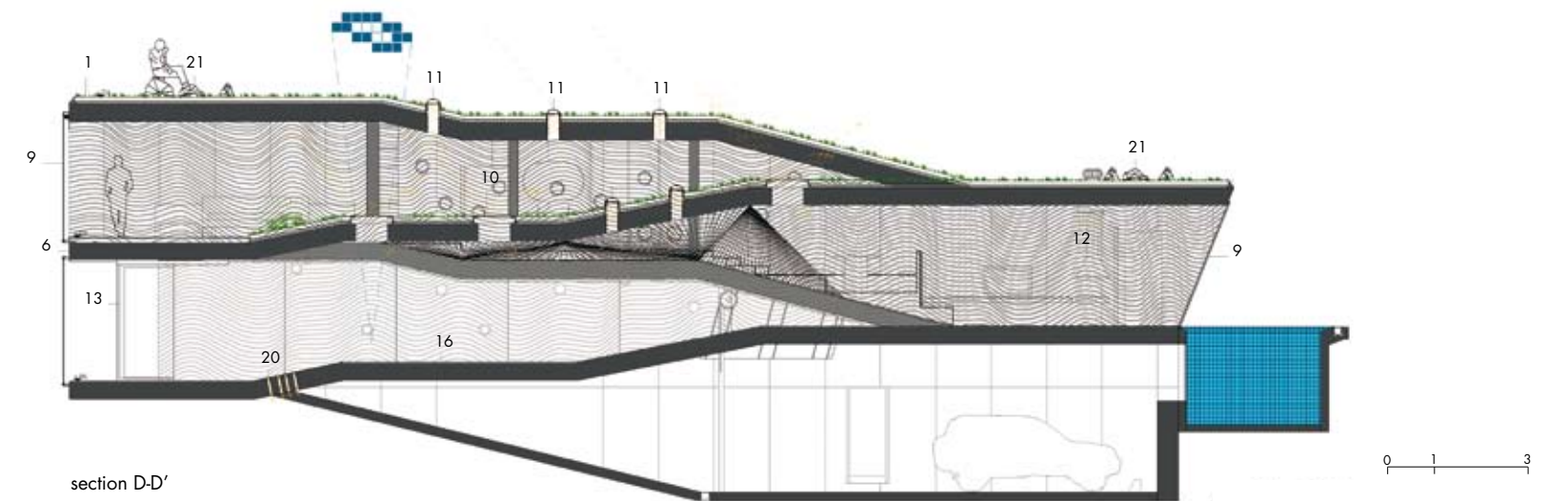
section A-A'



section D-D'

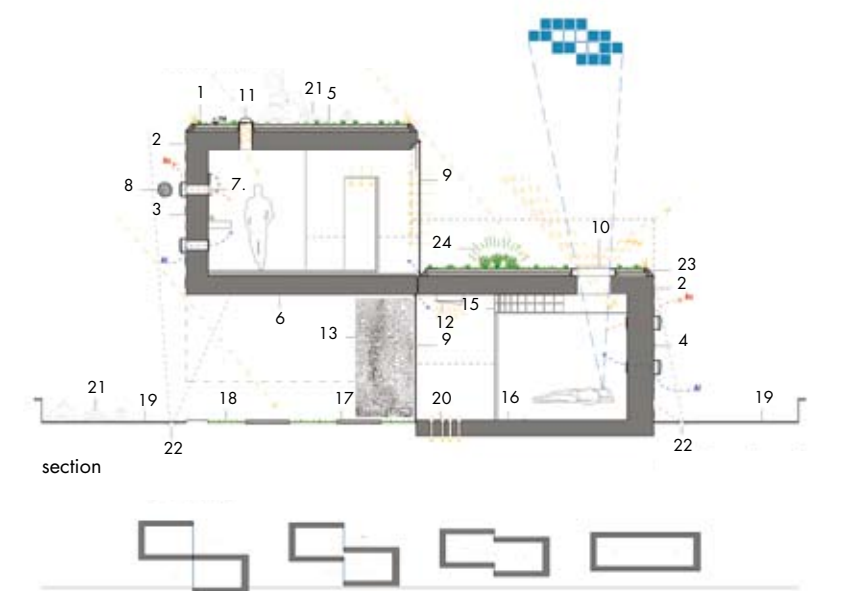


section B-B'



section D-D'

1. garden
2. concrete façade
3. concrete façade 45x30 cm
4. concrete façade 50x340 cm
5. concrete roofing framework
6. concrete flooring framework
7. air grating
8. glass stones made by Emiliana design
9. vertical laminated glass frames
10. skylight 70 cm
11. natural light duct
12. Sivra lighting system by iGuzzini
13. screen with topographic texture
14. waterproof reinforcement
15. Luz de Pavés surface
16. industrial flooring
17. garage ramp
18. meadow
19. volcanic stones
20. antislip glass
21. volcanic stones
22. external lighting Linealuce, iGuzzini
23. green coloured leds
24. aromatic herbs



transversal sections