Green Social Housing Project

THE HOUSING INITIATIVE MOCK SHARKROOM



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Green Social Housing Project

1) **Green Thinking :** Mythology of the Project
2) **Green Buildings:** Urban Planning, building Design and construction
3) Integrating the green Technologies such as Solar systems and Grey water
4) Green Certification by GPRS and its alignment with Edge
5) **The Green Living** : Project's reality and photos from the site
6) The way forward to **The Green Future of Africa**



General information: Green Social Housing

Project/Initiative Name	Green Social Housing Project
Location	Egypt in 4 new cities in Cairo and upper Egypt in 3 climatic zones
Time Frame	Started at 2020 and the first phase ends in 2024
Current status	Construction began in several Egyptian cities, where we aim to build 1,000 housing units as the first stage to conduct some environmental studies and we aim to reach 25,000 units in 2024
Stakeholders	SHMFF, World Bank, HBRC, NUCA, Private sector
Scale (Number of units/loans…)	25.000 first phase Total Cost: 350 M $
Names of funders	SHMFF & World Bank
What market is the project targeted at	low-income Egyptian citizens and aims to build environmentally friendly and energy-efficient units for them
Impact	energy consumption by 35%, reduce carbon emissions by 33% - reduce water consumption by 40%, and reduce solid waste to 60%





Egypt has developed “Sustainable Development Strategy” which is Egypt Vision (2030). At the core of this vision, is the creation of sustainable urban communities, increasing energy and water efficiency, and reducing negative impacts of buildings on the environment.





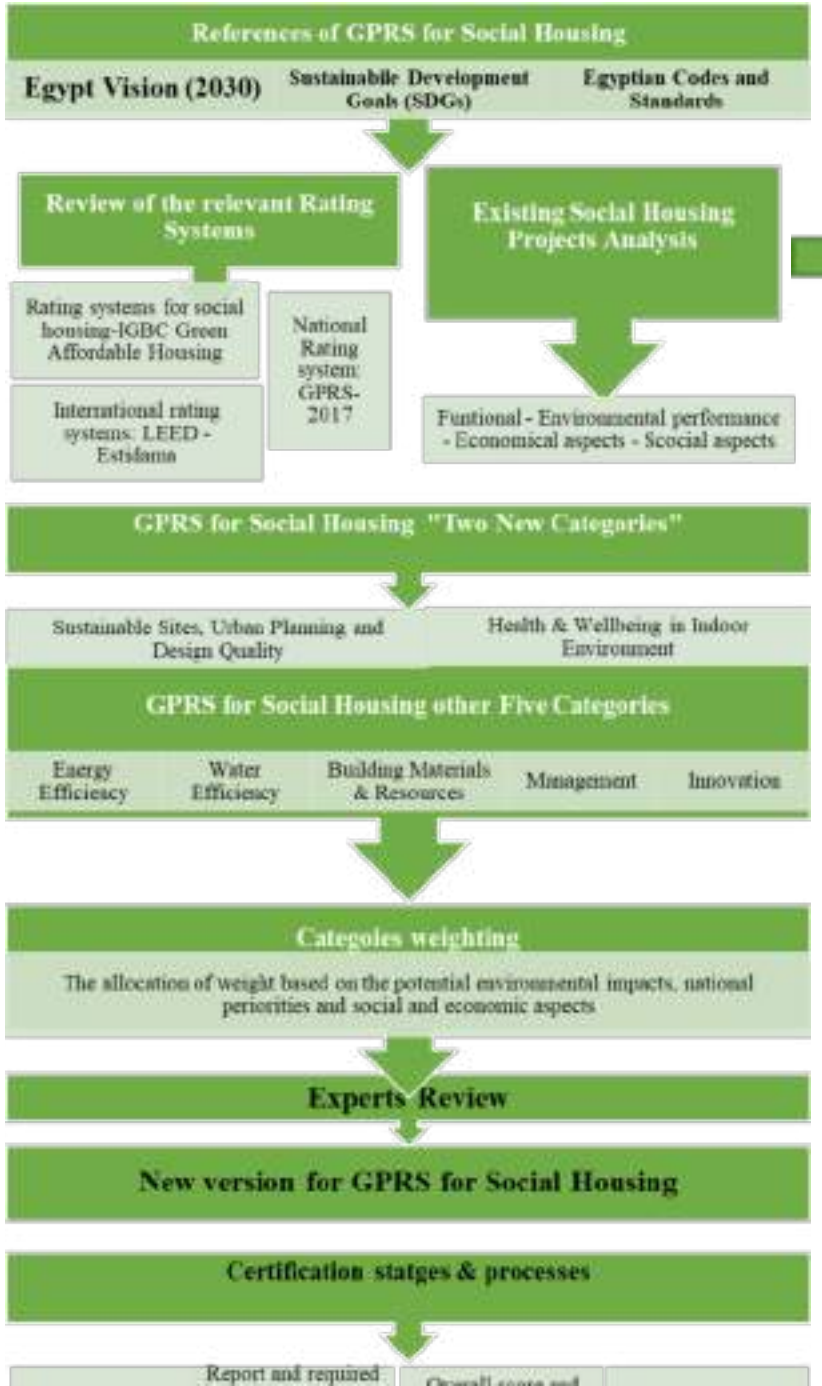
Green Building

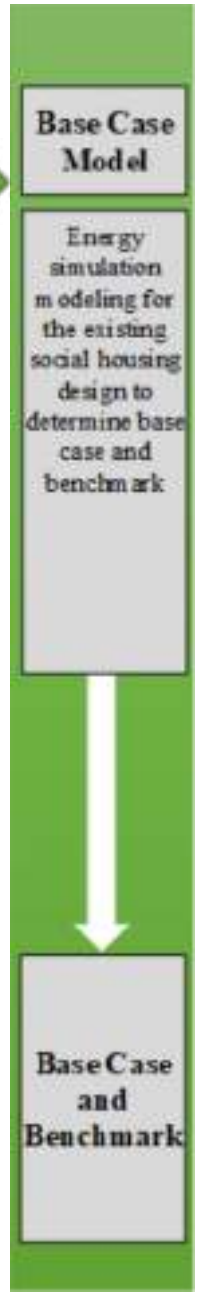


Green Social Housing

Methodology

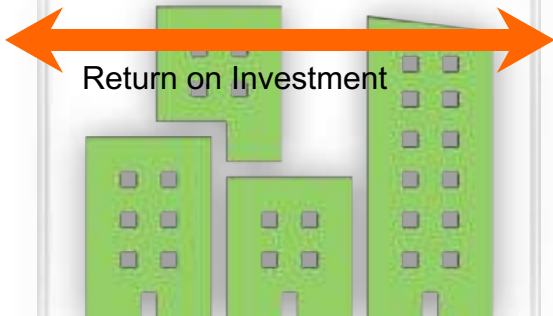
Sustainable Design Priorities





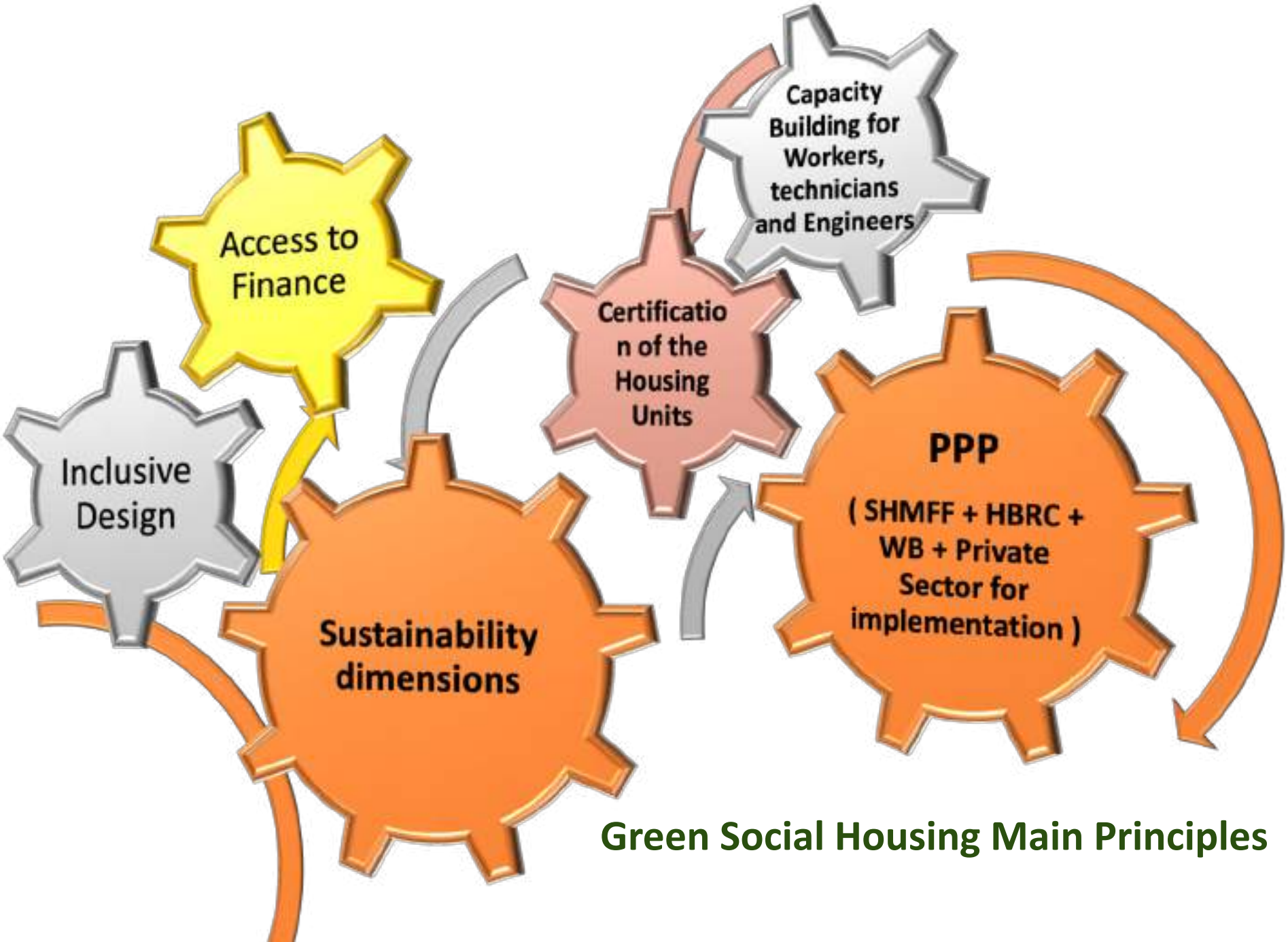
5. **Innovative Technologies (PV, Solar, Wind, Biomass etc.)**
4. **Systems and Efficiency (Natural, Mixed Mode, AC system Choice)**
3. **Function (Equipment, Lighting, Day lighting)**
2. **Facade (Passive Shading, Thermal, Light Transmission)**
1. **Location, orientation, building mass and shape**





Adapted from
Hilson Moran, London

GREEN THINKING

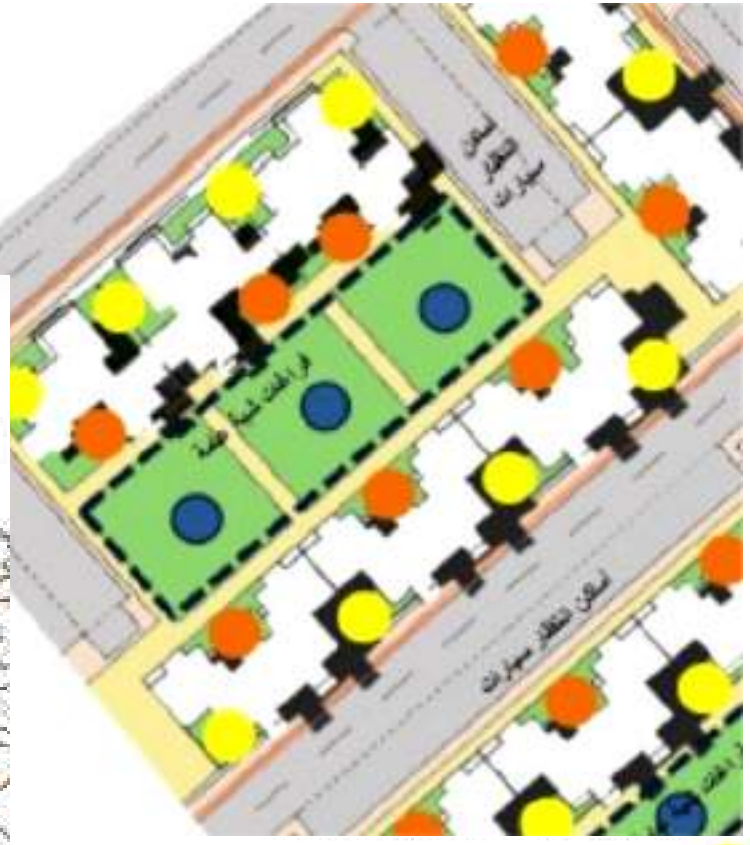


Green Social Housing Main Principles

Green Urban Design and Plannin

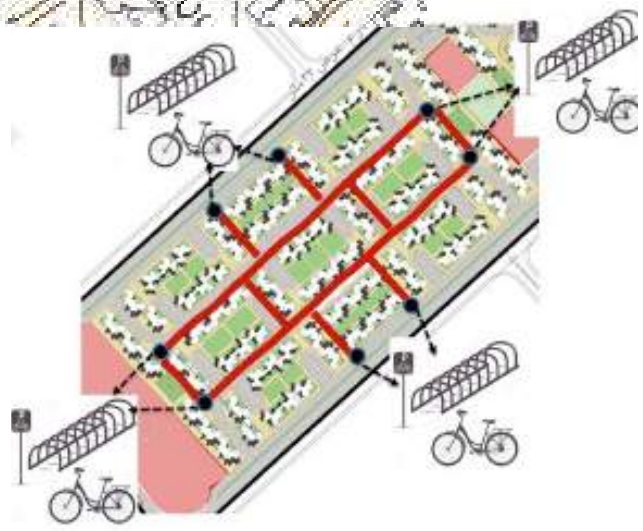
- Hierarchy in open spaces (semi private - semi public - public).
- Created **Urban spaces that enhance wind movement within buildings**
- **Cycle lanes were added.**
- Created green areas and playgrounds for upgrading residents' quality of life and increasing social interaction.
- Create children playgrounds that could be easily supervised by parents.
- Creates public spaces that could be used as courts or parks.
- Compacted pattern reduces the facades exposure to solar radiation.











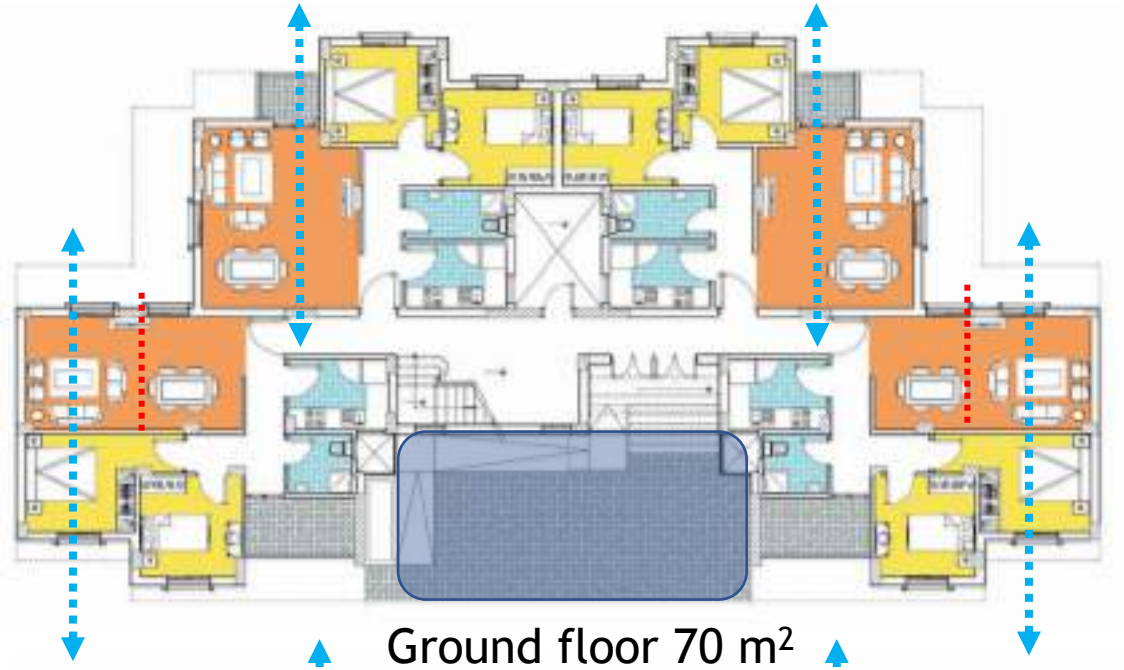
Garden for ground floor

Garden for the building

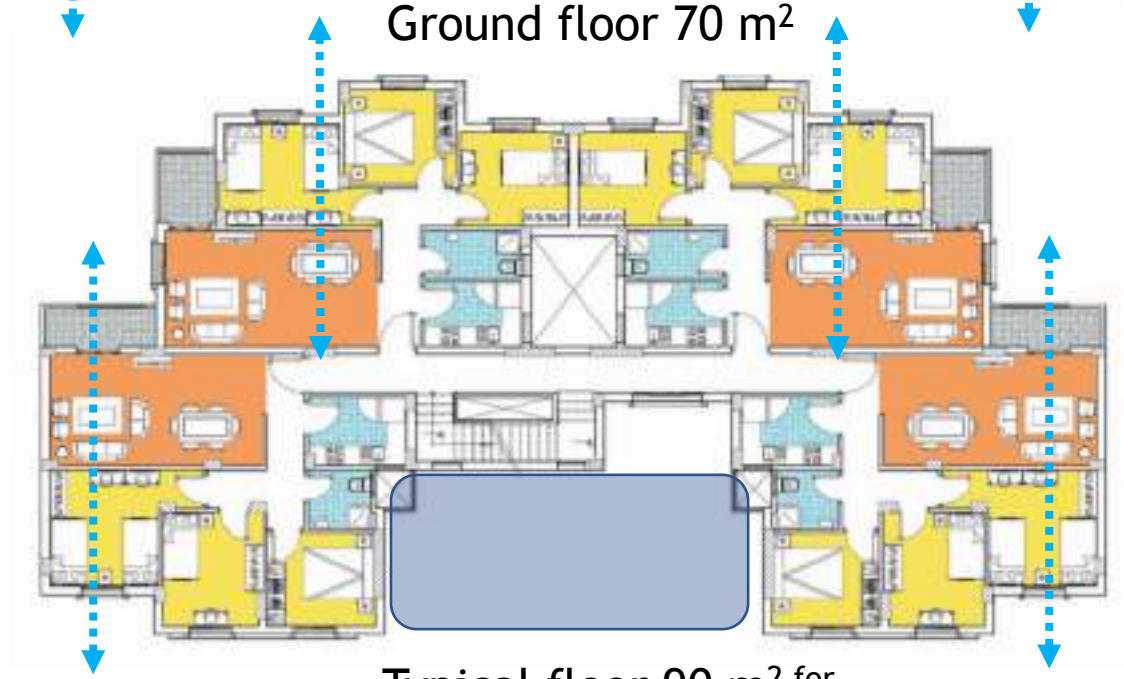
Semi-public space



New Prototypes- 4 Units Prototype



Ground floor 70 m^2

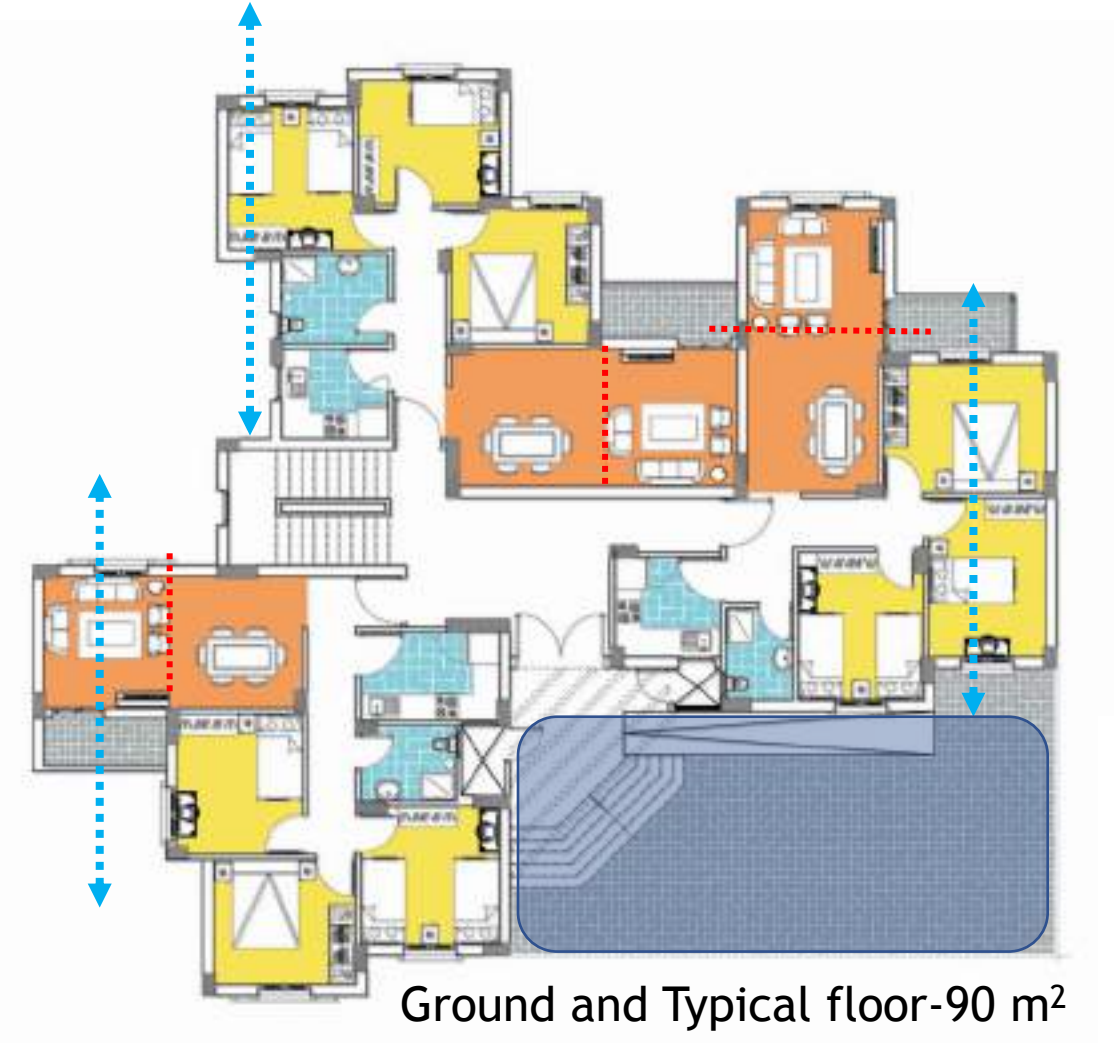


Typical floor 90 m^2 for

Functional performance	Thermal and Environmental performance
Indoor corridor was designed to separate the living zone from other zones and increasing the privacy of the unit without wasting any area from the living space.	Every unit has two opposite orientations which enhances natural ventilation.
	Green areas surrounding the buildings reduces the heat reflected on facades.
Design of units is flexible to accommodate any future needs, where the living area could be divided into two rooms by partitions.	The building has a courtyard that has a role in cooling the building.
	Protrusions in facades cast shades that reduces the temperature.
The building has a courtyard that provides a place for children to play safely under the supervision of their parents.	Design of buildings allow attaching the buildings together hence increasing surface area to volume ratio and avoid heat entering the units.
	Thickness of exterior walls is 25cm + white mortar with Perlite.



New Prototypes- 3 Units Prototype



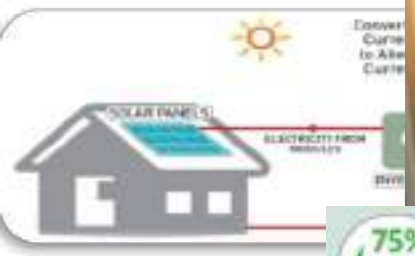
Ground and Typical floor-90 m^2

- 25 Cm Hollow clay bricks
- Low Clinker Cement
- White mortar with Perlite for thermal insulation
- Roof thermal insulation



Energy Efficiency & Solar Systems









Green Energy

- 3256 tons CO2 Savings for the first 1000 units

Improving electricity access

- 340 MWh produced energy every year with total of 3100 MWh for the system life time.

Actual Saving for residents electrical bills

- Saving money of buildings service loads(elevators, Stairs lightening and water pump)
- Around 246,500 EGP saving every year.

Raising Awareness

- The project has goal to raise awareness of 6840 housing unit residents.
- Around 504 housing unit will directly benefits of the project.



Energy Efficiency & Solar Systems



Grey Water for the first time in Social Housing







The Green Pyramid Rating System for Housing

- The system comprises SEVEN rating Categories.

- Category 1 — SUSTAINABLE SITE, URBAN PLANNING AND DESIGN QUALITY
- Category 2 — Energy Efficiency
- Category 3 — Water Efficiency
- Category 4 — Building Materials and Resources
- Category 5 — HEALTH AND WELLBEING
- Category 6 — Management
- Category 7 — Innovation and and Added Value

Alignment with Edge



65% - < 80%

50-65 credits

40-50 credits

30-40 credits

Certification and Levels of Rating

GPRS Rating Categories

Sustainable Sites, Urban Planning and Design Quality

Credit points

- **Access to Community services**
- **Climate Responsive Planning and design**
- **Public Transportation and Accessibility**
- **Comfort and Health**

Energy Efficiency

Credit points

- Energy Efficient Building Envelope
- Energy monitoring and reporting
- Energy Saving Measures in Appliances & other Equipment
- Renewable energy sources
- Efficient Artificial Lighting Systems

Water Efficiency

Credit points

- Reduce the water use by the building
- Recycle, reuse, and recharge of water /waste-water treatment
- Water recycle and reuse (including rainwater)

Building materials and resources

Credit points

- Use of Locally procured materials
- Use of natural materials
- Use of recycled materials
- Construction and Demolition Waste Management
- Life Cycle Impacts – CONCRETE

HEALTH & WELLBEING IN INDOOR ENVIRONMENT

Mandatory

- **Quality Control of Indoor Finishing**
- **Natural Fresh Air Ventilation**
- **Cross Ventilation**

Credit points

- **Indoor Air Quality (IAQ)**
- **Thermal Comfort**
- **Day Lighting**

Management

Credit points

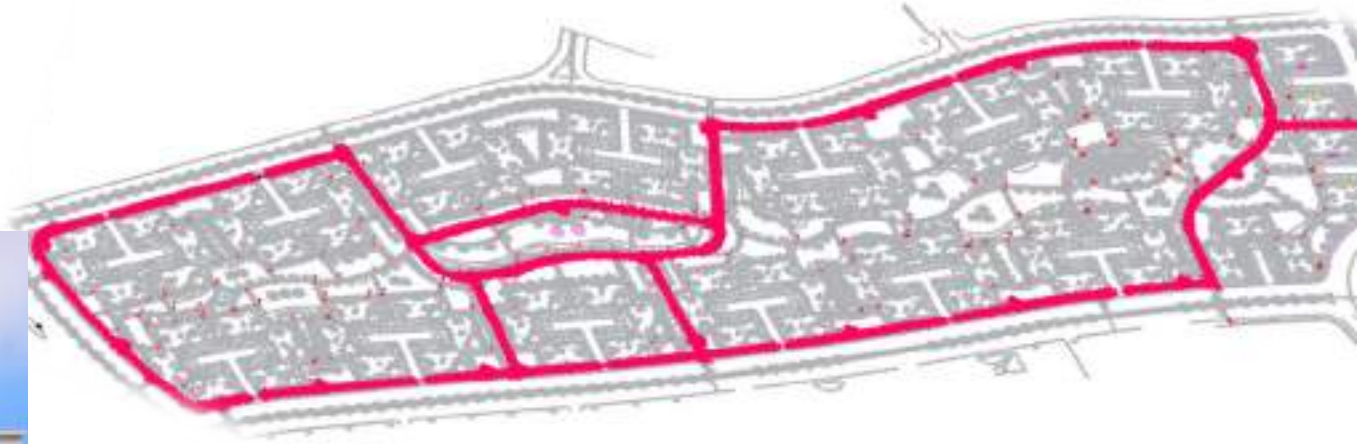
- **Separation of House-hold Waste**
- **Building User Guide**
- **Periodic Maintenance Schedule**

Green Social Housing Project



Bicycles lanes









Bicycles Lanes









Starting date	Cost (1000 EP)	Exact length (Km)	Name of the district
2022/05	450k	1.78	مسار رقم (1) حي الزهور- منطقة الياسمين
2022/11	450k	1.22	مسار رقم (2) حي الزهور – منطقة القرنفل
2022/11	150k	0.5	مسار رقم (3) حي الزهور- منطقة القرنفل
2022/08	300k	1	مسار رقم (4) حي الزهور- منطقة الورود
2022/11	150k	0.5	مسار رقم (5) حي الزهور- منطقة النخيل

Green Areas, Landscape ,Selecting of plants and drops Irrigation













SYMBOL	BOTANICAL NAME	COMMON NAME
	Phoenix Dactylifera	نخيل بلدى
	Cassia Nodosa	كاسيا نودوزا
	Delonix Regia	بوانسيانا
	Bauhinia Variegata	بوهينيا-خف الجمل
	Koelreuteria Paniculata	كولرتيريا صفراء

موقف الخدمات

Services
Current situation of implementation



Nursery
تم التسليم

Open Market
تم التسليم



%99Playground

1Bakery
%98



Shopping Mall
%98

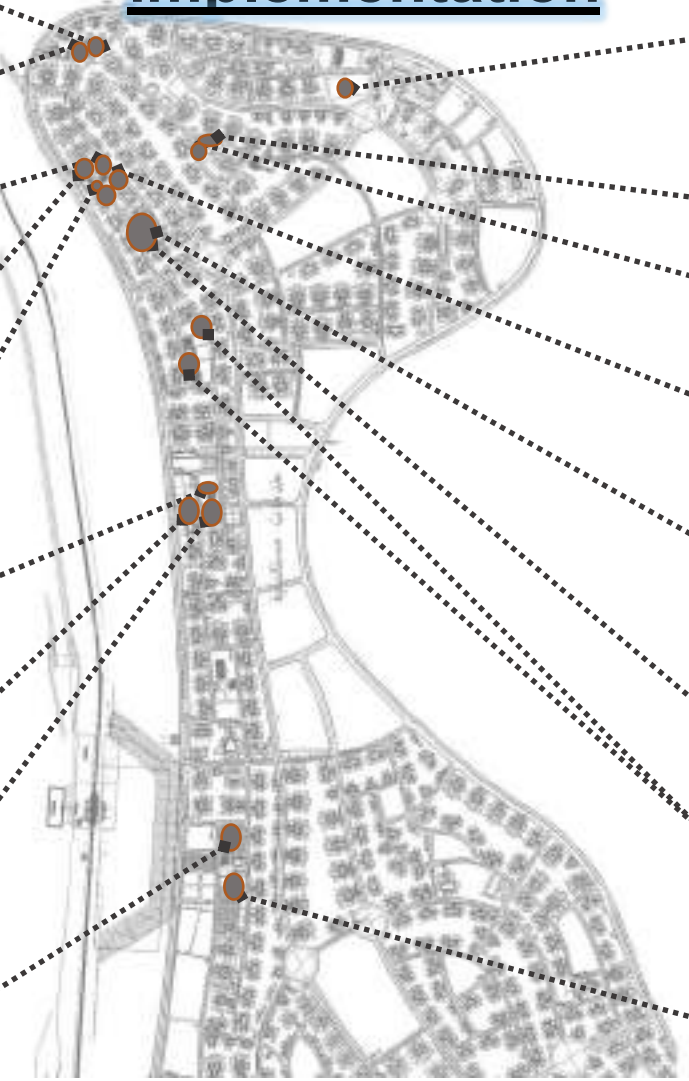
4 مدرسة
(الإسلامية)
%71.4

%30Health Care



سوق 4 (بانوراما)
%82

School
%72



Youth Center
%50.24

Shopping Mall(
%98



Health Care Center
%95

حضانة (2)
المحمدية
%85



Schoolمدرسة
(الكامل)
تم التسليم

سوق تجاري +
حضانة
(مؤسسة
وحدة صحية+
ملعب خماسي+
حضانة+ مخبز +
سوق تجاري
(مكتب الشمس)













Green Social Housing Project

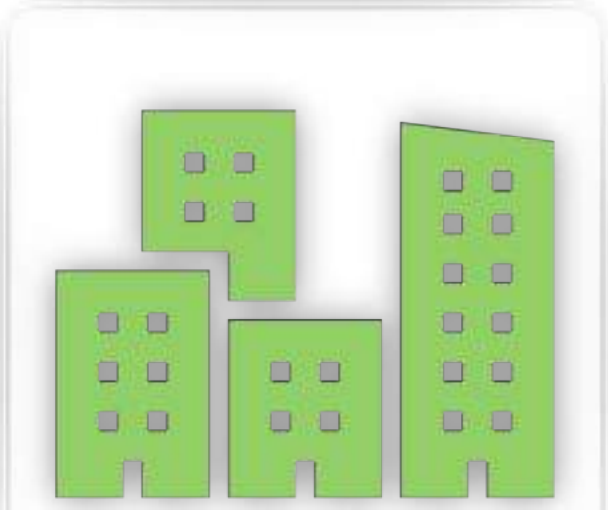


We Don’t Construct Buildings, We are Building the Future

Green Future of Africa



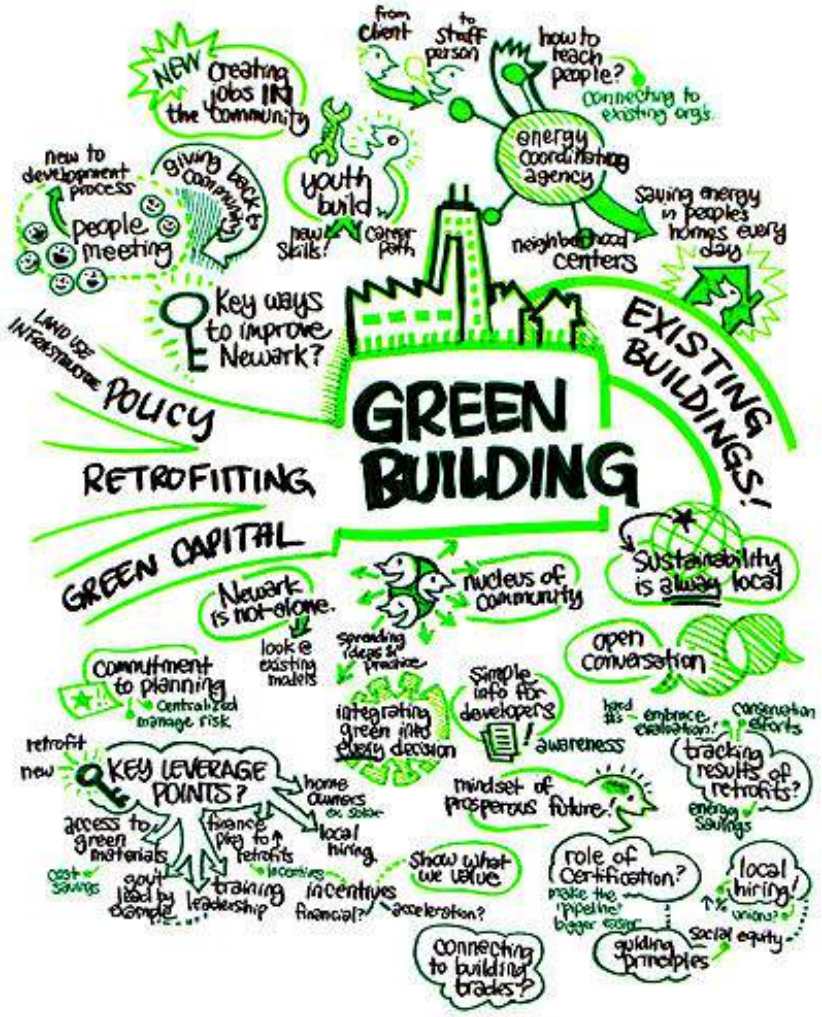
COP27 Presidency Sustainable Urban Resilience for the next Generation (SURGe)



“The Future Will Be Green, or Not at All…

This truth lies at the heart of humankind's most pressing challenge: to learn to live in harmony with the Earth on a genuinely sustainable basis.”

Sir Jonathon Porritt





Source:
www.bee-inc.com/blog/when-one-green-building-certification-isnt-enough