


Studio Bruno Stagno Architect

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Renovation

Primary energy need :
20.79 kWhpe/m².year
(Calculation method : Built before those regulations)

ENERGY CONSUMPTION

Economical building *Building*

< 50	A
51 à 90	B
91 à 150	C
151 à 230	D
231 à 330	E
331 à 450	F
> 450	G

Energy-intensive building

Building Type : Office building < 28m
Construction Year : 1986
Delivery year : 2014
Address 1 - street : 32 Street, 0 and 1 avenue 1007 SAN JOSÉ, Costa Rica
Climate zone : [Aw] Tropical Wet & Dry with dry winter.

Net Floor Area : 287 m²
Construction/refurbishment cost : 135 000 €
Cost/m² : 470.38 €/m²

Certifications :



General information

The building is located in a neighborhood of San José, Costa Rica, whose buildings date back to the second half of the 20th century. The vast majority of them are houses, but some of them have been transformed into shops and offices. Paseo Colon Avenue is 50 meters to the south.

San José is at an average height of 1,200 meters above sea level and has an average rainfall rate of 2,800 mm per year. Concentrating on rainfall is between the months of May and November. The predominant winds come in the rainy season from the Northeast. Their are more than 40-60 kilometers per hour. Occasionally there are gusts that exceed 80 kilometers per hour. The temperatures oscillate between an average of the lows of 17 centigrade to an average of the highs of 27 centigrade.

The lot has an area of 145.44 m² with a front of 9.42m. and is oriented east-west.

The building was built in 1986 for the office of Bruno Stagno Architect and was remodeled in 2014. From its conceptualization **a bioclimatic design was made using passive energies to achieve an adequate level of comfort. Local materials of low maintenance were selected. For a good natural lighting we**

designed horizontal windows and a central skylight.

The building was remodeled in 2014 with the purpose to get the RESET Seal of Conformity, granted by INTECO (Institute of Technical Standards). RESET (Requirements for Sustainable Buildings in the Tropics) is the National Standard of Costa Rica.

In the remodeling, **perforated metallic sunshades were added to the east façade** of the 2nd and 3rd floor (the most exposed in the morning) and a **Warema shutter, controlled with an intelligent sensor, was installed in the window of the West façade**. The rest of the windows are in shade to reduce the temperature by radiation.

The **horizontal part of the eaves serves to capture the breeze of the Northeast and lead to the interior of the building**. This gentle breeze that goes out by the central skylight generates a pleasant ventilation of the working spaces.

The change of sanitary fittings and faucets has produced an important saving of potable water, from 12m³ to 4m³ per month.

A graphic that indicates, in a section, the concepts of lighting and natural ventilation is attached.

Photo credit

Sergio Pucci

Stakeholders

Contractor

Name : Bruno Stagno Arquitecto y Asociados S.A.

Contact : Arq. Bruno Stagno, stagno@racsa.co.cr, San José

<http://www.brunostagno.info>

Construction Manager

Name : Bruno Stagno Arquitecto y Asociados S.A.

Contact : Arq. Bruno Stagno, stagno@racsa.co.cr, San José

<http://www.brunostagno.info>

Contracting method

General Contractor

Type of market

Table 'c21_germany.rex_market_type' doesn't exist

If you had to do it again?

Because of cross ventilation, some noise coming from the street go inside the building. Noises coming from the vehicles, but also sounds from nature (tropical rain) and tweets from birds. To reduce noise from vehicles soundproofing surface were added to the building.

We learn that bioclimatic architecture fulfill comfort in the climate of San José. To get comfort through climate is a challenge that can be achieved if architect master the variables involved. This kind of passive building for active people, can be built at no extra cost.

Energy

Energy consumption

Primary energy need : 20,79 kWhpe/m².year

Primary energy need for standard building : 45,00 kWhpe/m².year

Calculation method : Built before those regulations

CEEB : 0.0002

Initial consumption : 26,13 kWhpe/m².year

Renewables & systems

Systems

Heating system :

- No heating system

Hot water system :

- No domestic hot water system

Cooling system :

- No cooling system

Ventilation system :

- Natural ventilation

Renewable systems :

- No renewable energy systems

Environment

Urban environment

The height of the building fit with the near environment. The neighborhood provides the public transportation, restaurants, banks, retail shops and services. At 300 meters is La Sabana Park, the most extended green area of the city.

70% of employees use public transportation.

Land plot area : 145,44 m²

Built-up area : 70,00 %

Green space : 28,00

Products

Product

Bricks Walls

Product category : Table 'c21_germany.innov_category' doesn't exist SELECT one.innov_category AS current,two.innov_category AS parentFROM innov_category AS oneINNER JOIN innov_category AS two ON one.parent_id = two.idWHERE one.state=1AND one.id = '6'

Excellent thermal isolation

Costs

Health and comfort

Water management

Consumption from water network : 48,00 m³

Water Consumption/m² : 0.17

Water Consumption/Work station : 4.8

Comfort

Health & comfort :

In the building there is no installation of air conditioning because in a climate with these variables of temperature, wind, rain and humidity is not required if the design of the building is appropriate. In very few hours of the year humidity exceeds 80% and the temperature exceeds 28 ° Celsius. When these 2 data coincide, you feel drowsy. People who live in this type of tropical climate begin to feel displeased when these 2 variables coincide and are overcome.

The introduction of an internal garden allows, increases the humidity, specially in dry months. The presence of vegetation next to the work areas is an excellent psychological and health contribution.

Reasons for participating in the competition(s)

- Bioclimatic conception
- Metallic sunshades and Warema shutter
- Lighting concept
- Vegetation next to the work areas is an excellent psychological and health contribution
- Technology only if it is necessary
- Passive building with no extra cost

Building candidate in the category



Health & Comfort

Users' Choice

