HIGH-EFFICIENCY WATER SYSTEM IN THE SANT PAU ART NOUVEAU SITE

Sustainability - Water

Fundació Privada Hospital de la Santa Creu i Sant Pau

SANT PAU Recinte Modernista Barcelona

Description (1)

Sant Pau, a World Heritage Site

Built in the early 20th Century as a public hospital in Barcelona (Spain), the **Sant Pau Art Nouveau Site** is an emblematic work of the **Catalan *Modernista* movement** declared **World Heritage by UNESCO** in 1997. A **city within the city**, the site is composed of **12 historic pavilions: 5 offices** for high social-impact organizations, **3 mixed-use buildings** (offices, tourism, and events), and **3 pending restoration.**

More than **31,000 m2 of patios and gardens** are used as an **outdoor event venue**, an educational space, and location of artistic and cultural interest. The green areas feature **native Mediterranean plants, trees, and aromatic herbs**, as well as other species well-adapted to the local climate.

Description (2)

Sant Pau, a World Heritage Site

After health care activities moved to a new building in 2009, **a full-scale restoration project** got underway with the goal of **transforming the site into an events venue, tourist attraction, and office space** for organizations working to advance social, environmental, and innovation-oriented goals.

Ten years after reopening the site for these uses, close to **600 people work** part or full-time in the heritage site. In 2023, Sant Pau welcomed **320,134 visitors**, and the site was the **venue for 355 events** with **294,674 participants**. Taken together, these events lasted a total of **1,114 hours**.

Description (3)

Restoration criteria & water management challenges

Strict artistic, historic, energy, and environmental criteria guided the ambitious restoration project, while high quality, environment and social impact standards inform site and venue management in the present.

Sant Pau has been recognized with 6 LEED certifications for sustainable buildings and its positive local influence, while Biosphere sustainable tourism, ISO 14001, and ISO 50001 certifications are renewed annually through external audits.

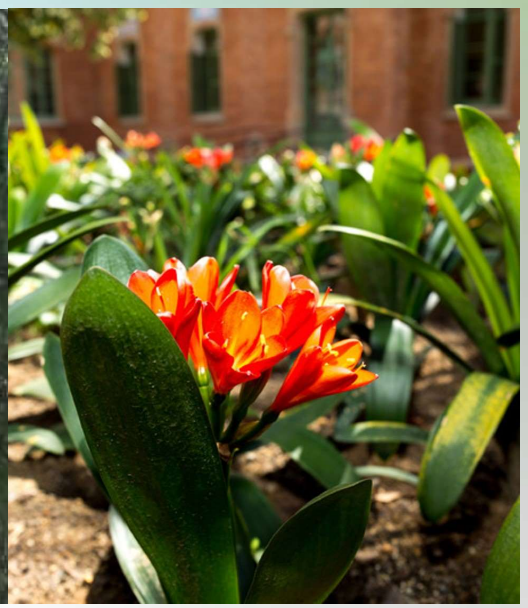
Nonetheless, Sant Pau faces challenges to efficient water management, many of them related to its role as a major events venue in Barcelona. These include: the size and unique characteristics of the site; the distribution of activities and events in different buildings and outdoor spaces; varying conditions in the different pavilions; the large garden with a range of different vegetations; the variety of uses and venue users; attitudes of some users; climate change impact on user demands and the site's capacity to respond.

Description (4)

High-efficiency Water Management System

The Art Nouveau Site water management system is oriented toward three strategic goals: 1) Design to reduce watering demand in gardens; 2) Savings mechanisms in gardens and buildings; and 3) Use of the site's well water and reuse of grey water from special events.

- Design to reduce watering demand in gardens
  - Native and Mediterranean-style vegetation
  - Species with a low water demand.
  - Plants and trees that are resilient to the impacts of climate change
  - Grass that hibernates in the winter, thus eliminating the need to water
  - Avoidance of water contamination by using non-toxic pest control products and natural systems to avoid disease or infestation.



Description (5)

High-efficiency Water Management System

➢ Savings mechanisms in gardens and buildings

- **Buildings** equipped with **flow regulators, automatic taps, aerators, low volume. dual-flush toilets, and cold water only**.
- **Gardens**: drip irrigation and **2023 pilot project with new watering system** that brings the water to plant roots, projected to **save 50% more water** (DeepDrop) even during heatwaves; **changes in watering schedule to adapt to climatic conditions** and avoid water loss through evaporation.
- **Real time 24/7 control of use** by means of an online platform (DEXMA) allowing for the **detection of leaks and system anomalies** remotely.
- **Automatic system** bypasses the public network water in favor of **well water when available**.

➢ Use of the site's well water and reuse of grey water from special events

- 2 wells, 130m deep that collect underground water, authorized by pertinent authorities for use as **grey water in buildings (WCs) and gardens**
- When possible, **reuse of water consumed during special events** to water gardens (ex. melted ice)

Contribution (1)

Reverence for the Past with Venue Design and Services for the Present and Future

Designed by a leading figure of the Catalan *Modernista* movement, the Art Nouveau Site **holds a special meaning for the local community**. Its **history, artistic value, and unique tie to the city, Catalan culture and the environment** required that renovation works respect the spirit and identifying traits of the original work.

No less important was the need to **introduce cutting-edge technologies, functionality and comfort as a major events venue in Barcelona**. The **achievement of this balance is one of the greatest contributions** of the Sant Pau Foundation to the MICE sector and one of the reasons the site is often cited as an example worthy of study and emulation.

The application of **additional sustainability criteria, including high-efficiency water-savings measures, required creativity, innovation, and technical expertise** in the restoration works and ongoing management of the venue.

Timeline: 2008 – Site diagnostic > 2008-2010 – Architectural and financial planning > 2009-2014 – 1st phase of restoration > 2015-2017 – Additional restoration & Biosphere certification > 2020 – Environmental & Energy Management System > 2023 – Pilot test of high-efficiency watering > 2024 – first reuse of grey water from an event + ISO 14001 & 1SO 50001 certification

Contribution (2)

A venue open to the city, with something for everyone

Every event and each visit is also an opportunity to learn from Sant Pau's experience, a fact that the Foundation actively promotes through:

- membership in the Catalonia Convention Bureau of the Catalan Tourist Board, Barcelona Convention Bureau, World Tourism Organization, Biosphere, and other platforms that promote responsible and sustainable meeting, & events tourism;
- ongoing stakeholder engagement by means of educational visits for schools, free access for city residents registered in the fidelity programme (Friends of Sant Pau), reception and organisation of technical and institutional visits, participation in MICE working groups at the city and regional level; and,
- hosting of special events to promote knowledge of the United Nations 2030 Agenda and Sant Pau's role in promoting the SDGs.

Contribution (3)

Water Efficiency and Venue Management in Support of the SDG's

Sant Pau's water and venue management system contributes to Sustainable Development Goals 3, 6, 4, 11, 12 and 13

3 GOOD HEALTH AND WELL-BEING

Target 9 – reduce illnesses from hazardous chemicals and air, water & soil pollution

4 QUALITY EDUCATION

Target 7 – education for sustainable development and sustainable lifestyles

6 CLEAN WATER AND SANITATION

Target 4 – substantially increase water-use efficiency

11 SUSTAINABLE CITIES AND COMMUNITIES

Target 4 – protect and safeguard the world's cultural and natural heritage

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Target 2 & 4 – efficient use of natural resources / environmentally sound management of chemicals... reduce their release to air, water & soil

13 CLIMATE ACTION

Target 3 – education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction

Success indicators (1)

Water savings even with an increase in activity[1]

2023 indicators show significant water savings in comparison with 2019, the baseline year of the environmental management system:

Ratio m3 total yearly water consumption / total number of event participants and visitors

⇒ **8% reduction** of the ratio

Total consumption m3 of public network water

⇒ **3% decrease** in consumption despite a 42% increase in the number of event hours

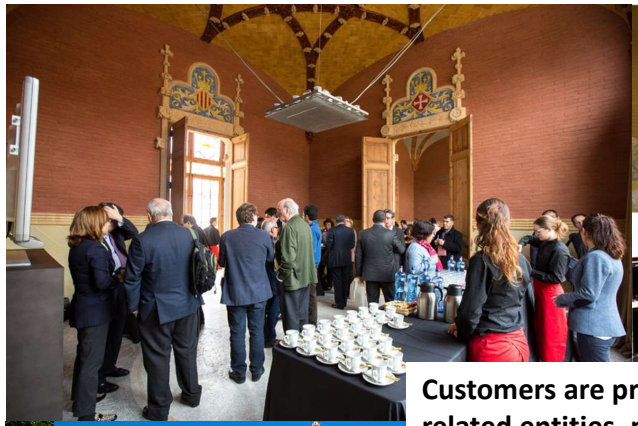
Total consumption m3 of public network and well water

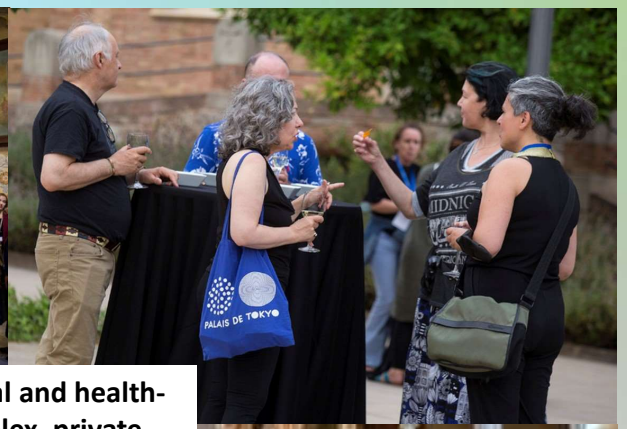
⇒ **20% decrease** in consumption despite a 42% increase in the number of event hours

[1] Source: data collected as part of the environmental and energy management system.

Success indicators (2)

Happy customers, strong partners, and high demand for venue rental are the true measure of success!





Customers are professional associations, cultural entities, medical and health-related entities, particularly those from the larger Sant Pau complex, private companies, public administrations, Art Nouveau Site resident institutions, and non-profit organizations as part of the site's Social Action Plan.