

PILLARS OF RESPONSIBLE PROPERTY INVESTING

Sustainability Profile

Torre Llacuna

Property name: Torre Llacuna

Location: Barcelona, Spain

Building Type: Office

Building Size: 7,872 square meters

Property Manager: Cushman & Wakefield

Property Overview

Located in the heart of Barcelona, Torre Llacuna marks a major step forward in sustainable office design and operation. Spanning 7,872 square meters, this modern renovation demonstrates how commercial buildings can seamlessly combine environmental responsibility with practical functionality. The building has earned WELL® Platinum certification and is targeting BREEAM® Very Good, underscoring its commitment to environmental performance and occupant wellbeing. The property also holds an A-rated Energy Performance Certificate (EPC). Five key sustainability themes are explored throughout Torre Llacuna: environmental performance and carbon reduction, waste management and material circularity, occupant health and wellbeing, digital innovation, and stakeholder engagement.



Carbon reduction

The majority of the building's carbon footprint is driven by embodied carbon: the greenhouse gas emissions generated through the production, transportation, construction, and end-of-life treatment of building materials. These emissions account for 84% of the building's total carbon footprint.

To reduce embodied carbon, the project team prioritized the use of lower carbon construction materials, increased the incorporation of recycled steel within structural elements, and sourced materials locally to minimize transportation related emissions. Wherever feasible, existing building components were retained and refurbished, significantly reducing the need for new materials. As a result, recycled materials accounted for 38.4% of total material use, delivering a substantial reduction in the building's embodied carbon footprint, equal to 1,014 tCO₂e (148.9 kg CO₂e/m²).

Operational carbon emissions were also minimized through the use of high efficiency building systems and a 100% renewable energy supply. An advanced Building Management System continuously optimizes energy use, while high performance glazing and insulation help reduce heating and cooling demands. The combination of all these measures allows the building to have an energy consumption lower than 70 kWh per square meter annually. This places the building among the top 15% in its peer group for most energy-efficient buildings in Spain.

Waste management and material circularity

The project achieved exceptional results in waste management, delivering an 85% recovery rate that significantly exceeds legal requirements. The project team accomplished this through careful on-site waste segregation, dedicated material storage areas, and partnerships with specialized recycling facilities. A material passport system tracks 215 products, enabling future recovery and recycling at the end of the building's life. This innovative approach documents material locations, compositions, and recovery methods. The project prioritized materials with high recycled content (as mentioned above to reduce waste and embodied carbon) and strong recyclability potential of an additional 45% of the building's materials that can be recycled in the future, supporting circularity in the building's design.

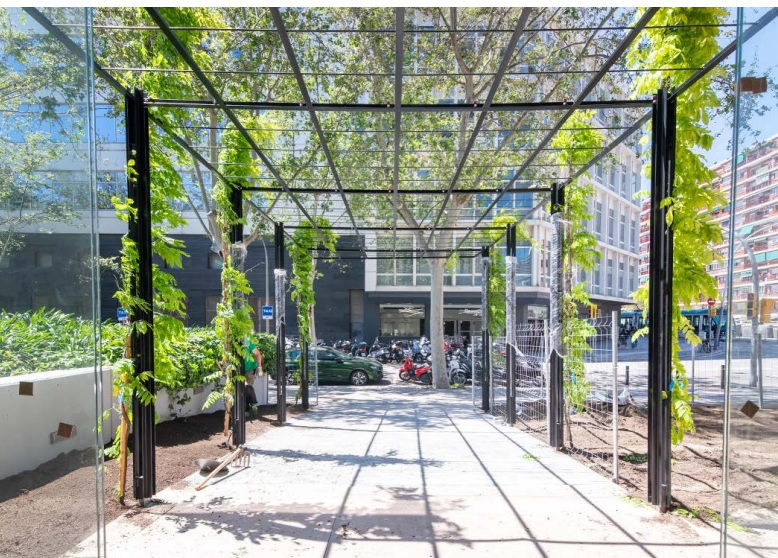
Digital innovation and monitoring

Torre Llacuna integrates advanced digital solutions to monitor building performance in real time and support ongoing optimization. The building management system (BMS) collects and analyzes data from energy, water, and indoor environmental quality sensors, providing actionable insights for facility managers. These digital tools enable predictive maintenance, automate adjustments for comfort and efficiency, and support transparent reporting to stakeholders. Additionally, occupants can access digital dashboards that display energy and water usage, environmental metrics, and wellbeing features, further empowering them to participate in sustainability goals. The integration of these monitoring systems ensures that the building remains responsive to evolving needs and maintains high standards of operational excellence.

Health and wellbeing

Approximately 75% of materials are Cradle to Cradle (C2C) certified, confirming freedom from harmful chemicals. The design maximizes natural daylight through strategic window placement and incorporates biophilic elements such as green walls, terrace gardens and indoor planting. Each floor features a private terrace with a vertical garden, offering additional outdoor space and greenery. Enhanced ventilation systems and low-emission materials maintain excellent indoor air quality. Lockers in the bike parking area and ramps at the backyard entrance increase accessibility for all users. All the paints and varnishes used have VOC emissions lower than 30 g/L, minimizing the impact on human health.





Stakeholder engagement

Torre Llacuna's stakeholder engagement supports lasting environmental and social impact. The management team actively collaborates with contractors, service providers, tenants, and occupants throughout the refurbishment and ongoing operations. By selecting a construction partner renowned for circular economy leadership and responsible resource management, the project embedded sustainability from design through delivery. Facility and service providers uphold high standards for waste segregation, recycling, water stewardship, and environmentally responsible products, reinforcing sustainable operations every day.

Tenants participate in WELL initiatives through ongoing communication, targeted trainings, and access to a dedicated wellbeing space for activities like yoga, mindfulness, and lactation. The team promotes sustainable mobility by providing infrastructure for electric vehicles and scooters, secure bicycle storage, and low-emission commuting options. Comprehensive green lease clauses and transparent data sharing on energy performance, environmental metrics, and wellbeing initiatives empower tenants and management to collaborate toward sustainability and wellness goals. These relationships create shared accountability, encourage innovation, and ensure the building's sustainability strategies remain dynamic and effective.

KEY FACTS, AWARDS, AND RECOGNITION

- WELL® Platinum Certified^{*1}
- Energy Performance Certificate (EPC) - A Rating
- 100% renewable energy from onsite energy production: photovoltaic panels provide 37 kilowatts peak (kWp) of clean energy
- Recycled materials accounted for 38.4% of total material use, reducing embodied carbon footprint by 1,014 tCO₂e
- Achieved an 85% recovery rate during renovation
- Prioritized materials that support wellbeing, with ~75% of materials Cradle to Cradle certified
- A high efficiency HVAC system with heat recovery to optimize building performance
- LED lighting paired with ample natural light and occupancy sensors to reduce energy use
- Low flow water fixtures and rainwater harvesting systems to support water conservation
- Smart metering that enables real time monitoring of energy and water consumption
- Electric vehicle charging stations and secure bicycle storage to encourage sustainable mobility

^{*1} In order to receive a certification, a fee was paid to WELL to be evaluated and for rights to use the certification.

Torre Llacuna demonstrates how robust stakeholder engagement enables outstanding environmental performance, circular material use, operational efficiency, health and wellbeing, and digital innovation. By aligning all parties around shared sustainability goals, the project delivers a replicable model for future office developments in Spain and beyond - proving that environmental excellence, collaborative culture, and outstanding occupant wellbeing thrive together.



About PRPI: The Pillars of Responsible Property Investing (PRPI) initiative is a unique sustainability and investment platform developed to drive superior asset management and fiduciary governance. For more information on how PRPI is delivering positive financial and environmental results for Principal Real Estate, please visit <https://www.principalam.com/us/investment-strategies/real-estate/responsible-property-investing>

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