

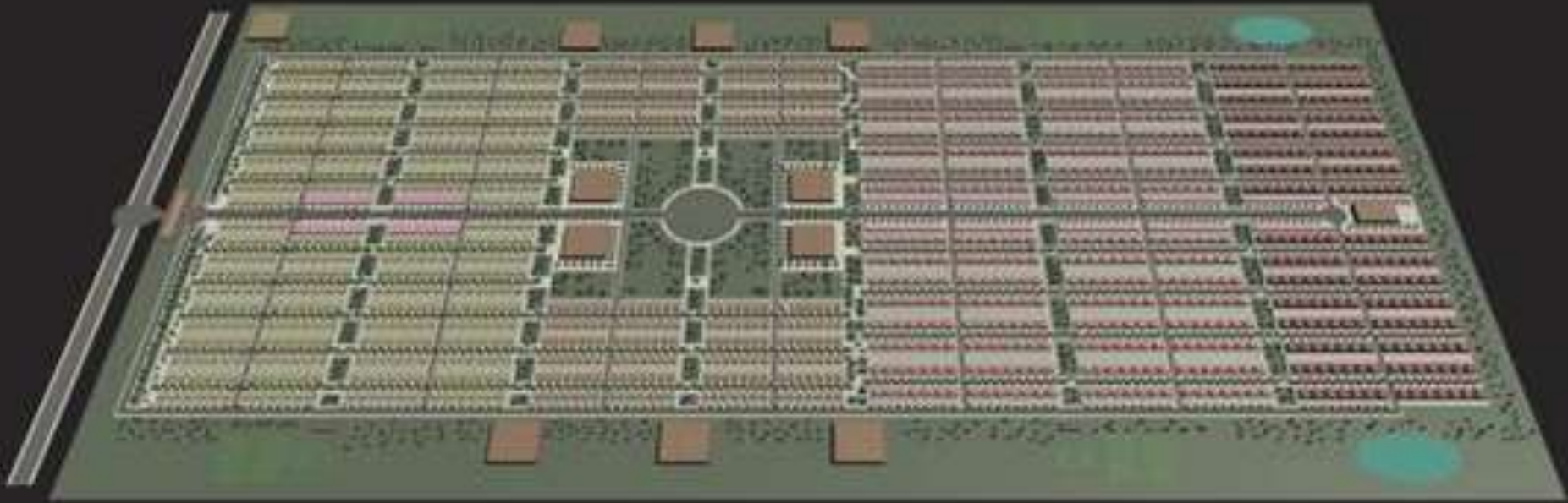


The image shows a top-down view of a large-scale urban development project. The layout is highly organized and symmetrical, centered around a vertical axis. At the top, there are two bright blue circular lights. Below them, a series of orange rectangular blocks are arranged in a grid. The central part of the image features a large, circular green area, possibly a park or a central square, surrounded by more orange blocks. The bottom half of the image is dominated by a dense grid of yellow rectangular blocks, representing residential or commercial units. The entire development is set against a dark background, suggesting a night-time or digital rendering.

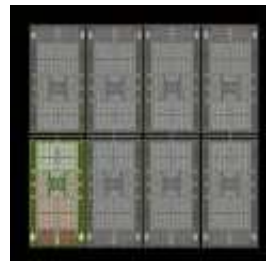
# COMPOSITE VILLAGE

The XXI<sup>st</sup> Century  
construction system

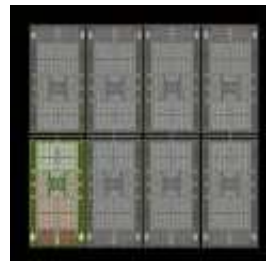
## THE Composite Village



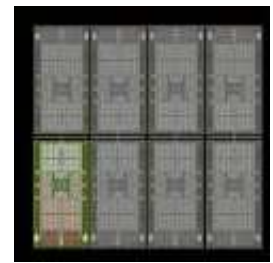
**A complete village made of composite houses, churches, schools, Hospital,  
In a totally protected environment  
All made with AS Composite Inc. automated Factory**



- **This is a project for a 16,000 homes village to be inserted on a 2200 Hectares land.**
- The first phase corresponds to the setting up of the village and construction of a first district of 2,000 homes.
- For the general settlement of the village, we have considered as essential to establish a rational drawing with a main access road and linear green spaces between each condominiums.
- Basic assumptions:
  - Easy access
  - Easy orientation
  - Human space, incitation to community life, peaceful concept, harmony and quietness.
  - Rational traffic, road hierarchy, favoring the pedestrians.
  - Long lasting development
  - Reduce infrastructure costs
  - High speed and reduced construction costs
  - Use of non qualified labor
- Sustainable use of the land have been taken into consideration with the best environmental protection
- Integration of four home types: social, medium, high standing and very high standing, allowing each social group to communicate through a wide linear space, special corners, pedestrian and bicycle ways.



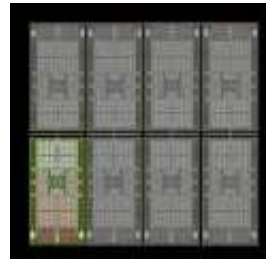
Sustainability assumptions	Urban concept strategy	Urban technique
Sustainable Mobility	accessible distances	Creation of more streets (6m)
		Diferentiation of roads for cars and spaces for pedestrians
	Public spaces favoring meeting and common works	Creation of roads for bicycles
		bioclimatic treatment of public spaces
Neighborhood way	Commun spaces development	Use of architectural elements to build the site identity
		Use of comfortable and shadow spaces like small meeting areas, corners, local streets with no exit
Habitability	Make the local climate milder	Best adjusted sun position establishment predominating
		Create crossed ventilation
		Use vegetation
		importante land area for gardening, trees, shadow.
Urban condensation	Urban drawing to better proportionate the area and contain expansion	Funcional zoning
		Use of twin houses like for social housing
Ecological protection	ecological corridor	Creation of gardens around each residential area
		vegetables and fruit production area
	Parcs	Trees aside streets
		Typical gardens with local trees, plants, flowers
Water treatment	Draining	rain water harnessing system from houses and streets
		Special tanks to keep the rain water
		Specific water treatment established inside the parcks
Waste	Used water	used water treatment incorporated in the local system to water the gardens
		Waste collection
renewable energy	Solar and wind	develop the waste selection and local use when possible (gardens)
		use of solar panels and small wind turbines where possible



- Each district has an area of 256,5 Hectares and has the following land distribution:

AREA	OBJECT		m <sup>2</sup>	%	TOTAL
PRIVATE	HOUSES	SOCIAL HOMES	300 000	11,72%	977 500
		MEDIUM LEVEL	157 500	6,15%	
		HIGH STANDING	360 000	14,06%	
		VERY HIGH STANDING	160 000	6,25%	

PUBLIC COMMUN USE	ROADS	STREETS	200 000	7,81%	1 583 000
		PEDESTRIAN & BICYCLE WAYS	500 000	19,53%	
	GREEN SPACES	LINEAR PARKS (EDGES)	575 000	22,46%	
		CENTRAL PARK	91 000	3,55%	
		PUBLIC WALK WAYS	122 000	4,76%	
SOCIAL EQUIPMENTS	Administration, churches, recycling, shops, schools, health center, sport.	95 000	3,71%		
				100,00%	2 560 500

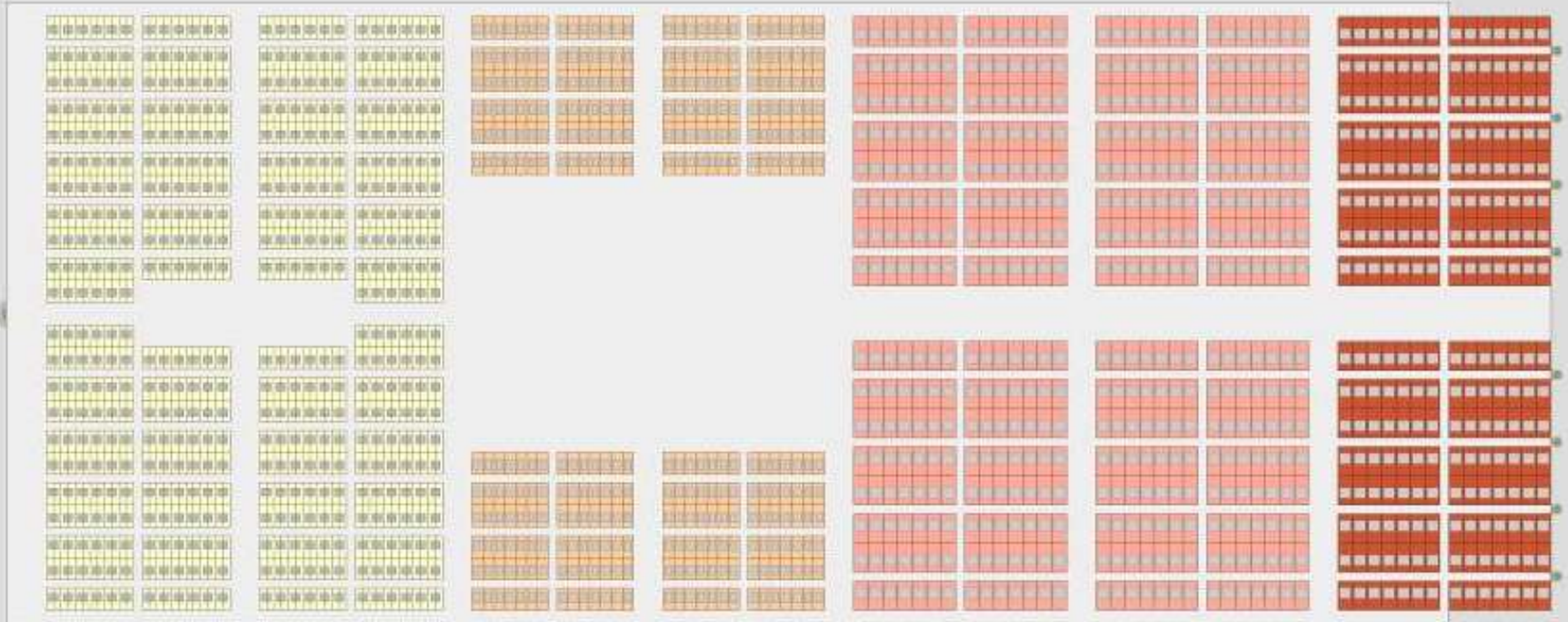


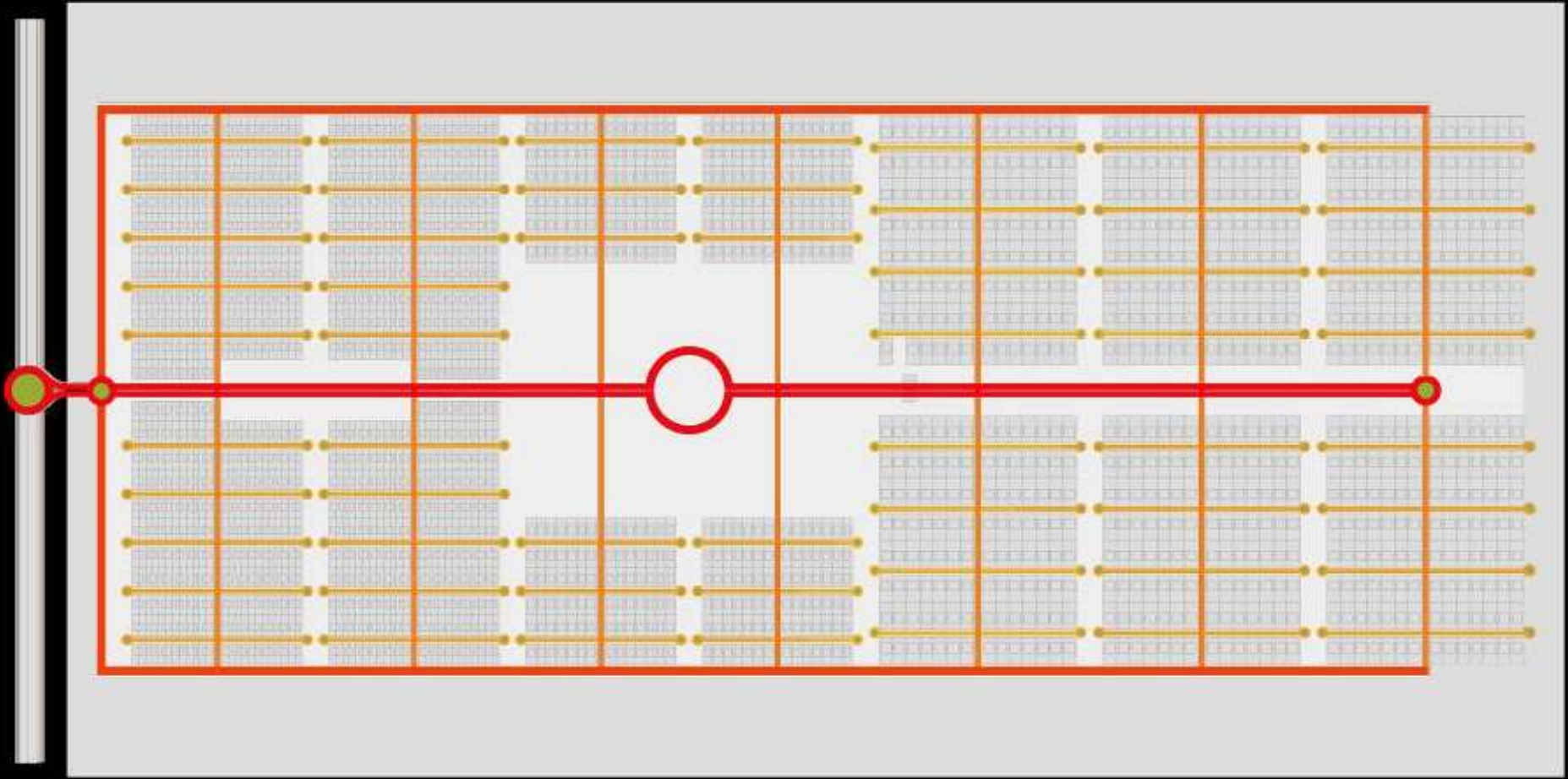
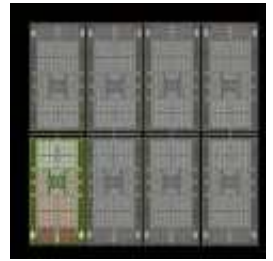
SOCIAL HOUSES


MEDIUM


HIGH STANDING


VERY HIGH  
STANDING

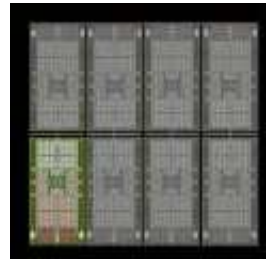




 Main street

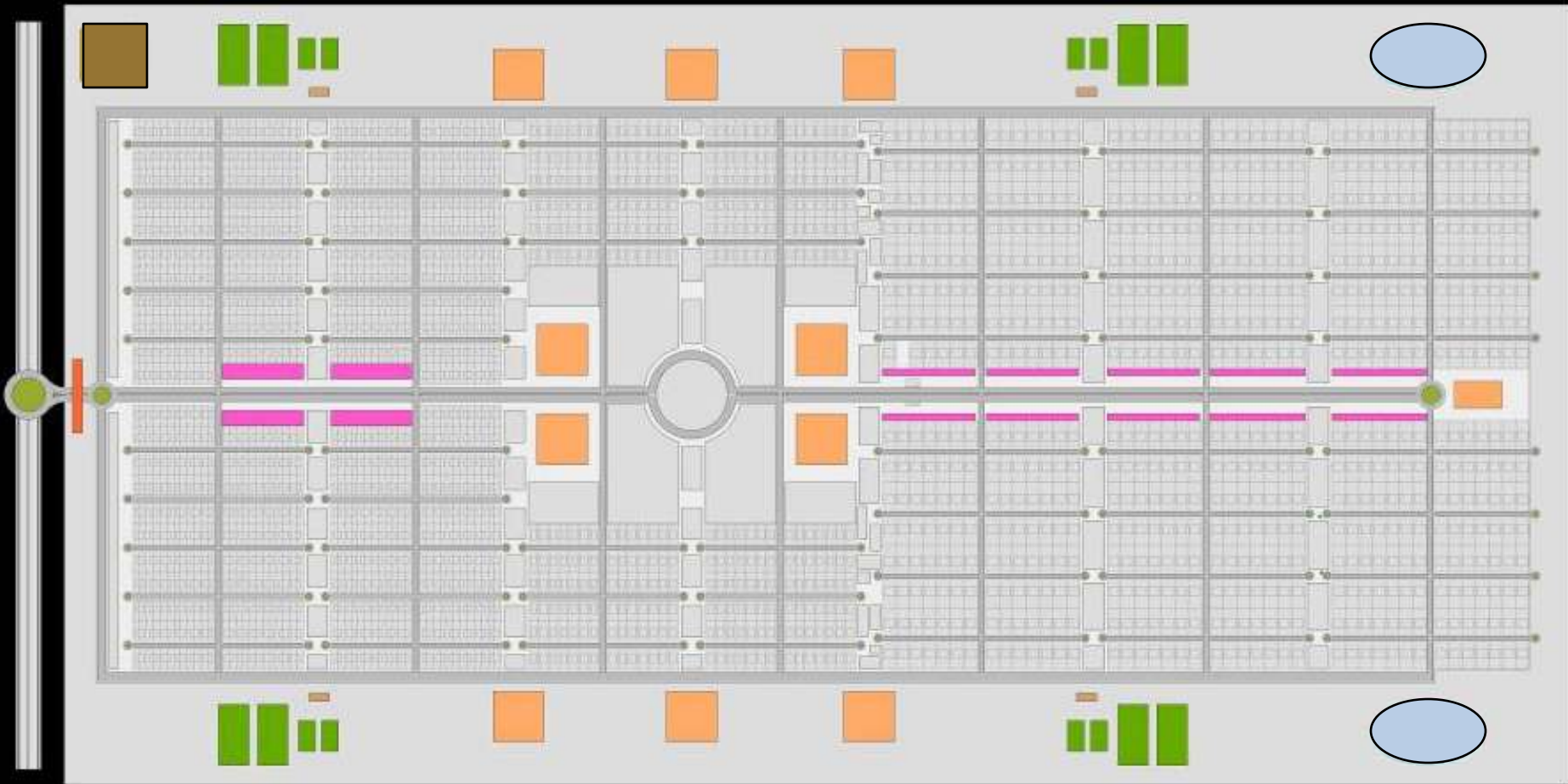
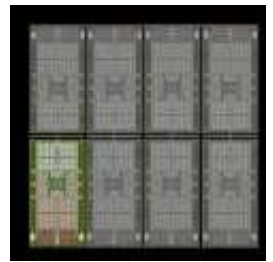
 Transverse streets



 Local streets





- 1 Linear park
- 2 Central park
- 3 Pedestrian walk ways



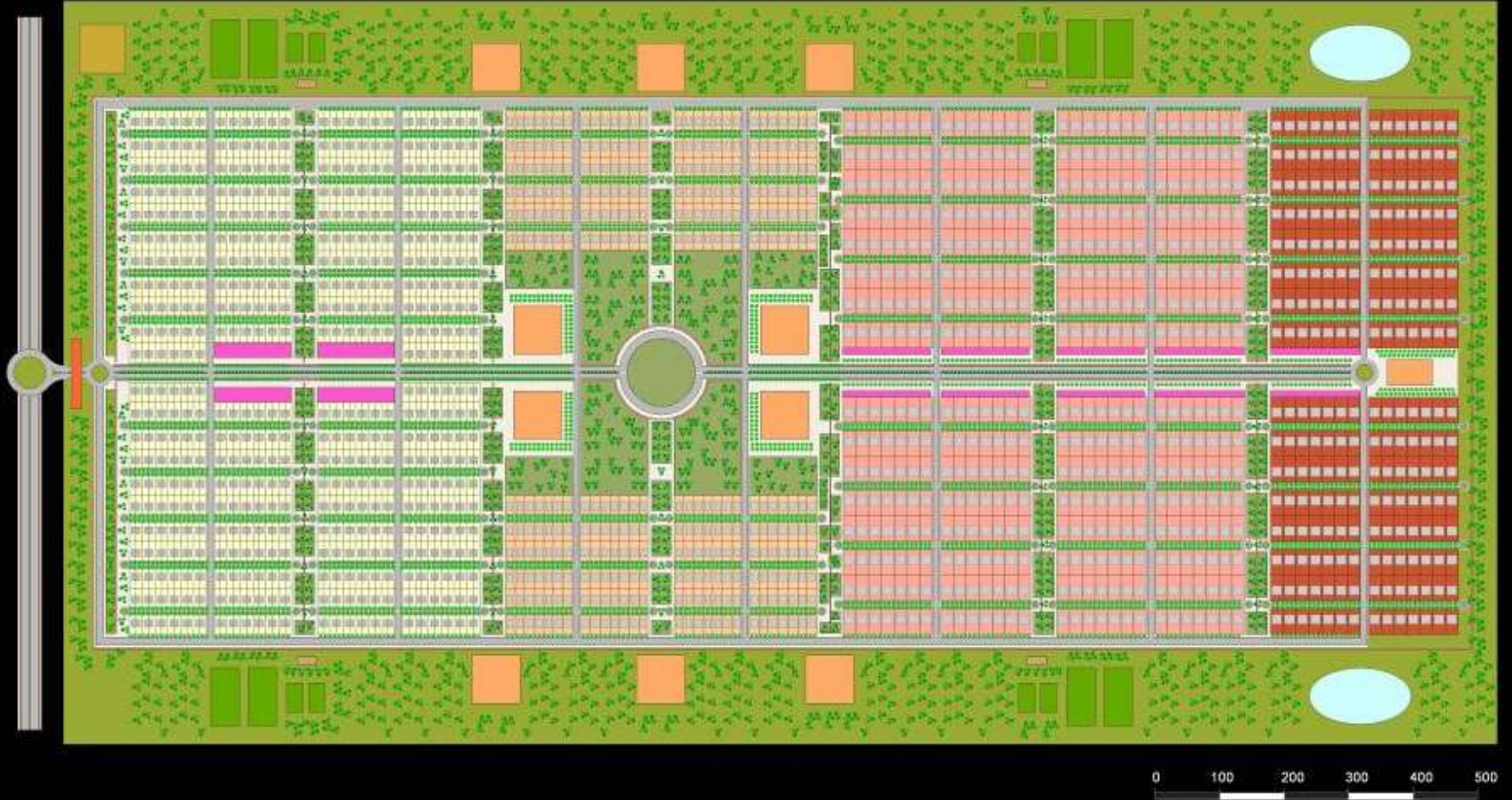
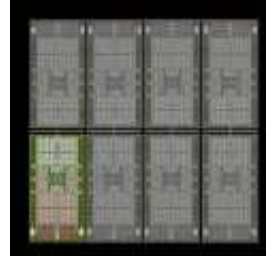


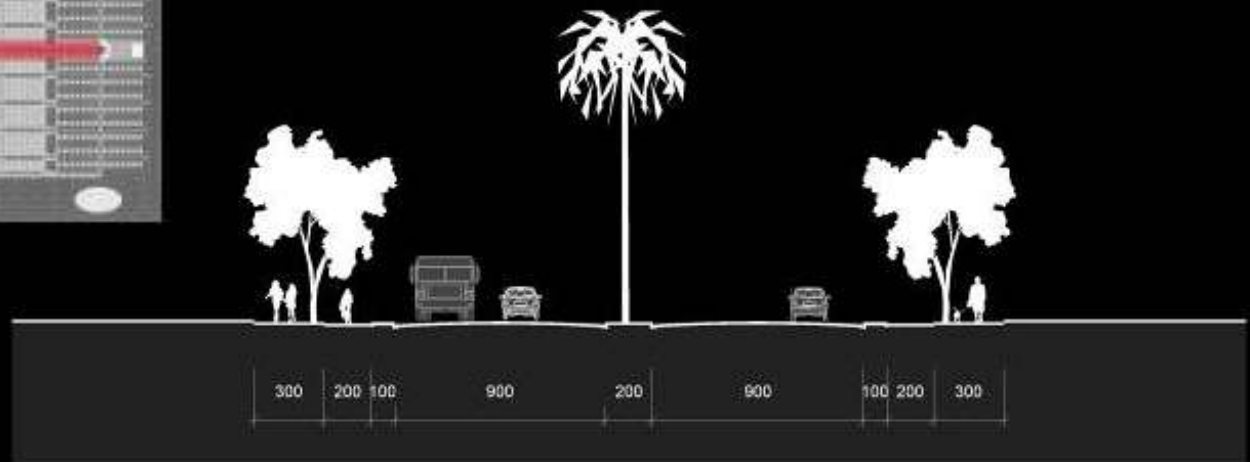
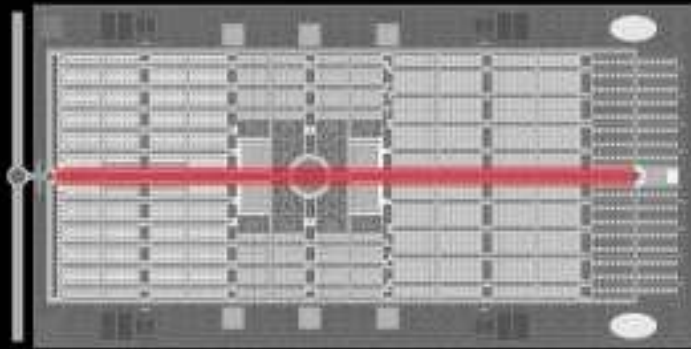
 Shops  
 Recycling Plant

 Schools, Churches, Hospital, Supermarket  
 Water treatment Lake

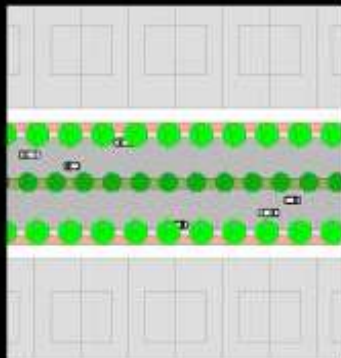
 Parks

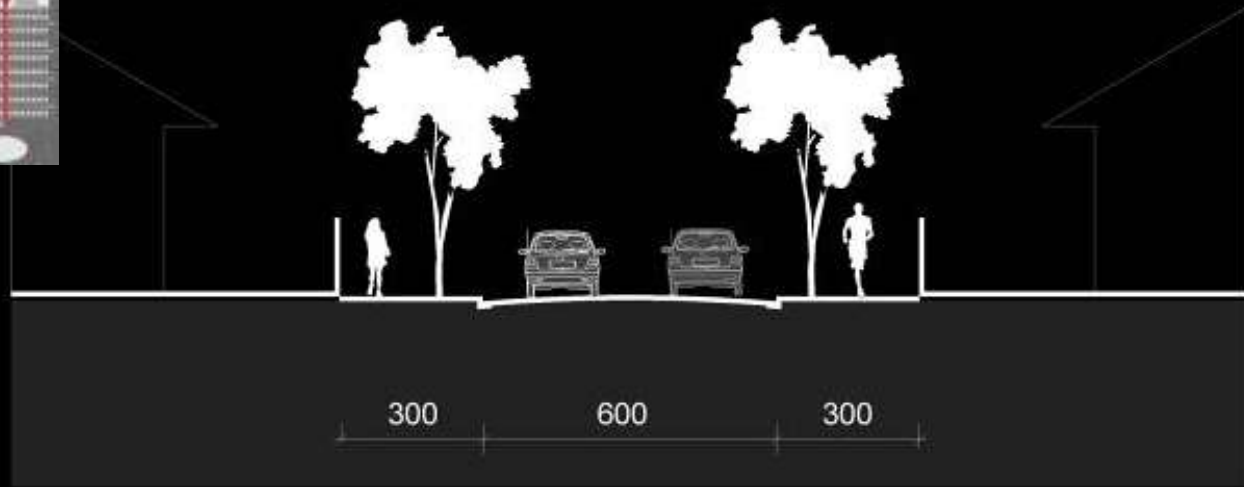
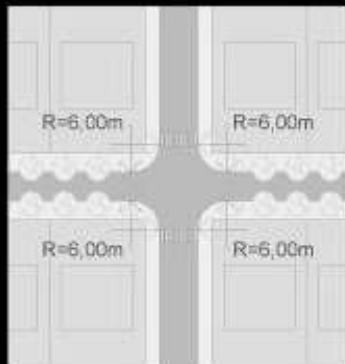
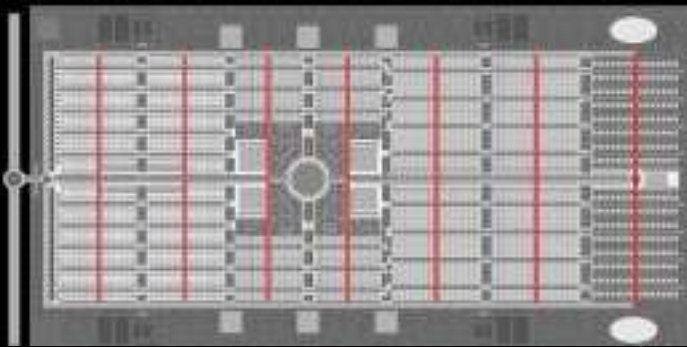
# General View District 256,5 ha





PASEO PEDESTRE TROTTOIR   
 CICLOVA VOI POUR CYCLISTES   
 BANDE DE ROULEMENT BANDE DE ROULEMENT   
 CARRÉ CENTRAL PAVÉES CENTRAL   
 BANDE DE ROULEMENT BANDE DE ROULEMENT   
 CICLOVA VOI POUR CYCLISTES   
 PASEO PEDESTRE TROTTOIR

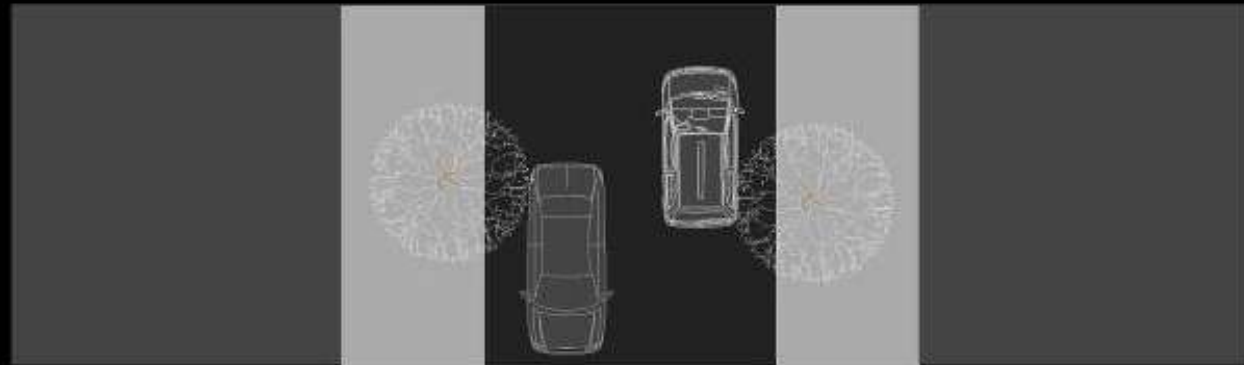


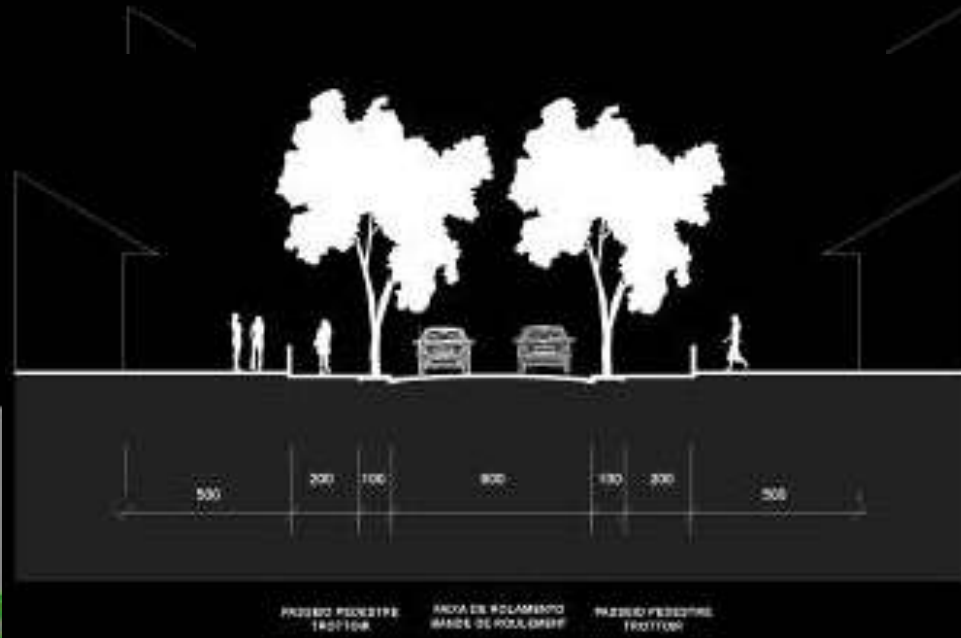
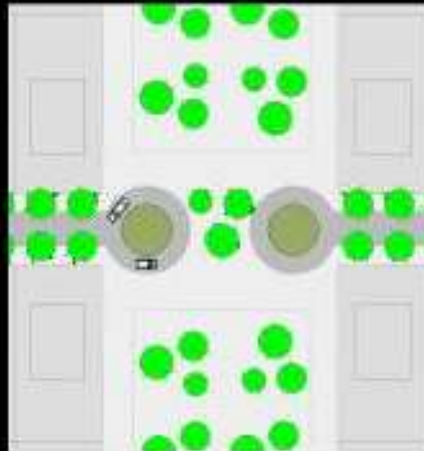
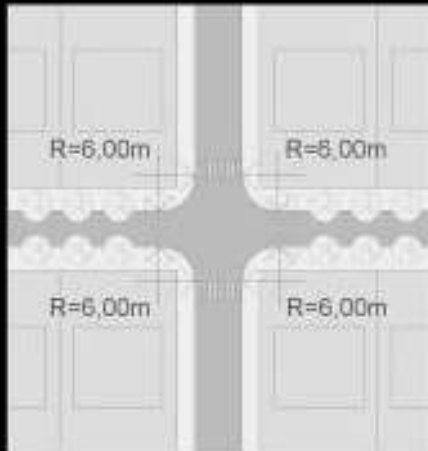
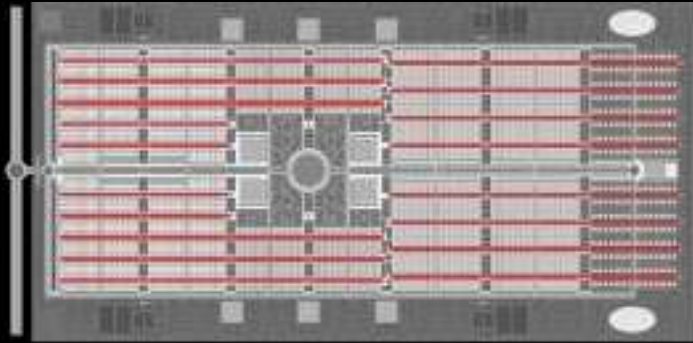


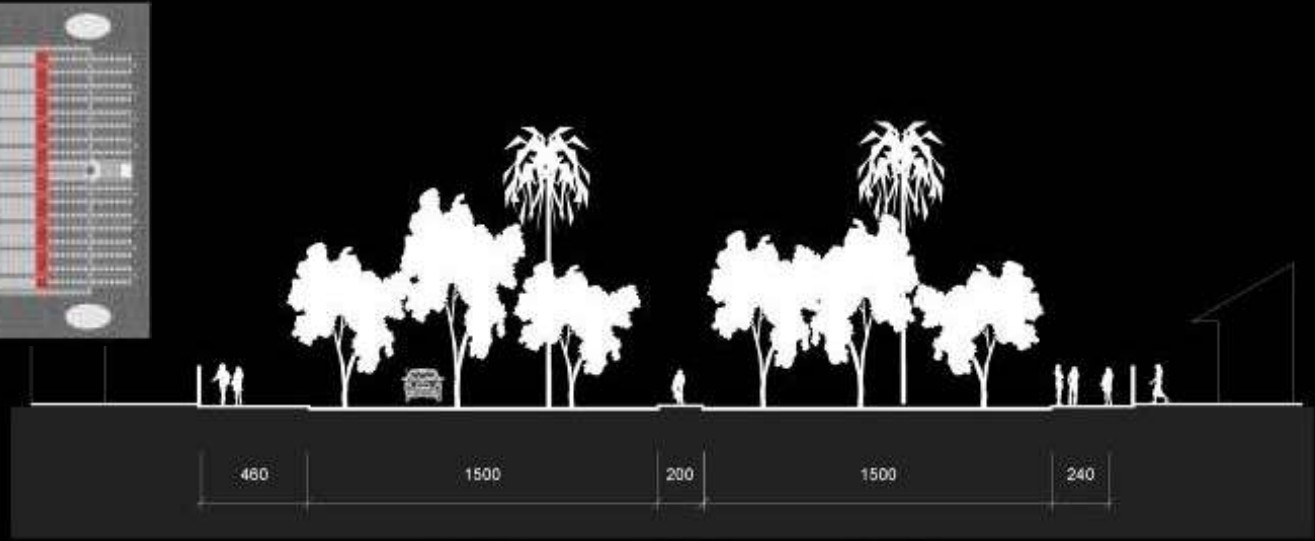
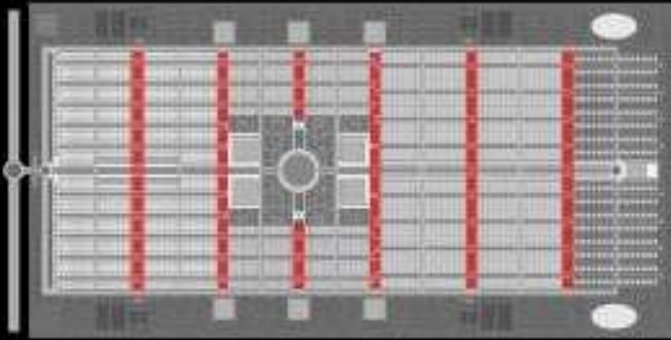
PASEO PEDESTRE  
TRAYECTOR

PARRA DE POLARIZADO  
BANCO DE RODAMIENTO

PASEO PEDESTRE  
TRAYECTOR







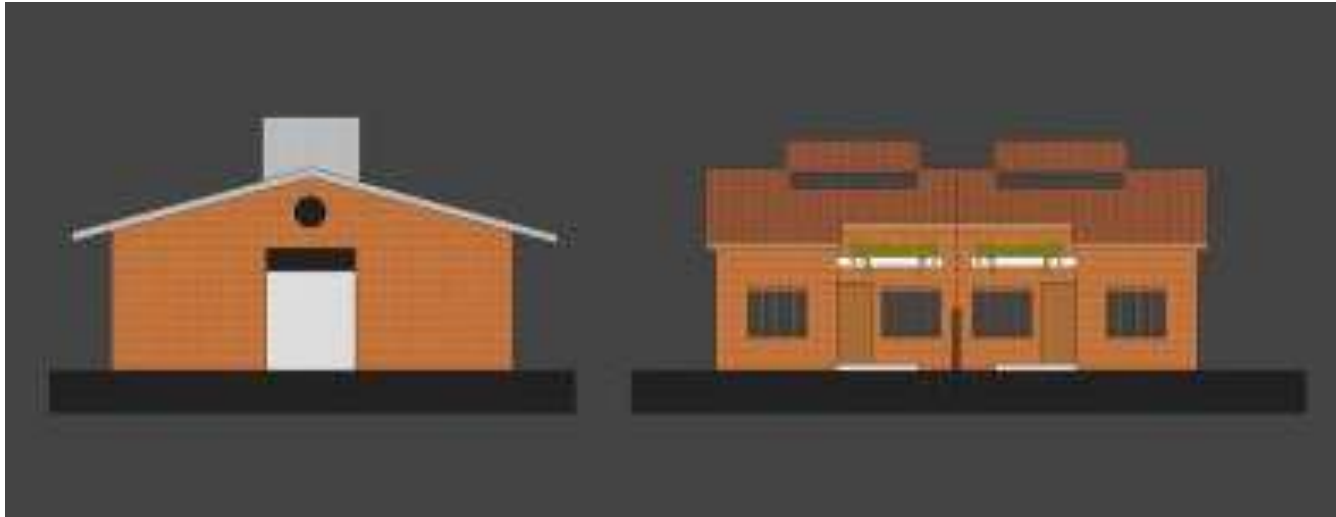
FAJADO PEDESTRE TROTTOIR      CARREFOUR CENTRAL PARTIRONS CENTRAL      PASSAGE PEDESTRE TROTTOIR



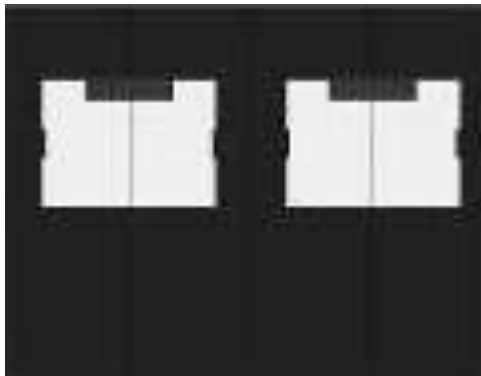
FAJADO PEDESTRE TROTTOIR      CAL. DE ALIC      PASADIS PEDESTRE TROTTOIR      VOIE POUR CYCLES      CAL. DE ALIC      PASSAGE PEDESTRE TROTTOIR

## Home types to build per district

SOCIAL GROUP	HOME TYPE	LAND SIZE m	HOME QUANTITY	HOME AREA m <sup>2</sup>	TOTAL m <sup>2</sup>
SOCIAL	VAN	10 x 30	400	64	25 600
	NOUVEL ART	10 x 30	300	72	21 600
	BOB	10 x 30	150	89,5	13 425
	MARIAM	10 x 30	150	120	18 000
MEDIUM	SARAH	15 x 30	150	148	22 200
	RAISSA	15 x 30	200	198	39 600
HIGH STANDING	SAFFIYYA	20 x 40	150	184	27 600
	MJ	20 x 40	200	260	52 000
	NGOYA	20 x 40	100	320	32 000
VERY HIGH STANDING	IBO	20 x 40	200	338,4	67 680
TOTAL			2 000		319 705



LAND AREA	10 x 30	Description	Quantity
HOME AREA	64 m <sup>2</sup>	Entrance veranda	1
		Garage	
		Living room	1
		Dining room	
		Living/Dining room	
		Office	
		Sink	
		Kitchen	1
		Storage	
		Veranda	1
		Bathroom	1
		Bedrooms	2

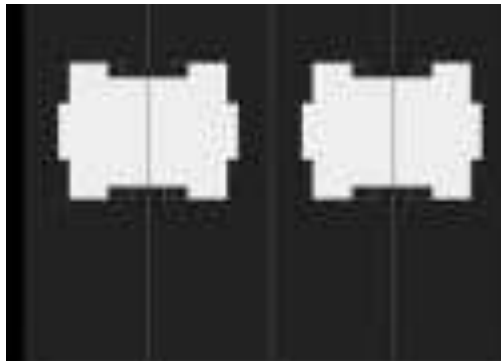






LAND AREA	10 x 30
HOME AREA	72 m <sup>2</sup>

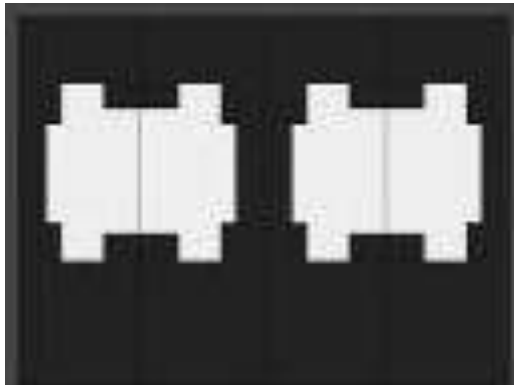
Description	Quantity
Entrance veranda	1
Garage	
Living room	
Dining room	
Living/Dining room	1
Office	
Sink	
Kitchen	1
Storage	
Veranda	1
Bathroom	1
Bedrooms	3

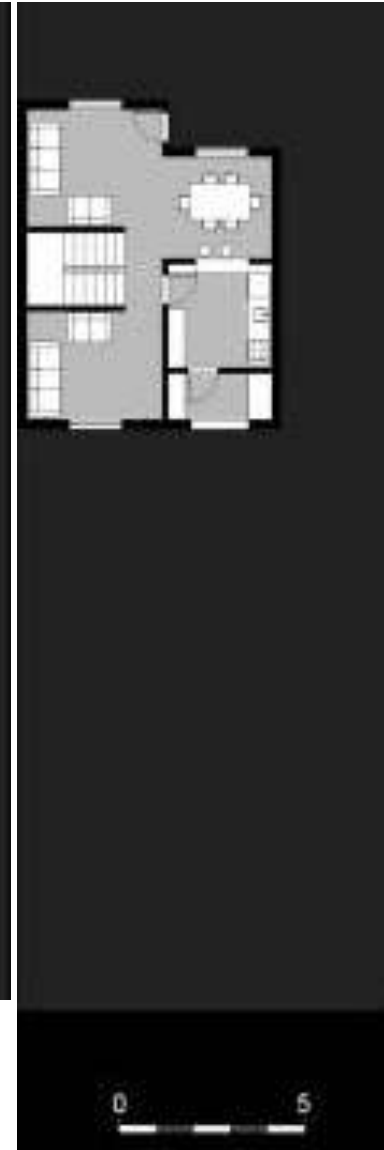




LAND AREA	10 x 30
HOME AREA	89,5 m <sup>2</sup>

Description	Quantity
Entrance veranda	1
Garage	
Living room	1
Dining room	1
Living/Dining room	
Office	
Sink	
Kitchen	1
Storage	
Veranda	1
Bathroom	1
Bedrooms	4



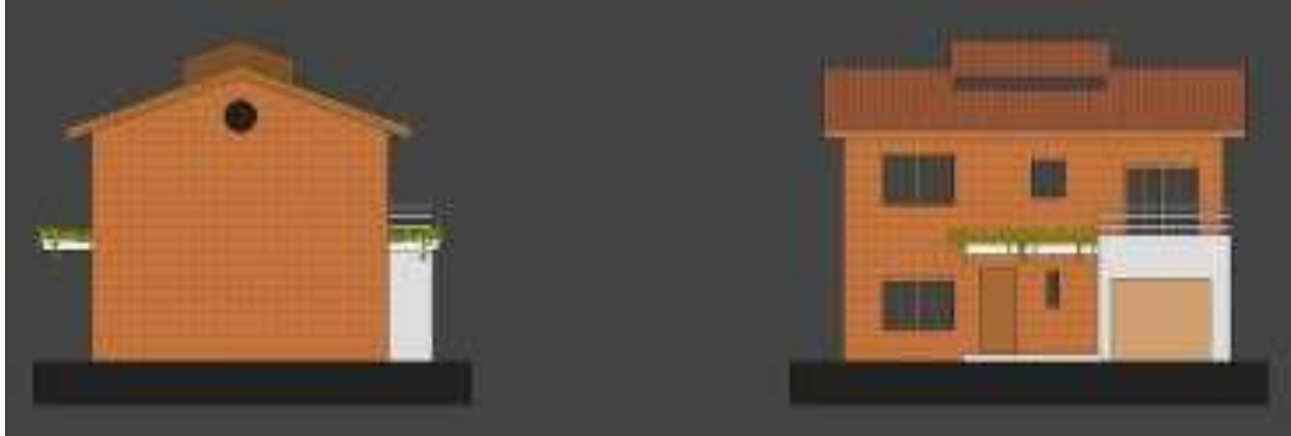


LAND AREA	10 x 30
HOME AREA	120 m <sup>2</sup>

Description	Quantity
Entrance veranda	1
Garage	
Living room	1
Dining room	1
Living/Dining room	
Office	
Sink	
Kitchen	1
Storage	
Veranda	1
Bathroom	1
Bedrooms	4

**2 FLOORS**





LAND AREA	15 x 30
HOME AREA	148 m <sup>2</sup>

Description	Quantity
Entrance veranda	1
Garage	1
Living room	1
Dining room	1
Living/Dining room	
Office	
Sink	
Kitchen	1
Storage	
Veranda	1
Bathroom	2
Bedrooms	4

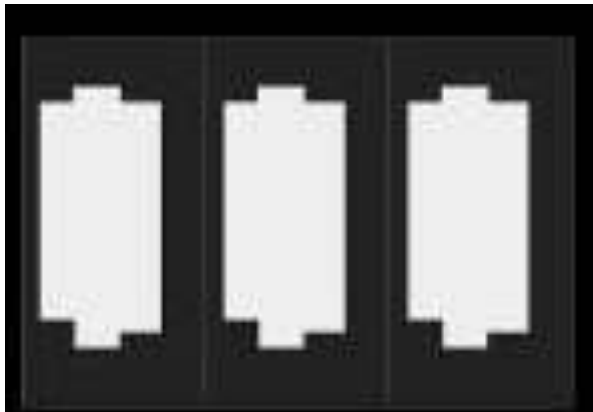
2 FLOORS





LAND AREA	15 x 30
HOME AREA	198 m <sup>2</sup>

Description	Quantity
Entrance veranda	1
Garage	1
Living room	1
Dining room	1
Living/Dining room	
Office	
Sink	
Kitchen	1
Storage	
Veranda	1
Bathroom	2
Bedrooms	4

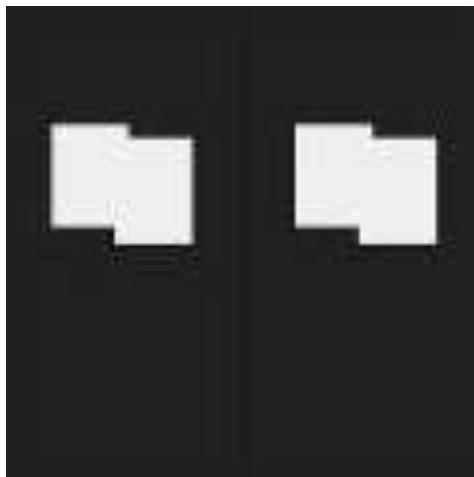




LAND AREA	20 x 40
HOME AREA	184 m <sup>2</sup>

Description	Quantity
Entrance veranda	1
Garage	1
Living room	2
Dining room	1
Living/Dining room	
Office	
Sink	1
Kitchen	1
Storage	1
Veranda	1
Bathroom	2
Bedrooms	4

**2 FLOORS**

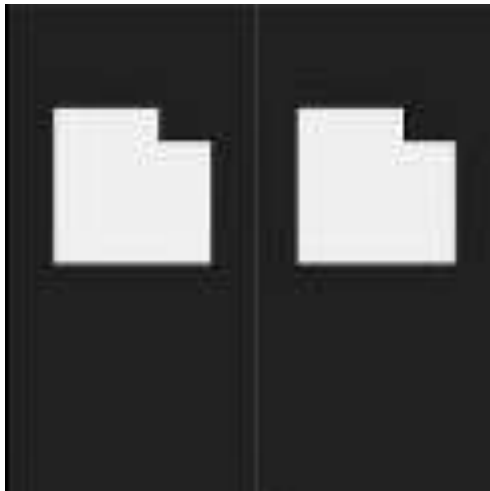


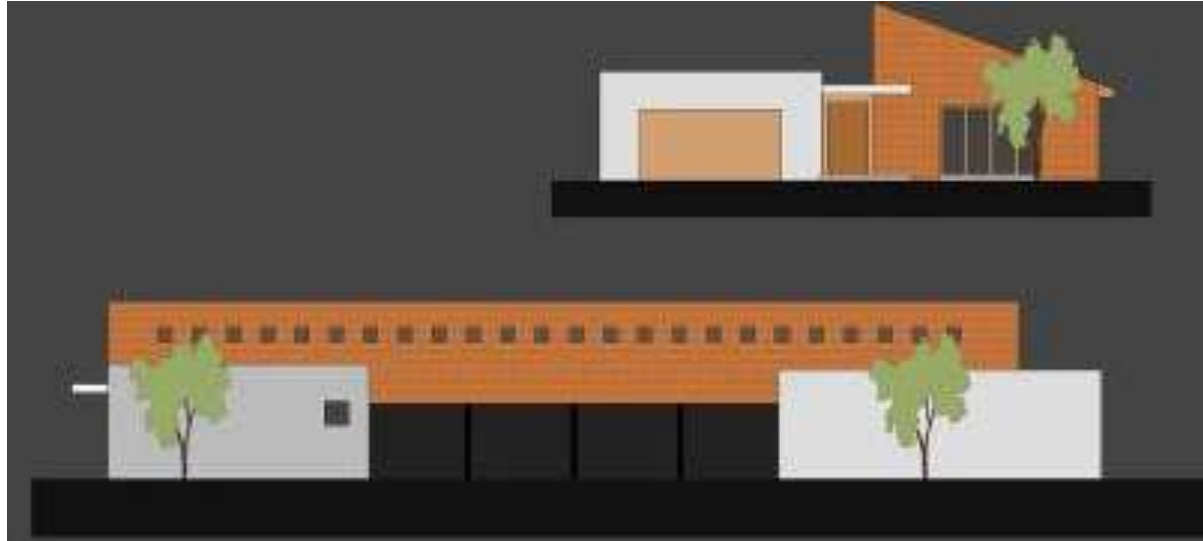


LAND AREA	20 x 40
HOME AREA	260 m <sup>2</sup>

Description	Quantity
Entrance veranda	1
Garage	2
Living room	2
Dining room	1
Living/Dining room	
Office	1
Sink	1
Kitchen	1
Storage	1
Veranda	1
Bathroom	2
Bedrooms	4

**2 FLOORS**



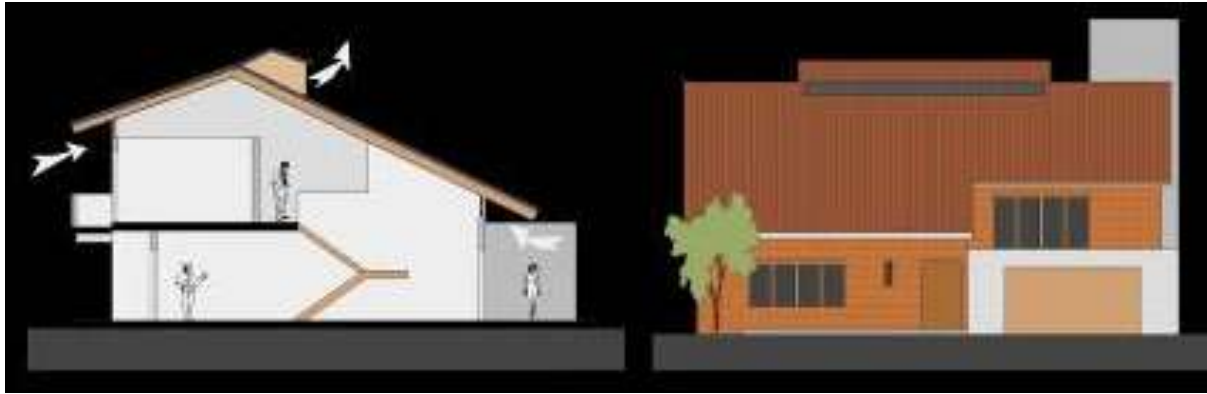


LAND AREA	20 x 40
HOME AREA	320 m <sup>2</sup>

Description	Quantity
Entrance veranda	1
Garage	2
Living room	2
Dining room	1
Living/Dining room	
Office	1
Sink	1
Kitchen	1
Storage	1
Veranda	1
Bathroom	2
Bedrooms	4



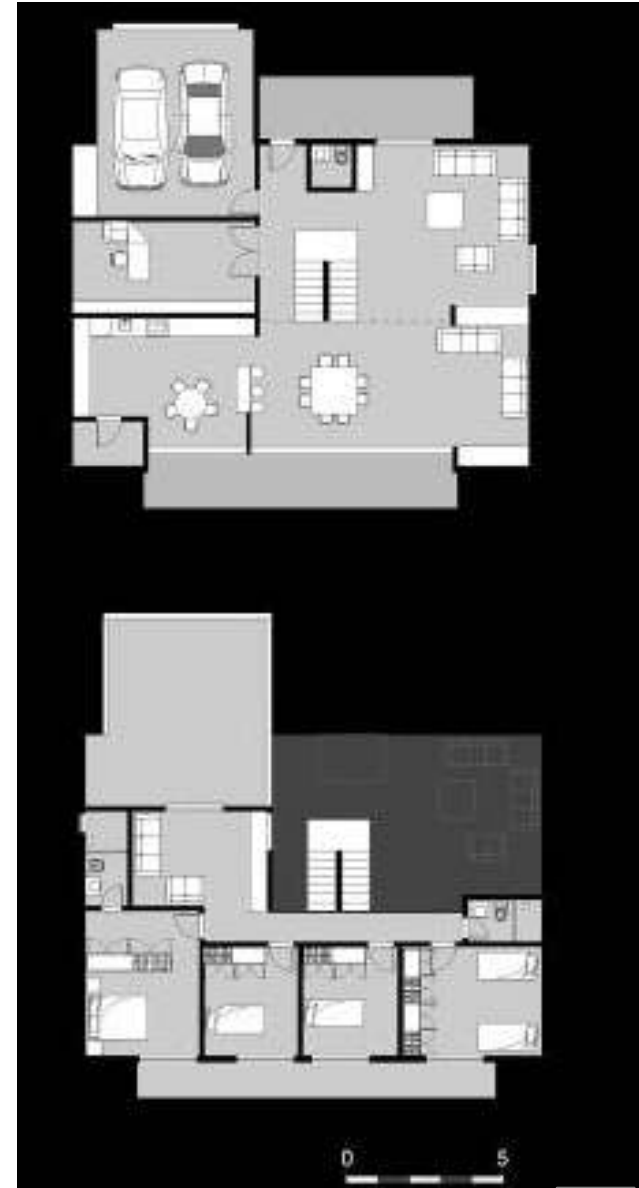
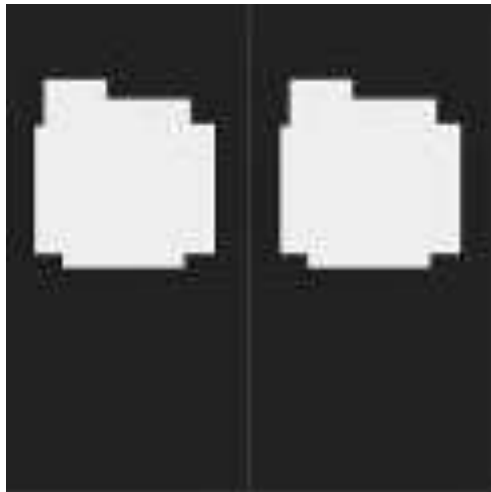




LAND AREA	20 x 40
HOME AREA	338,4 m <sup>2</sup>

**2 FLOORS**

Description	Quantity
Entrance veranda	1
Garage	2
Living room	2
Dining room	1
Living/Dining room	
Office	1
Sink	1
Kitchen	1
Storage	1
Veranda	1
Bathroom	2
Bedrooms	4



# Composite Houses

- **Composite Material**
  - The main material for this line of products is Composite, which is mostly glass fiber reinforced polypropylene (Glass/PP), thermally formed.
- **What is a composite material?**
  - Composites are materials resulting from a mixture of two or more components. This mixture produces a product with properties superior to those of the individual materials. Advanced polymer composites are comprised of two parts:
    - The reinforcement component (the fibers),
    - The polymer component (the matrix)
  - Several materials can be used as **Reinforcements**, ranging from fibers, to fabrics, to particles embedded into the matrix. The most popular fibers used in composites are Glass, Kevlar and Carbon. These fibers have high mechanical properties which control the strength of the final composite material.
  - **The polymer** matrix components are the materials that cover the reinforcements. The matrix, with reinforcements in place, distributes the load among the reinforcements. Since reinforcements are usually stiffer than the matrix material, they are the primary load-carrying component within the composite.
    - We are currently using Polyethylene, PVC, and Polypropylene, which can be reheated and reused several times.

## Advantages of Thermally formed composites

- Thermally formed composites need shorter cycle time to process, which results in greater production volume;
- Thermally formed composites are re-formable: All parts can be reshaped or reprocessed into a new product. New reliable techniques exist to weld Thermally formed composite parts together;
- Thermally formed composites can be 100% recycled;
- Thermally formed composite processes are environmentally-friendly: No toxic gas is produced during curing and the service life of thermoplastics;
- Thermally formed composites are more resistant to impact, especially at low temperatures;
- Thermally formed composites offer key fundamental advantages over thermosets including toughness, fatigue resistance, durability and corrosion resistance.
- **Our solution**
- Our technical partner team has developed an automated and continuous process :
- As mentioned, reinforced thermally formed composites are flexible in nature, and they cannot not be used in most structural applications. However, the concept of the sandwich panel remedies the problem since an appropriate core material can considerably increase the stiffness of the plate. Lightweight honeycomb core is one of the best choices for this purpose. Combining the thermally formed composite flexible skin with honeycomb core makes it so stiff that it can easily be compared with steel or other structural alternatives.
- The equipment is designed so as to integrate all necessary steps in a continuous manner to complete composites thermally forming.

- A sandwich panel is made of two thin but strong and rigid skins separated by a core. The two faces of a panel can be fabricated using laminated composites or metal sheets. The core of a sandwich panel uses a light material, to form a rigid structural panel.
- By changing the core, the skin material and thickness, these panels can be used in many applications, ranging from a simple panel for road signs to a heavy-duty deck for bridge or ship construction. For a structural application, a sandwich panel construction will provide high rigidity at low weight since the resulting rigidity is proportional to the distance separating the two skins.
- The faceplates of the housing panels are made of thermally formed composite material. The core material is made of a polypropylene honeycomb in most cases. Housing Panels can be fabricated continuously in unlimited length and up to 3 m wide using a fully innovative and automated machine.
- Construction Panels use expandable polystyrene (EPS) for its core material.
- This material is more economic than honeycomb. Also, it satisfies all requirements dealing with thermal and acoustic insulation in housing, in addition to rigidity, weight etc.
- These panels are currently produced up to 150 mm thick.
- Our panels have much higher strength-to-weight ratio,
  - they can be produced at very high rates,
  - they are resistant to mold growth
  - and they have superior thermal and sound insulation.



- The main advantage of the ASC construction Panels over plywood and steel is its strength-to-weight ratio.
- AS Products have an outstanding resistance to corrosion, fatigue, moisture, and other environmental factors. AS panels tolerate temperatures between -40 to 80°C.
- Our Panels resist violent impacts. This is crucial in hurricane-prone zones where flying debris are a serious risk. The panels received the approval according to the Florida TAS 201 'Missile Impact test' for hurricane and winds up to 321 km/h
- They have excellent thermal, acoustic, and electrical insulation.
- They are non toxic. They do not emit any harmful gases either during manufacturing or in service and can therefore be used in various industries such as the food industry. The skin plates are fused to the core, and de-lamination of the sandwich panels is highly unlikely.
- Snow and ice do not stick to AS panels
- The ASC Machine is able to produce plates and sandwich panels in unlimited length. The width of the plates and the panels can reach 3 m. The thickness of the plates can vary between 1mm and 6mm and that of the sandwich panels can reach a maximum of 150mm.
- The panels can be easily bolted or sawed. The tools used for installation are identical to wood or steel. The panels can be surface-colored by adding a special dye during the fabrication.
- It is also possible to add anti-UV, anti-slip, or fire-resistant films on the panel surfaces.
- It is possible to insert any metal profile in the panel edges as a reinforcement or protection against moisture, impact and to attach it to hinges.

- Physical and mechanical properties of skin material for a 2mm thick:

Standard	Test Type	Mean Value
	Glass content	60%
ASTM D 638-96	Young Modulus Tension strength Tensile elongation	1885000psi (13000 Mpa) 43500psi (300 Mpa) 3%
ASTM D 790-96	Flexural Tangent Modulus Flexural Strength	1740000psi(12000 Mpa) 39875psi(275 Mpa)
ASTM 695-96 (modified)	Compressive strength	20300psi(140 Mpa)
ASTM D 256-93	Notched Izod	29.98 ft-lb/in (1600J/M)
ASTM D 3763-95 (4 layers)	Impact multi-axial 2.2 m/sec Multi-axial impact 2.2 m/sec	28.76ft-lb(39 J) 31.72ft-lb(43 J)
ASTM D 792-91	Specific gravity	1,49
ASTM D 2240-97	Shore 'D'hardness	77
ASTM D 3763-95	Heat Deflection	311 °F (155 °C)
ASTM G26	Ultra-violetTest	no important loss of mechanical and physical properties noticed
ASTM G7-96 et ASTM G24-94	Ultra-violetTest (Onsitetest inArizona)	no important loss of mechanical and physical properties noticed Very little color change

- Physical and mechanical properties of the core material:

Standard	Test Type	Mean Value
Length		unlimited
Width		up to 1219 mm
Thickness		From 6.35 mm to 101 mm
Fire MVSS302/NFPA 102 std	do not propagate fire nor emit any harmful or toxic gas	
ASTM D C 518 C177 For 25.4 mm thick	Thermal Resistance	R 4.35 (RSI-.74)
ASTM E 96 For 25.4 mm thick	Vapor Permeability	.62 perm (35.0 ng/Pa/s/m <sup>2</sup> )
ASTM D 2126 For 38 mm thick	Dimensional Stability	.17%
ASTM D 1621 For 38 mm thick	Compression Strength	30.60 psi (210 Kpa)
ASTM C 203	Flexion Strength	76.30 psi (525 Kpa)
ASTM 2842 For 38 mm thick	Water Absorption	1.00%
ASTM E84:5 CAN.4-S102.2M:1.40	Flame Propagation	140
WARRANTY	The thermal resistance of the product is freely 100% guaranteed by the supplier for a minimum period of 20 years	



- **The first all-composite house made with our Composite Panels was sold in United States!**
- We have developed an innovative-patented structural panel for use in the home construction industry.
- We initiated this first of its kind house in South Carolina in December 2005. The prototype house was erected in three days by a crew of four and then disassembled and moved to its new home in two days. That's right, it sold right away!
- These types of panels are used in roofs, walls, floors, and partitions, with slight individual variations to satisfy specific requirements such as fire resistance, strength and heat and sound insulation.
- The panels have the following benefits:
  - Lower fabrication costs
  - High strength
  - Weather resilience
  - Design versatility
  - Construction ease (lightweight)
  - Rust proof
  - Resistance to fungus/mold growth
  - Excellent temperature and sound insulation
- The panel dimensions can be up to 3 m wide, 150 mm thick and in unlimited lengths.
- Thanks to its automated process, AS Composite Inc. is able to fabricate these construction panels rapidly and virtually in any length. A fully completed house shell can be erected in less than one workday.



## Panels & profile production



**House assembly**



**House assembly**



- A Letter of Intent (LOI) must be signed by the customer/Official entity defining in detail the whole project, as well as the financial conditions and warranties in case of financing by our Group of Investors.
- A cash payment will be required with the LOI to cover the cost of the prototype house to be defined.
- The first Houses will be made in AS Composite factory and delivered in kits to be assembled locally by the customer employees.
- In the mean time the equipments for a Factory Complex will be made by AS Composite to allow the customer to produce locally all houses and other required constructions.
- The architectural work will have to be invoiced separately
- The land preparation, water, electricity and sewage, roads, parks, water treatment installation, concrete and in general all public works will have to be supplied by the customer.
- AS Composite will train the customer employees, and the Factory will be delivered 'hands key', working.
- **Elicse International** will manage the complete Composite housing factory project and will :
  - Develop the product applications
  - Establish a detailed planning and control its execution
  - Organize and control the factory equipment delivery, installation, and production start up.
  - Organize and control the customer personal training
  - Organize and control the plant maintenance.
  - Keep a regular contact with the customer to insure the customer is satisfied, and inform him about the product evolution.
  - All these functions being done in total coordination with AS Composite Engineering Department



First AS Composite house built in Canada



**Together  
for a better future**

Presentation prepared by  
**Elicse International** with  
architectural elements supplied by  
**L + M Arquitectura** for **IBO Projects**

[gerard.leroux@elicse.com](mailto:gerard.leroux@elicse.com)