United Nations

Report of the World Commission on Environment and Development

Our Common Future

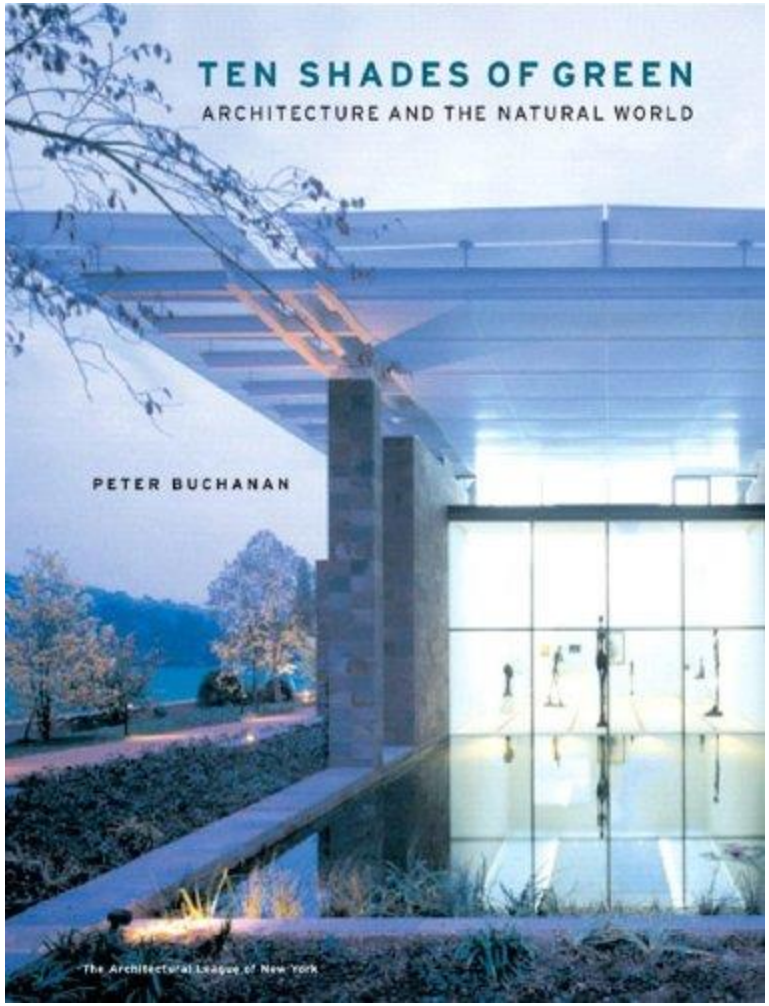
United Nations
1987

LEED (Leadership in Energy and Environmental Design) certification:

Reduce contribution to global climate change
Enhance individual human health
Protect and restore water resources
Protect and enhance biodiversity and ecosystem services
Promote sustainable and regenerative material cycles
Enhance community quality of life

Buchanan, «The Ten Shades»:

Low energy, high performance
Replenishable sources
Recycling
Embodied energy
Long life, loose fit
Total life cycle costing
Embedded in place
Access and urban context
Health and happiness
Community and connection



DESIGN JUSTICE

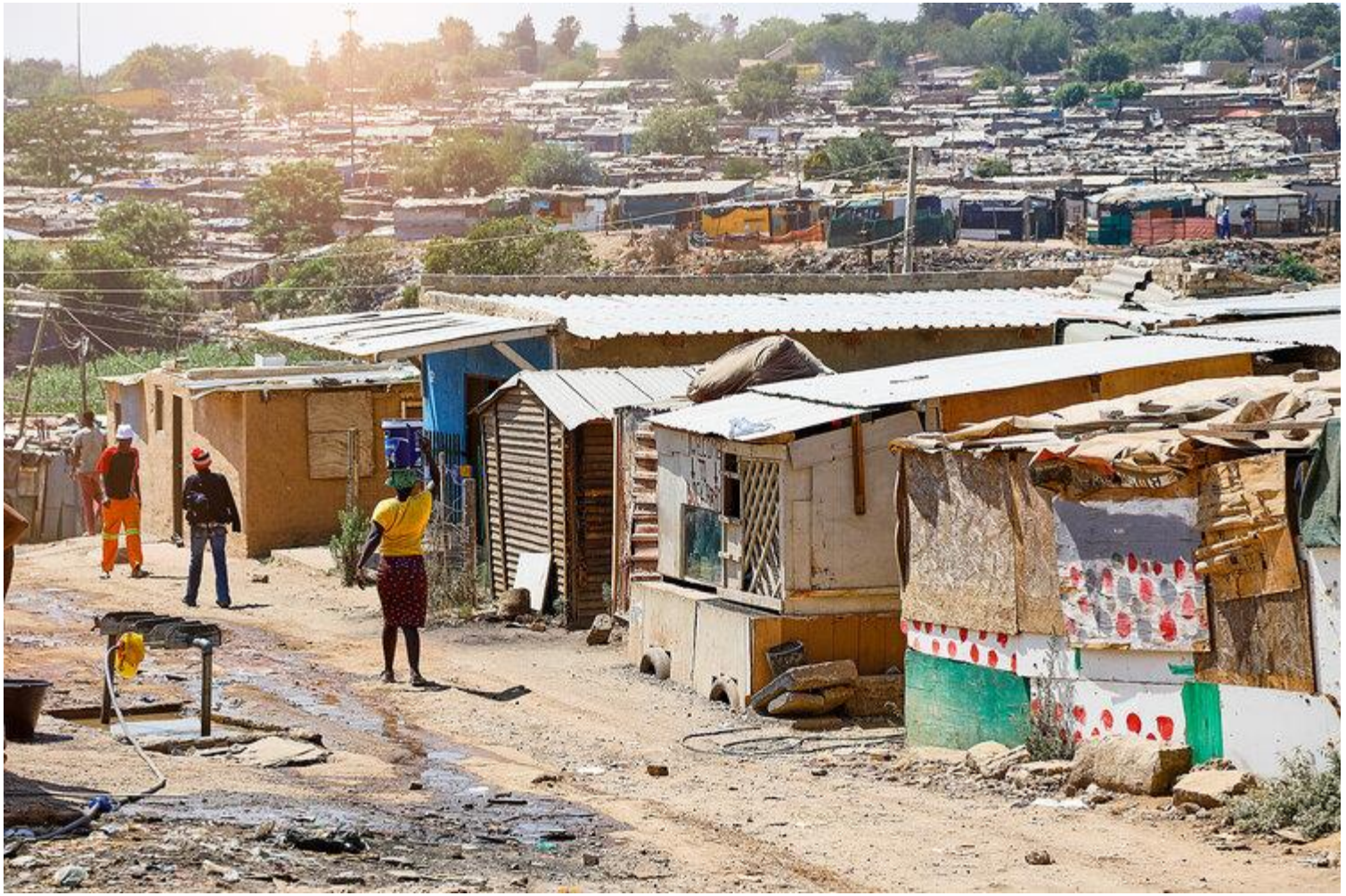
COMMUNITY-LED PRACTICES
TO BUILD THE WORLDS WE NEED

SASHA COSTANZA-CHOCK

Bloubosrand and Kya Sands, Johannesburg, South Africa

House in Bloubosrand, Johannesburg

Kya Sand informal settlement, Johannesburg



Sustainability:

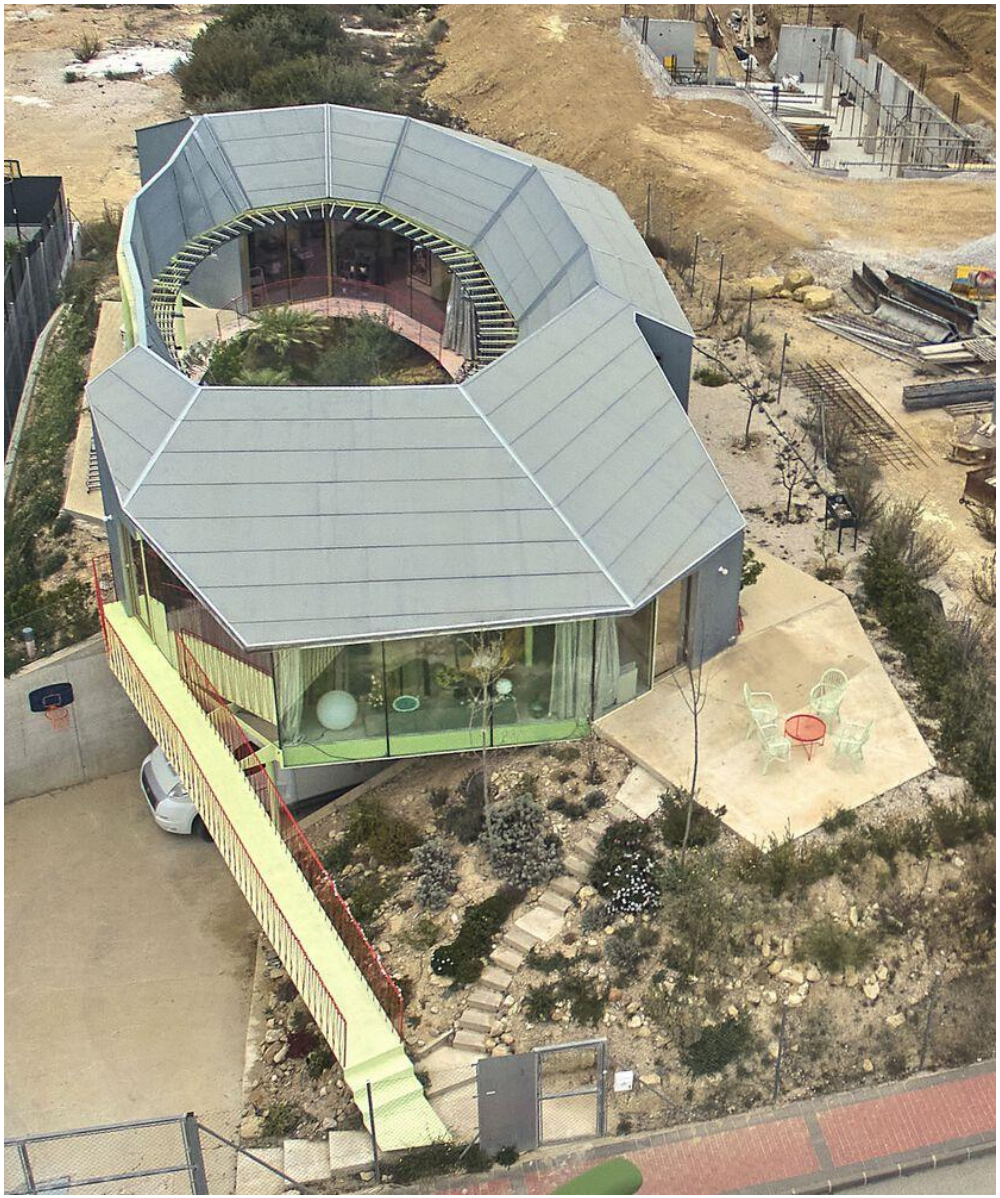
preservation

selection

circularity

responsibility

Andres Jacque, Rambla Climate House, Molina de Segura, Spain, 2021



Kariouk Architects, m.o.r.e. Cabin, Wakefield, Quebec,2021

Luciano Lerner, Basso, Fortunata House, Caxias do Sul, Brazil, 2020

BIG Design, Treetop hotel room, Lapland, 2022

BLÅMES
Cyanistes caeruleus
Stays in Sweden all year round, very adaptable and likes people

LAPPMES
Poecile cinctus
Red listed species which is in need of support, possibly through bird houses

TALGOXE
Parus major
Likes to breed in bird houses, used to living close to people

RÖDHAKE
Erithacus rubecula
Stays in Sweden only during the summer time for breeding

NÖTVÄCKA
Sitta europaea
The only bird species in Sweden that can crawl downwards and upwards

STARE
Sturnus vulgaris
Red listed species, favored by bird houses, also lives in large colonies

TAIGA FLADDERMUS
Myotis brandtii
One of Europe's smallest bat with 25 cm wing span, carnivore

TALLTITA
Poecile montanus
Red listed species, favored by extra breeding spots

TOFSMES
Lophophanes cristatus
Stays in Sweden all year round, picks the breeding spots already in march

SVARTVIT FLUGSNAPPARE
Ficedula hypoleuca
Red listed species, favored by extra breeding spots

PILFINK
Passer montanus
Prefers to breed in larger colonies, also used living close to people

TORNSEGLARE
Apus apus
Breeding couples lasts for 15 years and are likely to return to the same spot

KAJA
Corvus monedula
Lives in colonies, very social and communicative species

NORDFLADDERMUS
Eptesicus nilssonii
Have a very high pitch sound which is not hearable by humans

SVARTMES
Periparus ater
Decreased in population lately, possibly because lack of breeding spots

TRÄDKRYPARE
Certhia familiaris
Prefers a back entrance close to the tree trunk, can only crawl upwards

GRÄSPARV
Passer domesticus
Stays in Sweden all year round, very adaptable and likes people

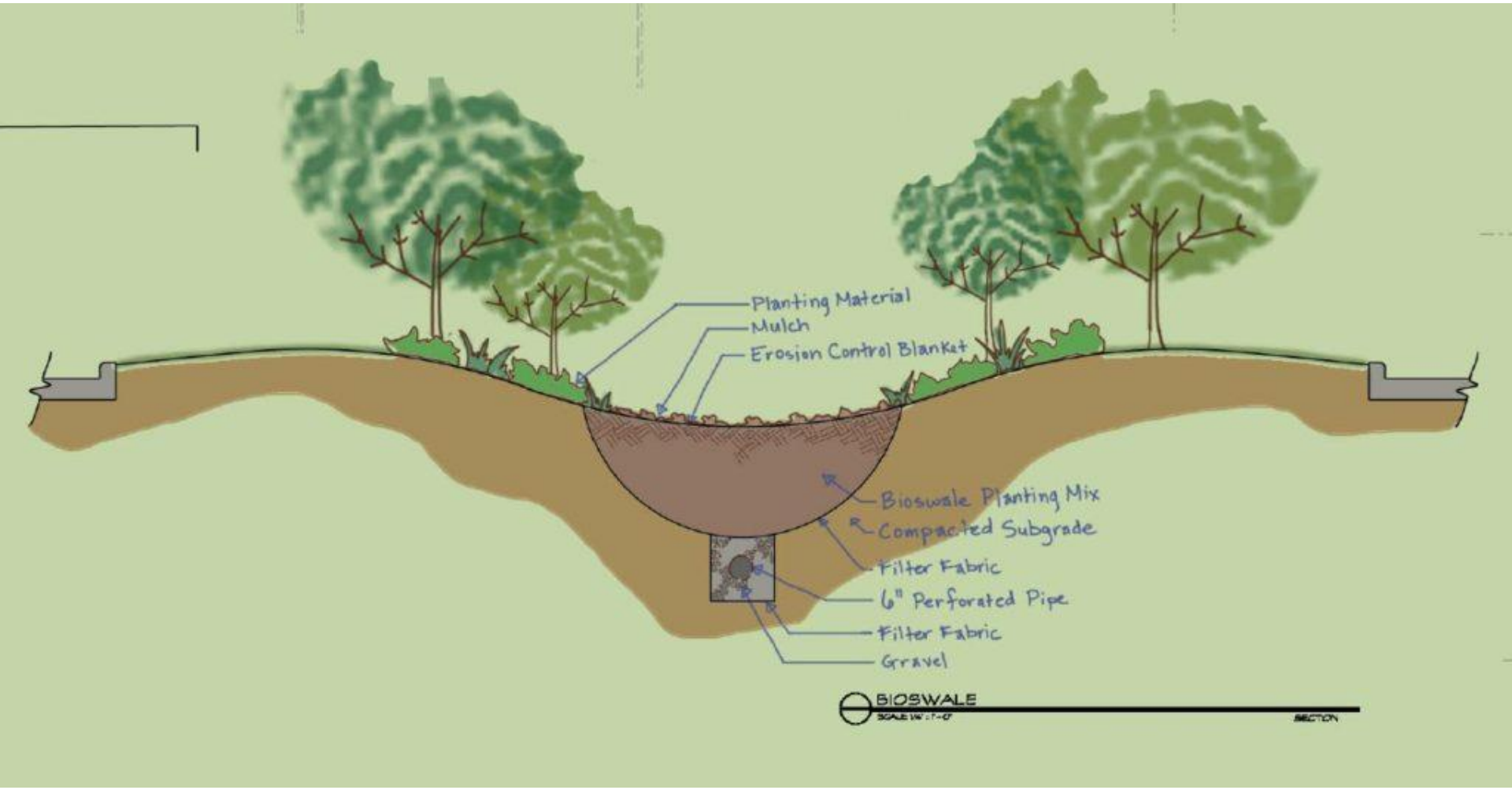
GRÅ FLUGSNAPPARE
Muscicapa striata
Relisted species, favored by extra breeding spots

RÖDSTJÄRT
Phoenicurus phoenicurus
Prefers to breed in bird houses, can be placed quite low

SKOGSDUVA
Columba oenas
Likely to breed in a bird house, sometimes also found in mountain cracks

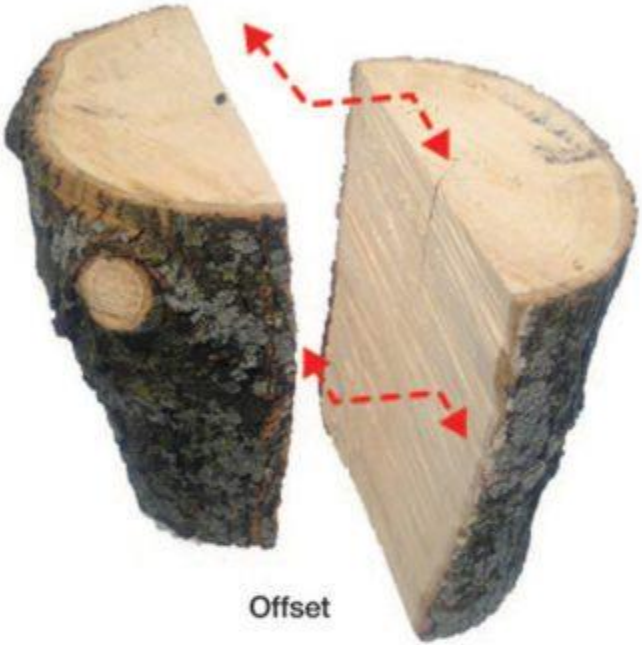
SOLITÄRBIN
Megachilidae
Wild bees that lives solo, they don't sting and they are great pollinators

Cambridge Seven, Roux Center, Bowdoin College, 2018


Planting Material
Mulch
Erosion Control Blanket
Bioswale Planting Mix
Compacted Subgrade
Filter Fabric
6" Perforated Pipe
Filter Fabric
Gravel
BIOSWALE
SECTION

Split

Separate



Offset

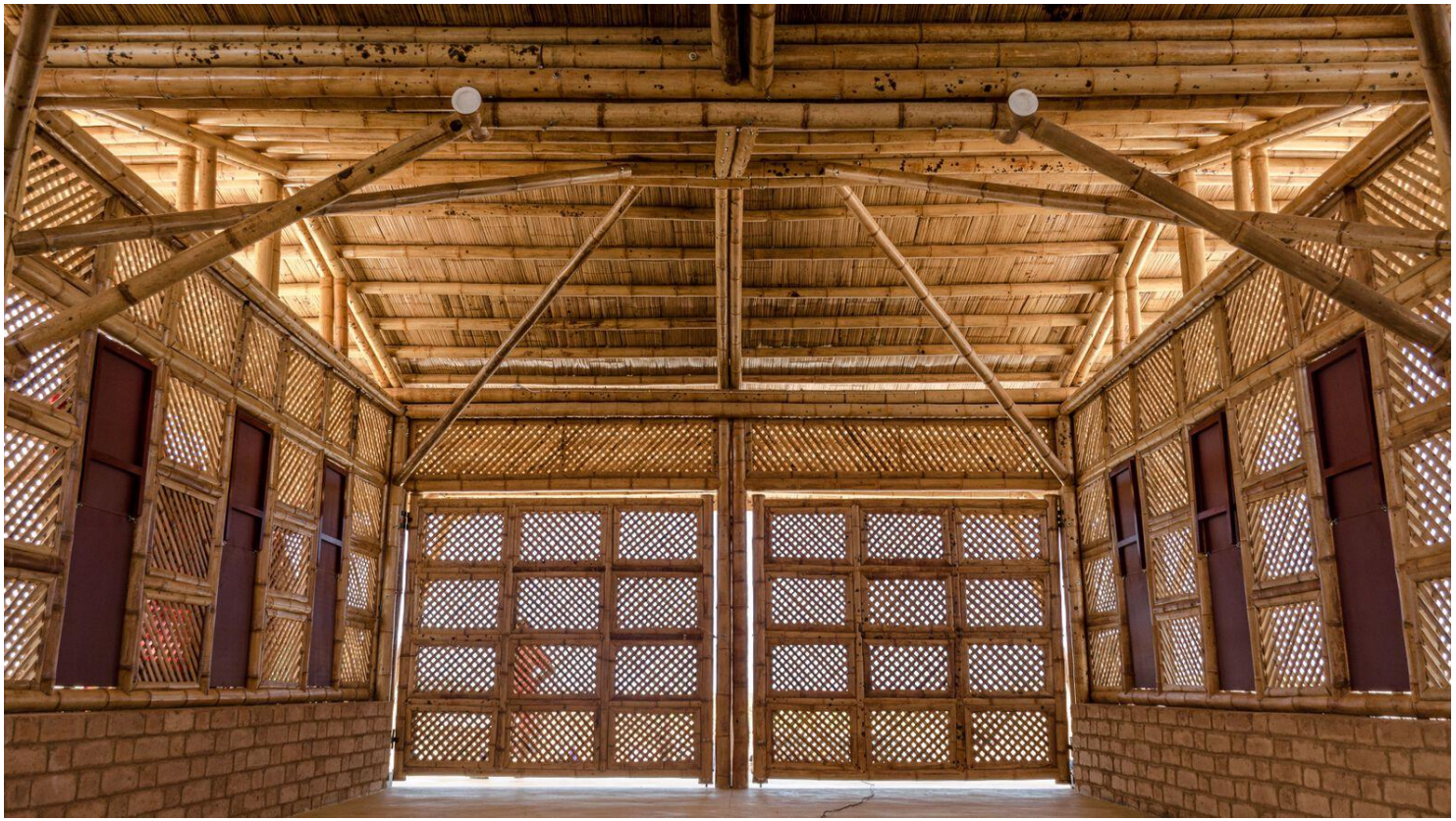
Voll Arkitektur,
Mjostarnet Tower, Norway, 2019

Ideo Arquitectura, Natural House, Ses Salines, Spain, 2021

Juhani Pallasmaa & Francis Kéré Architecture, School Library, Gando, Burkina Faso, 2021

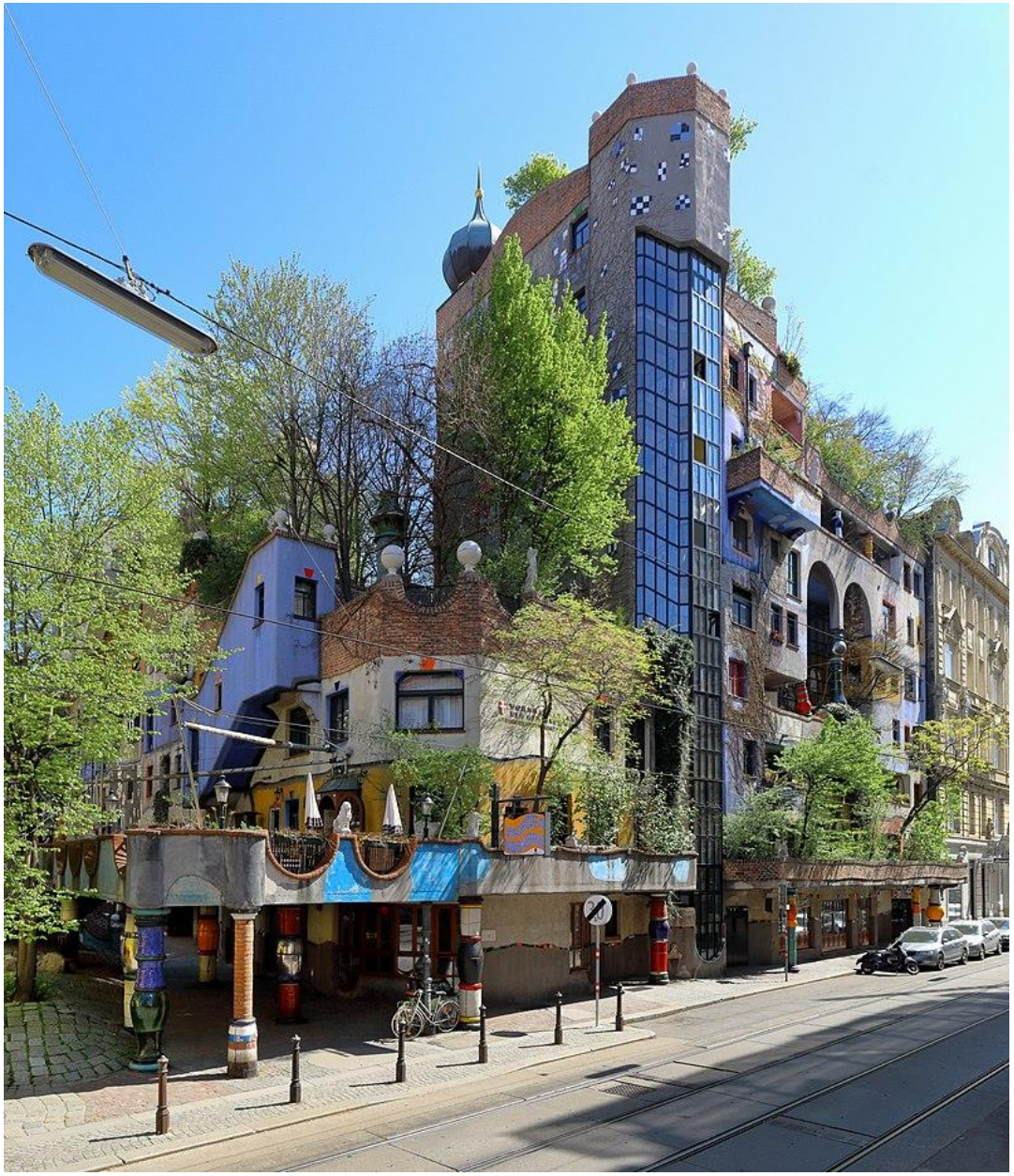
Francis Kéré, Léo Surgical Clinic,Burkina Faso, 2014

Salba, Walirumana School, La Guajira, Colombia, 2020



Stefano Boeri, Bosco Verticale, Milan, 2014

Friedensreich Hundertwasser,
Terrace house, Vienna, 1985



WOHA, Park Royal Hotel, Singapore, 2013

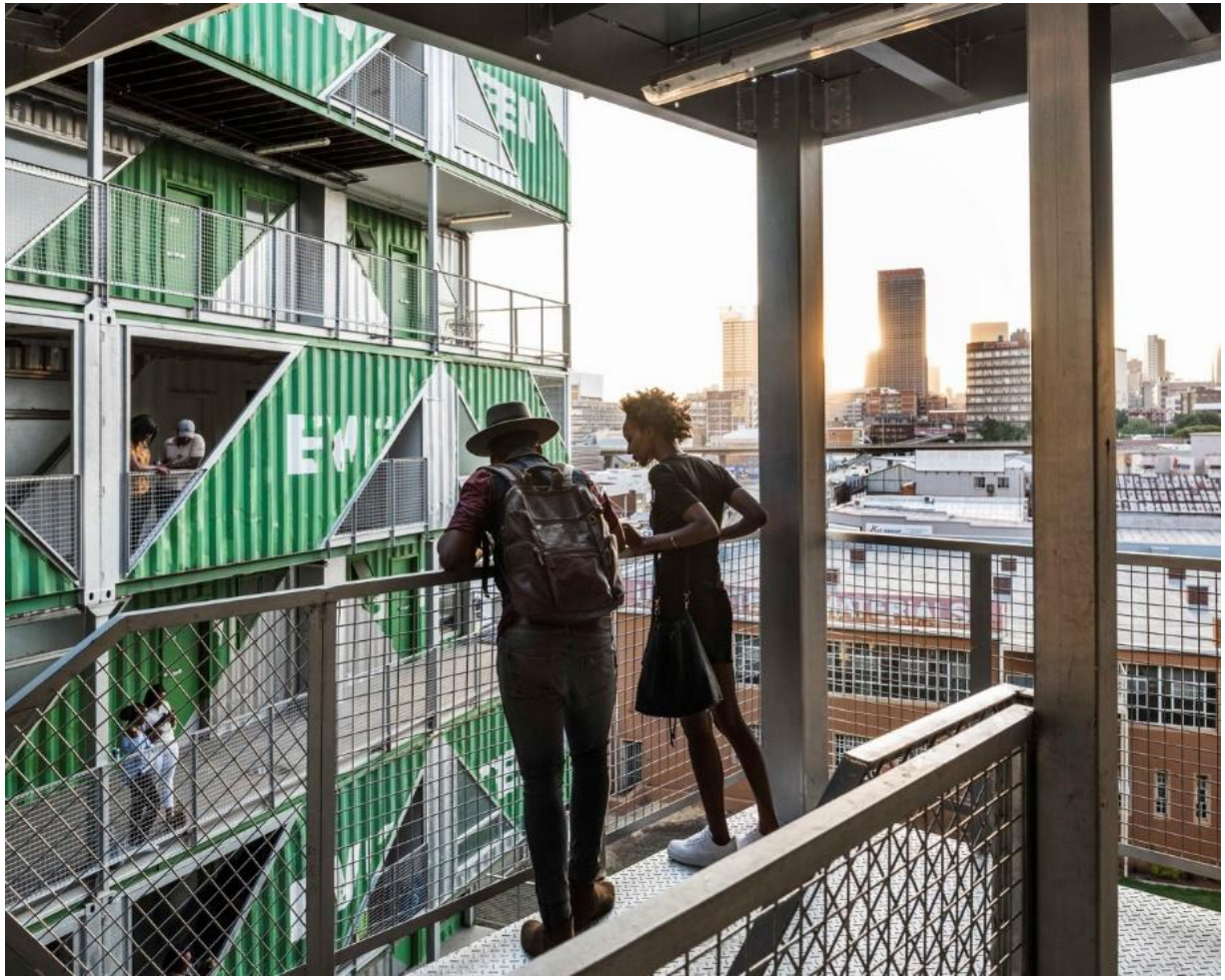
Burckhardt and Partners, Maschinenfabrik Oerlikon Park, Zurich, 2002

Mario Cucinella Architects, Technology and Clay 3D Printed House, Ravenna, 2022

U. Of Michigan School of Architecture, Robotically Fabricated Structure, 2021

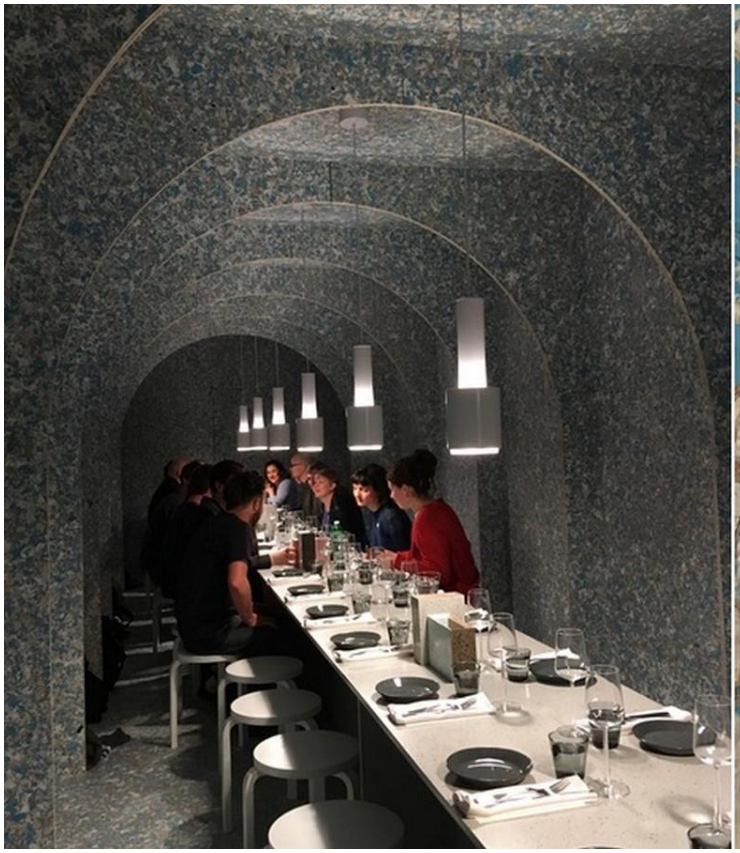
Marilia Pellegrini, Casa Container, Sao Paulo, 2019

Lot E-K, Drivelines Studios, Johannesburg, 2017

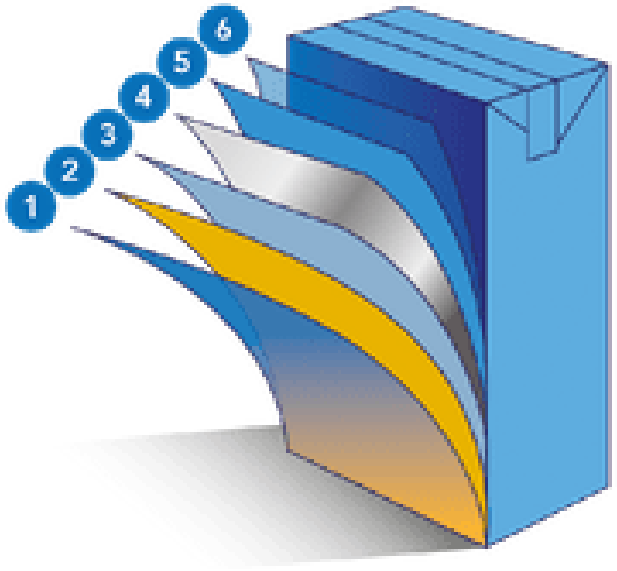


Far Eastern Group, EcoARK, Taipei, 2010

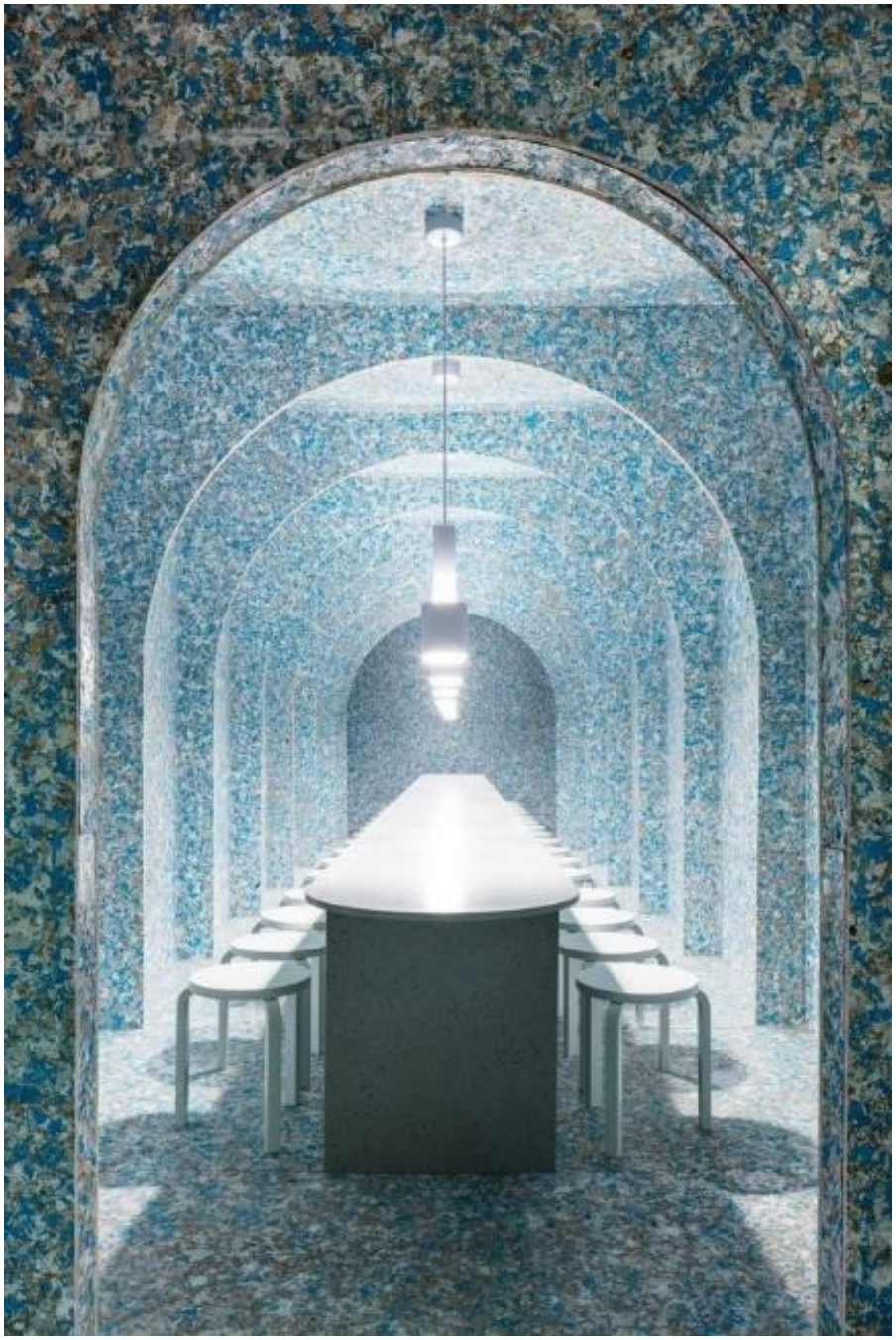
Linda Bergroth, Zero Waste Bistro, New York City, 2018



Composition of Tetra-Pak



1	Polyethylene - protects against outside moisture
2	Paper - for stability and strength
3	Polyethylene - adhesion layer
4	Aluminium foil - oxygen, flavour and light barrier
5	Polyethylene - adhesion layer
6	Polyethylene - seals in the liquid



Werner Sobek, Urban Mining and Recycling Residential Unit, Dübendorf, Switzerland, 2018

Lehrer Architects, Alexandria Tiny Homes Villages, Los Angeles, 2022


EMERGENCY EXIT - KEEP CLEAR
SECURELY LATCH BED

Refugee Housing Systems

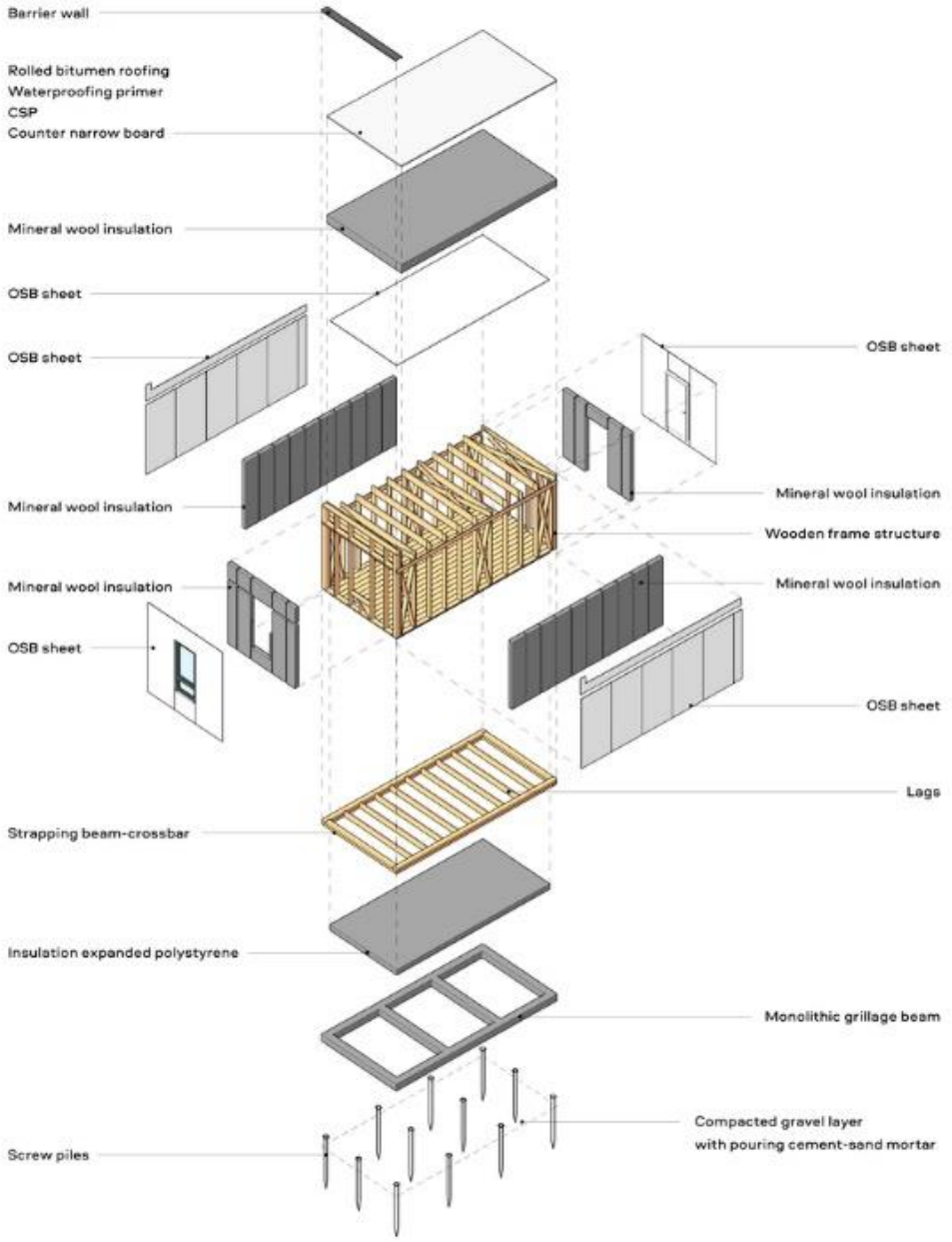
Prefabrik Yapı A.Ş. (Turkey)
Dimensions: 6x2,4m
Area: 14,4m²
Living area per person: 7,2 m²/person
Structural system: ceiling and floor profiles made using galvanized sheet manufactured under HekimStructureRobot technology, attached with the help of the load-bearing corner, C-U profiles, bolted and screw fittings.
Wall painted galvanized sheet + HekimPor (EPS) (rock wool or polyurethane) + Painted galvanized sheet combined with Hekim sandwich panel is used for exterior and interior walls.
Ceiling: painted galvanized deck sheets + polyurethane (rock wool (HekimPor (EPS))+ painted galvanized deck sheets. Hekim sandwich panels are used.
It can be used in any climatic zone.

Karmod (Turkey)
Dimensions 2,99x6,94x2,64m
Area: 7,2m²
Living area per person: 2,6 m²/person
The exterior and interior panels are made of double sided cement board 8X1250X2500 mm. Rigid expanded polystyrene 84 mm with 12 density is used between cement panels for insulation. Outer panel thickness is 10 cm, inner panel thickness is 6 cm, panel height is 250 cm.
Roofing trusses, beams and columns are made of galvanized steel profiles of a special form. A shaped steel truss is installed along the building every 1250 mm, and a shaped galvanized steel girder is installed on top of the truss. Bolts and nuts are used during assembly so that the building can be assembled many times.
Plasterboard boards of 12 mm are used to cover the ceiling. To insulate the ceiling, 80 mm glass wool is laid over the drywall of the suspended ceiling. PVC coating is used to add some aesthetic appearance to Omega ceiling profiles. A cement board is used as a ceiling covering for wet areas.

BlockModul(Ukraine)
Dimensions: 6x2,5m
Area: 15m²
Living area per person: 7,5 m²/person
Cost: from 6000$
Structural system: all-welded steel frame, sandwich panel walls, ROCKWOOL basalt wool insulation (or similar type)The module consists of a residential block, which includes 1 room and a bathroom.
The house has lighting (energy-efficient LED), electricity (sockets, switches), plumbing (shower, toilet, washbasin, water heater), reinforced-plastic windows, entrance doors are made of metal, interior - of medium density fibreboard (MDF). Additional systems are possible. It can be operated all year round.

The Relief Housing Unit (RHU)
(Better Shelter, UNHCR, IKEA Foundation)
Dimensions: 5,68xx3,32x2,83m
Area: 17,5m²
Living area per person: 3,5 m²/person
Cost: 1150 €
Structural system: the roof and wall panels are made of polyurethane foam, treated with UV protection. The frame consists of light galvanized steel pipes. Screws, bolts, and brackets used to attach the square to the frame, are made of plastic.
Shelters can be disassembled, packed, moved, and reassembled. Disassembly takes about 2 hours and requires a team of at least four people.

Balbek Bureau, Kiev, Project for Modular Refugee Housing, 2022




16
18
16A – 16E
18A – 18E

Readings for Week 5

Contexts: adaptation to built environment
Optional reading: Mario Gandelsonas, “The City as the Object of Architecture.” *Assemblages* No. 37, 1998. [PDF on course website]

Ornament: pattern and structure
Antoine Picon, “Introduction: Architecture as Ornament?” in *Ornament: The Politics of Architecture and Subjectivity.*