

ECUADOR



ECUADOR, Pichincha

Programa de Vivienda Rural

CONCEPT FOR ENGERGY EFFICIENT & SUSTAINABLE BUILDING

CONCEPT

Why aren't we building more
tools that work in the
places where problems exist
and giving control of the
tools to those users?

Ken Banks

GREEN URBAN ECONOMY

"The principle of sustainability is the only option for responsible global action to protect our ecosystems and thus ensures the survival of future generations."

Olaf Tschimpke

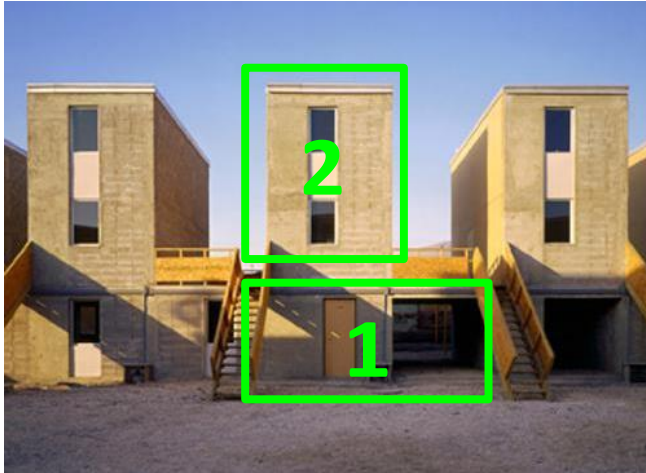


Ghetto



vs. Community

BASIC CONCEPT [based on „The Elemental”^{*})



Basic Version:

- „L“-Building: 3-story-part, combined with 1story-part. Space for 2 families



Possible Final Version:

- future feasible construction on the 1story-part
- Reimbursement and realizing by the occupant
- Increase construction possible at any time

^{*}) The Elemental Iquique, by Alejandro Aravena

SUSTAINABILITY

DEVELOPMENT DENSITY – BUILDING FOOTPRINT

- Mitigation of the urban heat island effect
- promote biodiversity and recreation
- natural storm-water management

ENERGY EFFICIENT BUILDINGS – PRESERVATION OF RESOURCES

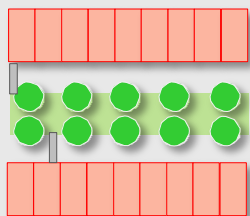
- Building Insulation
- Use of Solar Water heating
- Energy production by Photovoltaic
- Rainwater Harvesting

SOCIAL RESPONSIBILITY

- Involving residents
- Transfer of responsibility to the residents
- Creation of employment
- Awareness of value perception



DEVELOPMENT DENSITY – BUILDING FOOTPRINT [EXAMPLE]



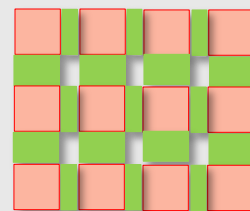
Step #1:

19 homes 3,5 x 7,0 m x 2	=	931 sqm
Area: 31,5 x 25,0 m	=	788 sqm
Living space per family	=	49 sqm
Density per square meter	=	0,85



Step #2:

23 homes 3,5 x 7,0 m x 2	=	1,127 sqm
Area: 31,5 x 25,0 m	=	788 sqm
Living space per family: up to	75 or 98 sqm	
Density per square meter	=	0,70



Step #1:

12 homes 6,0 x 6,0 m	=	432 sqm
Area: 30.0 x 26.0 m	=	780 sqm
Living space per family	=	36 sqm
Density per square meter	=	1.81

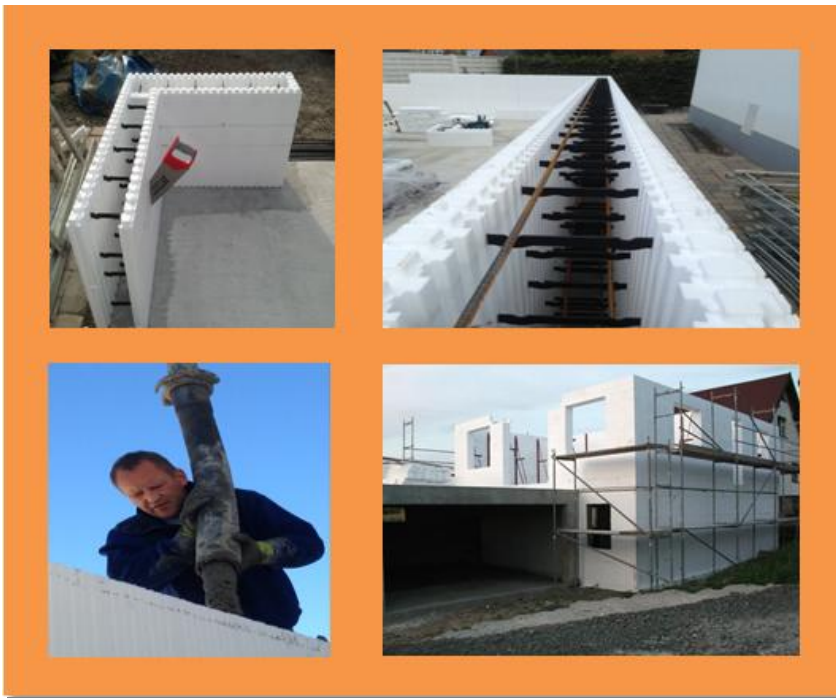


Step #2:

not possible

BUILDING INSULATION

saving of energy
carbon reduction



BUILDING INSULATION

- gives comfort for the residents in cold and hot seasons
- is saving energy
- is saving money
- is reducing the carbon dioxide
-

ENERGY PRODUCTION BY PHOTOVOLTAIK

saving of energy
carbon reduction

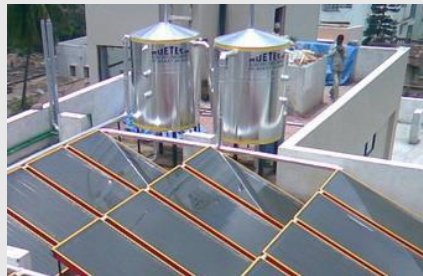


PHOTOVOLTAIC

- generated energy is for free
- is saving energy
- is making money
- is reducing the carbon dioxide
- can be run as an investor model
-

SOLAR WATER HEATING

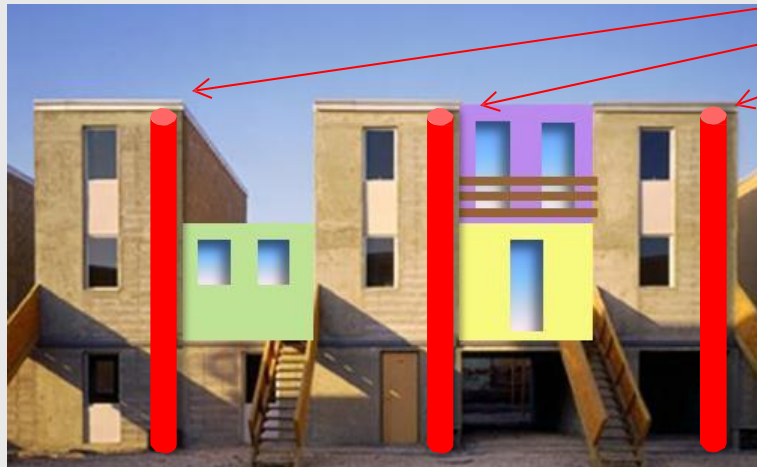
saving of energy
carbon reduction



SOLAR WATER HEATING

- gives comfort for the residents
- hot water is getting for free
- is saving energy
- is saving money
- is reducing the carbon dioxide
-

RAINWATER HARVESTING



Rainwater Tanks



RAINWATER HARVESTING

- ensure an independent water supply during water restrictions
- produces beneficial effects by reducing peak storm water runoff
- is saving money – no running costs
- conserves resources
-

SOCIAL RESPONSIBILITY



SOCIAL RESPONSIBILITY

- Model for future Green Urbanism
- Transfer of responsibility to the residents
- creating jobs
- prevention of crime
-

BENEFITS

- less building footprint by high density in spite of open undeveloped area
- sustainable buildings by using solid materials for the shell
- low cost buildings, due of building only the basic level [shell]
- low building cost of the interior by providing only the material. Work is doing by the residents → saving of labor cost
- solar technologies can be financed by an investor
- saving cost of maintenance by high responsibility of the residents
- saving of Energy cost in the future
- saving carbon – green carbon footprint
- getting supported by different government programs [e.g. German Bank KfW, etc.]

SUMMARY

“Cities can and should play a leading role in greening economies – in both developed and developing countries.”

UNEP-Report “Towards a Green Economy”

*** Interested ?**

we create a detailed feasibility study and business plan

CONTACT

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- architectural drawings
- static and support
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