



Proposition

On

Agriculture technologies
Water technologies

And

Cooling and Energy Technologies

By

Fulmina Human Resources Foundation

Abstract

In the tropical countries of the Middle East, where temperatures can climb regularly over 40°C, many countries use their natural gas productions to procure Air Conditioning to their factories, public buildings (government, airports, etc.) their houses and energy intensive refrigeration cycles for the liquefaction of natural gas. For some of these countries, the energy necessary to produce this cooling represents more than 70% of the totality of their production of natural gas. They only can export approximately 20% of their production. Our technology allows an economy of up to 80% of this natural gas, which represents massive economic gain. This technology is also coupled to a production of drinkable water, which, for many of these countries, combines a very pressing need and sometimes an urgent one.

We chose to present an ensemble of technologies that combine all of their features in a very unique way, so as to build on each other and become even more efficient.

The Air Conditioning technology:

EH2 Solar has developed an innovative desalination technology that cools down buildings and other processes very efficiently. The great advantages of this technology are that we use the available cooling from the deep sea water or from the evaporation of 13% of the water produced during nighttime and distribute it very efficiently while saving 80% of the energy needed for cooling.

Two sources of energy:

- The very cold waters of the deep seas represent an inexhaustible source of cooling that we transport in a mix of ice/water that saves 80% of the cooling costs in energy. When sea water becomes ice, its water becomes pure. This is a well known phenomenon that has been studied over long many years, but was little used until the discovery of our new Freeze Desalination Technology EH2 Solar.
- The nocturnal evaporation of 13% of waters that can be desalinated during the night, specifically in mountainous regions, where nights are much cooler than days. The evaporation of one kilogram of water produces 2 255 KJ (Kilojoules)¹ of cooling² that will be transported by the ice/water mix, as described above.

These two technologies combined allow economic gains that can reach up to 80% of the cost of the natural gas necessary to produce cooling in traditional air conditioning systems.



¹ The **joule** is a **derived unit** of **energy** in the **International System of Units**. It is equal to the energy transferred (or work done) to an object when a **force** of one **newton** acts on that object in the direction of its motion through a distance of one **meter** (1 newton meter or N·m). It is also the energy dissipated as heat when an electric **current** of one **ampere** passes through a **resistance** of one **ohm** for one second.

² See Diagram in Annexure 1

Desalination Technology:

The desalination technology developed by EH2 Solar is a freeze desalination technology: we can recuperate the salt at the same time. The ice water mix produced is then easily transported as a fluid (ice and water mix) into pipes over distances of 1000 km or more while losing less than 5% of the cooling. The ice water mix temperature being 0°C will be delivered to the different sites to be cooled by pipeline and produce all the necessary cooling but also for agriculture by adding our oxygenation technology (See www.fulmina.org Water Technology).



Problem

- In hot countries, cooling is energy inefficient and it is rapidly getting worst.
- In those regions water scarcity is very high.



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Amortization of the investment

This process provides an energy gain so important that it pays back the system's installation cost in less than one year, for most countries involved. The following table shows some indications:



Potential

Saves up to 82% of the energy used for cooling, while producing potable water.

Energy savings in the Middle-East

2013: up to 31 Billion US\$

2023: up to 62 Billions US\$

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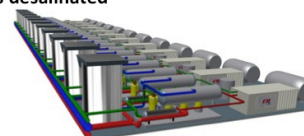


Solution

- Our cooling technology saves up to 82% energy
- Bonus: it produces affordable potable water

How:

- We take advantage of the coldest sea water
- Or we evaporate 13% of this water during the night
- We produce a mix of ice and water
- The ice while produced is desalinated
- Cost effective




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And:

Each country can compute the economies made by adding the profits generated by the extra income liberated for exportation of the natural gas used for cooling, to the gains made by the difference in cost of production of the water by our desalination system as compared to traditional ones:



Financials


The energy saving is worth many times the value of the water produced.

Energy savings in the Middle-East
 2016: up to 31 Billion US\$
 2026: up to 62 Billions US\$

The energy saved in the Middle-East Represents more money than The entire global Water market

It is by far the most efficient and the most economical desalination and cooling technology on the market.

Global water market



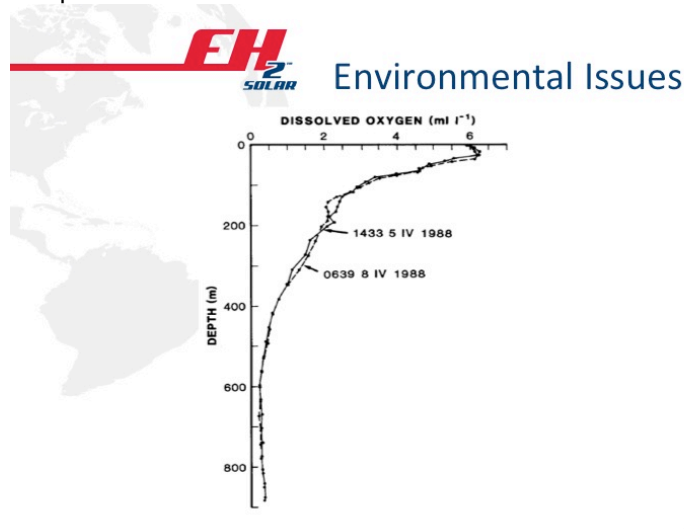
TOTAL VALUE: \$26.5 billion

Source: American Water Intelligence, July, 12.

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Other advantages: Environmental Impact:


One must take into account the environmental impact of the technology used: EH2 Solar is the most environmentally friendly desalination technology on the current market because there is no chemical product added in the process, no impact to marine life.



A quick ratio of oxygen levels taken from the graph can lead to the conclusion that, in this study and at this location, there is a 96% reduction in the density of marine life at 600 meters' depth compared with 20 meters under the surface.

It can be shown that the total amount of marine life entering an intake system is directly dependent on its density at the point of entry.

And:



Environmental Issues

- Intake structures cause environmental damage by pulling marine organisms into a power plant's cooling system.
- The EPA issued Phase II rule for large existing steam electric facilities in 2004. It established performance standards for reductions in impingement mortality (80–95 percent) and entrainment (60–90 percent) over a baseline value.
- The State Water Resources Control Board's Track 2 compliance Policy adopted in May calls for a reduction of I&E of at least 83.7% compared to a previous 12-month baseline.

Technology for the decontamination of used waters³ Using molecular nuclear polarization

This technology decontaminates water while conserving its intrinsic natural structural quality and its harmonic vibrations. An electrostatic corona of many millions electron/volts is applied to the fluid, which has for principal effect, to break the molecular link and therefore causing an immediate elimination of toxins (natural or chemicals) and their accompanying odours.



Figure 1. The above illustrations, shows the machines we use to decontaminate and/or to oxygenate the water, **It can generate 136 liters per minute**. This unit is used as a mobile unit that delivers oxygenation or decontamination where needed. You can deliver oxygenated water to an hospital or to a farming unit or to a place where you need to decontaminate the water. This mobile unit can contain up to 10 units of water treatment. One unit generates approximately 6,000,000 liters per month.

Water in the World

Water is a major issue for our survival and the survival of our planet. Honest experts in their reports, testify that our world is now going through a major water crisis. The General Manager of UNESCO states: "Among all the crises of social or natural origin that we are confronted with, the water crisis is at the heart of our own survival and the one of Planet Earth".

Water on earth is either salted or permanently frozen; the major part of pure water is located in the

³ This position paper was produced by « Fulmina Human Resources Foundation ». Some of the scientific and medical terms were extracted from Foundation Wikipedia to whom we are thankful.

Northern or Southern ice caps, which are unfortunately melting. When we speak of the ice caps we are in fact talking of the ice pack (ice floe) that was built over millenniums and is now disappearing at an increasing daily rate. Certain glaciers already have lost, over a four-year period, one third (1/3) of their surface. This in turn, has an effect on the marine currents, and a general impoverishment of pure water.

In order to understand the consequences of the radiation contamination, international institutions produced a set of numbers, that unfortunately are well under the scope or reality (which is the case generally with nuclear disasters).

- We presently use 10 liters of water to manufacture one liter of petroleum, 295 000 liters to manufacture 910 kilograms of paper, 86 300 liters to refine 910 kilograms of steel.
- One liter of petroleum contaminates up to 2 million liters of water, and one gram of PCB (polychloride biphenyl: chemical with a very long life duration), can render 1 billion liters of water unfit to aquatic fresh water life.
- One gram of 2,4-D (current domestic herbicide) can contaminate 10 million liters of pure water.
- One drop of oil, will render up to 25 liters of water unfit for consumption.
- 80% of illnesses are due to water, in developing countries but also in industrialized nations who, in spite of their arcane water filtration plants, are filtering water but do not take into consideration viral pollution or its structural harmonic vibration.
- The water we drink represents but 1% of all the water we consume.
- There are hundreds of millions of people suffering from illnesses related to water.
- Waterborne diseases also called “dirty water related illnesses” are the result of contamination of water by human and or animal excrements. These diseases are estimated to cause 24 million deaths per year, by diarrhoea.
- Approximately 2 million tons of those wastes are thrown every day into rivers and lakes. One liter of polluted water will pollute eight liters of pure water. According to certain computations, there are approximately 12,000 km³ of polluted water in the world; that represents more than all the water of the ten biggest river basins of the world, at any time period of the year.
- The available water volume on Earth, is estimated to be 1,385 billion of km³: 97,5% of salted water (1,35 billion of km³), and 2,5% of pure water (35 million of km³).
- Pure water comes from: 68,9% from glaciers and ice caps, 29,9% from underwater sources, 0,9% from swamps and 0,3% from lakes and rivers.
- There are many areas where superficial waters and underwater sources are invaded by

industrial, agricultural and municipal wastes. According to the World Commission on Water for the 21st century, more than half of the great rivers of the world are so impoverished and polluted that they endanger the health of humans and poison the surrounding ecosystems. In many large cities of the developing world, potable water is contaminated. Only half of the 550 million inhabitants of South-East Asia have access to a safe drinking water (237 millions).

Whatever who we are, where we live, what we do, we are all dependent on water. Every day we need water for a multitude of reasons. Water is indispensable for our health, our food, transport, irrigation and industry. It is indispensable to animals and plants, and the changing of the colours of seasons. However, in spite of the importance of water resources for our well-being and our lives, we systematically treat water with a lack of respect. We abuse it. We spoil it. We pollute it and we forget up to what point, it is so essential to our survival.

Water is the most abundant liquid on earth. It is the essential element of life. Water is the most studied molecule and the least understood; we still not have deciphered its secret in spite of the overwhelming specialization of the experimental techniques. We can blame this fact on the refusal by the “Cartesian science” to accept that water has a memory and a capacity of its molecule to reorganize its faculties.

Scientific Explanation of Water

The physical properties are unique and particular:

1. A higher density for liquid water than for ice.
2. Specific high temperature of liquid water.
3. No modifications of properties in passing from boiling temperatures to freezing temperature.

The five biological properties help to distinguish different qualities:

4. Water constituting the cells,
5. Water hydrating molecules and proteins
6. Free water
7. Bounded water (the conservation by freezing of vaccines and embryos is only possible because 20% of the cellular water maintains itself at liquid state)
8. D.N.A binding water (proteins, amino-acids)

According to the Big Bang Theory, 4 billion and a half years ago (we believe much more), the vapour of overheated water and carbon first produced $\text{CH}_4\text{-HCN-CO}_2$, and thereafter the chains of life with their bacteria, the D.N.A., the proteins, the lipids...the whole forming the “original soup”.

When the human body consumes a molecule, it becomes the constituted mould of the hydrating water. The form of the water molecule maintains (by its memory) a disposition of atoms that permits the atom to re-synthesize again. It is the water molecule that keeps the souvenir of the structure and permits the reconstitution and the association of the molecules in more or less dense accumulations and of more or less life duration. The specificity of the substances that compose the molecule is equally sensible to the environment.

The distribution of vibrational energy between the various constituents of the “original broth”, has certainly taken place by means of specific hydration of the different metals and metalloids. The sensibility to different components of the vibrational energy received, manifests itself in aqueous environments in the form of archetypal and fractal organisational structure and liaisons, which is characteristic for each component (metals, etc.). Metals associated with chelate carriers (organic molecules able to fix metal with coordinating liaisons) have, due to their specific energy, measured the necessary quantity of energy to realize the synthesis of the molecules carrying strong energy. As an example: magnesium known for its affinity with water (6 to 8 molecules of water for every ion Mg^{+2}) combines with chlorophyll, and plays an essential role in the synthesis of glucose.

Water is therefore the support of life, witness the multiple cults that were consecrated to water in all traditions.

Production of drinkable water from condensation

We can produce water by condensation in regions too far from water sources where the level of humidity in the air is high. The same is true in regions where there is no salted water source in proximity. **It is possible to capture water available in the form of vapor by condensing with the aid of de-humidification technology specially adapted to our solar technology systems, converting 40% of the solar energy in electricity to feed the compressor of the system.** The available 60% of energy will be transformed into cooling by an absorption system providing the necessary cooling to condense the water and finally, providing fresh water in desert areas.

Production of a water pipeline desalination and condensation

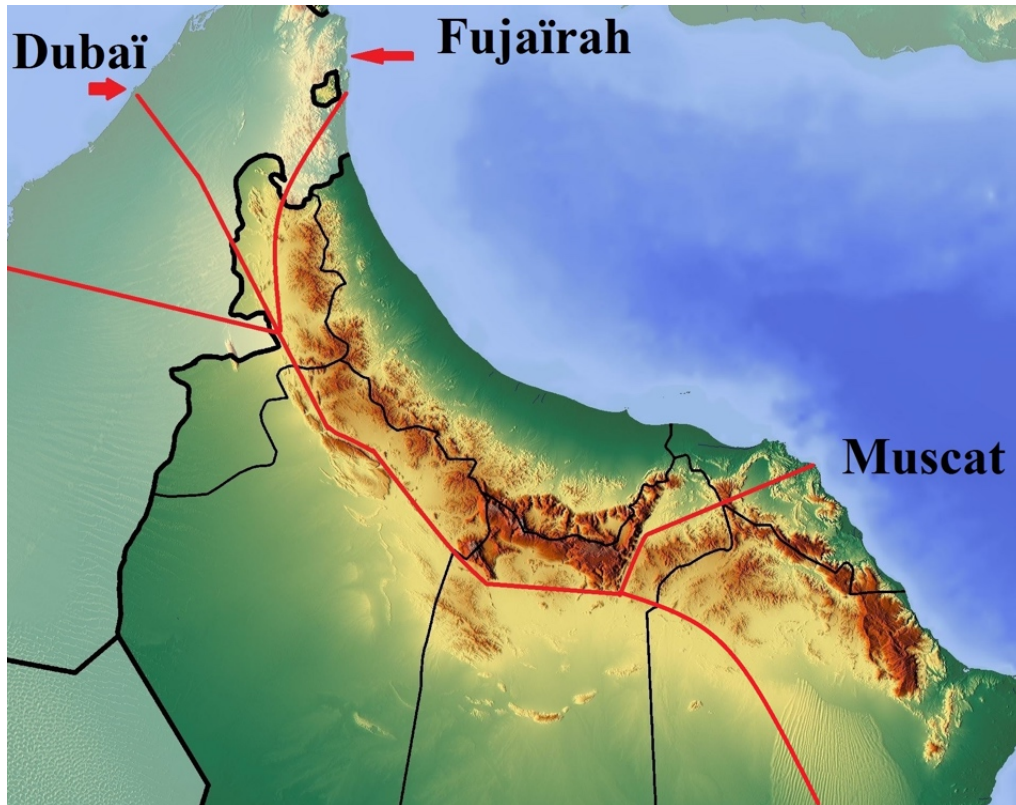


Figure 2. Possible trajectory of a pipeline collecting fresh waters both from seas and mountains.

The use of elevation in mountain to generate condensation



Figure 3. Possible inter-continental pipeline reuniting different countries.

Agriculture technology

Abstract⁴

The objective of this presentation is to bring a technology and a know-how in the domain of agriculture; this will allow us to solve a series of problems that have become more acute and more present in the world production – as much in the quantitative domain as in the qualitative domain – while preserving the ancestral know-how in agriculture and at the same time enhancing production, its nutrition quality, preserving the patrimony given by past generations. These technologies have the particularity, among other things, of being pollution free, while regenerating the biotope and preserve the genetic potential of its vegetal and its seeds. The costs of implementing such a technology are well within the means of everyone, and can be applied without major disruption in most countries, even those where climates are difficult, suffering from dryness or even desert based. This technology has received the status of a Master Patent.

Nature of the patent and the law of William Henry

In order to understand the fundamental principle that was proclaimed by this law and the contribution of our patent, we must talk about the Law of William Henry (1774 – 1836). This law has been completely reshaped by our discovery.



The English physicist and chemist from Manchester proclaimed the following scientific law at the beginning of the 19th century:

At constant temperature and saturation, the concentration of a gas dissolved into a liquid (C) is proportional to the partial pressure (P) exercised by the gas on the liquid.

$$C = HP$$

If we take the example of the dissolution of oxygen into ultra pure water, i.e., in total absence of minerals, we would observe that at 0° Celsius and at one atmosphere of pressure, we find a maximum of 14,6 parts per millions of oxygen into water.

Let us imagine now that, contrary to the recognized law, we have demonstrated that it is possible to integrate in a water molecule 10 times more particles of oxygen than first predicted by the law, a gas so fundamental to the growth of all plants. This kind of factor attracts attention. And justifiably so. When we first produced our first solutions that contained more than 120 ppm, we immediately observed an exceptional phenomenon, the amazing reduction of the surface tension of the electrons. In other words, in the absence of resistance, this water possessed exceptional penetrating properties. There was therefore ion mobility multiplied by the same factor of 10.

This fundamental observation bears consequences for the whole ensemble of industrial processes. Lets now address the agricultural question.

⁴ This position paper was produced by « Fulmina Human Resources Foundation ». Some of the scientific and medical terms were extracted from Foundation Wikipedia to whom we are thankful.

AGRICULTURE

There was a time when the fight for survival meant that you had to adapt to Nature. A time when one took for granted that conforming to Natural Laws would provide the assurance of clean air and clean water and were assuring a healthy food chain.

Just a few changes, some of which were not judicious to their environment, human beings, through ages, have lost their bearings that used to procure them with their force, the renewal of their energy, in short, the blooming of their health.

Today, the survival struggle continues, but the dangers are more insidious. The poisons in the air, in water and in the food, slowly furtively conceal from the livings, their natural support, and endangers with more and more evidence, the essential equilibrium of their well-being.

It is to participate to the redress of this state of health of humans that has become precarious that **we developed an Advanced technology for the growth of plants:** improve the quality of food for the majority and, by the same token, offer a serious mean to prevent illnesses, by opposing a stronger resistance to an environment that unfortunately has become more hostile. Here are certain examples of this growth:

Figure 4. Roots of a treated tomato plant⁵



This illustration of our first drizzle technique for plants, shows only a portion of the tomato root plant that we treated with a water containing between 60 and 120 ppm of oxygen. The next picture is a cut of our drizzling system.

Figure 5. The drizzling system for sprinkling water⁶



⁵ See a full picture of a tomato root plant in Annexure 2

⁶ We have also a newer generation of growing technology that you can also see in Annexure 3

The concept was based on extensive and expensive research; this research demonstrated clearly that bio culture IS, for us, the road to follow. Thus, are we assured to obtain, among other things, a non-mutagen, non-carcinogen and mostly biogenic and organoleptic product.

We named this new technique resulting from our research, **drizzle culture**. This process of watering plants, does NOT use soil, and allows the distributing of water in a uniform and regular manner, in a fine drizzle, on the overall surface of the eventual small growths (page 15). All is done in a non-aggressive way, using water from a thoroughly tested process that clears the water from all its toxins, be they biological, chemical, industrial or natural in nature.

The water is therefore exempt from impurities while conserving its original vibration; in fact, it possesses more energy, more vitality following treatment. It stays LIVE! The process also produces a unique resistant germination, which eliminates the yeast, molds, and harmful bacteria, those three unwanted nightmarish characters that all germination producers really are dreading all over the world.

With the objective of efficiently controlling our growth, their physical and molecular environment is managed by a high-end computer process control (see illustration on page 14). The latter informs us with precision on all minute details of the growth activity within the interior growth system of the plant. **Nothing is neglected** to obtain a germination of **incomparable quality**, which would be the most in conformity with what it would ideally be in Nature. All our efforts are aimed towards this goal; as a consequence, it is not surprising that we would direct our particular attention on water, air and light.

Thus, thanks to the process control system of our greenhouses, each single activity is controlled, modified according to the needs and characteristics expressed by each germination. In this regard, we maintain an appropriate temperature in the room, negative ions in the air along with the oxygen liberated by the plants and the CO₂ directed towards them, the relative and absolute humidity, the pH (Hydrogen potential), the ORP (Oxydo-reduction potential), the time and intervals of water drizzling, all these elements and many others, are carefully controlled.

Thanks to bio culture, we can equally control the light frequencies avoiding in the process the bacteria and advance sterilization of the air particles first of the incoming renewing air, then the existing ambient air using a recirculator-sterilizer.

Pointing to the fact that the bacterial flora of the basins where plants grow is controlled by a natural extract of citrus fruit and at the same time maintaining a constant positive pressure in the culture room that prevents contamination coming from the outside.

Finally, due to a series of advanced probes, we are in position to reproduce with fidelity the natural qualities of natural light, its gradations as well as the lunar light. We integrate to this equilibrium ensemble, the sound elements: rain, electrical storms, buzzing of insects and animal calls...

This panoply of means at the disposition of this growth technology serves but ONE purpose: the wakening of what it is agreed to call **the memory** of the growth. Once the memory of the plant is activated and conveniently stimulated, this **memory** drives each growth to a complete bloom of its natural characteristics.

The last important element for a good development of the growths is the reflecting paper. The one we use offers almost a perfect reflection for a uniform and adequate luminous dispersion.

The glue used to attach the paper to the walls does not alter itself. It does not spread any emanation by loss of mass in the form of evaporations therefore preventing the proliferation of bacteria.

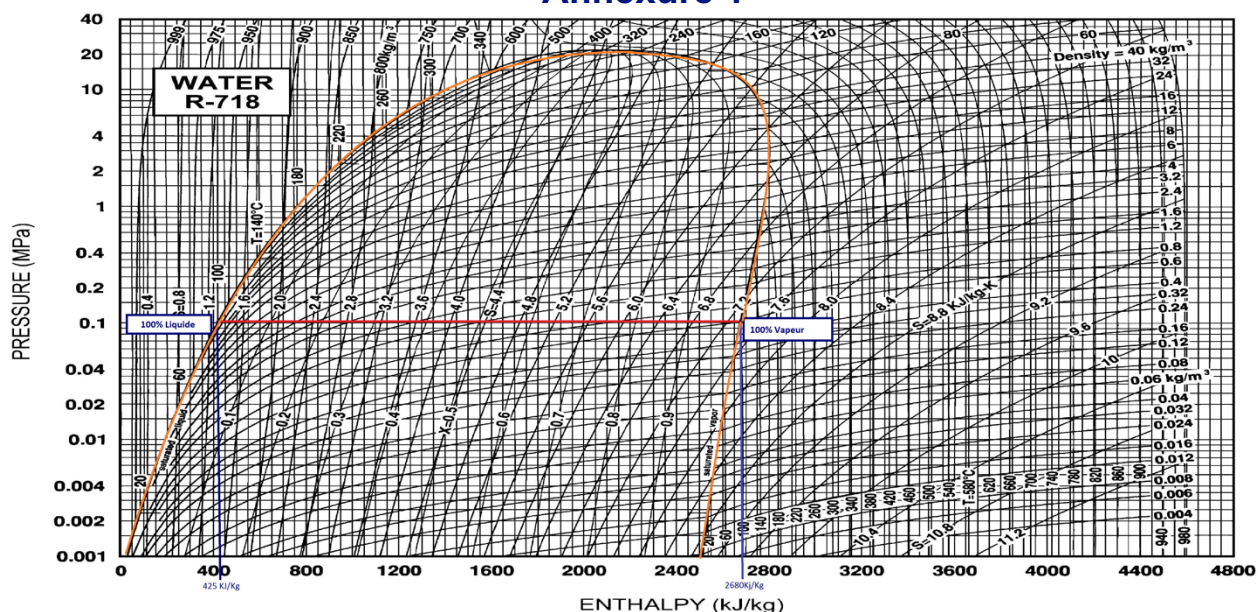
In this most favorable environment we can see the explosion of the vital **memory** of our seeds being the cause of the effervescence of their cellular multiplication. Our germination is a “super nutriment” endowed with a force and energy in expansion. To feed on these growth germinations produced by this technology is equivalent to a transfer of the cellular **memory** of the plant to the cellular **memory** of our own body, which has for effect to prolong and/or regenerate the youth of our own cells.

This germination provides to the person who consumes it, the benefits of the solar and telluric magnetism; it puts to disposition of putrefactive cells, some proteins, numerous oligo elements along with indispensable ferments needed for digestion and assimilation. Moreover, the germination possesses an extraordinary enzymatic power needed for the good assimilation of the nutritive elements of our food. We call them anti free radicals.

All of the above allows us to humbly affirm that our enterprise satisfies to the ecological demands, the most severe biological standards and that the quality of this germination is calling for a new norm of biological culture.

At mid and short term, our technology will expand its wings over this vast domain that is HEALTH. It will touch to natural cosmetics, will extract essential refined oils, purer food supplements, etc. Doing so, we will remain true to our vocation: to irradiate **Health, Beauty**, and the **Natural** everywhere where it is still possible to make it happen.

Annexure 1



Cooling Agent R-718: Water⁷

In the above graph, the space under the bell delimited by the orange line the red horizontal line at 0.1 MPa, and the blue vertical lines between the enthalpy⁸ measures from 425 KJ/Kg and +/- 2680 kJ/kg, represents the passage of water from liquid state on the left to the state of complete gas on the right. If there is no variation in temperature of water, we obtain 2255 kJ/kg; in reality there is always a small variation and this is why we speak of 2 300 kJ/kg. Theory demonstrates that a minimum of 2255 kJ/kg applies. It does not cost more than 330 kJ to freeze one kg of water.

⁷ 2001 ASHRAE HANDBOOK, CHAPTER 20, THERMOPHYSICAL PROPERTIES OF REFRIGERANTS, page 20.32

Fig. 13 Pressure-Enthalpy Diagram for Refrigerant 718 (Water/Steam)

<http://systemssolution.net/cadtechno/0%20SAMPLE/SPECs%20&%20DETAILS/BOOKS%20MECHANICAL/HVAC/ASHRAE%20HVAC%202001%20Fundamentals%20Handbook.pdf>

⁸ **Enthalpy** <https://upload.wikimedia.org/wikipedia/commons/1/1c/En-us-enthalpy.ogg> ^{1/}^{enθəlpi} is a measurement of energy in a thermodynamic system. It includes the internal energy, which is the energy required to create a system, and the amount of energy required to make room for it by displacing its environment and establishing its volume and pressure. Enthalpy is defined as a state function that depends only on the prevailing equilibrium state identified by the variables internal energy, pressure, and volume. It is an extensive quantity. The unit of measurement for enthalpy in the International System of Units (SI) is the joule, but other historical, conventional units are still in use, such as the British thermal unit and the calorie.

Annexure 2

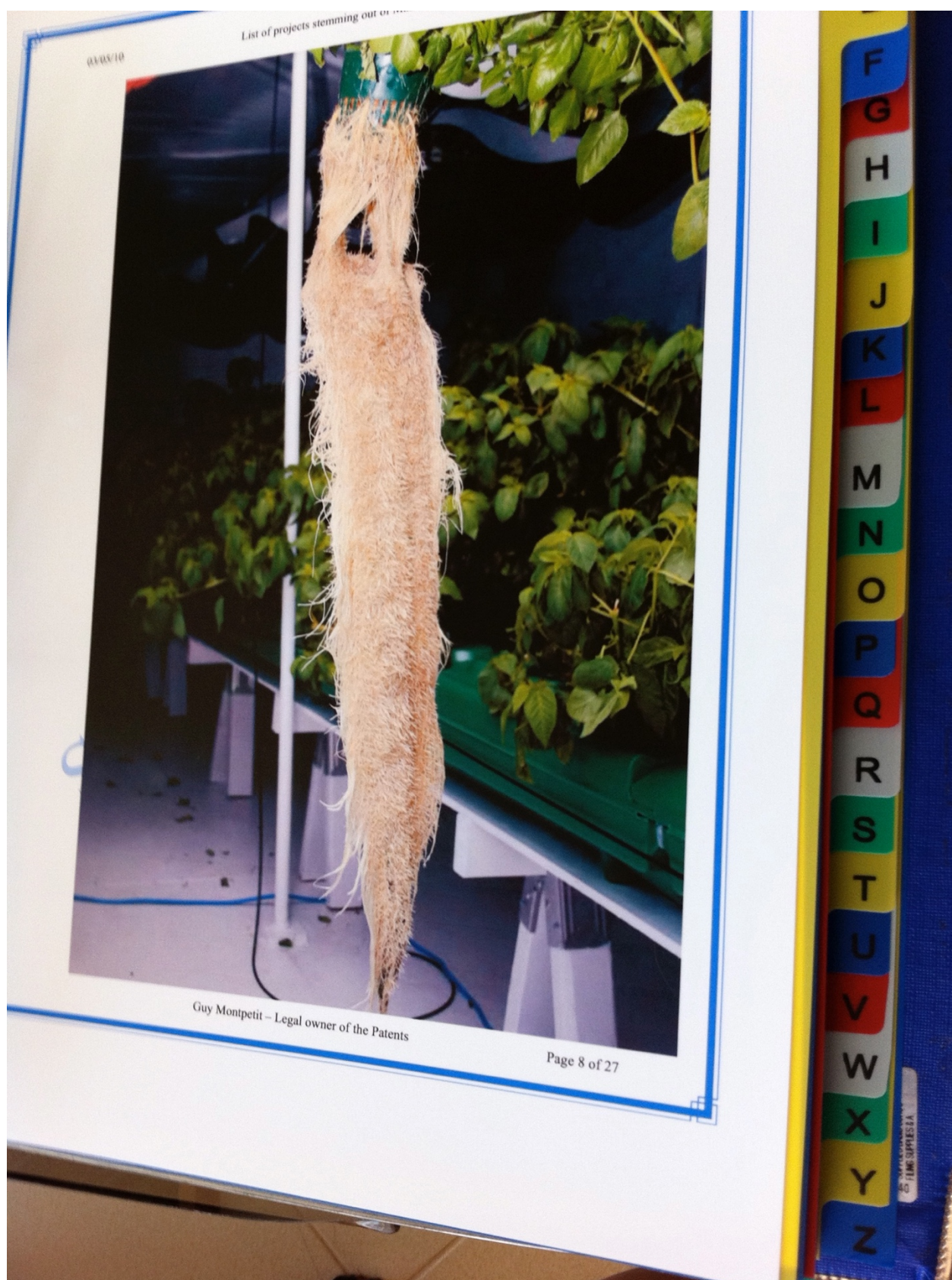


Figure 6. The full picture of a tomato plant root after only 12 weeks of growth.

Annexure 3

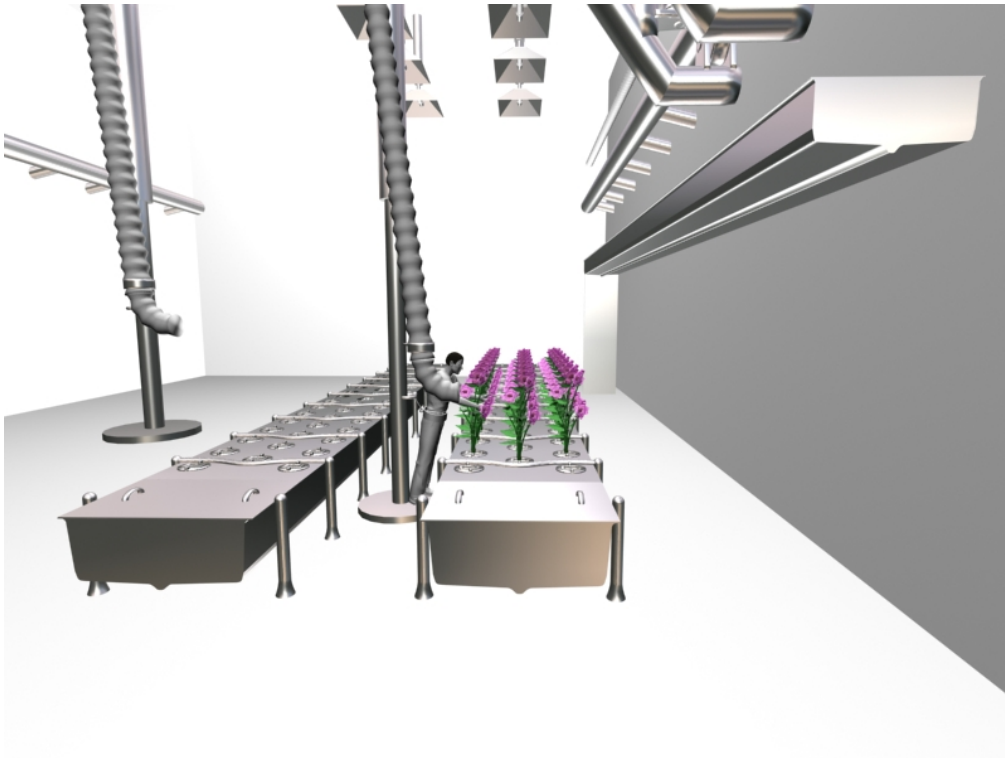


Figure 7. Latest clean room technology for growing any kind of plant.

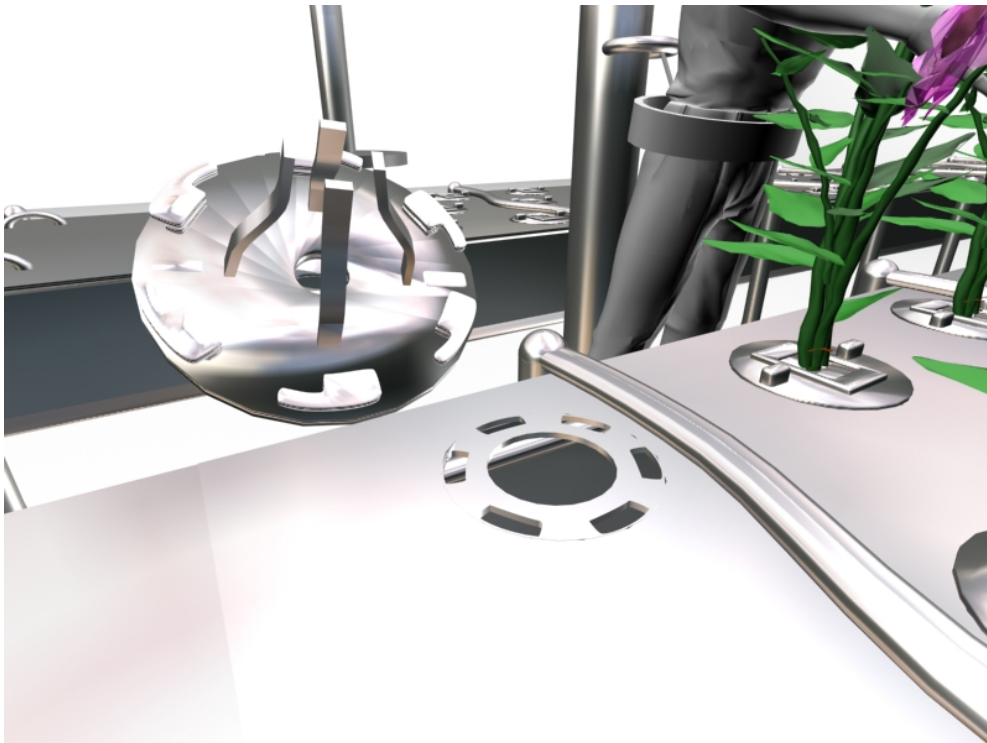


Figure 8. New heavy duty stainless steel plant support that allows the plant diameter to grow.

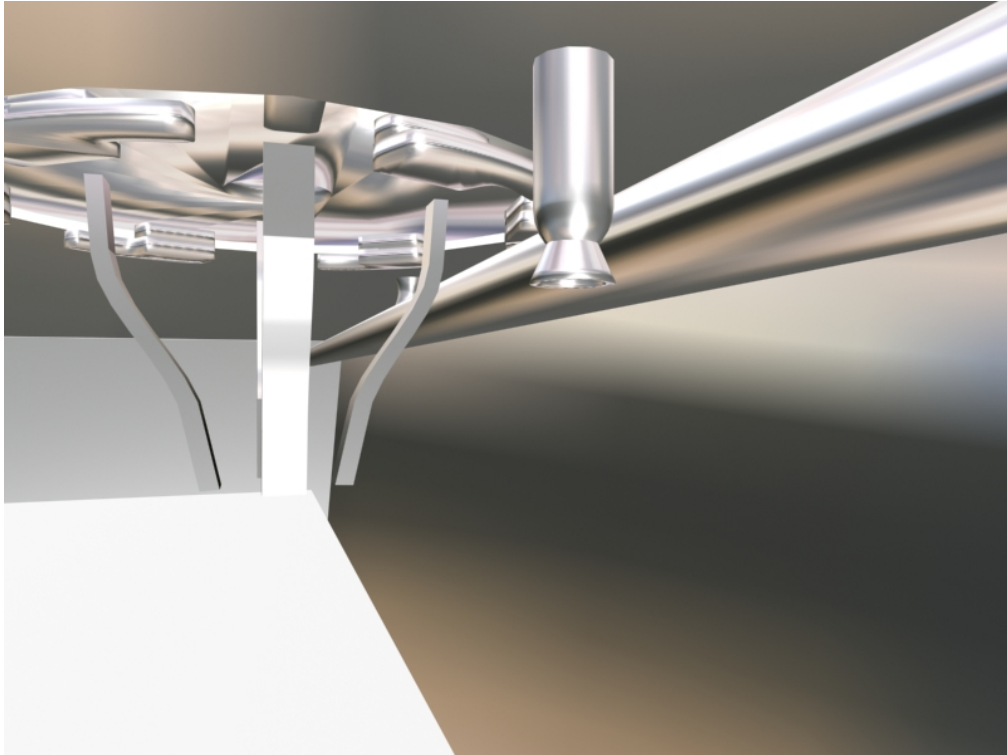


Figure 9. Internal view of the plant support in the root cage, where water distribution pitot is nourishing the plant.

Annexure 4

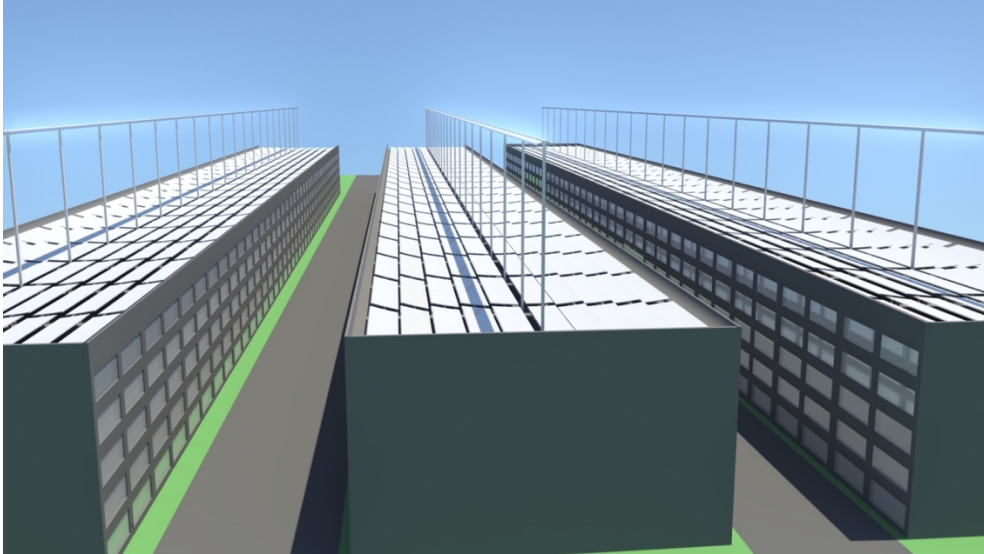


Figure 10. Concept of self sufficient electricity supply for housing complex of some 400 apartments

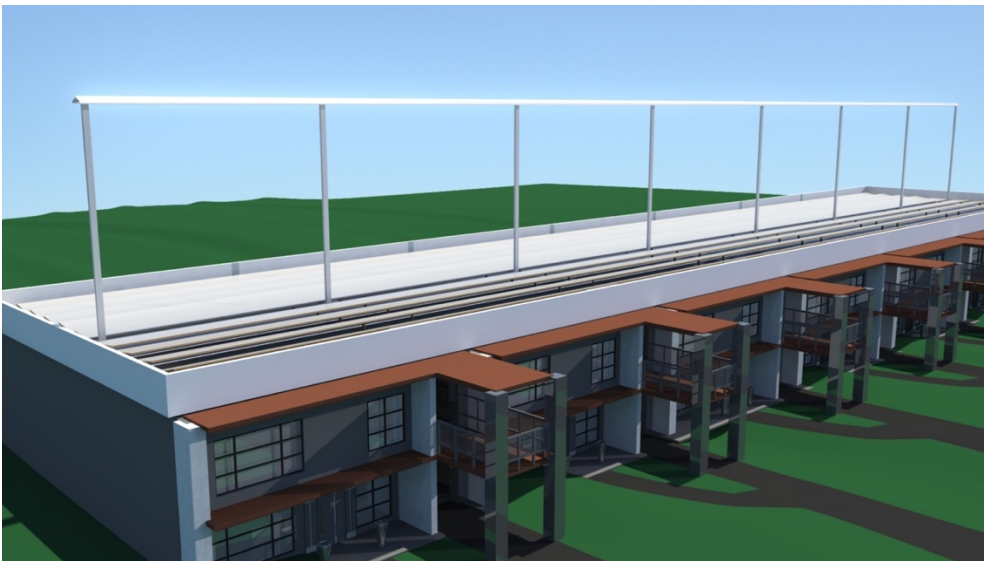


Figure 11. Same as in figure 10 adapted to a smaller complex.

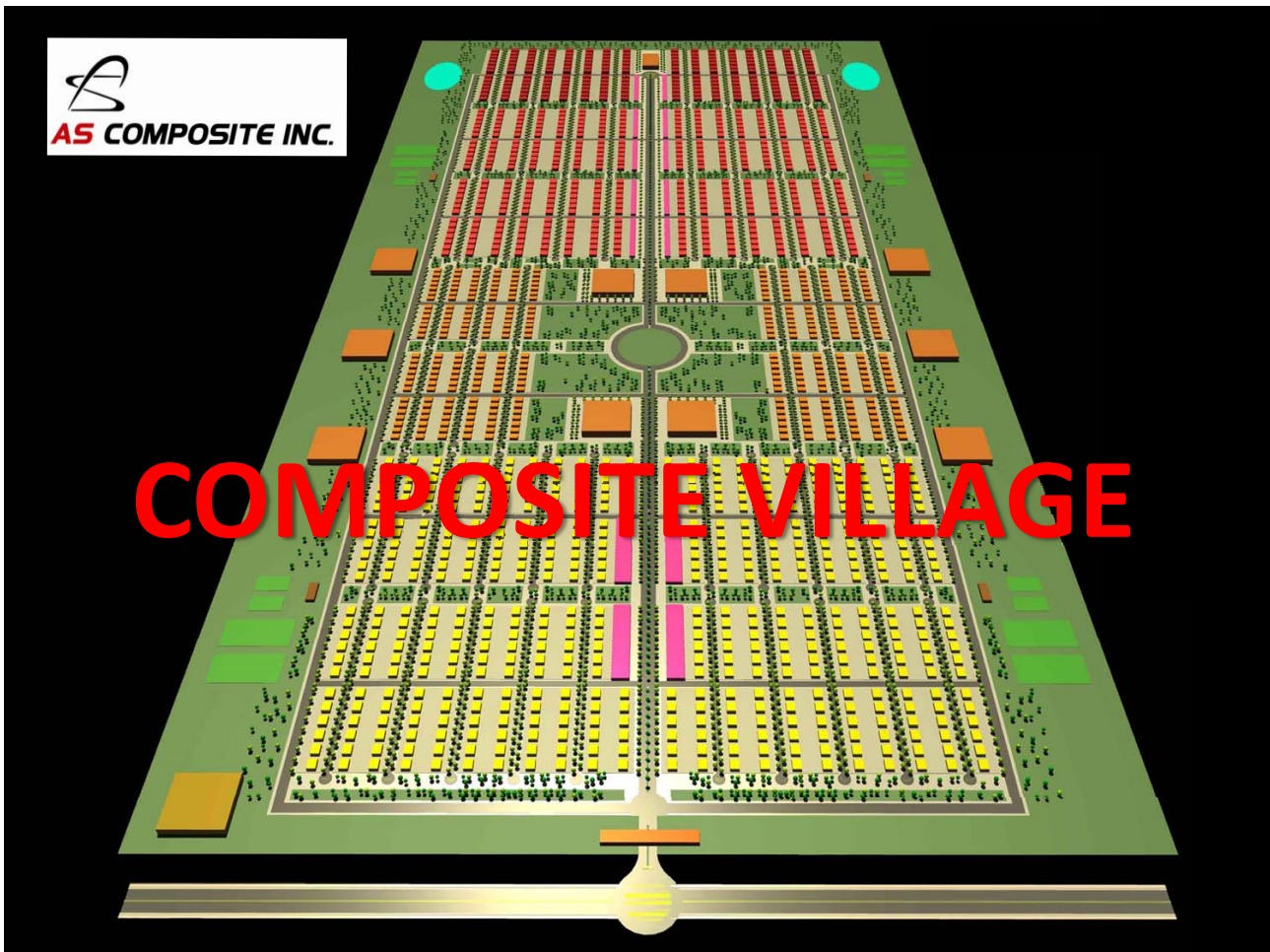


Figure 12. This concept could be built in a desert area. It can obviously be adapted and completely redesigned according to needs. We have a technology to transform sand into earth. A central unit for electricity generation could be built on the outside areas for as many gigawatts needed. Water can be coming from the pipeline proposed in Figure 2 and Figure 3. We included an attached file for the complete description of this concept.

Sandwich Panels

Buildings

Technical Sheet



Product Description

Structural and insulating sandwich panels, manufactured with glass reinforced thermoplastic skin and expanded Polystyrene (EPS) core, available in various thicknesses.(0.25in.(6.3mm) – 4in.(101mm)) and unlimited lengths.



Applications

Potential uses:

- Mobile homes;
- Temporary homes;
- Permanent homes (Can replace conventional construction because of excellent performance and low cost)

➤ Industrial buildings;

For many applications including:

- Exterior walls;
- Interior walls;
- Partitions;
- Floors;
- Roofs

Figure 13. This is the first page of a technical brochure providing technical data of those boards. See attached file.



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Technical Sheet

Product Benefits

- Extremely light: A 4in. panel (101mm) thick 4ftx 8ft (1219mm x 2438mm) weighs 57lb (25.85kg);
- Excellent durability: resistant to fatigue, moisture, corrosion and other environmental and chemical factors. Resistant to putrefaction and mould. No maintenance required;
- Non-toxic and entirely recyclable skin;
- Highly resistant to various loads such as wind and seism;
- Excellent impact resistance (no penetration noticed on the skin after undergoing Missile test (FBC TAS 201))
- Very high heat insulation (R20 and more);
- Used in wide temperature variations, from -40°C to 100° C (-40° F to 212° F) ;
- Resisting fire propagation;
- Affordable patent pending panels;
- No adherence of snow and ice;
- Easy and versatile interior and exterior finishing. Can be combined with many types of coatings (stone, gypsum, fire retardant film, etc.);
- Uniform quality in unlimited length, fabricated using a continuous, high speed and fully automated patented process;
- Easy and fast installation and removal.

Technical Data

Physical and mechanical properties of skin material for a .078in. (2mm) thick:

Standard	Test Type	Mean Value
	Glass content	60%
ASTM D 638-96	Young Modulus	1885000psi (13000 Mpa)
	Tension strength	43500psi (300 Mpa)
	Tensile elongation	2,9%
ASTM D 790-96	Flexural Tangent Modulus	1740000psi (12000 Mpa)
	Flexural strength	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 86.61in / sec (2.2 m/sec)	28.76ft-lb (39 J)
	Multi-axial impact 86.61in / sec (2.2 m/sec)	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-violet Test	no important loss of mechanical and physical properties noticed
ASTM G7-96 et ASTM G24-94	Ultra-violet Test (Onsite test in Arizona)	no important loss of mechanical and physical properties noticed. Very little color change



Sandwich Panels

Buildings

Technical Sheet

Physical and mechanical properties of the core material:

Standards	Test Type	Mean Value
ASTM D C518 C177 For 1in. (25.40mm) thick	Thermal Resistance	R-4.35 (RSI-.74)
ASTM E96 For 1in.(25.4mm) thick	Vapor Permeability	.62 perm (35.0 ng/Pa/s/m ²)
ASTM D2126 For 1.5 in. (38mm) thick	Dimensional Stability	.17%
ASTM D1621 For 1.5 in. (38mm) thick	Compression Strength	30.60psi (210Kpa)
ASTM C203	Flexion Strength	76.30psi (525KPa)
ASTM 2842 For 1.5in.(38mm) 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.	

For all additional information please contact:

AS Composite

Golnaz Shokouhi (514) 697-2828 ext. 223

Golnaz.Shokouhi@ascomposite.com

www.ascomposite.com

Dimensions

- Available in unlimited lengths, up to 8.67 feet wide (2641mm);
- Panel Thickness : ¼in.(6.35mm) to 4in.(101mm);

Thermal Properties

- EPS has excellent thermal insulating properties - R4.35/in (R4.35 /25.4mm) so that (a) we conform entirely to Building Code criteria and (b) our product is free of any thermal bridges.
- Insulation core ensures uniform and durable insulation properties for a minimum of 20 years.

Fire

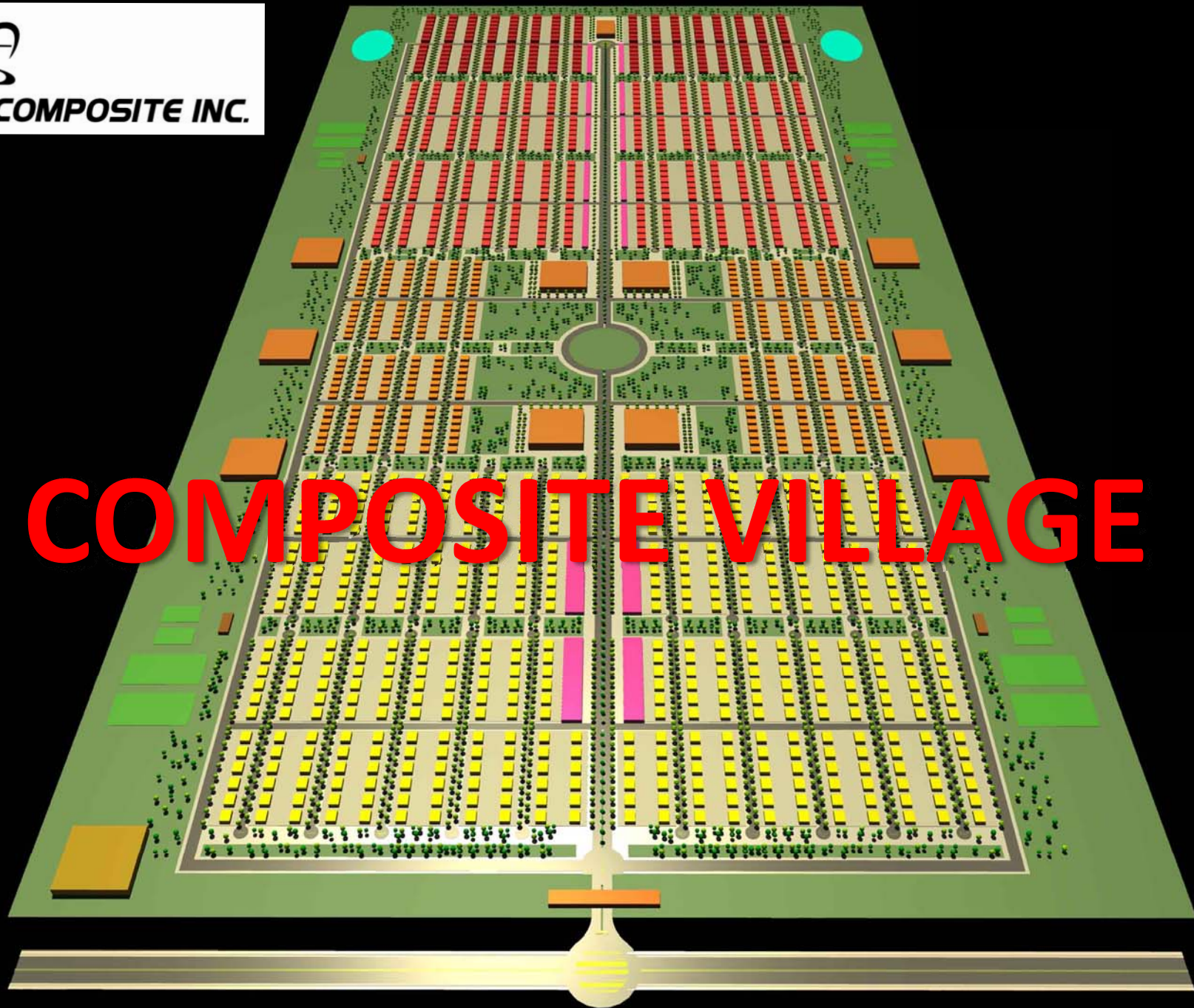
- AS Composite Sandwich Panel skins do not propagate fire nor emit any harmful or toxic gas as per MVSS302/NFPA102 std

Humidity

- The waterproof skin of AS Composite Sandwich Panels prevents the penetration of liquid and humidity in the structure.

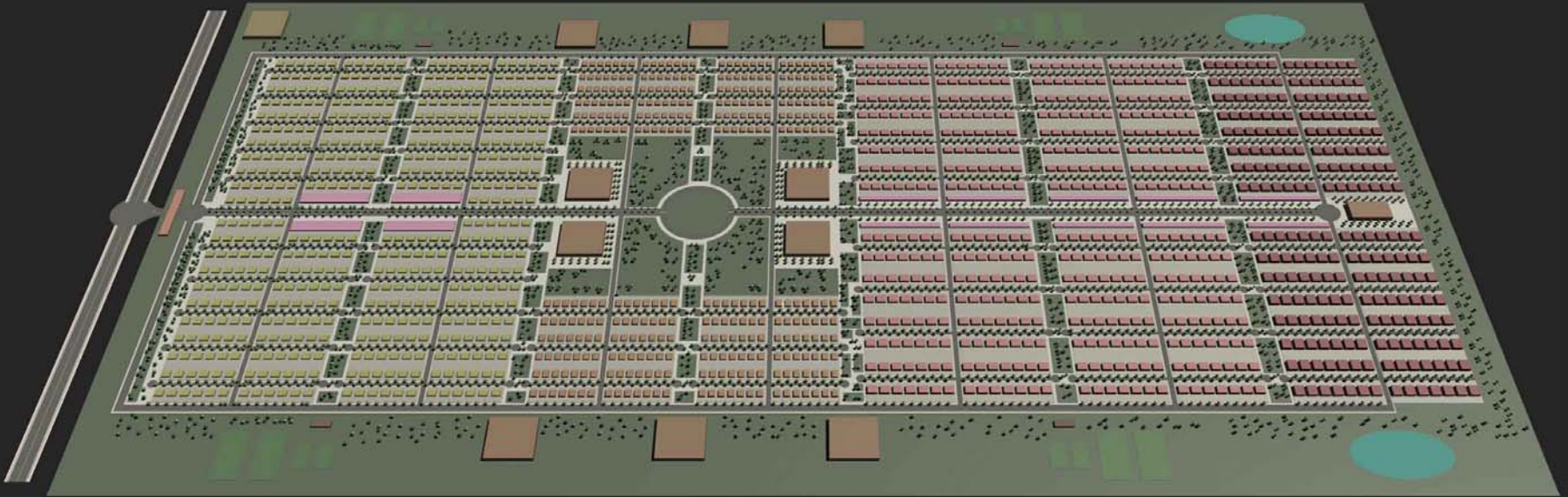
Load Tables

Please contact us for any additional information required, such as Load Tables. We will forward it without delay.



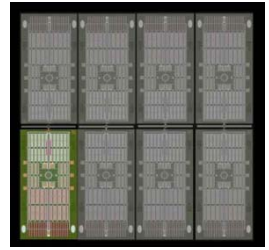
COMPOSITE VILLAGE

THE Composite Village

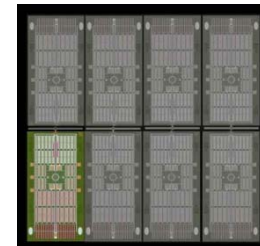


**A complete village made of composite houses, churches, schools, Hospital,
In a totally protected environment
All made with AS Composite Inc. Automated equipment**

Composite Village

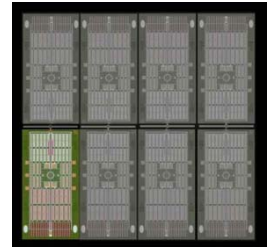


- **This is a project for a 16,896 homes village to be inserted on a 2200 Hectares land.**
- The first phase corresponds to the setting up of the village and construction of a first district of 2,000 homes.
- For the general settlement of the village, we have considered as essential to establish a rational 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 Creation of roads for bicycles bioclimatic treatment of public spaces
	Public spaces favoring meeting and common works	Use of architectural elements to build the site identity
Neighborhood way	Commun spaces development	Use of comfortable and shadow spaces li small meeting areas, corners, local streets with no exit Best adjusted sun position establishment predominating
Habitability	Make the local climate milder	Create crossed ventilation Use vegetation importante land area for gardening, trees, shadow. Funcional zoning
Urban condensation	Urban drawing to better proportionate the area and contain expansion	Use of twin houses like for social housing Creation of gardens and each residential area
Ecological protection	ecological corridor	vegetables and fruit production area Trees aside streets
	Parcs	Typical gardens with local trees, plants, flowers
	Draining	rain water harnessing system from houses and streets
Water treatment		Special tanks to keep the rain water Specific water treatment established inside the parcs
	Used water	used water treatment incorporated in the local system to use the gardens
Waste	Waste collection	develop the waste selection and local use when possible (gardens)
renewable energy	Solar and wind	use of solar panels and small wind turbines where possible

District land distribution

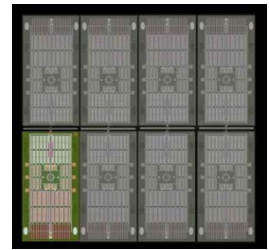


- Each district has an area of 256,5 Hectares and has the following land distribution:

AREA	OBJECT		m ²	%	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,	95 000	3,71%	
		shops, schools, health center, sport.			
				100,00%	2 560 500

Functional zoning

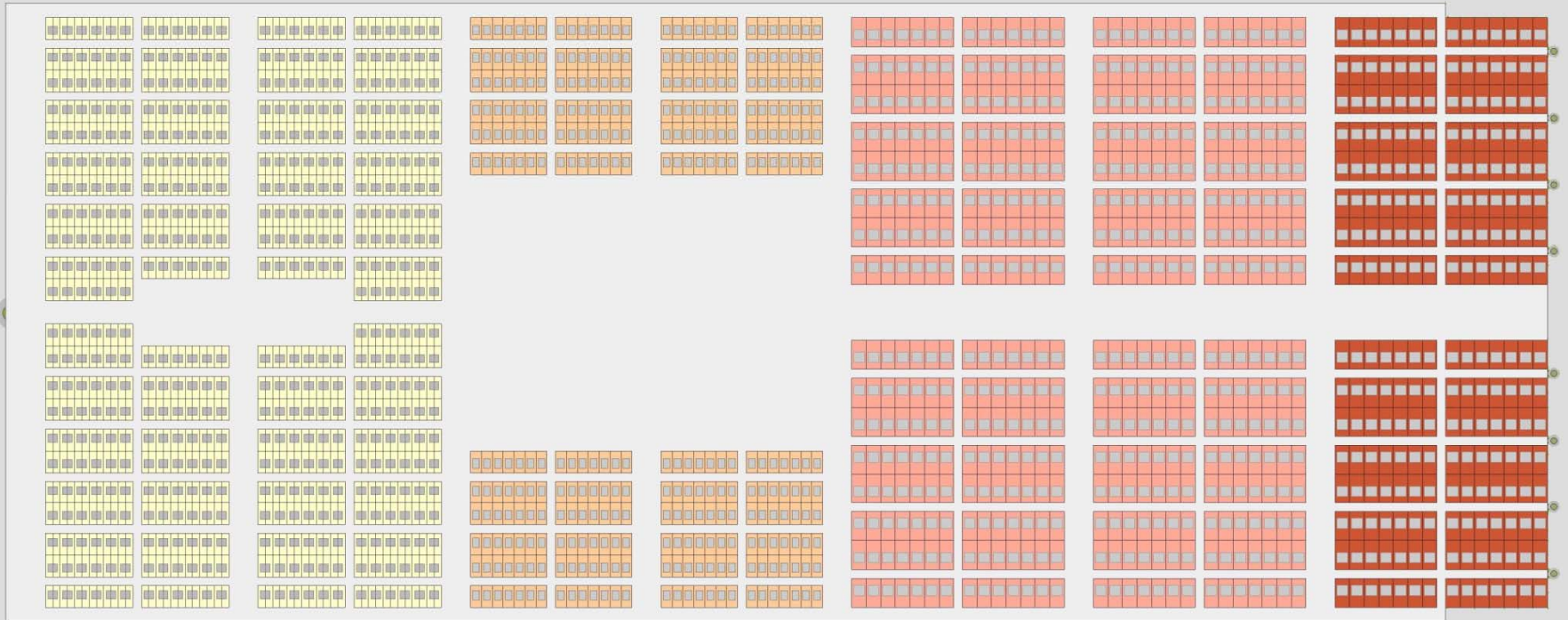


SOCIAL HOUSES

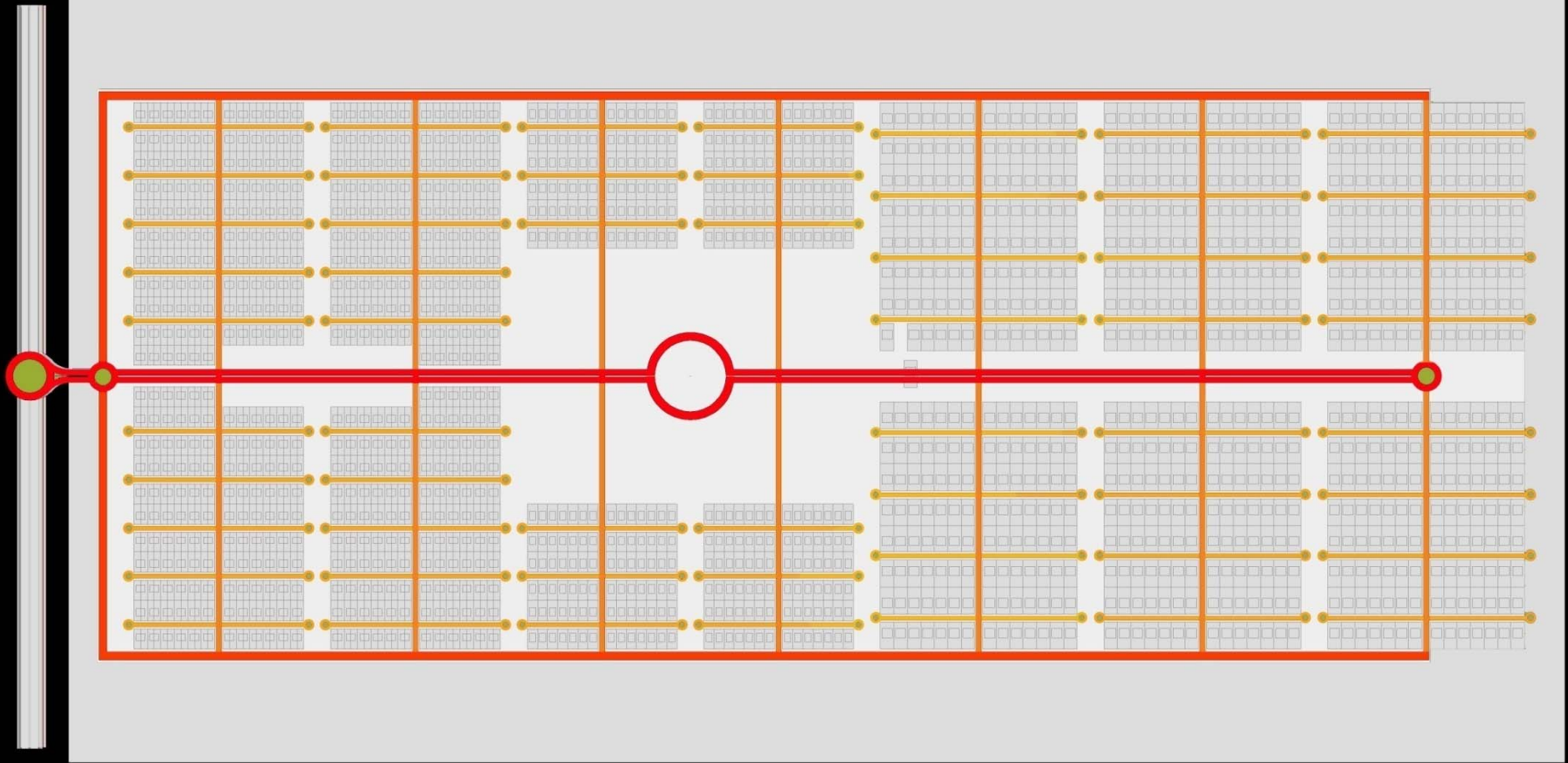
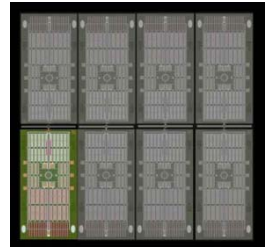
MEDIUM

HIGH STANDING

VERY HIGH
STANDING



Streets system



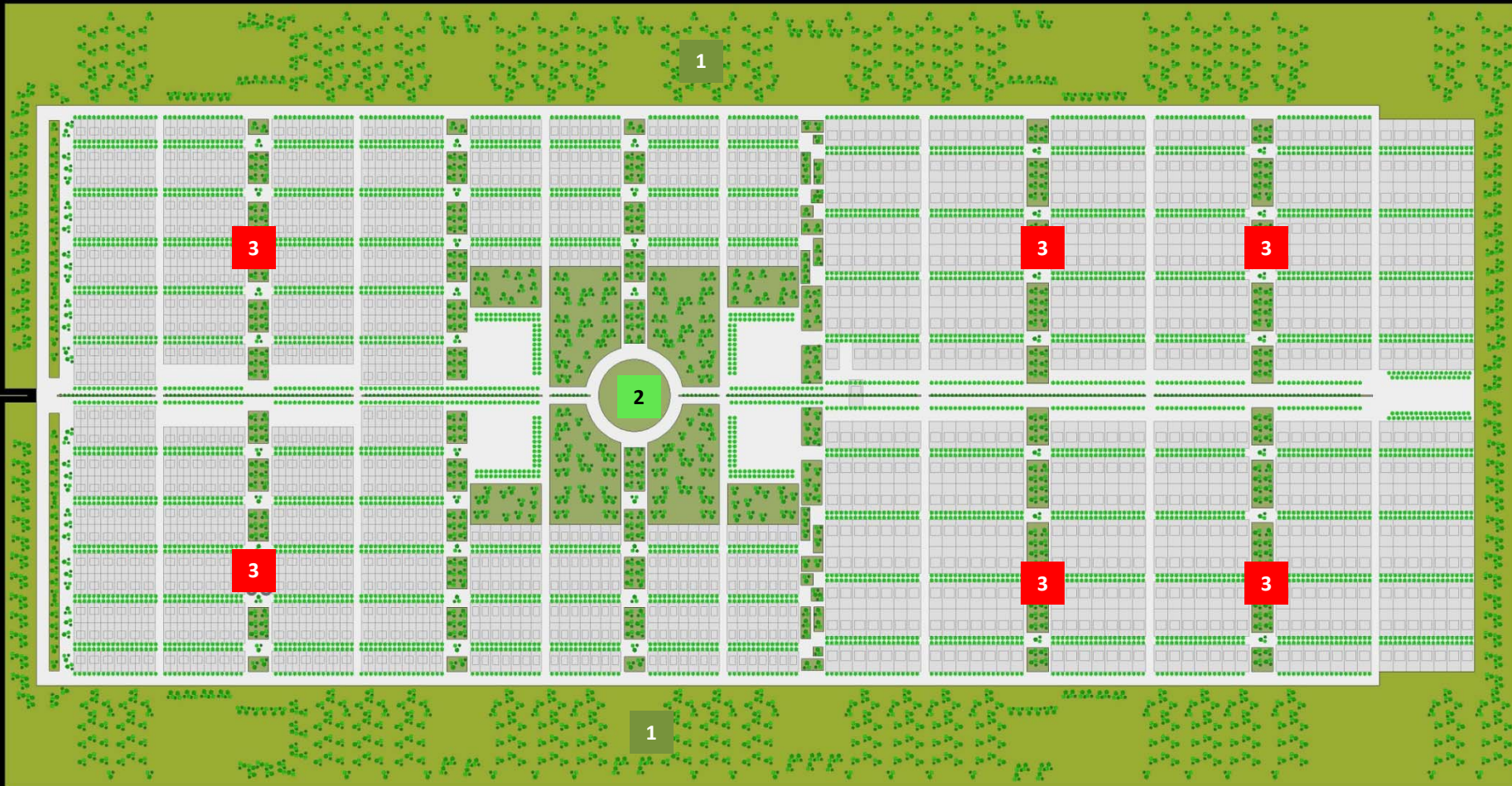
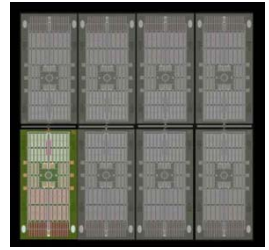
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 Main street

 Transverse streets

 Local streets

Green areas



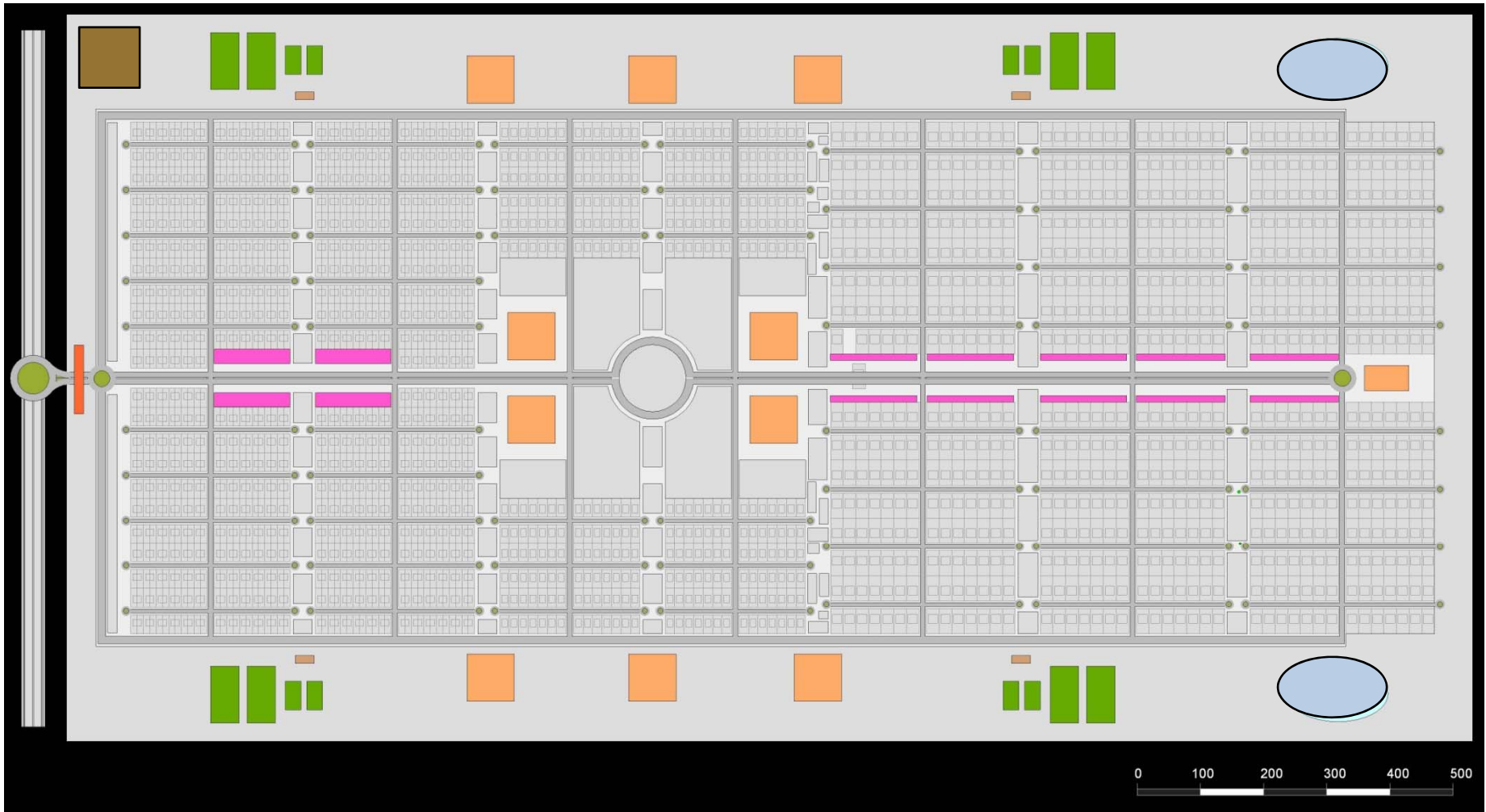
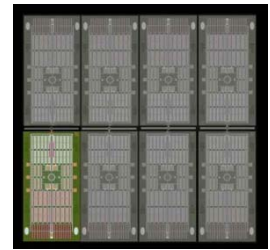
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1 Linear park

2 Central park

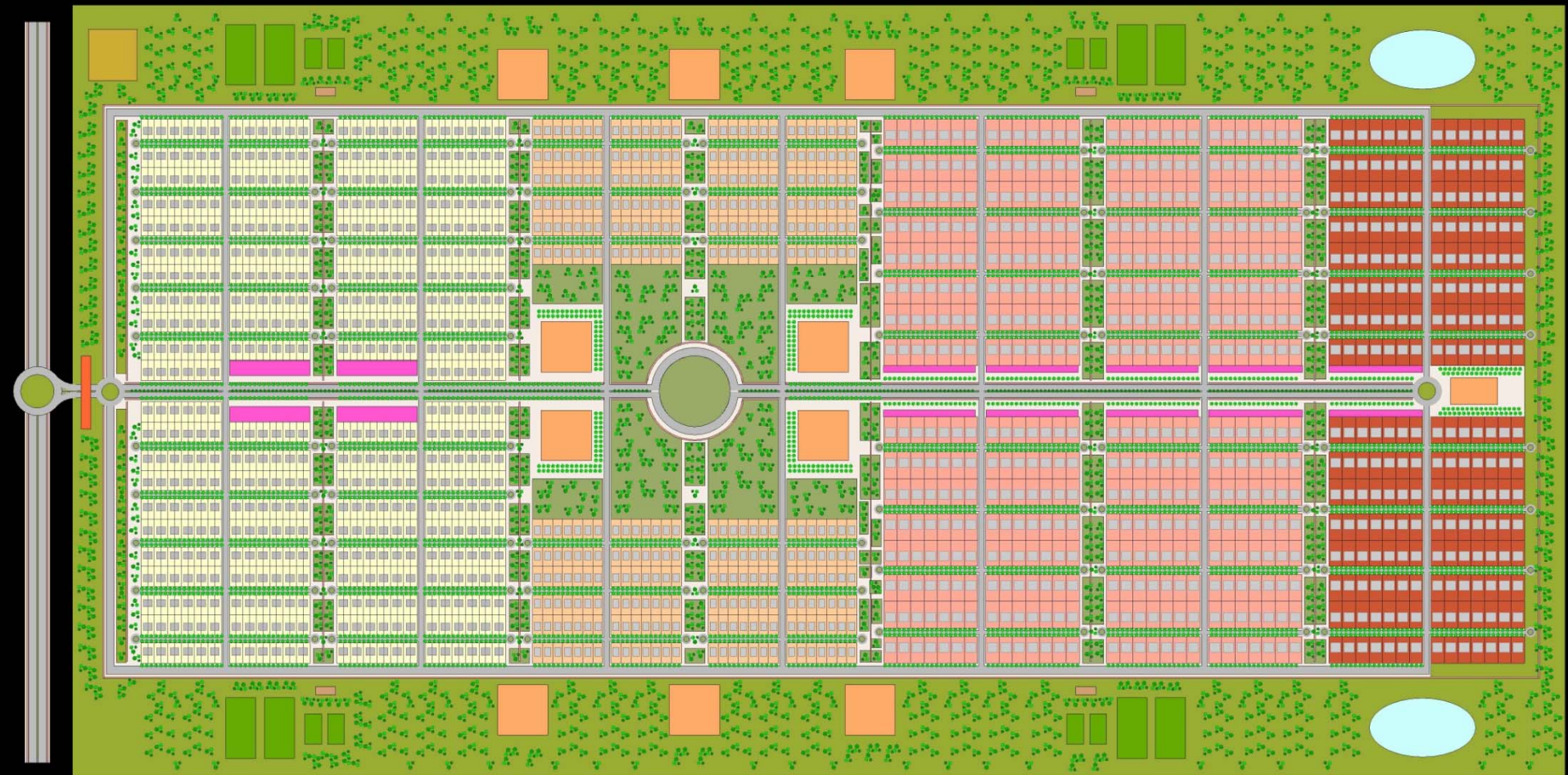
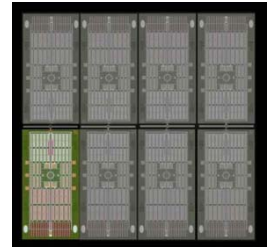
3 Pedestrian walk ways

Social equipments

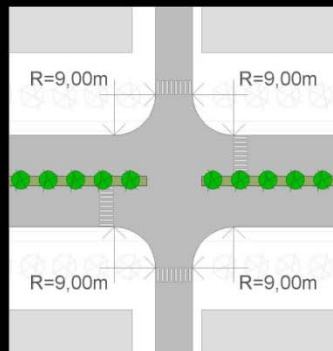
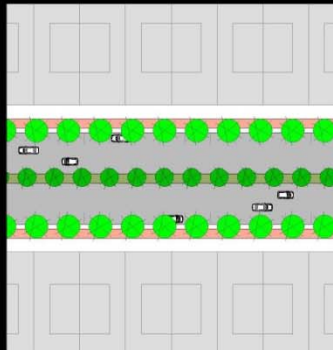
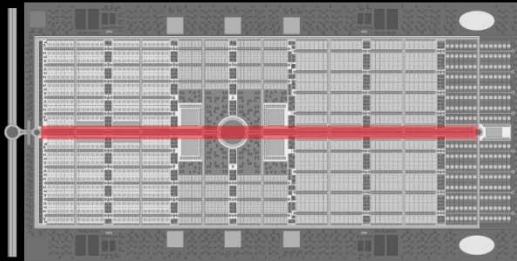


- Shops
- Schools, Churches, Hospital, Supermarket
- Recycling Plant
- Water treatment Lake
- Parks

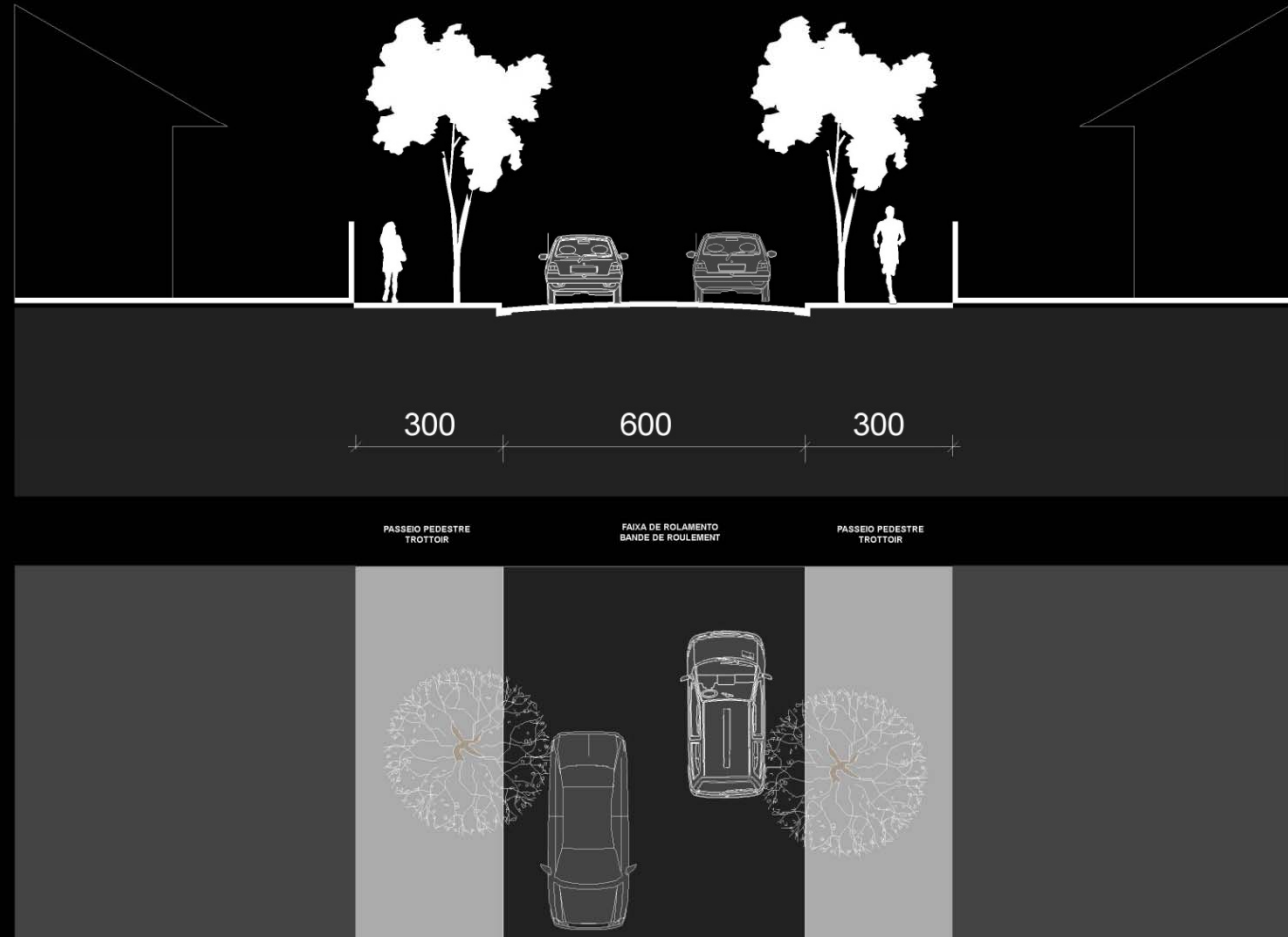
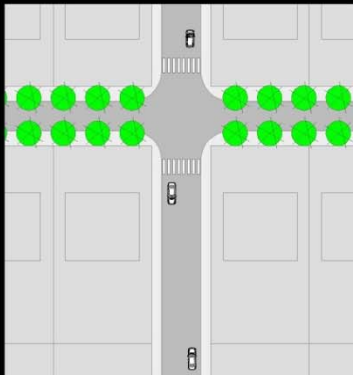
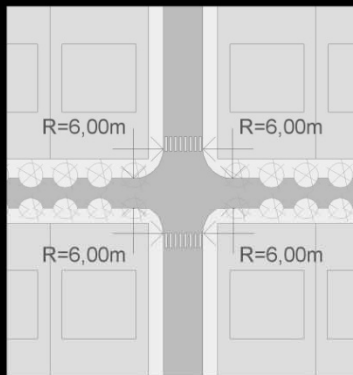
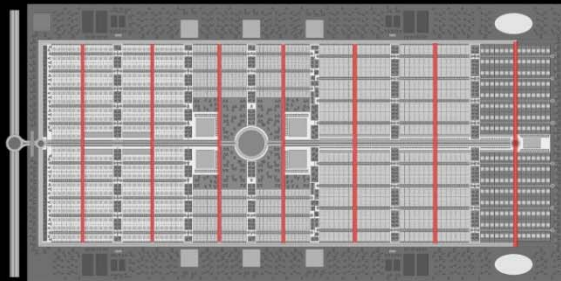
General View District 256,5 ha



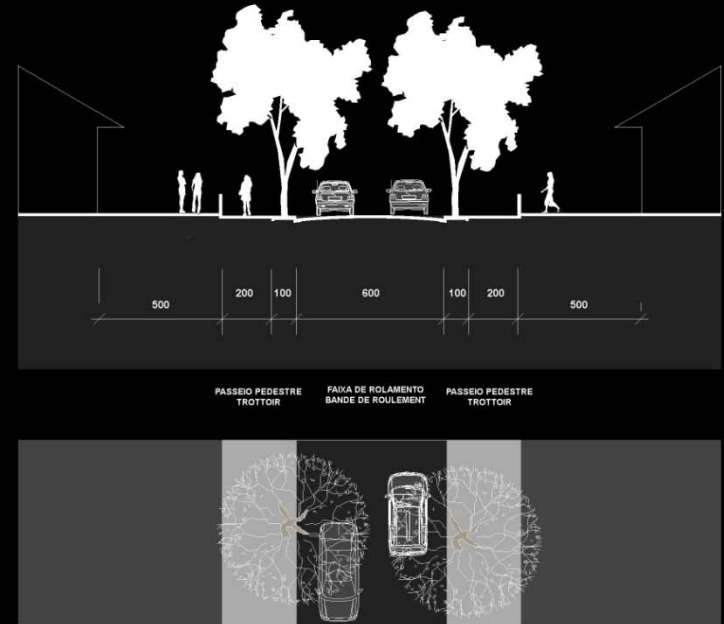
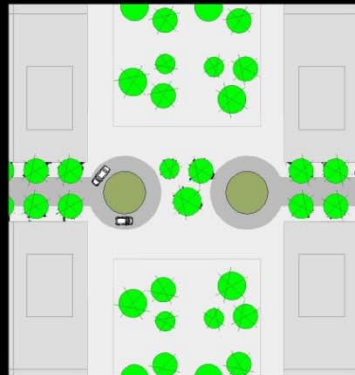
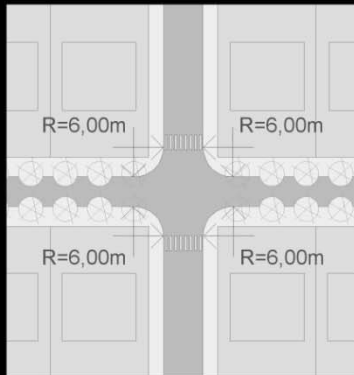
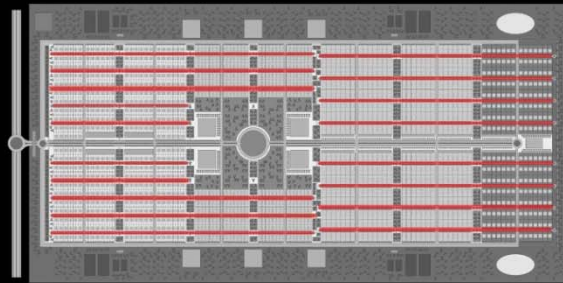
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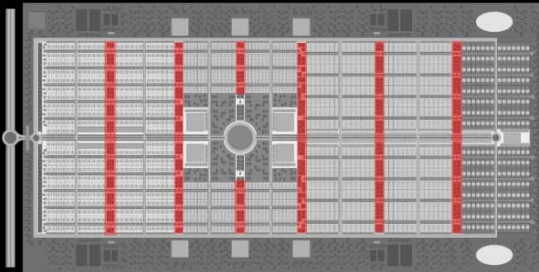
Transverse streets



Local street



Pedestrian way



FAIXA DE ROLAMENTO
BANDE DE ROULEMENT

CUL-DE-SAC

PASSEIO PEDESTRE
TROTTOIR

CICLOVIA
VOI POUR CYCLISTES

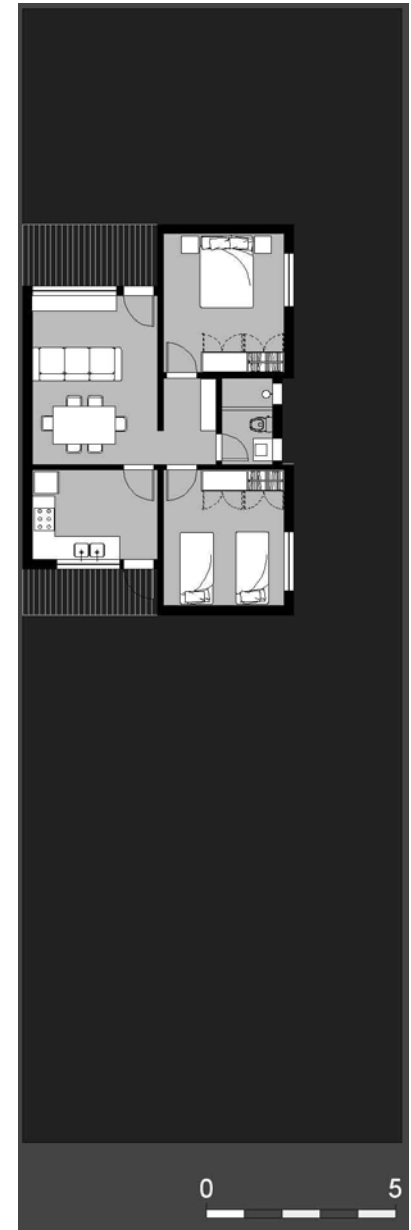
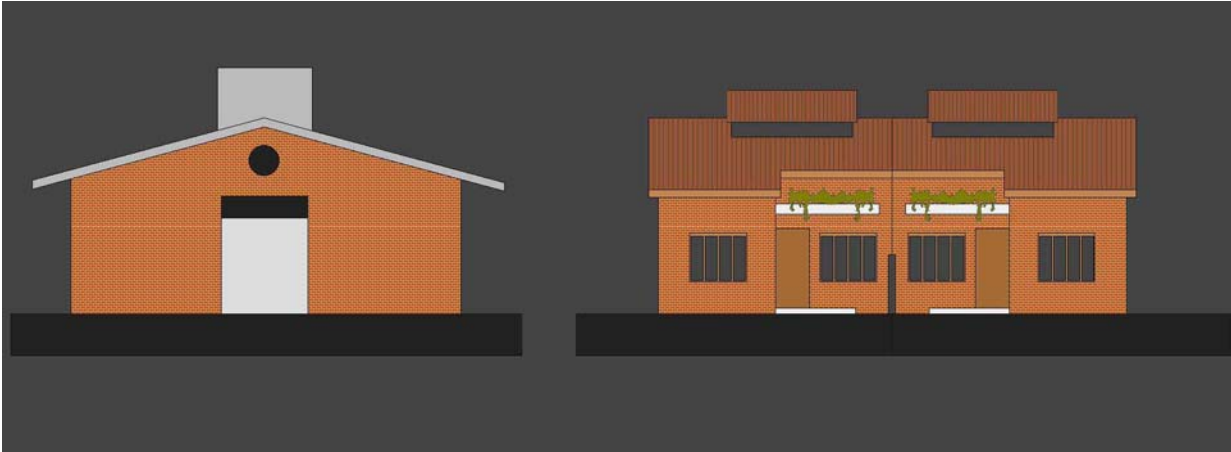
CUL-DE-SAC

FAIXA DE ROLAMENTO
BANDE DE ROULEMENT

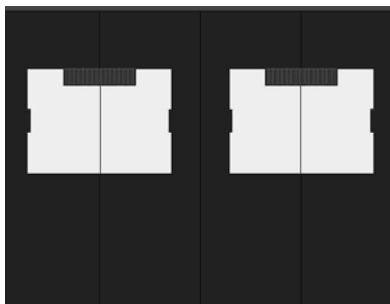
Home types to build per district

SOCIAL GROUP	HOME TYPE	LAND SIZE m	HOME QUANTITY	HOME AREA m ²	TOTAL m ²
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

VAN Type



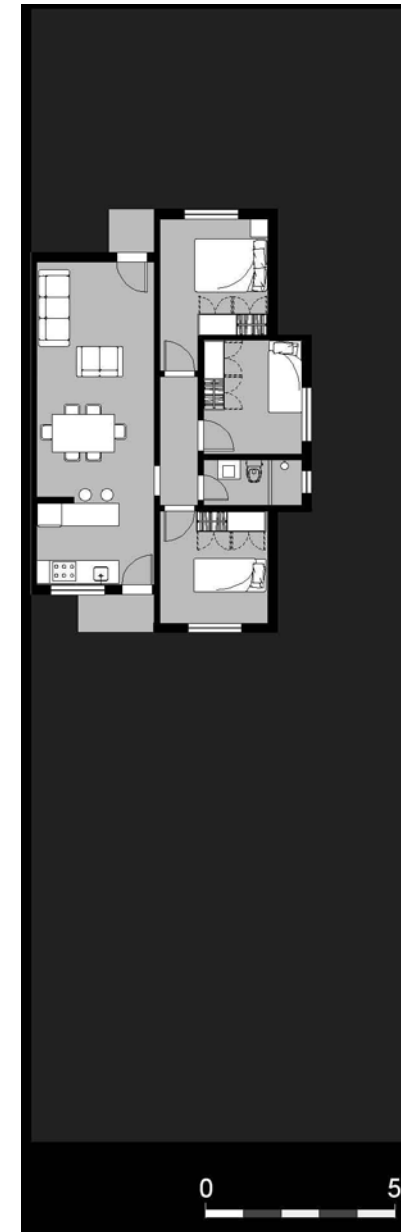
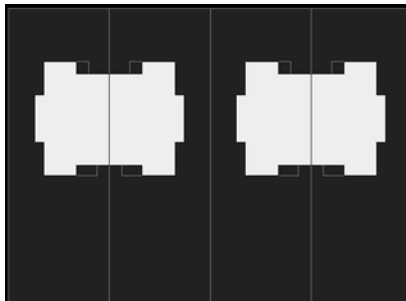
LAND AREA	10 x 30	Description	Quantity
HOME AREA	64 m ²	Entrance veranda	1
		Garage	
		Living room	1
		Dining room	
		Living/Dining room	
		Office	
		Sink	
		Kitchen	1
		Storage	
		Veranda	1
		Bathroom	1
		Bedrooms	2





LAND AREA	10 x 30
HOME AREA	72 m ²

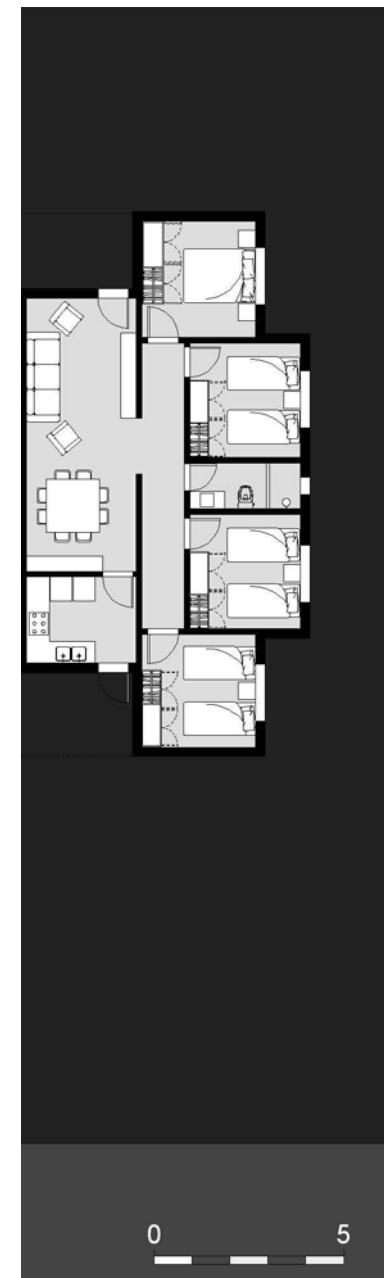
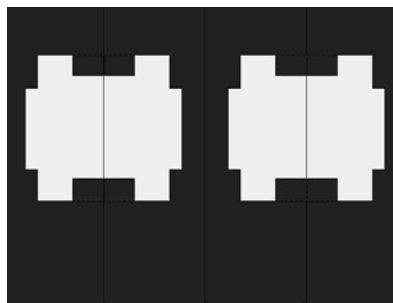
Description	Quantity
Entrance veranda	1
Garage	
Living room	
Dining room	
Living/Dining room	1
Office	
Sink	
Kitchen	1
Storage	
Veranda	1
Bathroom	1
Bedrooms	3





LAND AREA	10 x 30
HOME AREA	89,5 m ²

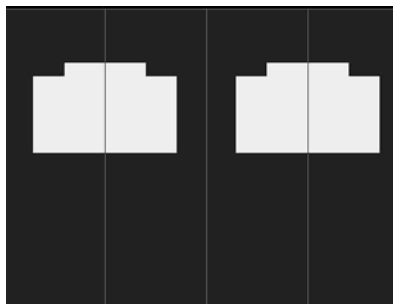
Description	Quantity
Entrance veranda	1
Garage	
Living room	1
Dining room	1
Living/Dining room	
Office	
Sink	
Kitchen	1
Storage	
Veranda	1
Bathroom	1
Bedrooms	4



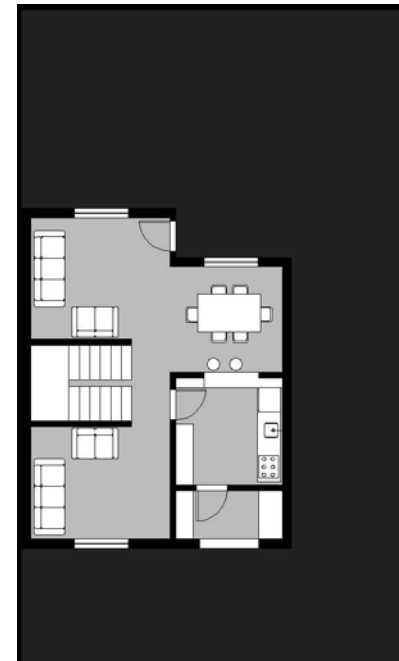
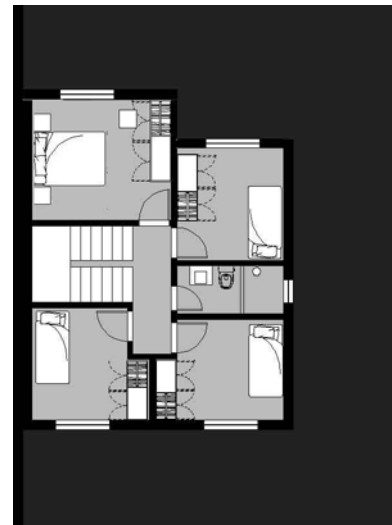


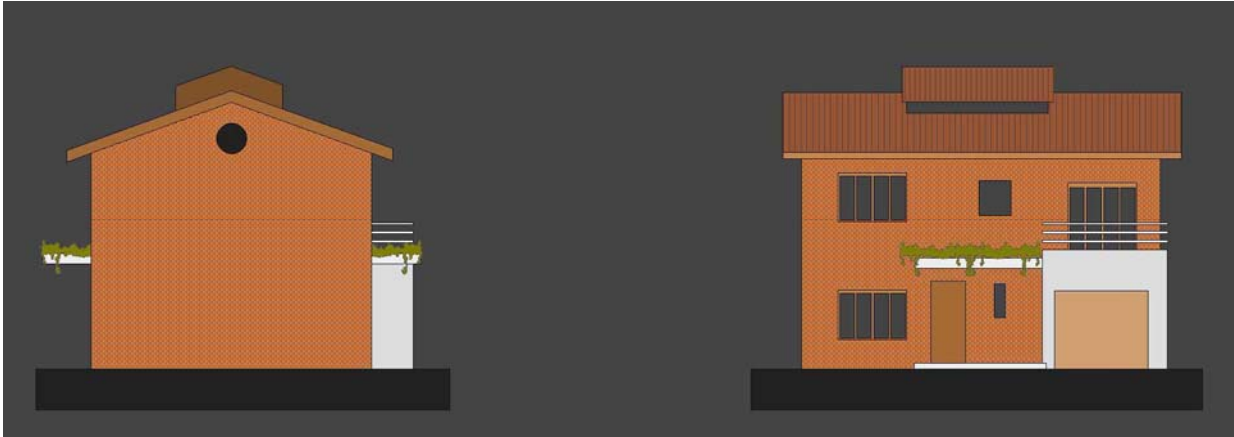
LAND AREA	10 x 30
HOME AREA	120 m ²

2 FLOORS



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

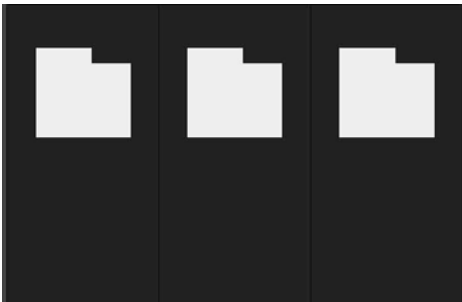


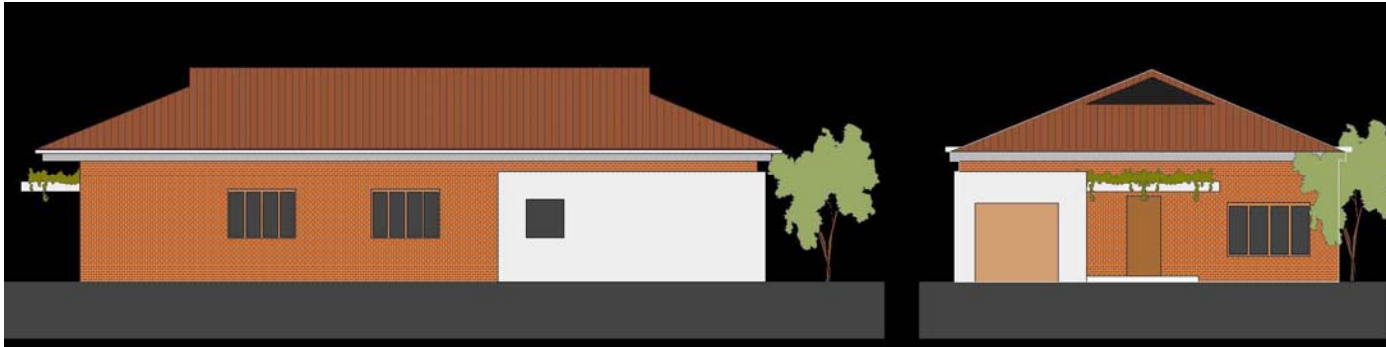


LAND AREA	15 x 30
HOME AREA	148 m ²

2 FLOORS

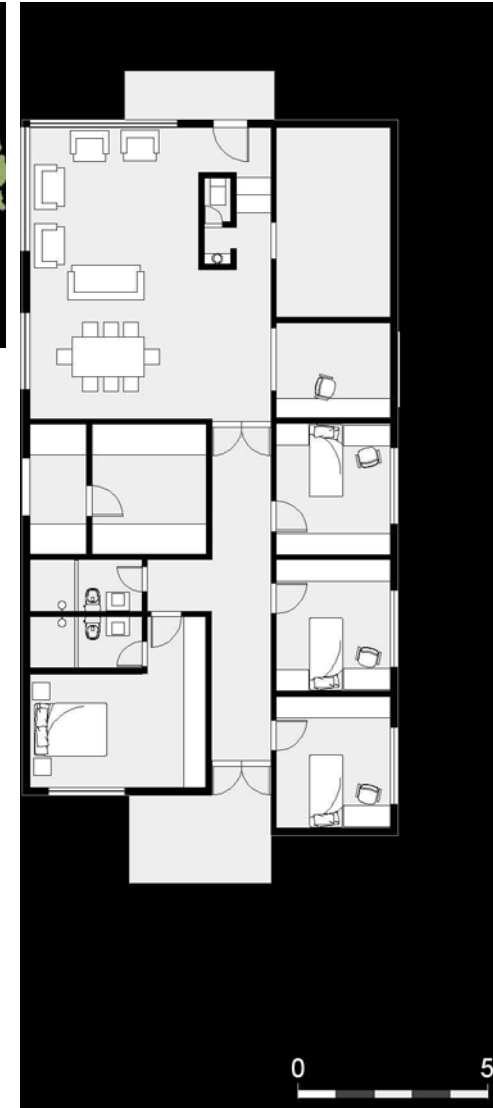
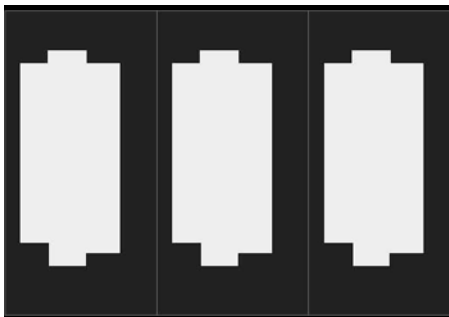
Description	Quantity
Entrance veranda	1
Garage	1
Living room	1
Dining room	1
Living/Dining room	
Office	
Sink	
Kitchen	1
Storage	
Veranda	1
Bathroom	2
Bedrooms	4

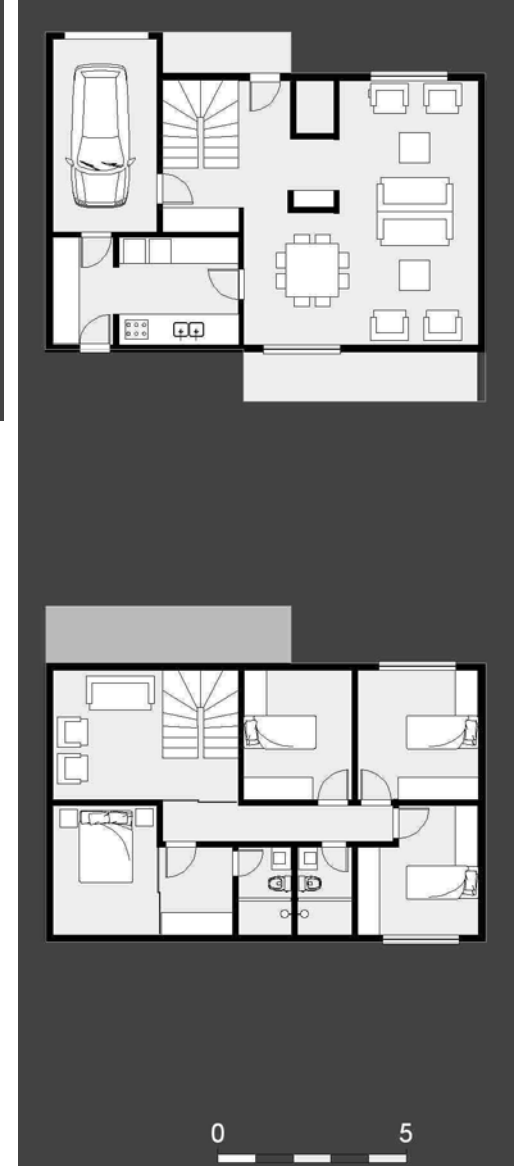
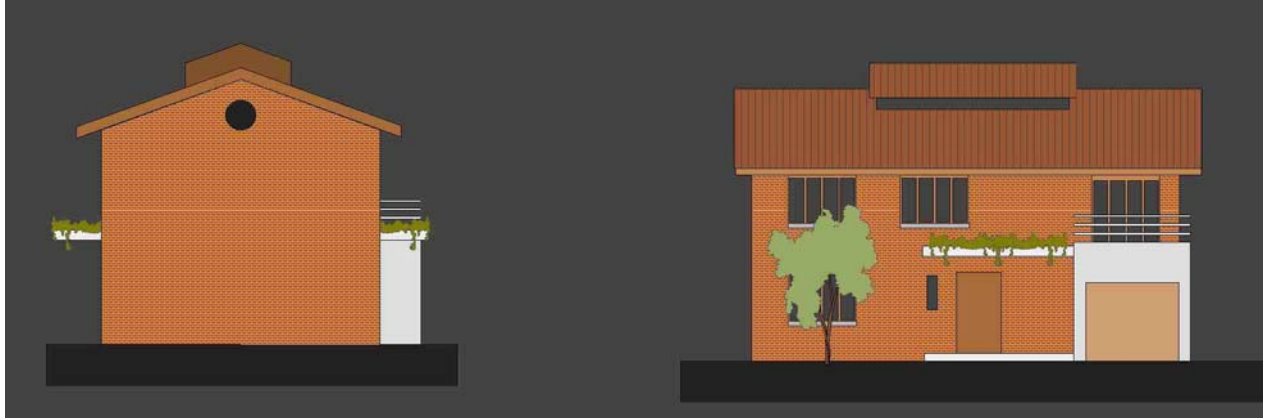




LAND AREA	15 x 30
HOME AREA	198 m ²

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

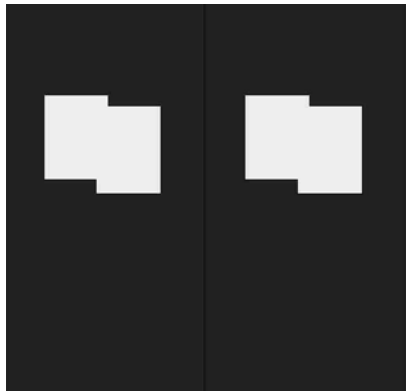




LAND AREA	20 x 40
HOME AREA	184 m ²

2 FLOORS

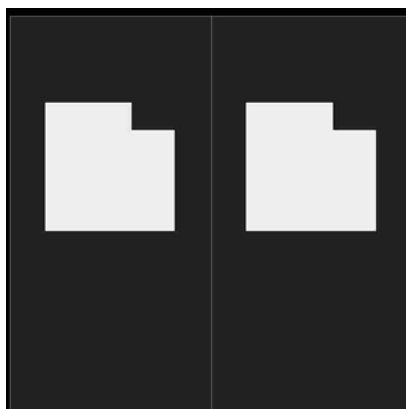
Description	Quantity
Entrance veranda	1
Garage	1
Living room	2
Dining room	1
Living/Dining room	
Office	
Sink	1
Kitchen	1
Storage	1
Veranda	1
Bathroom	2
Bedrooms	4





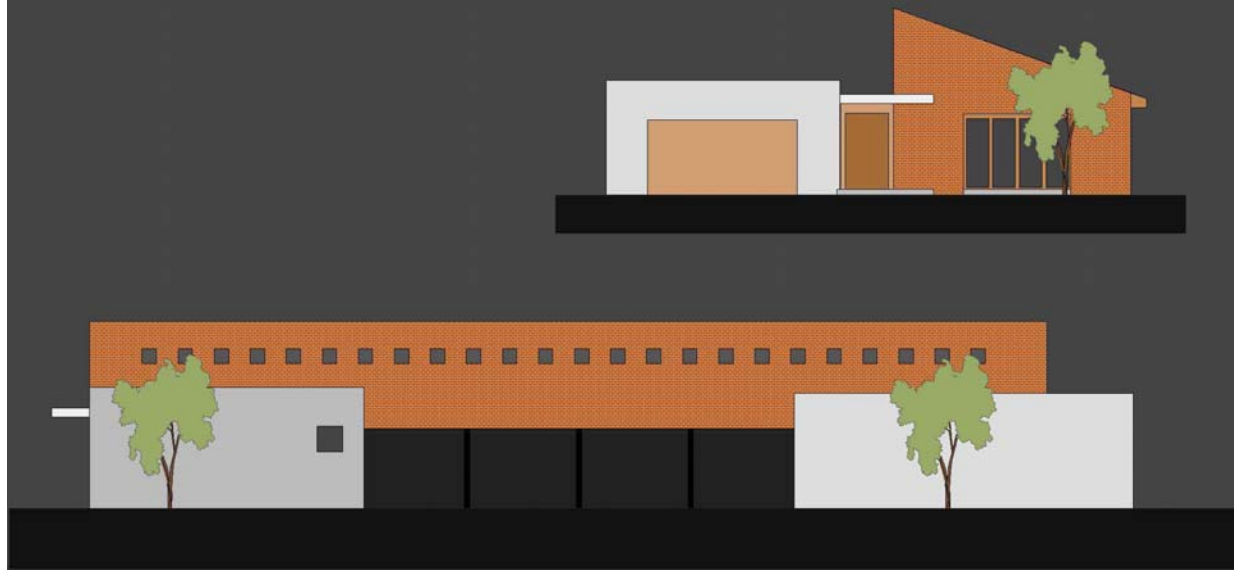
LAND AREA	20 x 40
HOME AREA	260 m ²

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

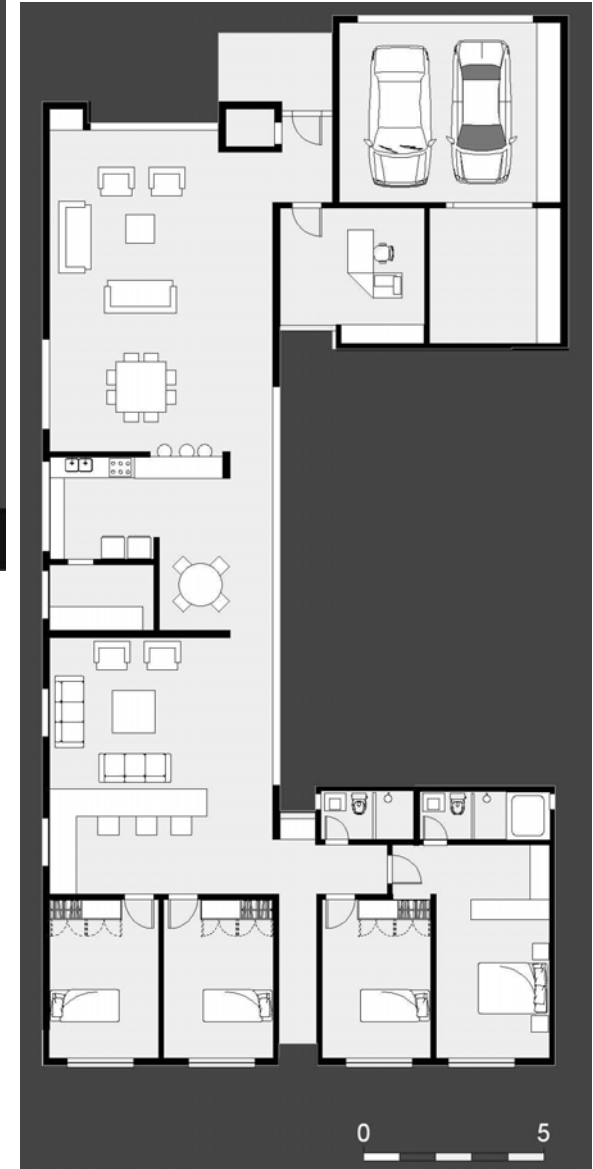




LAND AREA	20 x 40
HOME AREA	320 m ²



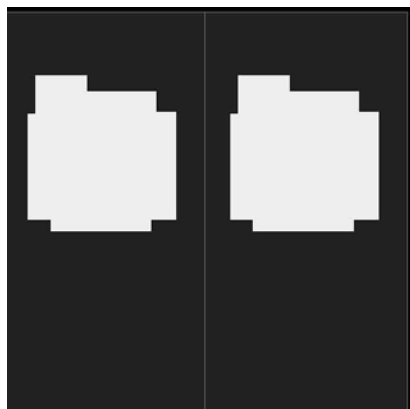
Description	Quantity
Entrance veranda	1
Garage	2
Living room	2
Dining room	1
Living/Dining room	
Office	1
Sink	1
Kitchen	1
Storage	1
Veranda	1
Bathroom	2
Bedrooms	4



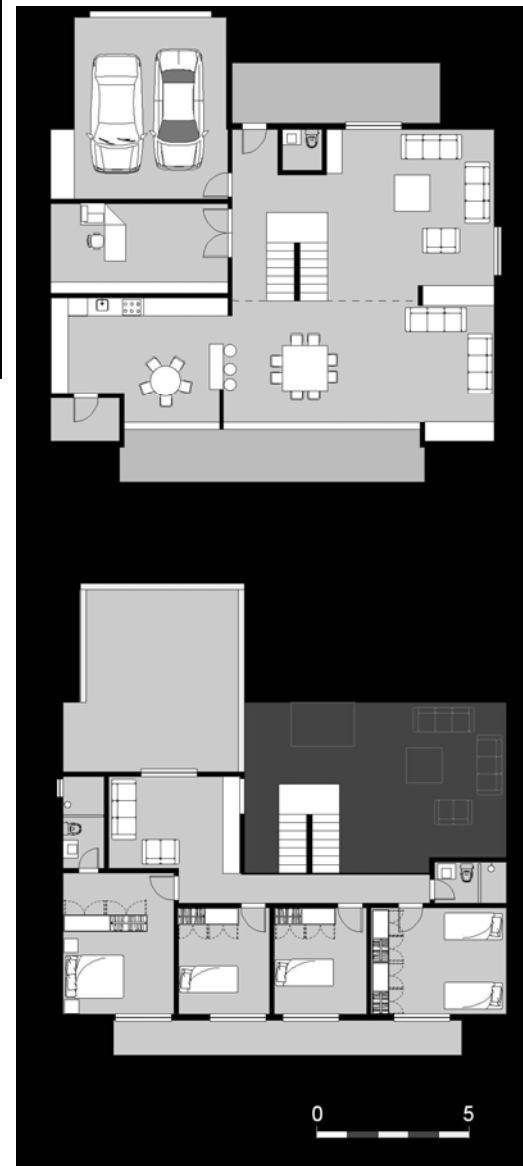


LAND AREA	20 x 40
HOME AREA	338,4 m ²

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

The XXIst century
building technique



- **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. 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 ²)
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% guarantied 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

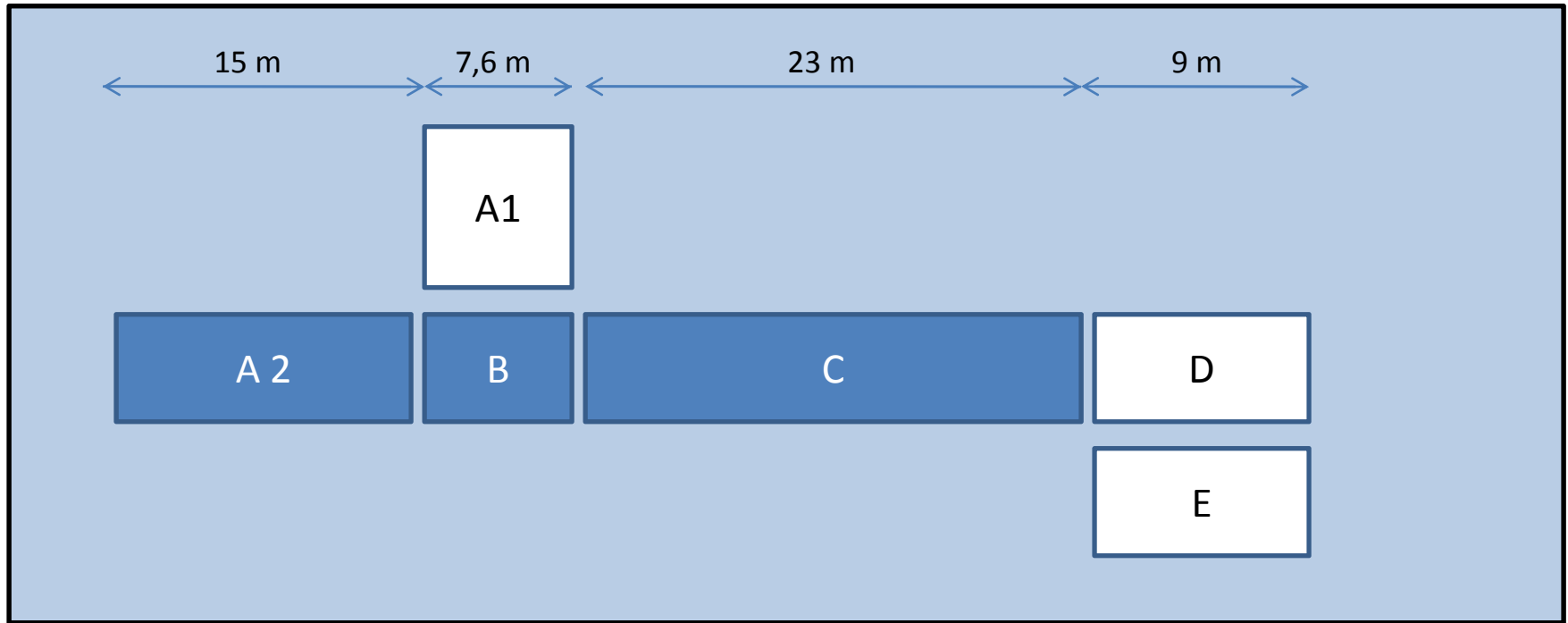


House assembly



House assembly





SPACE	UTILIZATION	SIZE (m)	REQUIRED WORKERS
A1	CORE PREPARING TABLE	7,6 x 7,6	3
A2	CORE PREPARING TABLE	3,7 x 15	2
B	FEEDING SYSTEM	3,7 x 7,6	2
C	MACHINE	4,6 x 23	3
D	TRIMMING SYSTEM	3,7 x 9	3
E	PACKAGING	6 x 9	3

- 3 production lines are required to produce 2,000 Houses per year:
 - Two production lines for the sandwich panels, including heating systems, consolidation rollers, laminating rollers, control panels with all required thermocouples and gages, material loading systems, trimming and cutting systems.
 - One production line for profiles, including heating systems, consolidation rollers, forming rollers, control panels with all required thermocouples and gages, material loading systems, trimming and cutting systems.
 - Excluding: handling and packaging systems.
- **This equipment will produce around 700,000 m² of panels and profiles par year (8 Hours per day, 6 days a week, 50 weeks).** This corresponds to some 2,000 houses of 100 m² per year.
- The required personal for production would be around 100 Persons, including direct and indirect labor.
- The required personnel to assemble the houses would be around 130 Persons. It will be necessary to add on some labor for the eventual finish wished by the customer and fitting any accessories.
- Electrical power: MAX. 1200 AMP./600V, AC, 3Ph.
- Total required space, for the 3 lines including materials and product stock around 15,000 m²

Financials: Basic Prices per technology - Installation cost, Management, Transport, Maintenance, Installation, included

Agriculture	Quantity	Unit Price USD	Management	Transport	Maintenance	Installation Cost	Total
- Mobile Unit 2 reactors	20	\$1,261,260	\$0	\$252,252	\$0	\$126,126	\$25,603,578
- Mobile Unit 4 reactor	10	\$2,501,070	\$0	\$250,107	\$0	\$125,054	\$25,385,861
- Fixed station 2 reactors	1	\$1,195,260	\$0	\$11,953	\$0	\$5,976	\$1,213,189
- Fixed station 4 reactors	2	\$2,343,220	\$0	\$46,864	\$0	\$23,432	\$4,756,737
- Clean Room 2 reactors	50	\$22,337,700	\$0	\$11,168,850	\$0	\$5,584,425	\$1,133,638,275
- Clean Room 4 reactors	100	\$44,671,000	\$0	\$44,671,000	\$0	\$22,335,500	\$4,534,106,500
- Electricity generation 1 Gig/Hour	2	\$7,000,000,000	\$306,600,000	\$140,000,000	\$306,600,000	\$70,000,000	\$14,823,200,000
- Electricity generation 0.5 Gig/Hour		\$3,500,000,000	\$0	\$0	\$0	\$0	\$0
- Electricity generation 0.25 Gig/Hour		\$1,750,000,000	\$0	\$0	\$0	\$0	\$0
- Electricity generation 0.2 Gig/Hour		\$1,400,000,000	\$0	\$0	\$0	\$0	\$0
- Electricity generation 0.1 Gig/Hour	5	\$700,000,000	\$30,660,000	\$35,000,000	\$30,660,000	\$17,500,000	\$3,613,820,000
- Pipelines 3 m diameter/1000 m.		\$5,000,000	\$0	\$0	\$0	\$0	\$0
- Pipelines 1.5 m diameter/1000 m.		\$3,000,000	\$0	\$0	\$0	\$0	\$0
- Pipelines 0.25 m diameter/1000 m.		\$2,000,000	\$0	\$0	\$0	\$0	\$0
- Single Reactor	1	\$150,000	\$0	\$1,500	\$0	\$750	\$152,250
Water purification & Desalination							
- Electricity generation 1 Gig/Hour	1	\$7,000,000,000	\$306,600,000	\$70,000,000	\$306,600,000	\$35,000,000	\$7,718,200,000
- Electricity generation 0.5 Gig/Hour		\$3,500,000,000	\$0	\$0	\$0	\$0	\$0
- Electricity generation 0.25 Gig/Hour		\$1,750,000,000	\$0	\$0	\$0	\$0	\$0
- Electricity generation 0.2 Gig/Hour		\$1,400,000,000	\$0	\$0	\$0	\$0	\$0
- Electricity generation 0.1 Gig/Hour		\$700,000,000	\$0	\$0	\$0	\$0	\$0
- Pumps	50	\$300,000	\$0	\$150,000	\$0	\$75,000	\$15,225,000
- Pipelines 3 m diameter/1000 m.	50	\$5,000,000	\$0	\$2,500,000	\$0	\$1,250,000	\$253,750,000
- Pipelines 1.5 m diameter/1000 m.	500	\$3,000,000	\$0	\$15,000,000	\$0	\$7,500,000	\$1,522,500,000
- Pipelines 0.25 m diameter/1000 m.	1000	\$2,000,000	\$0	\$20,000,000	\$0	\$10,000,000	\$2,030,000,000
- Single Reactor	100	\$15,000,000	\$0	\$15,000,000	\$0	\$7,500,000	\$1,522,500,000

Solar Technology

- Electricity generation 1 Gig/Hour	1	\$7,000,000,000	\$306,600,000	\$70,000,000	\$306,600,000	\$35,000,000	\$7,718,200,000
- Electricity generation 0.5 Gig/Hour	1	\$3,500,000,000	\$153,300,000	\$35,000,000	\$153,300,000	\$17,500,000	\$3,859,100,000
- Electricity generation 0.25 Gig/Hour		\$1,750,000,000	\$0	\$0	\$0	\$0	\$0
- Electricity generation 0.2 Gig/Hour		\$1,400,000,000	\$0	\$0	\$0	\$0	\$0
- Electricity generation 0.1 Gig/Hour		\$700,000,000	\$0	\$0	\$0	\$0	\$0
- Wiring/per km	1000	\$15,000	\$0	\$150,000	\$0	\$75,000	\$15,225,000
- Pipelines 3 m diameter/1000 m.	25	\$5,000,000	\$0	\$1,250,000	\$0	\$625,000	\$126,875,000
- Pipelines 1.5 m diameter/1000 m.	500	\$3,000,000	\$0	\$15,000,000	\$0	\$7,500,000	\$1,522,500,000
- Pipelines 0.25 m diameter/1000 m.	1000	\$2,000,000	\$0	\$20,000,000	\$0	\$10,000,000	\$2,030,000,000
-							
-							
Feasibility Study	1	\$5,000,000	\$0	\$0	\$0	\$0	\$5,000,000

Income from technology

Agriculture

	Quantity of products per plant	Number of plants or reactor	Total amount of kilos/kilowatts per year	Price per Kilo/Kilowatt	Total NET amount of income per Year	Amortization time in Years
Mobile Unit 2 reactors						
Mobile Unit 4 reactor						
Fixed station 2 reactors						
Fixed station 4 reactors						
Clean Room 2 reactors (1plant=400 kg/cycle)	70,000	10,000	700,000,000	\$1.0500	\$735,000,000	1.54
Clean Room 4 reactors (1plant=400 kg/cycle)	140,000	20,000	2,800,000,000	\$1.0500	\$2,940,000,000	1.54
Electricity generation 1 Gig/Hour	1,000,000	2	17,520,000,000	\$0.1200	\$1,787,040,000	8.29
Electricity generation 0.5 Gig/Hour						
Electricity generation 0.25 Gig/Hour						
Electricity generation 0.2 Gig/Hour						
Electricity generation 0.1 Gig/Hour						
Pipelines 3 m diameter/1000 m.						
Pipelines 1.5 m diameter/1000 m.						
Pipelines 0.25 m diameter/1000 m.						
Single Reactor						
Water purification & Desalination						
Electricity generation 1 Gig/Hour	1,000,000	1	8,760,000,000	\$0.1200	\$683,280,000	11.30
Electricity generation 0.5 Gig/Hour						
Electricity generation 0.25 Gig/Hour						
Electricity generation 0.2 Gig/Hour						
Electricity generation 0.1 Gig/Hour						
Pumps						
Pipelines 3 m diameter/1000 m.						
Pipelines 1.5 m diameter/1000 m.						
Pipelines 0.25 m diameter/1000 m.						
Single Reactor in liters production	7,148,160,000	1	7,148,160,000	\$0.5000	\$1,787,040,000	0.85

Solar Technology

Electricity generation 1 Gig/Hour	1,000,000	1	8,760,000,000	\$0.1200	\$1,051,200,000	7.34
Electricity generation 0.5 Gig/Hour	500,000	1	4,380,000,000	\$0.1200	\$525,600,000	7.34
Electricity generation 0.25 Gig/Hour						
Electricity generation 0.2 Gig/Hour						
Electricity generation 0.1 Gig/Hour						
Wiring/per km						
Pipelines 3 m diameter/1000 m.						
Pipelines 1.5 m diameter/1000 m.						
Pipelines 0.25 m diameter/1000 m.						

\$9,509,160,000

Clean Rooms 2 Reactors

[illegible]

Clean Rooms 4 Reactors

Stainless steel root support 250 plants	80	\$20,000	\$160,000	\$1,760,000
Variable size plant holder cap	20,000	\$150	\$300,000	\$3,300,000
Water microniser for oxygenated water	80,000	\$75	\$600,000	\$6,600,000
Heavy duty supports	480	\$60,000	\$2,880,000	\$31,680,000
Laser root cutter	160	\$100	\$1,600	\$17,600
Rolling carpet in root cage	80	\$4,000	\$32,000	\$352,000
Product exit rolling carpet	4	\$8,000	\$3,200	\$35,200
Structural stainless steel support	480	\$200	\$9,600	\$105,600
Elevator for collection and verification	6	\$5,000	\$3,000	\$33,000
Single reactor	4	\$150,000	\$60,000	\$660,000
Cooling Unit 4000 liters	2	\$18,000	\$3,600	\$39,600
Lamps	400	\$200	\$8,000	\$88,000

\$0

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\$44,671,000

Mobile Unit 2 Reactors				
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Contains:	Units	Unit price	Variation	Total
Stainless steel container	1	\$80,000	\$8,000	\$88,000
Stainless steel pipes/feet	200	\$15	\$300	\$3,300
Cooling unit 2000 liters	4	\$10,000	\$4,000	\$44,000
Single reactor	2	\$150,000	\$30,000	\$330,000
Filters	12	\$300	\$360	\$3,960
Electrical Panel	1	\$10,000	\$1,000	\$11,000
Electricity generation 0.1 Gig/Hour	1	\$700,000	\$70,000	\$770,000
Pumps	5	\$2,000	\$1,000	\$11,000
			\$0	\$0
			\$0	\$0
			\$0	\$0
			\$0	\$0
			\$0	\$0
			\$0	\$0
			\$0	\$0
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			\$0	\$0
			\$0	\$0
			\$0	\$0

Total Price: \$1,261,260

Mobile Units 4 Reactors

Contains:	Units	Unit price	Variation	Total
Stainless steel container	1	\$150,000	\$15,000	\$165,000
Stainless steel pipes/feet	300	\$15	\$450	\$4,950
Cooling unit 4000 liters	4	\$18,000	\$7,200	\$79,200
Single reactor	4	\$150,000	\$60,000	\$660,000
Filters	24	\$300	\$720	\$7,920
Electrical Panel	1	\$20,000	\$2,000	\$22,000
Electricity generation 0.2 Gig/Hour	1	\$1,400,000	\$140,000	\$1,540,000
Pumps	10	\$2,000	\$2,000	\$22,000
			\$0	\$0
			\$0	\$0
			\$0	\$0
			\$0	\$0
			\$0	\$0
			\$0	\$0
			\$0	\$0
			\$0	\$0
			\$0	\$0
			\$0	\$0
			\$0	\$0
			\$0	\$0
			\$0	\$0
			\$0	\$0
			\$0	\$0
			\$0	\$0
			Total Price:	\$2,501,070

Fixed Stations 2 Reactors

[illegible]

\$1,195,260

Fixed Stations 4 Reactors

[illegible]

\$2,343,220

List Price different Items

Taxes	0.0000
Duties	0.0000
Value of US Currency	1.0000
Value of CDN Currency	1.3177
Value of Euro Currency	0.8980
Value of British Pound Currency	0.8102
Value of RMB (Yuan) Currency	6.7048
Value of Jap Yen Currency	103.9270
Value of PHP Peso Currency	48.4700
Value of Thai Bat Currency	35.1800
Value of Vietnam Currency	35.1800
Transport costs	0.0100
Installation costs	0.0050
Single Reactor	\$150,000
Variation	0.1000
Electricity generation 1 Gig/Hour	7,000,000,000
Electricity generation 0.5 Gig/Hour	3,500,000,000
Electricity generation 0.25 Gig/Hour	1,750,000,000
Electricity generation 0.2 Gig/Hour	1,400,000,000
Electricity generation 0.1 Gig/Hour	700,000,000
Basic price generator	\$7,000,000
Kilos produced per plant per cycle	400
Number of cycles	3.5
Price per kilo	1.0500
Price per kilowatt	0.1200
Electricity used for production of plants	0.1500
Electricity used for production of fresh water	0.3500
Price of 1 liter of water sold	0.5000
Electricity generation 1 Gig/Hour Management Yearly	\$306,600,000
Electricity generation 0.5 Gig/Hour Management Yearly	\$153,300,000
Electricity generation 0.25 Gig/Hour Management Yearly	\$76,650,000
Electricity generation 0.2 Gig/Hour Management Yearly	\$61,320,000
Electricity generation 0.1 Gig/Hour Management Yearly	\$30,660,000
Electricity generation 1 Gig/Hour Maintenance Yearly	\$306,600,000
Electricity generation 0.5 Gig/Hour Maintenance Yearly	\$153,300,000
Electricity generation 0.25 Gig/Hour Maintenance Yearly	\$76,650,000
Electricity generation 0.2 Gig/Hour Maintenance Yearly	\$61,320,000
Electricity generation 0.1 Gig/Hour Maintenance Yearly	\$30,660,000
Spacing between Heavy duty support in Feet	6