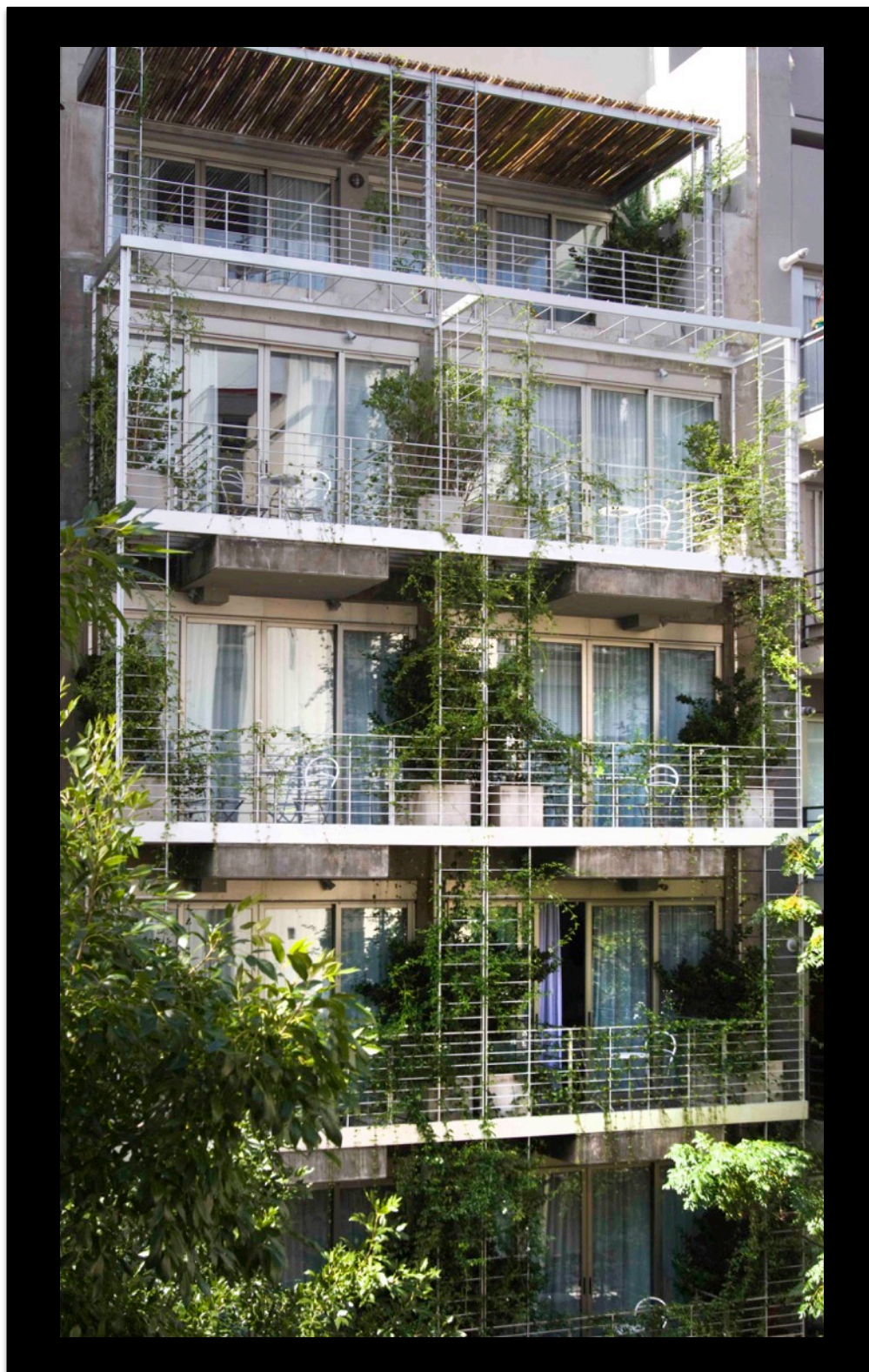




PALO SANTO

THE FIRST URBAN GREEN HOTEL IN LATIN AMERICA



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Palo Santo is a design and luxury boutique hotel located in Palermo, Buenos Aires. Its modern green architecture features beautiful vertical gardens with over 800 plants and a 20-meter-high fountain. Palo Santo offers large, light-filled, modern and stunningly designed rooms and suites.



CONCEPT

Palo Santo stands out as a new concept in Latin America: a green urban luxury hotel.

Palo Santo follows the newest trend in contemporary architecture: green building. Vertical gardens are part of its structural language. Over 800 plants cover facades, balconies, roof and patios. Several water fountains stand throughout the building: the largest one is 20-meter high and goes from the 6th floor to the lobby.

Palo Santo has developed an extensive sustainability program that covers all important aspects: energy, water, CO₂ and O₃, insulation, air and operations.

Palo Santo: Born to be an icon!

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GREEN ARCHITECTURE

GREEN WALLS: Over 800 plants

Palo Santo has a green configuration. Green are its façades, its patios, its courtyard, its balconies, its terrace, its roof. The original design by architect Mario Zito conceived a metal structure throughout both façades that laid a regular grid to guide the growth of vines, jasmines and trees.

300 lemon-scented jasmines, 80 olea texanum and 300 periwinkles cover the façades. In its courtyard, more than 40 ampelopsis, a dozen of phormium marginata alba, 10 hedera helix, 30 agapanthus and 20 busy lizizes grow vigorously and share its beauty with many bamboos and the broadleaf lady palms of the patio. The terrace is full of paspalums, phormium, acers, agapanthus and jasmines.

All in all, more than 850 plants fill the hotel with enduring grace.

Inspiration: the Musée du Quai Branly in Paris

The building aesthetics recalls some iconic contemporary European designs. Architects Jean Nouvel (Musée du Quai Branly, Paris), Jacques Herzog and Pierre de Meuron (Caixa Forum, Madrid), Stefano Boeri (Bosco Verticali, Milano) and Renzo Piano, all conceive modern architecture as a new language that introduces green gardens into the vertical structure of buildings.

Green façade and sustainability

Plants are not only used for their appealing prevalence. They also achieve an ecological goal by erecting a natural insulation for the building against climate extremes, helping to insulate the external heat and cold, to reduce the impact of the wind and to absorb water excess. Their presence contributes to reduce the consumption of energy and, consequently, to lower CO2 emissions.

CARBON FOOTPRINT

Plants that grow permanently are a source of oxygen and absorb CO₂. They help to mitigate the inevitable CO₂ emissions that human activity produces.

In the same way, plants contribute to reduce the energy consumption of the building since they form an efficient natural insulating barrier.

Therefore, thanks to its 800 plants and its fully-articulated sustainability program, **Palo Santo Hotel reduces its carbon footprint by 80%.**



A 20-meter-high water fountain

The hotel's patio has a 20-meter-high water fountain that can be seen from every hallway. The fountain goes from the 6th floor to the ground floor where it is surrounded by natural broadleaf lady palms and beautifully lit in various manners.

WHY ARE WE GREEN

Palo Santo Hotel is an eco-responsible hotel built to LEED (Leadership in Energy and Environmental Design) standards.

CERTIFIED. Palo Santo Hotel won in 2013 Hoteles + Verdes (Greener Hotels) National Contest as Best Sustainable Hotel Project.

Our eco-responsible agenda covers all important aspects

ENERGY

- Rational use of energy. VRV Inverter Air Conditioning System. LED and energy- efficient light bulbs. Lights out cards. Movement detectors.

WATER

- Rational use of water. Trickle irrigation. Water-efficient toilets. Administration of rainwater flow to the city's sewer.

INSULATION

- Boosting insulation. Double glazed windows. Insulating and soundproof floors and walls. Vertical gardens.

CO2 / O3

- Low emissions and CO2 recovery. Over 800 constant grow plants that absorb CO2. Ozone-safe air conditioning equipment.

MATERIALS

- Use of durable and certified materials.

AIR

- Pure air, reducing pollution. Air in room is filtered and controlled.

OPERATIONS

- Lean services and operations. Recycling program. "Borrow a bike" program. Selection of environmentally friendly service providers.

OUR RESULTS IN A NUTSHELL

82%	LESS electricity spent thanks to LED lightening.
57%	LESS energy spent for heating and cooling thanks to VRV Inverter air conditioning system.
50%	LESS energy spent by state-of-the-art insulation.
67%	of water SAVED by efficient toilets.
50%	LESS water used thanks to trickle irrigation.
2,5 tons	of CO2 are ABSORBED by the hotel's plants each year.



CSR. BEYOND ECOLOGY

Every company is part of society as a whole. Businesses have the responsibility of caring and nurturing the environment they belong to. Palo Santo Hotel takes said concern very seriously and develops a number of actions regarding corporate responsibility.



EDUCATION. The Palo Santo team has been researching in sustainability since 2011. We want to share our knowledge in the fields of both green building and green operations. Therefore, we constantly make presentations in different academic institutions.

PROMOTION. The hotel promotes a green attitude and an environmental focus. We work closely with our staff, our guests, our clients and our suppliers in order to transmit our concerns about the environment and our solutions. We are part of the *Red the Turismo Responsable* and we participate in various quality programs.

CSR. BEYOND ECOLOGY

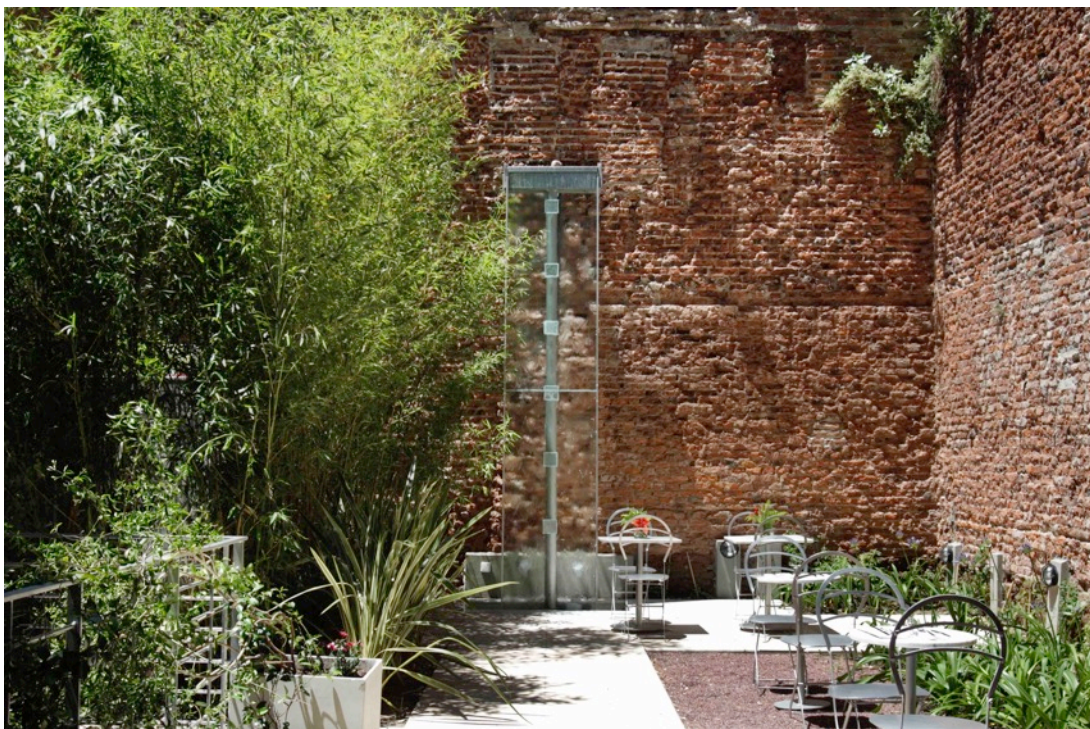
WORK ENVIRONMENT. We have developed clear and simple policies, procedures and objectives in order to avoid internal conflict. We base our relations in mutual respect and recognition. We care about ethics and moral values. We help every member of the staff to attain his/her own potential. We provide a healthy work environment with fresh and pure air, free of smoke and contaminants, and spacious workspaces. We encourage our staff to grow personally and professionally.

EQUITY. Palo Santo gives equal opportunities to men and women in every level.

SUPPLIERS. The hotel carefully selects each and every supplier regarding its commitment to sustainability and its closeness to our ethical values.

MENTALITY. Staff at the hotel are considered green ambassadors. They transmit our way of seeing life and our way of conceiving our relationship with the environment.

SOCIAL INCLUSION. We work with *El Ceibo*, a cooperative business created by former *cartoneros*, to recycle trash. This cooperative business gives jobs to people in difficult economic conditions or people with some kind of disability.



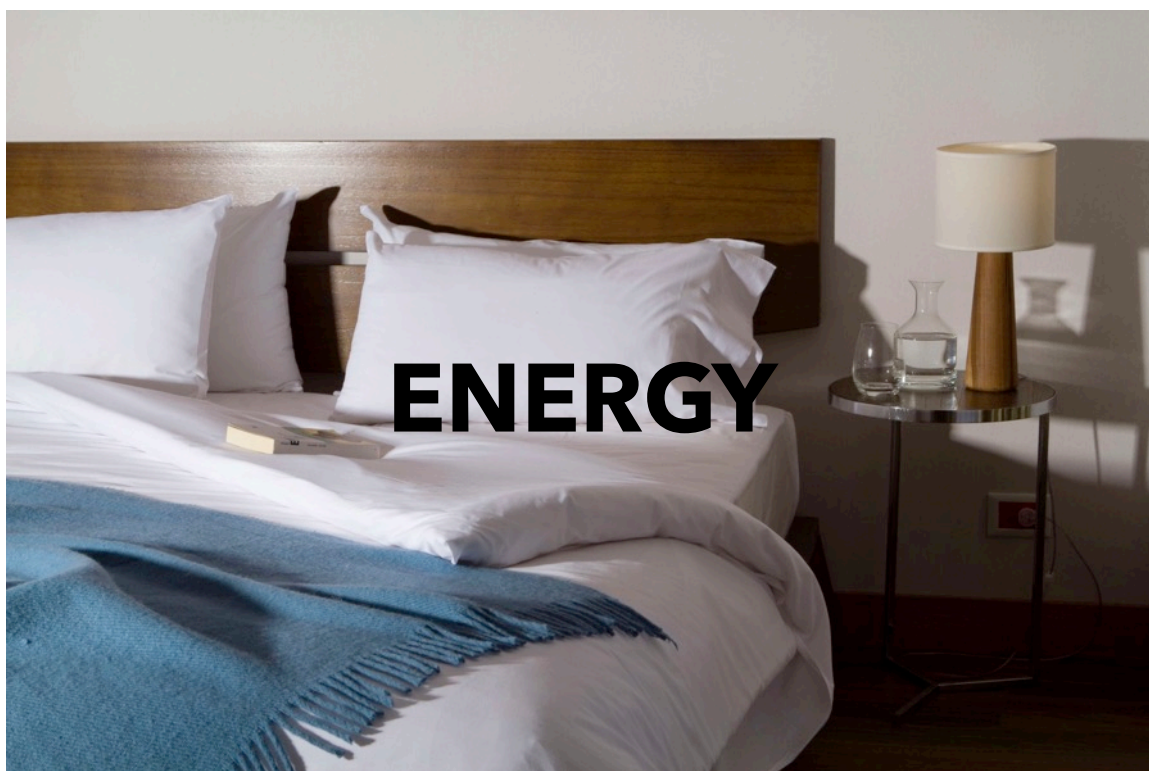


PALO SANTO

INSIDE PALO SANTO'S SUSTAINABILITY PROGRAM



ACTION OVER WORDS



Use of LED and energy-efficient light bulbs
Result: Savings up to 80% of electricity for illumination

Use of VRV Inverter air conditioning system
Result: Savings of 50% in energy

Installation of the most energy efficient elevators in the market

Use of light out cards in rooms

Boost insulation by the use of double glazed windows, insulating and soundproof materials in walls (glass wool) and floors (Isocret) and the development of vertical gardens
Result: Avoids 50% of leaks through windows and walls

Use of movement detectors to avoid unnecessary consumption

Use of eco-friendly webhosting



Trickle irrigation system that reduces waste of water and substratum due to excess irrigation

Result: Saves up to 60% of water and conserves substratum

Water-efficient toilets

Administration of rainwater flow



MATERIALS

Woods from responsible manufacturing and forest engineering planning
Palo Santo has hardwood floors bought from an environment responsible supplier

Durable and luxury materials
The hotel uses luxury and durable materials in order to limit renovations

Noble materials
Use of iron, aluminum, hardwood, concrete since they are long-lasting noble materials

Wallcovering
Use of washable Vescom wallcovering to reduce painting and solvents



Air in rooms is permanently filtered

External air is dosed and controlled

Wallcovering avoids air pollutants from painting



Use of double-glazed windows.

Thermal-acoustic isolated subfloors (Isocret).

Double walls isolated with glass wool.

Vertical gardens as insulation. Vertical gardens are a natural insulation barrier against wind, cold and heat. Plants in both façades create a microclimate that help to reduce extreme temperatures in a range of 1°C to 5°C.

Green terraces. A natural insulation for the entire building.

Insulating flooring in rooftop (by the use of *Travertilit*).



Over 800 constant grow plants absorb CO₂. Plants reduce contamination and improve the quality of the air. During the process of photosynthesis, plants emit oxygen and absorb CO₂. Without light, they do the opposite. A fully growth plant does not absorb any more CO₂ that it emits. Therefore, the importance of constant growth plants. While they grow, plants generate more oxygen and absorb more CO₂ than they emit. Our plants produce oxygen and renew the air around them.

In their substratum plants deposit heavy metals that are used and metabolized by the soil's microflora.

Controlled pruning, necessary to avoid CO₂ emissions.

Use of air conditioning system that does not contribute to ozone depletion and that reduce energy consumption.

Palo Santo's air conditioning system is Freon free. Freon gas is extremely damaging to the atmospheric ozone layer and might contaminate water sources.



Recycling program. The hotel separates waste and encourages guests to do it as well. We work with a cooperative of former *cartoneros* to recycle garbage more efficiently and with a social benefit.

Borrow-a-bike program. Guests have bicycles to borrow. Palo Santo promotes sustainable mobility.

Reduce laundry. The hotel tries to raise awareness of the polluting effects of laundry to avoid over cleaning linen.

Hotel consumables are carefully selected: pencils from managed forests, biodegradable inks and cleaning consumable goods, low-contaminating detergents.

Suppliers are cherry picked by their commitment to environmental care: Laundry is chosen by its management of water and contaminants; Equipment suppliers by level of energy consumption; Laundry bags are made by local communities of the north of the country...

Reduce printing. The hotel uses only FSC certified papers.



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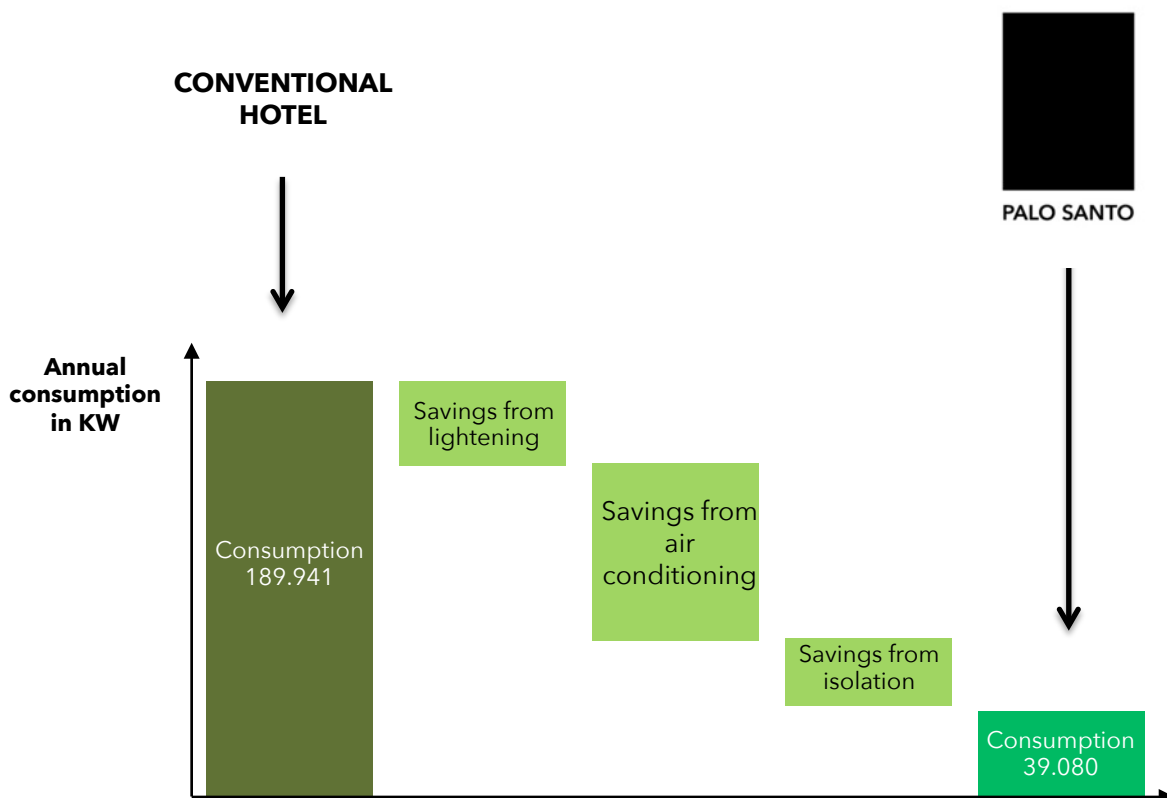
INSIDE PALO SANTO'S SUSTAINABILITY PROGRAM



RESULTS

LOWER ENERGY CONSUMPTION

- LED lightening allows to save 80% of the energy consumption for illumination. That means around 39.000 kw per year.
- Efficient air conditioning saves 57% of energy, i.e. around 81.000 kw per year.
- Excellent insulation acknowledges savings in energy consumption of 50% or around 30.000 kw per year.



Consumption (kW)	Palo Santo	Conventional Hotel	Savings (%)
Illumination	8 515	47 304	82%
Air Conditioning	61 130	142 367	57%
Savings from Isolation	-30 565	0	
Total	39 080	189 941	79%

(*) Insulations improve air conditioning and allow savings of 50% of energy.

LOWER ENERGY CONSUMPTION

To estimate our results we compare a conventional hotel that does not apply a sustainability program to Palo Santo's consumptions. We have standardized a model that measures, on the one hand, illumination by halogen bulbs and air conditioning through regular equipment and, on the other hand, LED lightening and VRV Inverter System air conditioning.

ILLUMINATION

PALO SANTO

CONVENTIONAL HOTEL

15 LEDS per room

15 Halogens per room

6 w/Led

50 w/Halogen

6 hs per day

6 hs per day

Consumption:
540 w/day

Consumption:
4.500 w/day

**Palo Santo saves 3.960 w per day per room,
an equivalent of 88% of energy for lightening**

AIR CONDITIONING

PALO SANTO

CONVENTIONAL HOTEL

Production: 3.500 kc/h

Production: 3.500 kc/h

Consumption: 1,163 kw/h

Consumption: 2,713 kw/h

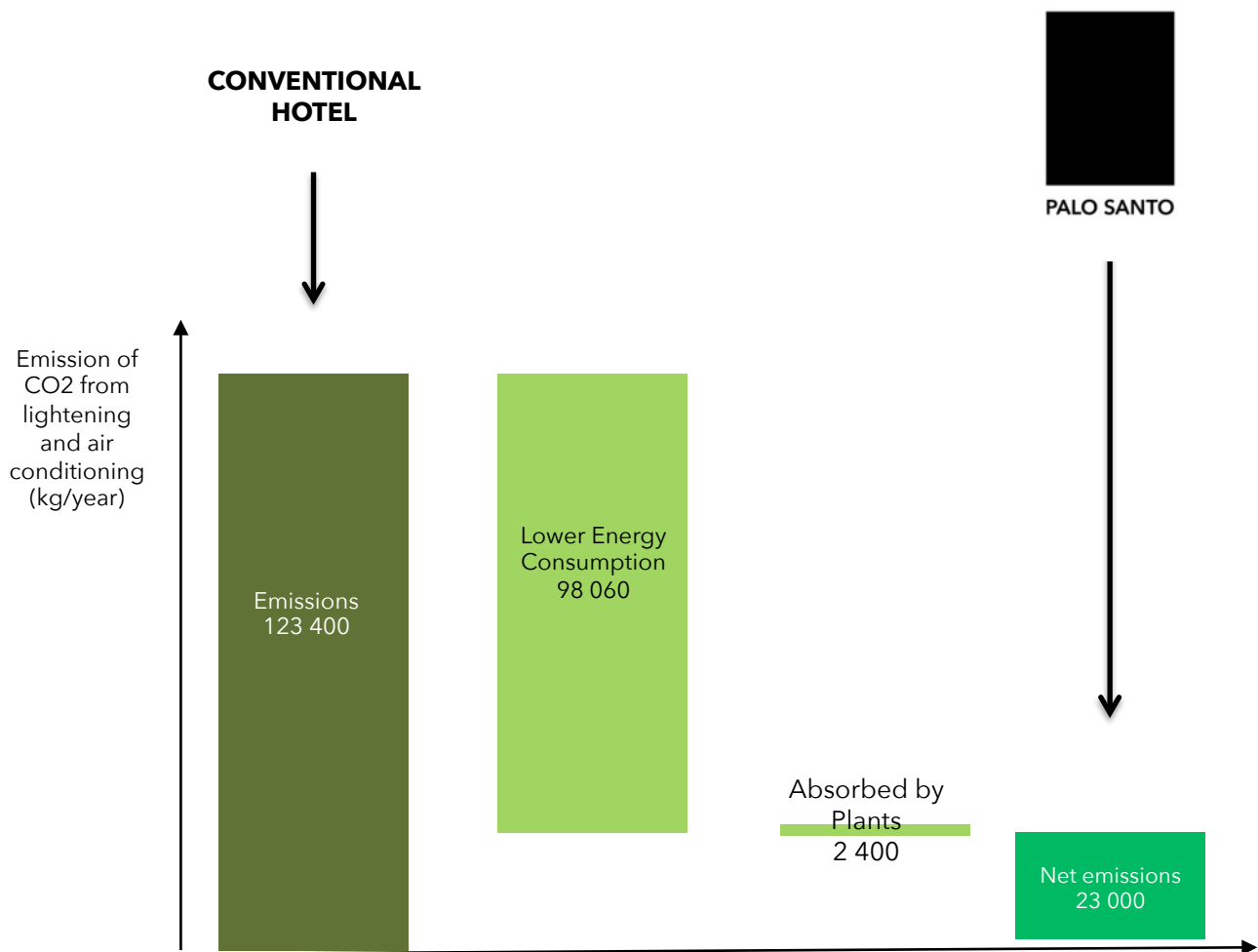
COP: 3,5

COP: 1,5

**To produce 3.500 kc per hour a conventional air
conditioning takes 2,713 kw/h. Palo Santo's equipment
uses just 1,163 kw/h. A saving of 57%.**

LOWER CARBON FOOTPRINT

Companies are increasingly required to measure and control the carbon footprint they produce when travelling. Palo Santo provides a true benefit by reducing carbon emission and by absorbing CO2.



An equivalent conventional hotel -without Palo Santo's environmental program- will emit around 120 tons of carbon dioxide a year just for lightening and temperature control, whereas Palo Santo only emits around 23 tons. An impressive 80% reduction.

The result is that every guest at Palo Santo hotel produces as low as 1,64 kilograms of CO2 per night.

LOWER CARBON FOOTPRINT

82% LESS emissions of CO2

- Thanks to LED illumination, VRV Inverter air conditioning system and our more than 800 plants, Palo Santo Hotel reduces its net carbon emissions by 82%.
- Some standards estimate that, on average, the production of 1kw implies an emission of 0,653kg of CO2. Based on this assessment, and as the hotel saves around 150.000 kw a year, we can estimate a reduction of CO2 emission of around 98.000 kg.
- We estimate as well that each plant absorbs an average of 3kg of CO2 a year. As we have more than 800 plants, the hotel absorbs a total of 2.400 kg a year.
- All in all, Palo Santo emits 82% less CO2 than a conventional hotel.

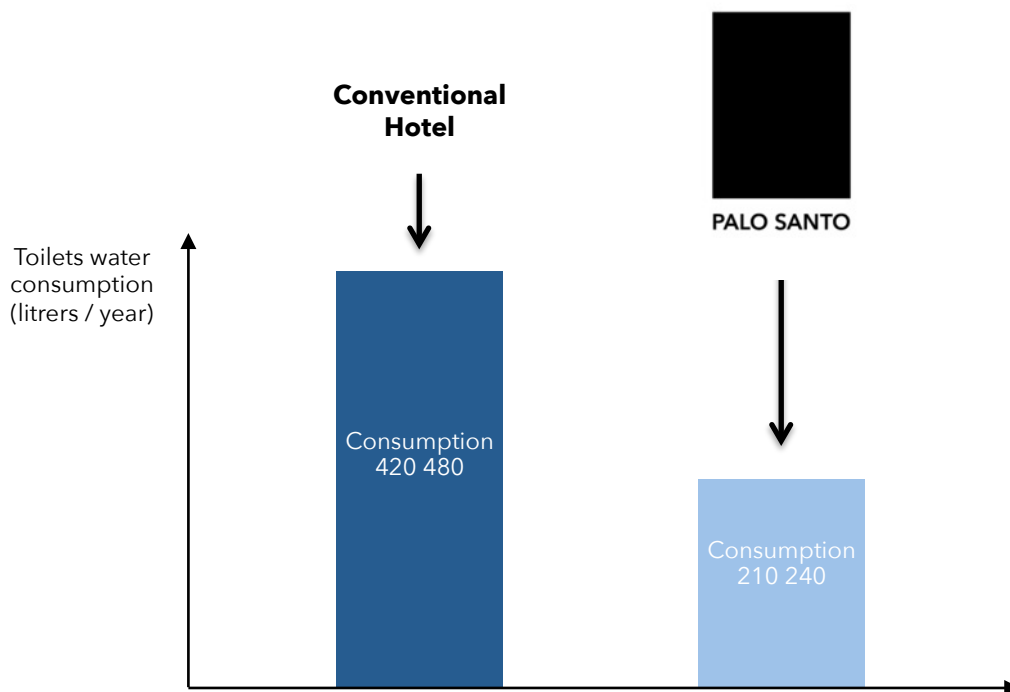
CO2 Emissions from illumination and air conditioning	PALO SANTO	CONVENTIONAL HOTEL	SAVINGS (%)
Energy needed (kW)	39 080	189 941	80%
CO2 Emissions (in kg)	25 400	123 460	80%
CO2 absorbed by plants (in kg)	-2 400	0	
Total Balance CO2 emissions	23 000	123 500	82%

RATIONAL USE OF WATER

50% of water saved

- Trickle irrigation system reduces sharply the use of water. Savings amount up to 60%.
- Water-efficient toilets save around 67% of water compared to regular toilets.

Savings of water from toilets



Toilets water consumption	Palo Santo	Conventional Hotel	Savings (%)
Liters / flush (promedio)	3	6	50%
Uses per day	4	4	
Guests / year (full occupancy)	17 520	17 520	
Total in liters	210 240	420 480	50%

O3 - OZONE CARE

No Freon Gases

- The air conditioning system of Palo Santo Hotel is free of Freon gases. Freon gases are frequent in traditional air conditioning systems and destroy the atmospheric ozone layer.
- The hotel's air conditioning equipment uses R410A, a gas that allows for higher SEER ratings than an R-22 system and therefore, by reducing power consumption, its overall impact on global warming is substantially lower than that of R-22 system due to reduced greenhouse gas emissions from power plants.

RESOURCES

- [The essentials of Working with R-410A.](#)
- [Changes in Atmospheric Constituents.](#)
- [Arboliza.](#)
- [Huella de carbono.](#)
- [US Green Building Council.](#)
- [FSC.](#)



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