

BENCHMARKING WORLD EXAMPLES OF HOUSING TYPOLOGY FOR THE CITY OF KIGALI



Europe Aid/127054/C/SER/multi

HOUSING MARKET DEMAND,
HOUSING FINANCE
AND
HOUSING PREFERENCES
FOR THE CITY OF KIGALI

BENCHMARKING WORLD EXAMPLES OF HOUSING TYPOLOGY FOR THE CITY OF KIGALI

Q1

DHARAMSHALA SET IN STONE

Rajasthan

2009

ARCHITECT Matharoo Associates

CLIENT K.P Sangvi charitable trust, Shri pavapuri tirth dham jeev maitri dham

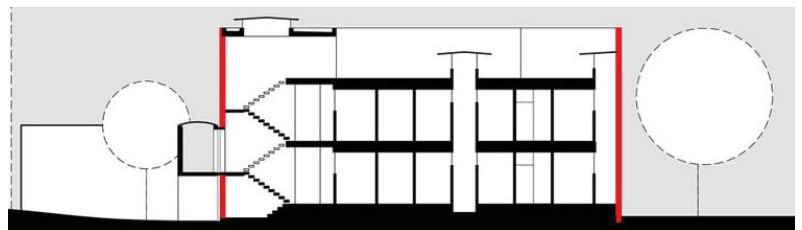
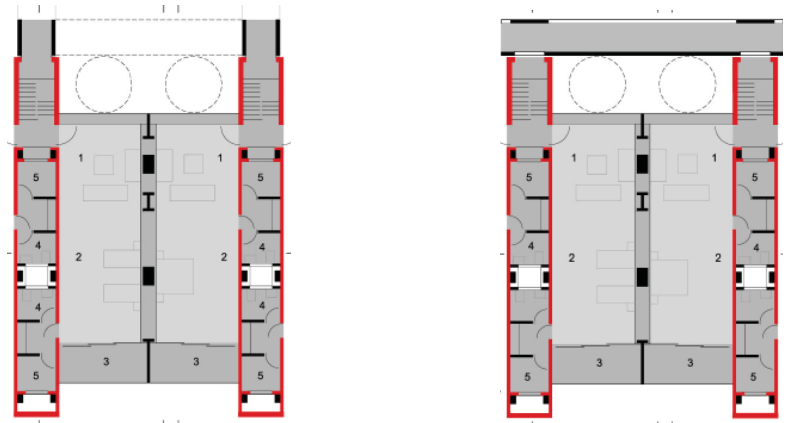
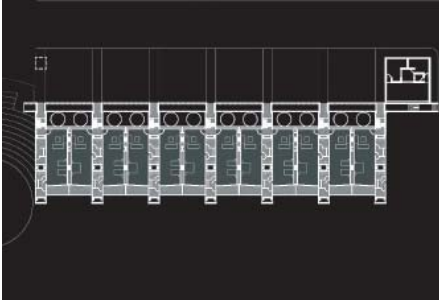
GFA 3100 sq.m

DWELLING TYPES/NUMBER

24 apartments

DWELLING SIZE 75 sq.m.

N FLOORS 2



The 24 rooms reflecting the 24 Tirthankaras, are spread over a series of modules that are fully self sufficient, each having its own services and circulation. The modules are tied together by an elevated walkway bathed in light from above through the translucent roof that arcs over it. Evolving from an originally envisioned concrete roof, this accommodates the headroom required for the holy water held high on the shoulders of the passing Jain monks below. Locally available materials such as Nimbada stone layed in a masonry that is prevalent in the surrounding areas , polished Kota stone floors from quarries nearby and floor plates cast in everyday concrete make up the restrained material palette.



BENCHMARKING WORLD EXAMPLES OF HOUSING TYPOLOGY FOR THE CITY OF KIGALI

Q1

THE STANFORD HOUSING INITIATIVE

: a study into affordable housing for a village in the Overberg, Western Cape, South Africa

South Africa

Final Report 20-11-2011

ARCHITECT Frederik Groos

CLIENT Swedish International Development Agency

ADDRESS New Brighton Port Elizabeth

DWELLING/N°400

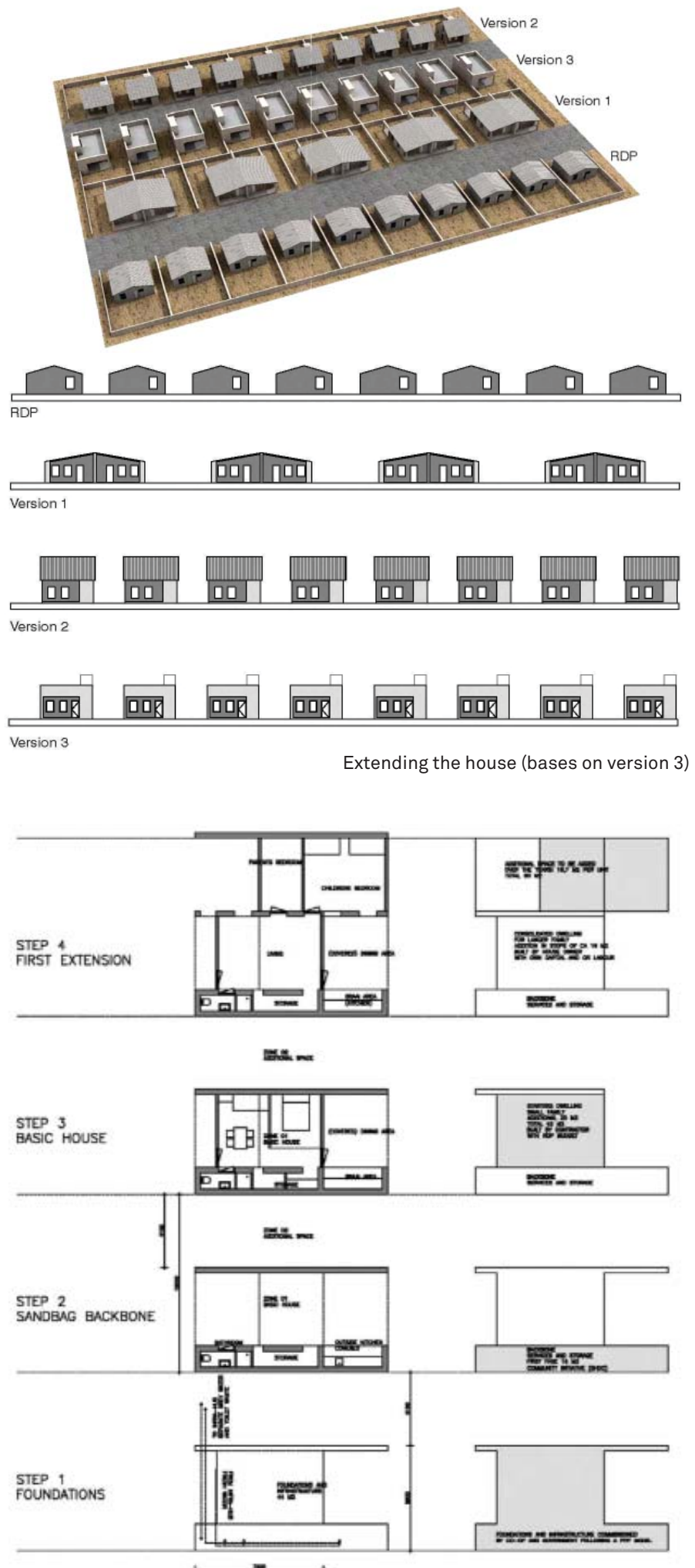
DWELLING SIZE 45 sq.m./70 sq.m.

N° FLOORS 1



THE OBJECTIVE

1. to create the mental infrastructure needed for the organisational framework to build ca 400 sustainable dwellings for low income households in the Village of Stanford, and
2. To create a steering group that will develop a working model towards that goal (based on the expertise assembled during the workshop) The possibility of a PPP (a Public Private partnership)



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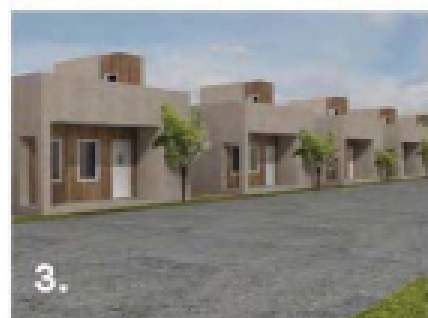
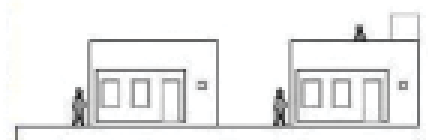
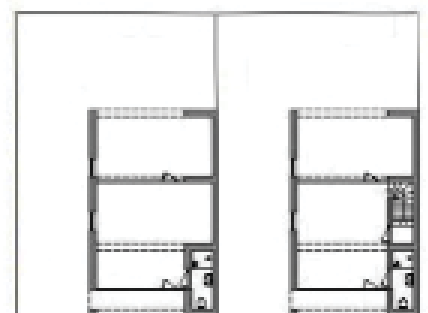
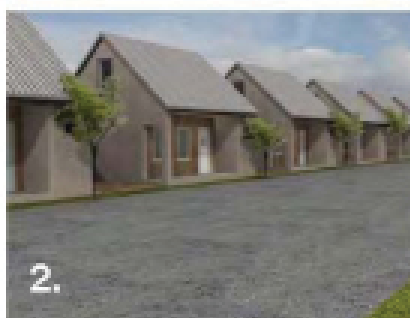
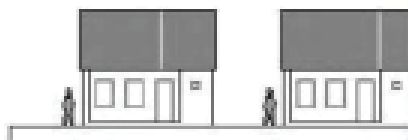
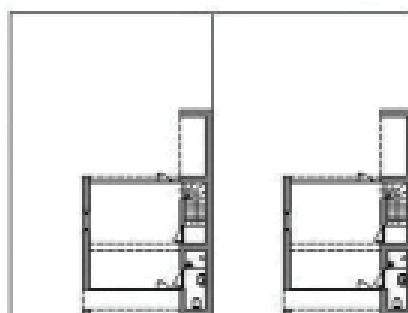
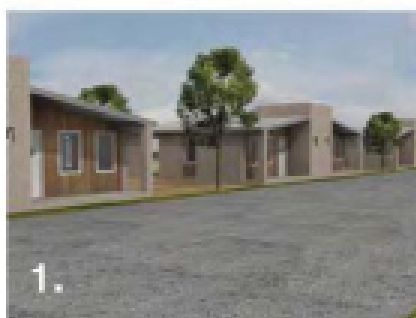
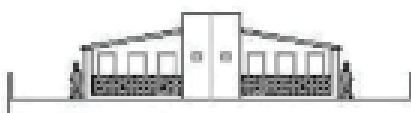
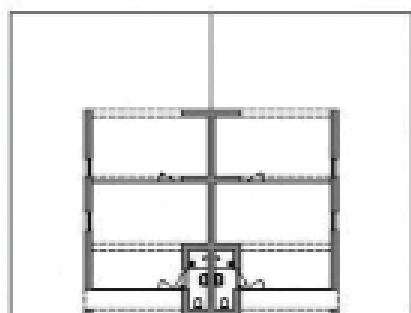
DWELLING/N°400

DWELLING SIZE 45 sq.m./70 sq.m.

N° FLOORS 1



RDP houses as they are built in Stanford by M5.



BENCHMARK CONSUMPTION WORLD EXAMPLES OF HOUSING TYPOLOGY FOR THE CITY OF KIGALI

Q1

COMPETITION:

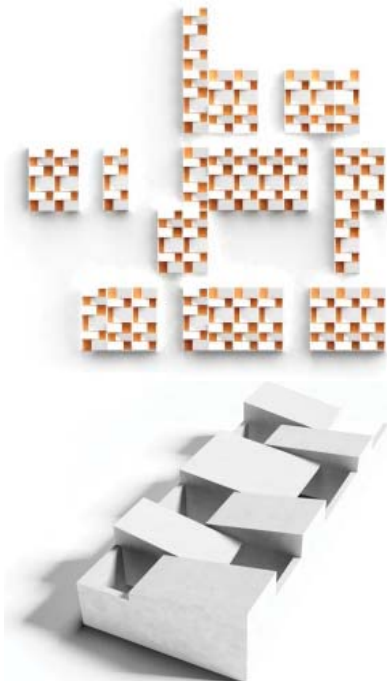
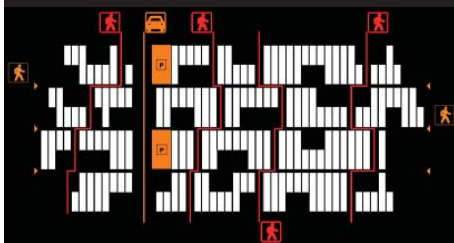
1° Prize A House in Luanda patio and pavilion

Angola

2012

ARCHITECT Pedro Sousa, Tiago Ferreira, Tiago Coelho + Bárbara Silva, Madalena Madureira (Portugal)

DWELLING SIZE 100 sq.m.



“The house as a city, the city as a home”

Use of local natural materials

Long durability

100% reusable

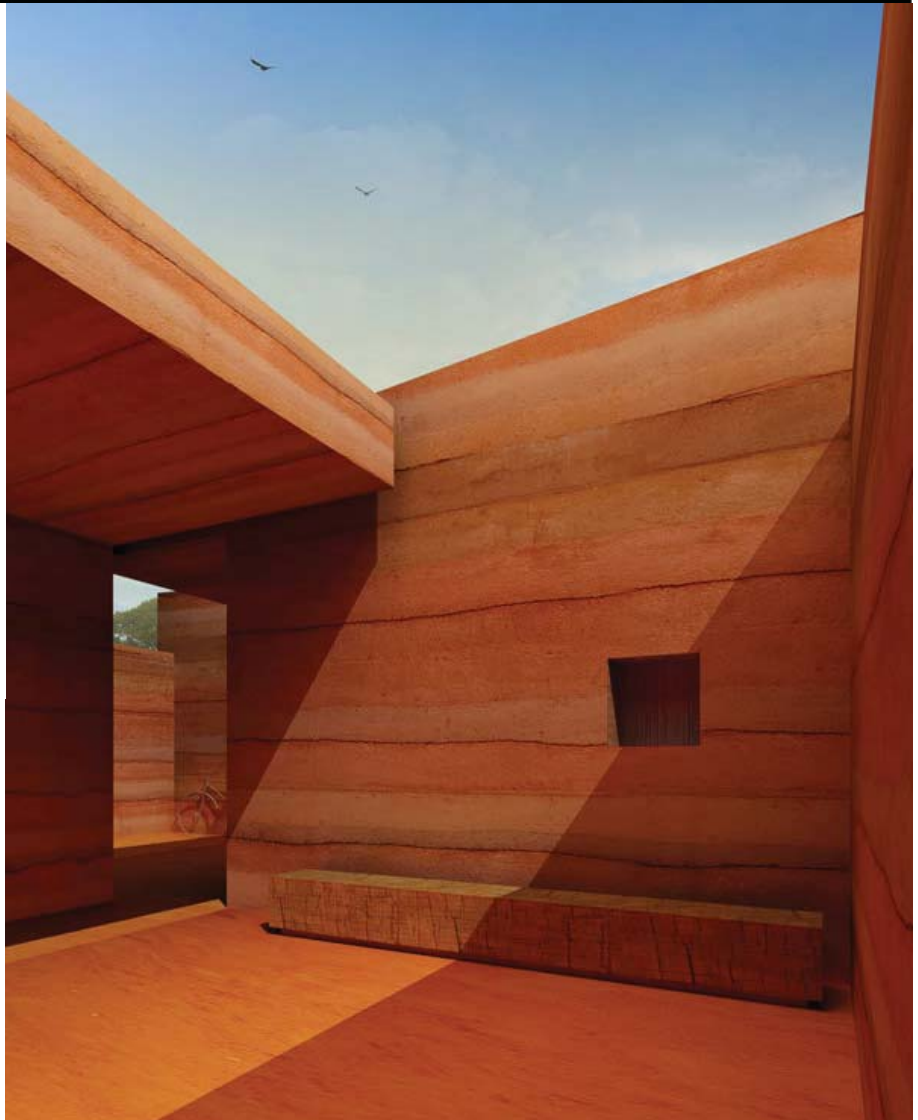
Low cost energy consumption on the wall's construction

Self-constructive

Low cost construction

Hand-made construction

Sustainable



BENCHMARKING WORLD EXAMPLES OF HOUSING TYPOLOGY FOR THE CITY OF KIGALI

Q1

SUBSIDISED HOUSING in Soweto South Africa

2009 - ongoing

ARCHITECT 26'10 South Architects, Peter rich Architects

CLIENT City of Johannesburg
Gauteng department of housing

DWELLING N° 25000

DWELLING SIZE

Type SH1 43,5 sq.m.

Type SR2 38,0 sq.m.

Type SH2 42,5 sq.m.

Type SR3 36,0 sq.m.

N° FLOORS 1

SH1



SH2



The Lufhereng Greenfields Project functions as an extension to the west of Soweto and is conceived as a residential area in which low, medium and high density housing is integrated with urban agriculture, transportation as well as social and commercial facilities. The initial brief required a move away from the typical township landscape towards a more socially and economically sustainable environment. Firmly locked into a RDP¹ / BNG² brief as well as severe geological constraints, it took six years to realise 1 200 subsidised houses out of a proposed 25 000 unit development.



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SUBSIDISED HOUSING
in

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2009 - ongoing

ARCHITECT 26'10 South Architects, Peter rich Architects

CLIENT City of Johannesburg
Gauteng department of housing

DWELLING N° 25000

DWELLING SIZE

Type SH1 43,5 sq.m.

Type SR2 38,0 sq.m.

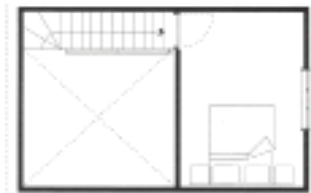
Type SH2 42,5 sq.m.

Type SR3 36,0 sq.m.

N° FLOORS 1

SR2

SR3



BENCHMARKING WORLD EXAMPLES OF HOUSING TYPOLOGY FOR THE CITY OF KIGALI

Q2

SAAL Bouça

Portugal

1973-77, 2001-06

ARCHITECT Alvaro Siza

CLIENT SAAL Servicio de
Apoio Ambulatorio Local

ADDRESS Rua de Boavista
Porto

GFA 3100 sq.m.

DWELLINGS N° 128

DWELLING SIZE 80 sq.m./72
sq.m.

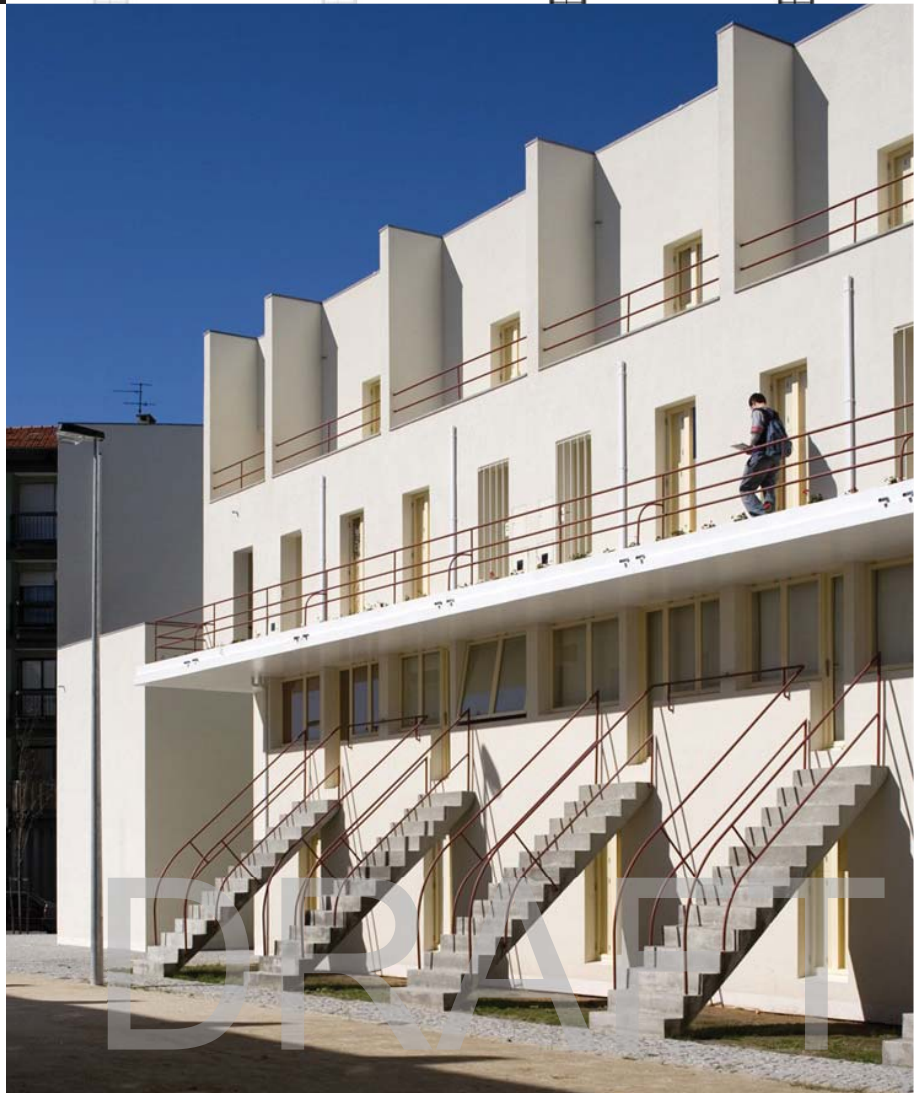
BUILDING TIPE Slab, gallery-
access, skip stop

N° FLOORS 4

ANCILLARY SERVICES park-
ing and public facilities



The two building fragments that remain are 4-floors high and consist of 2-stacked back-to-back maisonnettes four floors high. Stairs, which in the original scheme were to have been part of the retaining wall along the tracks, give access to an open gallery at the 3rd floor and the upper maisonnettes. The lower dwelling is 80 sq.m. in size. The top apartment is smaller (74 sq.m.) because the buildings step back at the top floor forming terraces at each end. In the original scheme, stairs giving access to the open galleries on the upper floors were to have been built into the north retaining wall and the southern ends of each block. The lower maisonnettes have access at grade with individual exterior stairs to the second floor. In the easterly block, that straddles a slope, the bottom two floors are flats with access to each at grade. The top maisonnette has a kitchen, living, and bedroom at the gallery level with 2 bedrooms and a bath on the second floor.



BENCHMARKING WORLD EXAMPLES OF HOUSING TYPOLOGY FOR THE CITY OF KIGALI

Q2

Vivenda Social Dinámica
sin Deuda

Chile

2004

ARCHITECT Elemental-Ale-
jandro Aravena

CLIENT Minvu, Government of
Chile

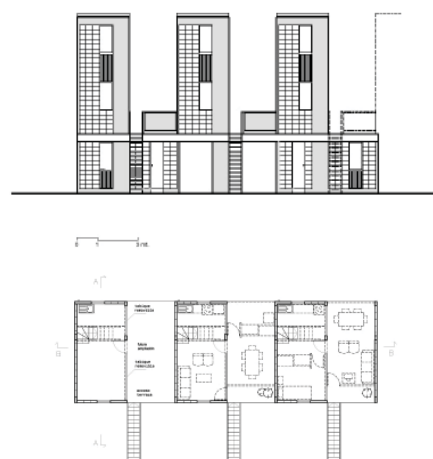
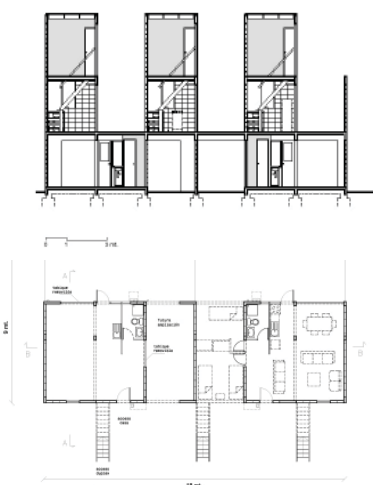
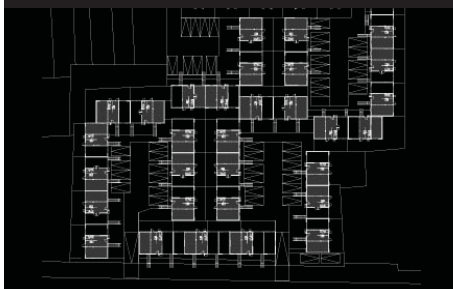
ADDRESS Av. Pedro Prado,
Iquique

GFA 3.620 sq.m.

DWELLING N°93 Houses

DWELLING SIZE 30 sq.m./72
sq.m.

ANCILLARY SERVICES park-
ing and public facilities



ELEMENTAL is a for profit company with social interest, whose shareholders are the Universidad Católica de Chile, COPEC (Chilean Oil Company) and the Elemental founders.

ELEMENTAL's first project in Iquique, back in 2001, consisted in re-establishing 93 families on the site where they had been squatting for the last 30 years with a budget of just US\$7,500 per family.

THE RESULTS? People were able to double the square meters of their initial homes (36 square meters) for only US\$1.000 each. 5 years later, any house in the Elemental Iquique project is now valued at over US\$20.000.

<http://www.elementalchile.cl>

<http://www.alejandraravena.com>



BENCHMARKING

WORLD EXAMPLES OF HOUSING TYPOLOGY FOR THE CITY OF KIGALI

Q2

QUINTA DE MALAGUEIRA

Portugal

1977-1998

ARCHITECT Álvaro Siza

ADDRESS Av. da Malagueira,
c. 2 km w. of Évora

BUILDING TYPE 2-4 BR
courtyard houses

DWELLING SIZE

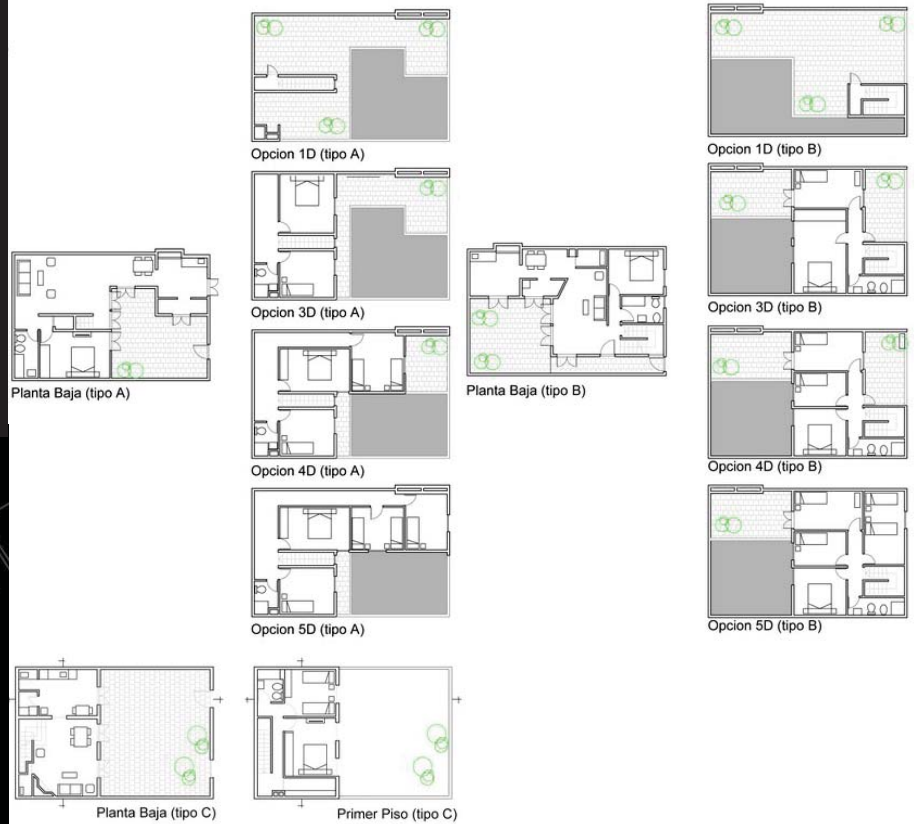
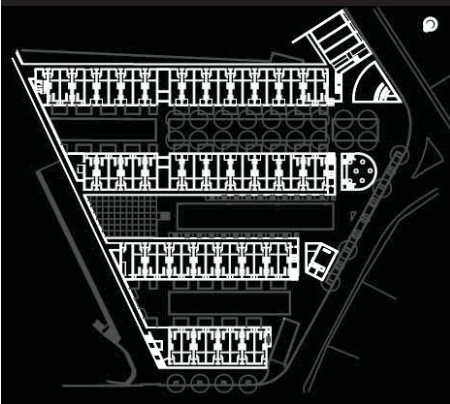
TYPE A 65 sq.m. - 130 sq.m.

TYPE B 60 sq.m. - 110 sq.m.

TYPE C 80 sq.m.

N FLOORS 2

ANCILLARY SERVICES Park-
ing, commercial, communal
open spaces



Of the 1100 dwellings that had been built by 1977, 60% were cooperatives, 35% rental and 5% privately owned. Financing was arranged so that houses could be owned after 25 years.

The dwellings at Malagueira are patio or atrium types with an “ell”-shaped group of rooms on two sides of a small interior patio. There are two similar types, both built on an 8m x 12m plot, one with the courtyard in front and the other with the courtyard at the rear. The construction follows the topography so the houses step along the street as well as stepping perpendicular to the street.



BENCHMARKING
WORLD EXAMPLES OF
HOUSING TYPOLOGY
FOR THE CITY OF KIGALI

Q2

207 HOUSES DJENAN
EL-HASSAN

Alger

1958 / 60

ARCHITECT Roland Simounet

CLIENT

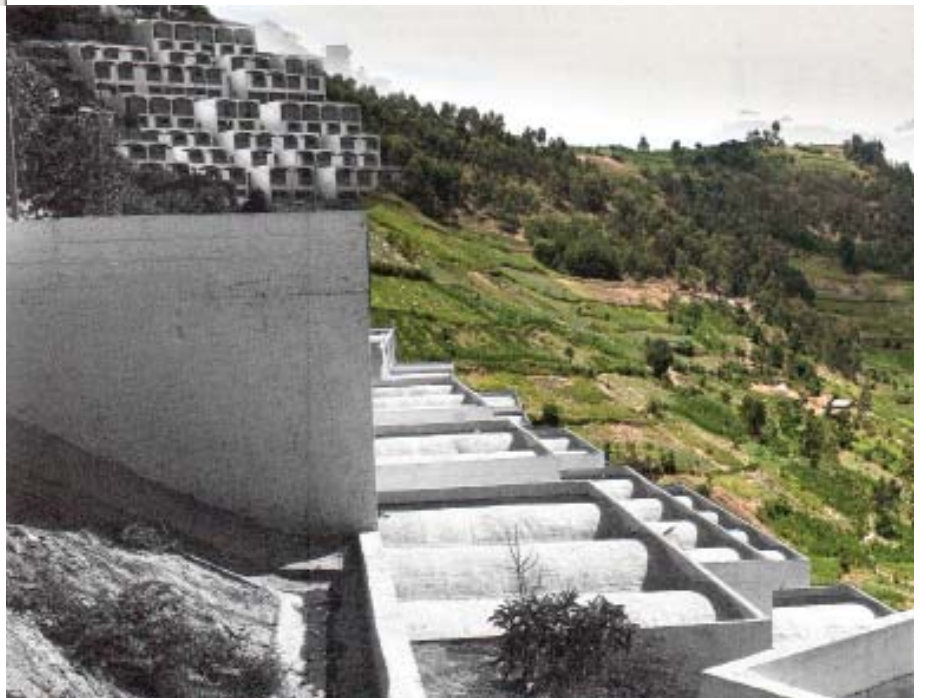
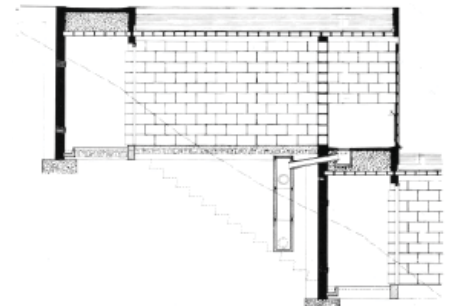
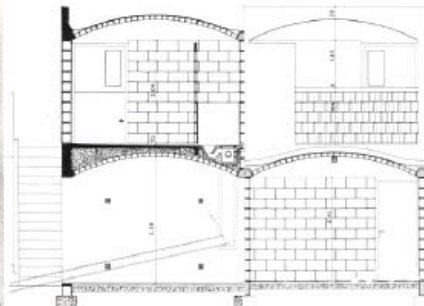
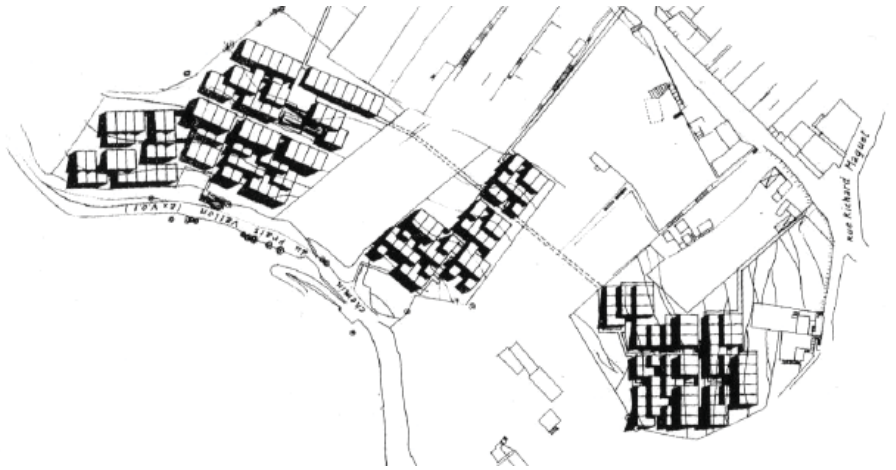
ADDRESS Djenan el-Hassan

GFA

DWELLING/N°207 Houses

HOUSING DENSITY 900/ha

N° FLOORS 1



BENCHMARKING WORLD EXAMPLES OF HOUSING TYPOLOGY FOR THE CITY OF KIGALI

Q2

PELIP Housing

South Africa

1999 (built)

ARCHITECT Noero Wolff
Architects

CLIENT Swedish International
Development Agency

ADDRESS New Brighton Port
Elizabeth

DWELLING/N

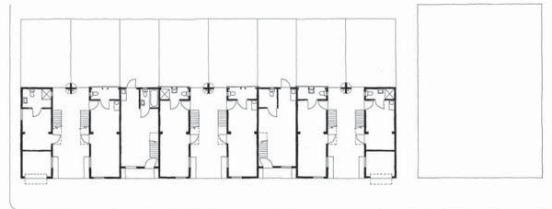
DWELLING SIZE 40 sq.m. to
80 sq.m.

N° FLOORS 2



Formulation of objectives and
strategies:

The houses have to be cost effective and must fit within the government's subsidy limit of approx. \$2500-00. The new housing must be replicable and be able to be built elsewhere in the city. It has to be handicapped accessible and must be capable of easy extension. The strategies were established by consultation with the community over a two year period and were agreed to by all parties before any construction began.



BENCHMARKING WORLD EXAMPLES OF HOUSING TYPOLOGY FOR THE CITY OF KIGALI

Q2

6 INCREMENTAL HOUSING

New Bombay

1983 / 86

ARCHITECT Charles Correa

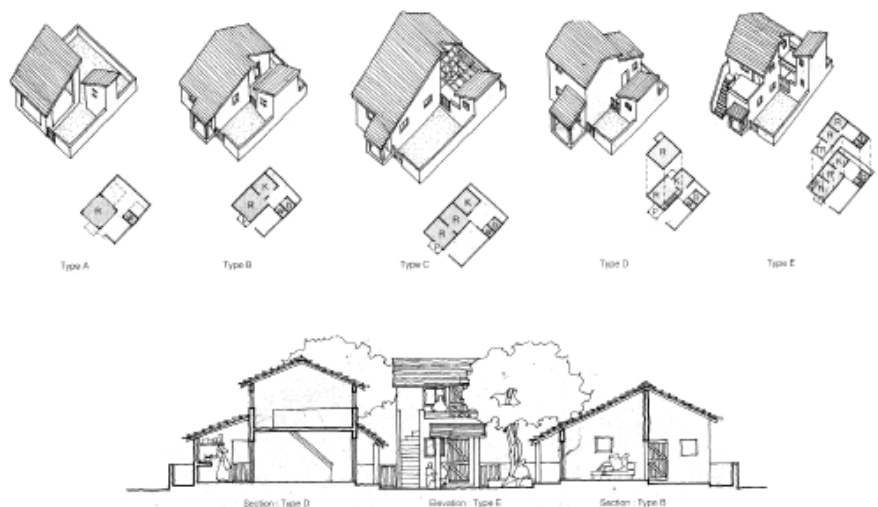
ADDRESS Belapur, New
Bombay

DWELLING/N°6 Houses

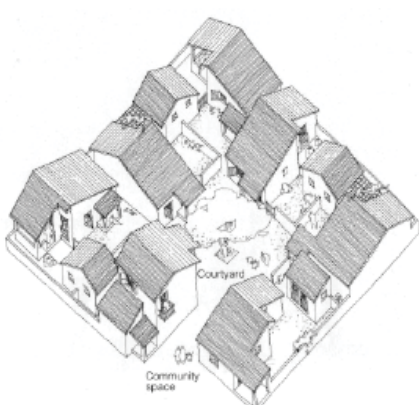
DWELLING SIZE 45 sq.m./70
sq.m.

HOUSING DENSITY 900/ha

N° FLOORS 1



Charles Correa – Designed as an equitable housing scheme that could grow over time and adapt to individual needs, Correa's Incremental Housing in Dharavi—one of Asia's largest slums—continues to thrive, though some say that its original intentions have given way, perhaps inevitably, to the changing aspirations of the modernizing urban Indian citizen.



Type A units



BENCHMARKING WORLD EXAMPLES OF HOUSING TYPOLOGY FOR THE CITY OF KIGALI

Q3

26 SOCIAL HOUSES

Spain

2002-2005

ARCHITECT Antonio Jiménez
Torrecillas, Elisa Valero

CLIENT Empresa Pública del
Suelo de Andalucía

ADDRESS Alameda, Malaga

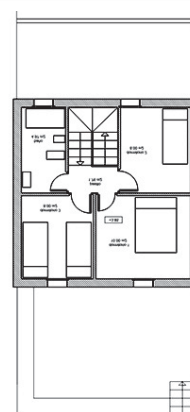
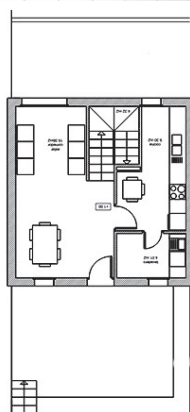
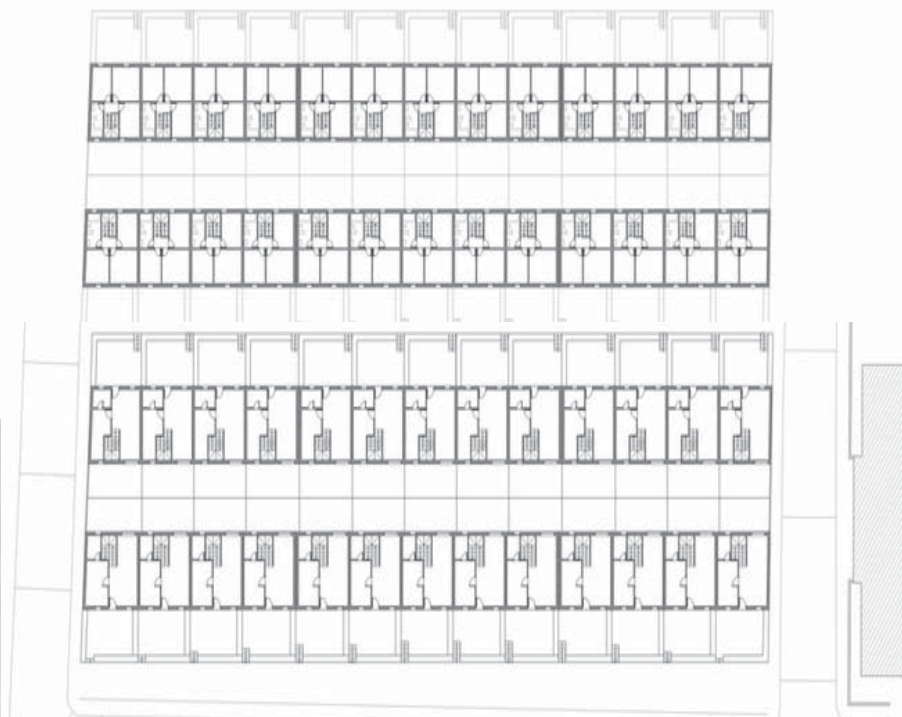
DWELLINGS N° 126

DWELLINGS SIZE 70 sq.m.

GFA 2204,70 sq.m.

DWELLING SIZE 70 sq.m.

N° FLOORS 2



This work responds to a very concrete situation: a warped topography, a particular relationship with the landscape, an extreme continental climate and the budgetary restraints associated with social housing.

The almost-rectangular block is divided into two rows of thirteen rectangular plots each with façades of about 6.5 meters and depths of 18 meters.



photographer Fernando Alca

BENCHMARKING WORLD EXAMPLES OF HOUSING TYPOLOGY FOR THE CITY OF KIGALI

Q3

SELF-CONSTRUCTED HOMES

Spain

1999 - 2003

ARCHITECT Antonio Jiménez
Torrecillas, Elisa Valero

CLIENT Junta de Andalucía

ADDRESS Alameda, Malaga

DWELLINGS N° 14

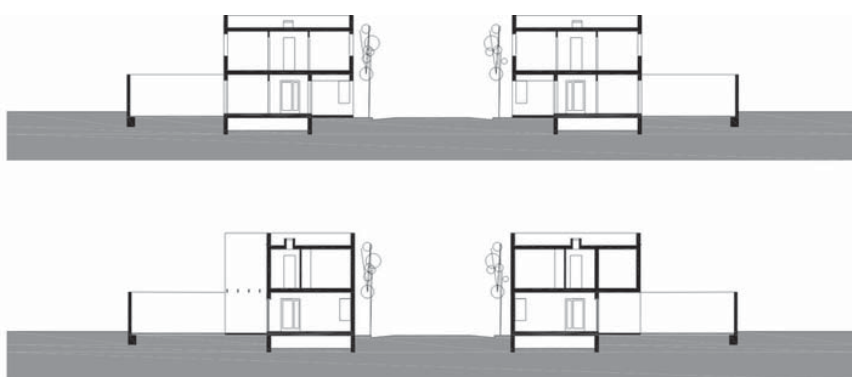
DWELLINGS SIZE 70 smq

GFA 1.072,06 sq.m.

N° FLOORS 2



photographer Fernando Alda



alzado patio



alzado calle



The architecture belongs to the place, which conditions it and makes it singular. The urban layout and topography, and its ensuing definition as an observation space, as well as its insertion in the landscape, the lighting conditions and the use of materials are at the root of an idea that has materialized here in a way that continues popular Andalusian traditions—white houses in a white village.

BENCHMARKING WORLD EXAMPLES OF HOUSING TYPOLOGY FOR THE CITY OF KIGALI

Q3

26 BIOCLIMATIC SO- CIAL HOUSING

Spain

1999 - 2003

ARCHITECT Gabriel Verd,
Simone Solinas

CLIENT EPSA

ADDRESS Umbrete (Seville)

DWELLINGS Nº 26

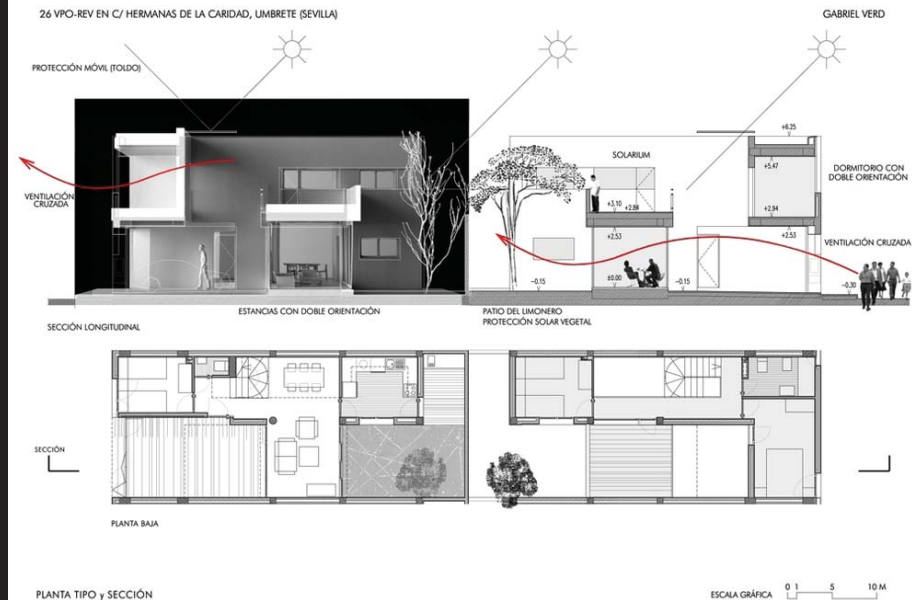
DWELLINGS SIZE 90 sq.m.

BUILDING TYPE Clustered
low-rise Row house

GFA 2.696 sq.m. + 1.597
sq.m. (site development)

Nº FLOORS 2

COST 1.951.276 €



The project for the building of 26 Bioclimatic Social Houses in Umbrete aims to define two key concepts at the same time: the standard house and the global image of the intervention, as well as the relation of both with the urban context. Our purpose is to exploit the available surface completely, without leaving any space unused. This with a series of full and empty volumes, establishing a close connection between each other and defining the whole project.

The standard House is repeated always the same, slightly modified only to be adapted to the irregular shape of one side of the plot, generating this way some modifications to the standard model of this social Andalusian houses. The global image is almost not affected by these differences. It allows the formalization of a project where from the outside you just note the different cells by which it is composed, and offers a vision of unity and an image that dialogues with the urban path, living harmoniously with the examples of traditional domestic architecture.



BENCHMARKING WORLD EXAMPLES OF HOUSING TYPOLOGY FOR THE CITY OF KIGALI

Q3

HALEN

Switzerland

1961

ARCHITECT Atelier 5

ADDRESS NW of Bern at
Halenbrücke bridge Bern

DWELLINGS N° 81

DWELLINGS SIZE

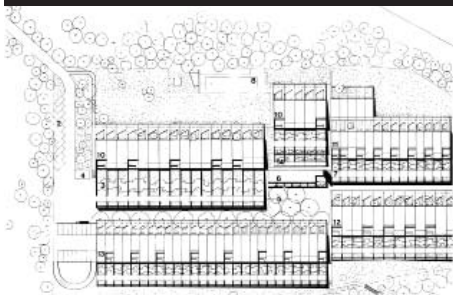
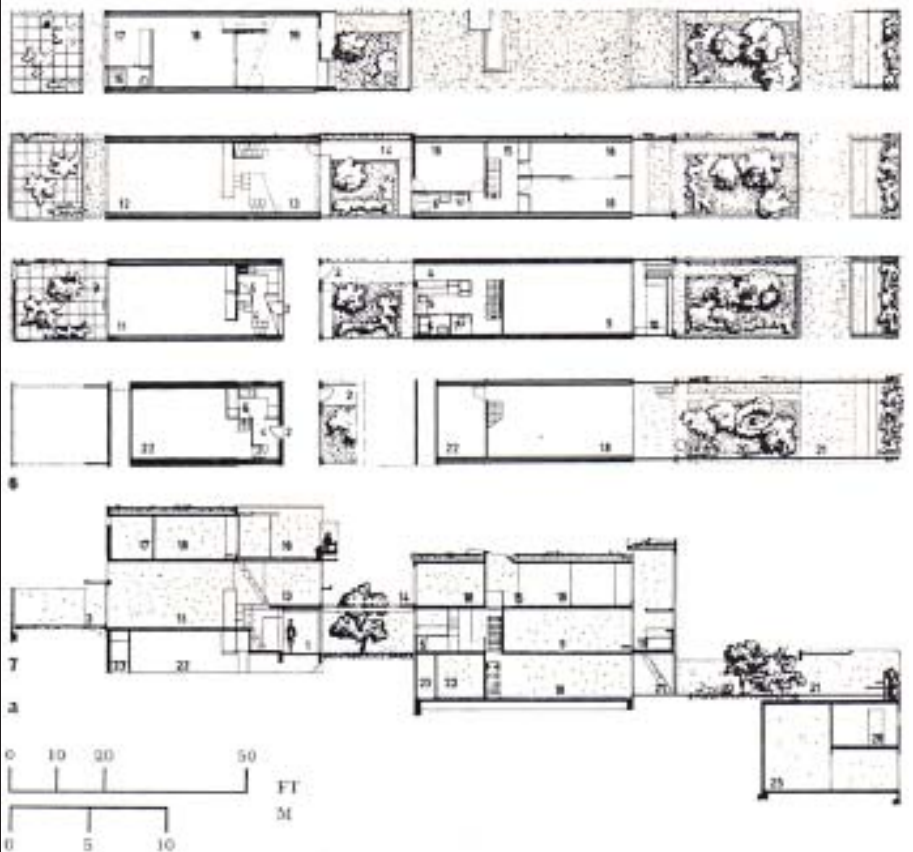
TYPE 12 160 sq.m.

TYPE 380 180 sq.m.

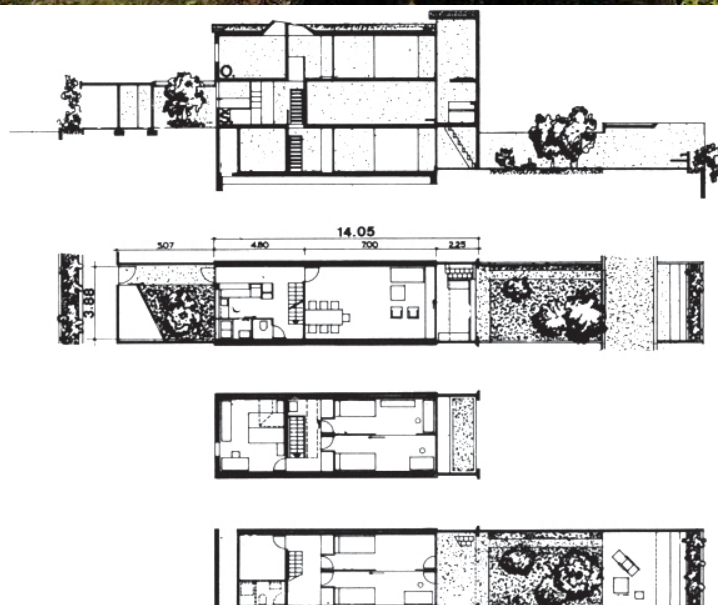
BUILDING TYPE Row house
Terrace

N° FLOORS 3

ANCILLARY SERVICES Park-
ing, pool, club facilities, cen-
tral heating



Siedlung Halen has become the canonical prototype for low-rise, high density housing in the last half of the 20th century. This community of 81 terraced houses built on a south-facing hillside on the outskirts of the city of Bern incorporates many of the ideas of the modernist program of the 1920's about community and privacy, garden city notions of a healthy life-style in a suburban setting, and attitudes about materials and standardization. Dwellings come in two basic sizes but are used with several different additions to form different units with studios, or other rooms. The dimensions of the Type 12 houses are about 5 x 14 meters while the Type 380 is about 4 x 14 meters in size. This is also a very early example of the application of green roof technology and sustainable building systems.



BENCHMARKING WORLD EXAMPLES OF HOUSING TYPOLOGY FOR THE CITY OF KIGALI

Q3

OXLEY WOODS

England

2005

ARCHITECT Rogers Stirk Harbour + Partners

CLIENT English Partnerships

ADDRESS Oxley Park, England

GFA 3 ha

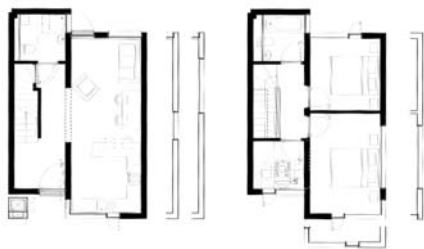
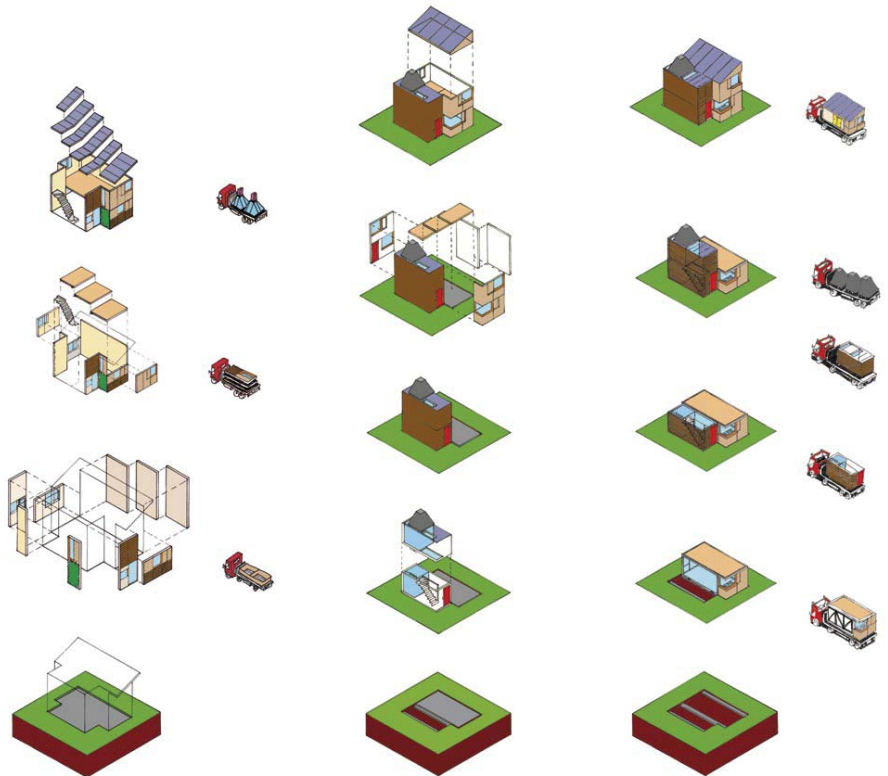
DWELLINGS N° 145

DWELLING SIZE 60 sq.m.

N° FLOORS 3

CONSTRUCTION COST

from £60,000 per unit



These will provide a mixture of affordable housing and larger private dwellings in two- and three-storey houses around a central high street, as well as public space. Emphasis is placed on the properties' potential to respond to changes to the lifestyles and family sizes of occupants. This mix of tenure and adaptability will create an accessible and adaptable community that can reflect and accommodate change over time.

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FOR THE CITY OF KIGALI

Q4

48 SOCIAL HOUSING
Italy

2003-2008

ARCHITECT Giorgio Macola,
Adolfo Zanetti

CLIENT C.E.V. - CO.I.P.E.S.

ADDRESS Via Pirano, Mestre

GFA 4.500 smq +2.250 sq.m.

DWELLINGS N° 48

DWELLING SIZE 45 sq.m. to
90 sq.m.

BUILDING TYPE Row house
Terrace

N° FLOORS 3



planella piano terra e piano primo scala 1:200



photographie Marco Zorzi

BENCHMARKING WORLD EXAMPLES OF HOUSING TYPOLOGY FOR THE CITY OF KIGALI

Q4

ROKKO HOUSING I

Japan

1981-1983

ARCHITECT Tadao Ando

ADDRESS Kobe, Hyogo

GFA Site area 1852,0 sq.m.

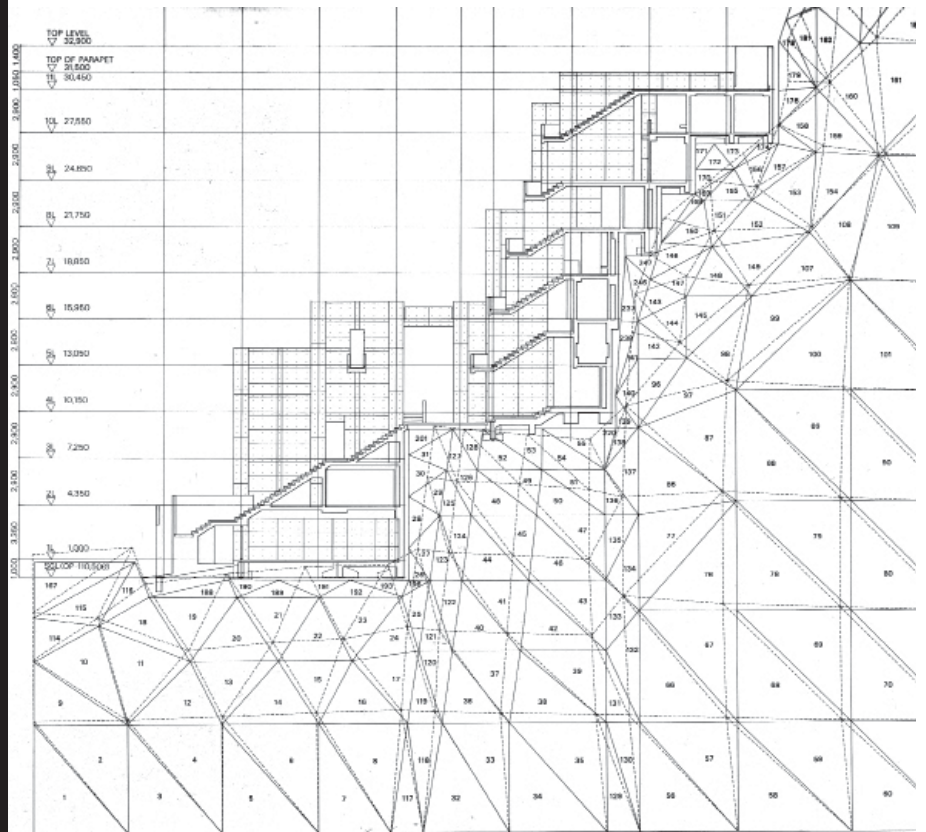
Floor area 1779.0 sq.m.

BUILDING TYPE Row house
Terrace

DWELLINGS N° 20 housing
units

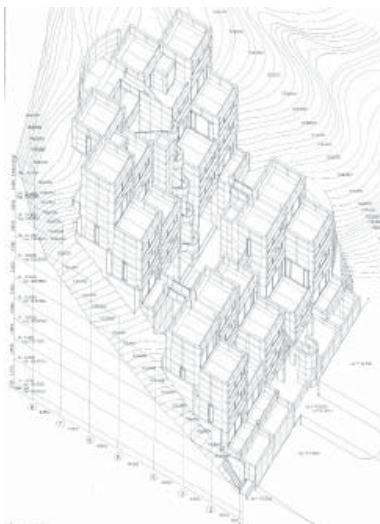
DWELLING SIZE 77 sq.m.

ANCILLARY SERVICES Park-
ing, pool, club facilities, cen-
tral heating



"The building is composed of a group of units, each measuring 5.8 meters by 4.8 meters. In section, it conforms to the slope, and in plan, it is symmetrical. In ascending the slope, gaps are intentionally created. The gaps relate to each other and unite the entire building; at the same time they serve as a plaza. A total of 20 units are mounted along the slope creating exclusive terraces facing various directions overlooking the ocean. I expect that life in these diverse units will concentrate around the terrace and the opportunity to communicate with nature."

Tadao Ando



BENCHMARKING WORLD EXAMPLES OF HOUSING TYPOLOGY FOR THE CITY OF KIGALI

Q5

MD HOUSE

Danimark

2010 / 12

ARCHITECT BIG - Bjarke Ingels Group

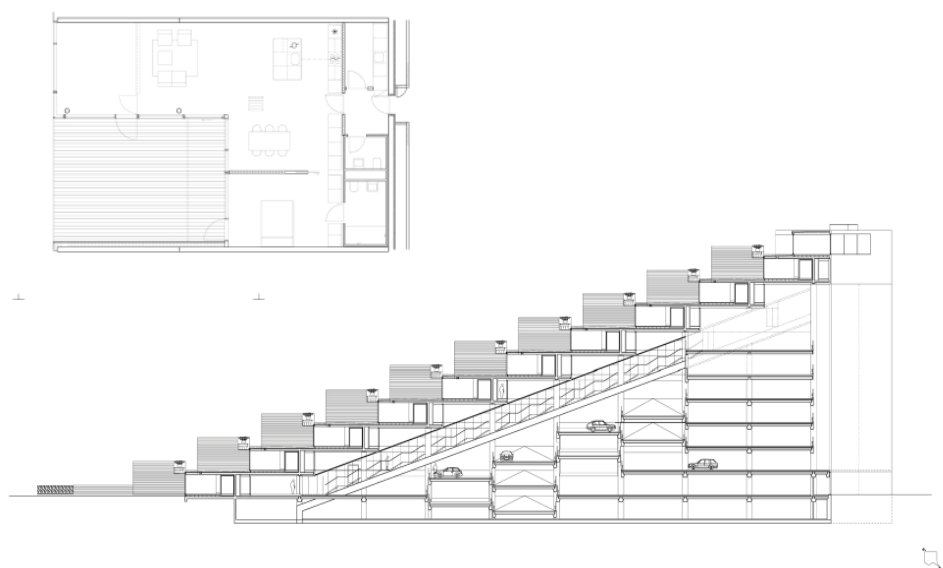
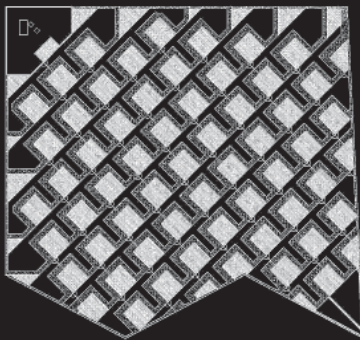
CLIENT Høpfner a/S, Danish Oil Company a/S

GFA 33.000 sq.m.

DWELLINGS N° 80 apartments

DWELLING SIZE 90 sq.m.

ANCILLARY SERVICES 480 parking spots



How do you combine the splendours of the suburban backyard with the social intensity of urban density?

The Mountain Dwellings appear as a suburban neighbourhood of garden homes flowing over a 10-storey building – suburban living with urban density.

The roof gardens consist of a terrace and a garden with plants changing character according to the changing seasons. The building has a huge watering system which maintains the roof gardens. The only thing that separates the apartment and the garden is a glass façade with sliding doors to provide light and fresh air. The residents of the 80 apartments will be the first in Orestaden to have the possibility of parking directly outside their homes.



BENCHMARKING WORLD EXAMPLES OF HOUSING TYPOLOGY FOR THE CITY OF KIGALI

Q5

CARABANCHEL HOUSING

Spain

2007

ARCHITECT Foreign Office
Architects (FOA)

CLIENT Empresa Municipal

GFA 11.384 sq.m.

DWELLINGS N° 87 apart-
ments

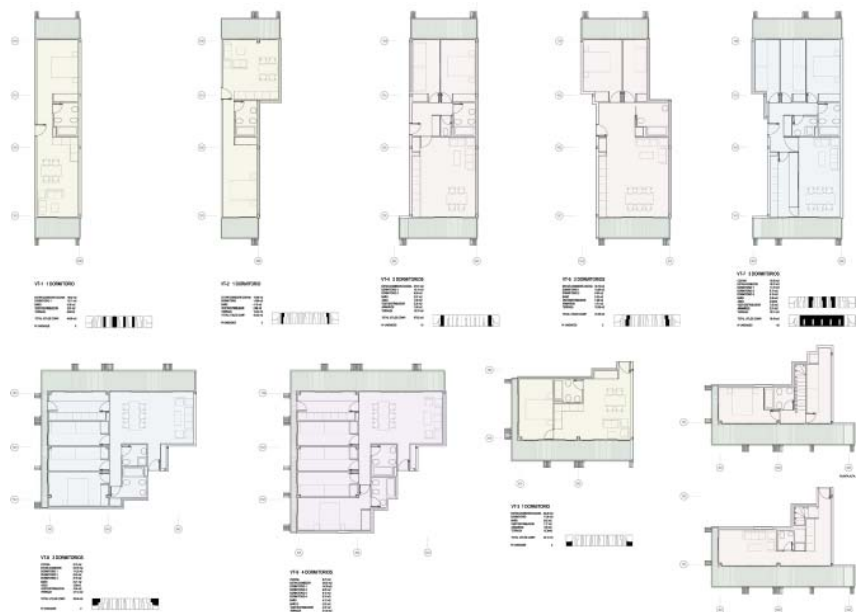
DWELLING SIZE

VT 1 44 sq.m. - VT 2 45 sq.m.

VT 3 44 sq.m. - VT4 67 sq.m.

VT5 72 sq.m. - VT7 79 sq.m.

VT8/9 82 sq.m.



The residential units are therefore opened to two different gardens on each orientation, and are fully glazed in the façades. Each side of the building is provided with a 1.5m wide terrace along the full façade that will make possible a semi-exterior type of use during certain seasons. These terraces are enclosed with bamboo louvers mounted on folding frames that will provide with the necessary protection from the strong East-West sun exposure



Photographs: Francisco Andeyro Garcia & Alejandro Garcia González (FAG, AGG), Sergio Padura (SP)