ONE HELIX

BY BREAKTHROUGH

Setting a new standard
for sustainable life science

Breakthrough
PROPERTIES

Project Overview

One Helix redefines the benchmark for sustainability in life science research and development facilities through its carbon-conscious design, commitment to nature-positive principles, and sensitivity to occupant wellbeing.

Located within the Amsterdam University Medical Center (Amsterdam UMC) campus, One Helix is a five-story integrated office and laboratory building designed to support AstraZeneca's cell therapy research and development in a collaborative and vibrant setting. Sustainability was the project's foundation from inception, remaining a priority throughout the building design, construction, and ongoing operations.

Reducing Energy and Carbon Across the Building Lifecycle

One Helix is designed to achieve a high degree of energy efficiency and carbon performance due to an integrated building envelope and mechanical design strategy that includes an aquifer thermal energy storage system, solar shading, photovoltaic panels and low carbon materials. These innovations contribute to the project's environmental credentials and support One Helix's green building certifications.

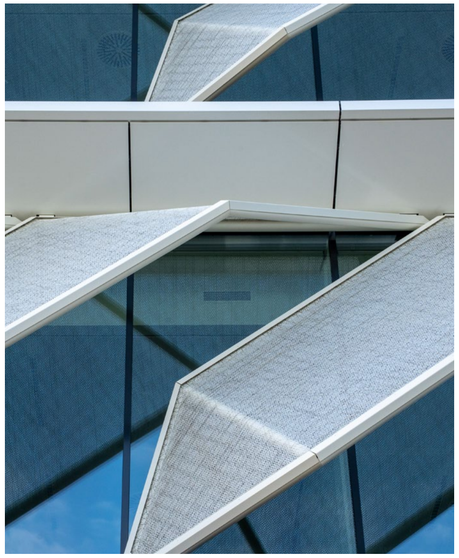
Incorporating Nature, Inside and Out

The architecture is grounded in biophilic design principles, maintaining a connection with nature and the senses for the good of the building, our clients, and the natural world. This includes incorporating natural interior materials, windows allowing generous daylight, and spacious outdoor balconies to promote the wellbeing of the building's occupants. There are additional ecological features throughout the site that support local biodiversity and pollinator populations, including native plants in the landscaping, a green roof, and habitat provisions such as bat boxes and a bee hotel.

Centering Client and Community Experience

Client experience was central to the design philosophy for One Helix. Each floor features balconies that offer inviting outdoor spaces to promote occupant wellbeing and connection to nature. The project actively supports low-carbon mobility, with every parking space equipped for electric vehicle (EV) charging, more than 100 bicycle spaces including e-bike charging provision, and seamless access to public transportation. These features promote shared, electric, and alternative mobility to encourage sustainable commuting.

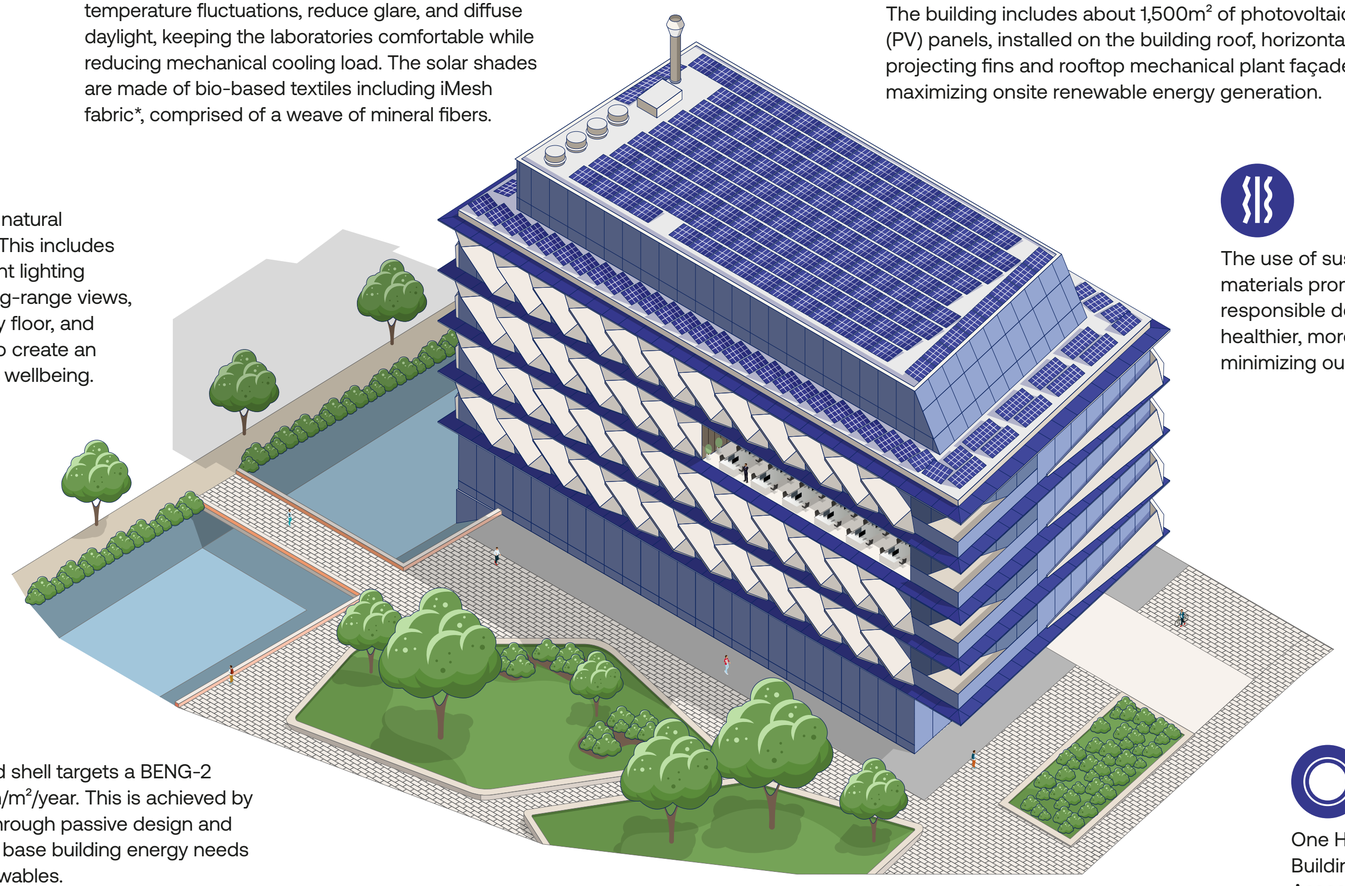
These initiatives reflect Breakthrough Properties' broader commitment to delivering best-in-class innovation properties that support the environmental, social, and economic health of our employees, clients, communities, and the planet.



The solar shading system uses canopies to minimize temperature fluctuations, reduce glare, and diffuse daylight, keeping the laboratories comfortable while reducing mechanical cooling load. The solar shades are made of bio-based textiles including iMesh fabric*, comprised of a weave of mineral fibers.

The building includes about 1,500m² of photovoltaic (PV) panels, installed on the building roof, horizontal projecting fins and rooftop mechanical plant façade, maximizing onsite renewable energy generation.

Biophilic design integrates natural elements into our spaces. This includes a living green wall, abundant lighting throughout the project, long-range views, outdoor balconies on every floor, and curated sensory cues, all to create an environment that supports wellbeing.



The use of sustainable and bio-based materials promotes environmentally responsible design, contributing to a healthier, more sustainable future while minimizing our environmental footprint.

One Helix is designed to support local biodiversity. Habitats including bird and bat boxes, gravel for ground-nesting birds, a green roof, and native planting are among the considerations made to help increase species richness and diversity.

One Helix's core and shell targets a BENG-2 rating of -15.29 kWh/m²/year. This is achieved by reducing demand through passive design and providing remaining base building energy needs through onsite renewables.

One Helix has achieved a design-stage Building Research Establishment Environmental Assessment Method (BREEAM) Outstanding certification rating of 93.28%.

*iMesh fabric is crafted from mineral fibers and features a weave inspired by nature, with varied openings and a geometric design that echoes the efficiency of a spider's web or insect wings. Each iMesh panel is custom-made following a zero-waste philosophy, ensuring that its design and production maximize both efficiency and sustainability.

Green Building Certifications

One Helix is designed to meet the highest sustainability and energy performance ratings, setting a new benchmark for a future-ready laboratory building in Europe. The following internationally recognized certifications have guided every stage of its development.

BREEAM®

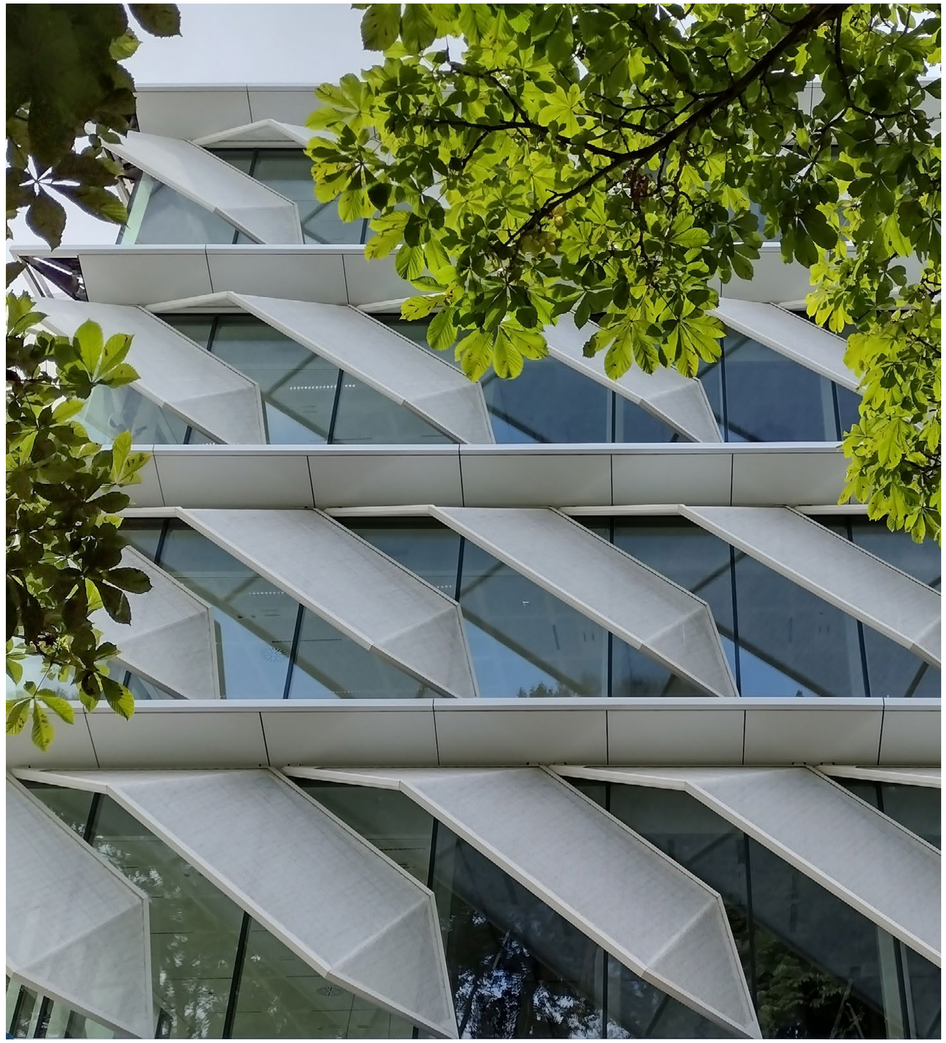
One Helix has achieved **BREEAM Outstanding** design stage certification, with a score of 93.28%, making it the first fully fitted lab building in Europe to reach this level.

NZEB
Nearly Zero Energy Building

One Helix targets a near-zero consumption **A+++++ rating under the Nearly Zero Energy Building (NZEB)** framework, based on Dutch NTA-8800 standards. The core and shell design exceeds legal energy performance requirements, achieving a primary energy demand of only 64.02 kWh/m^2/year, fossil energy consumption of -15.29 kWh/m^2/year and 120.4% renewable energy contribution.

Nationale Milieu DATABASE

One Helix meets the stringent Dutch **Milieu Prestatie Gebouwen (MPG) environmental performance criteria,** with a shadow cost of €0.54/m^2 GFA/year, 40% below the regulatory threshold. This certification reflects the project's commitment to long-term sustainability, and responsible material use.



Energy

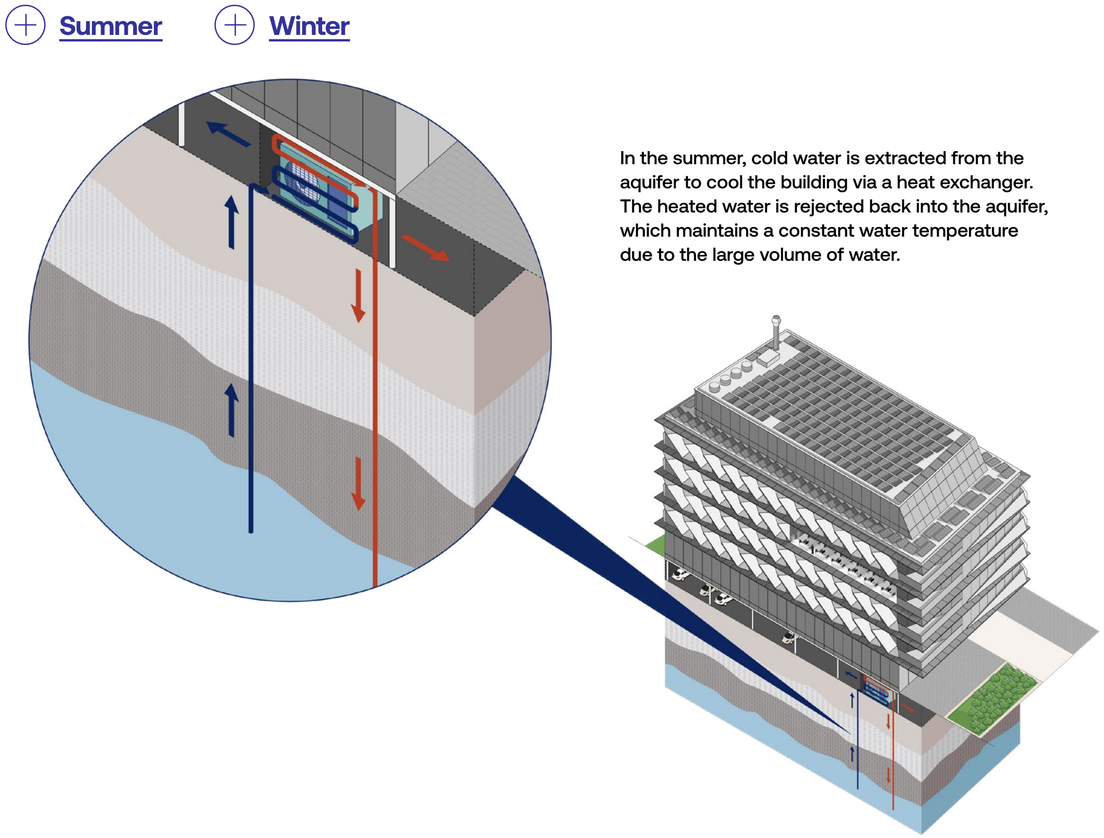
One Helix meets a new threshold in energy efficiency for commercial laboratories through a combination of onsite renewable energy systems and passive design measures. The building's energy strategy reduces demand first through passive design, then aims to supply remaining energy needs with onsite renewables and Aquifer Thermal Energy Storage (ATES).

Reducing and managing energy requirements for heating and cooling is the cornerstone of this strategy. To this end, passive solar shading, horizontal PV canopies and night ventilation via façade valves work together to reduce cooling loads and enhance natural airflow throughout One Helix. Other heating and cooling features include high-efficiency air-handling units which incorporate heat recovery to temper incoming air; water-based climate ceilings with phase-change material (PCM) thermal storage; and smart zoning to further reduce operational energy while maintaining optimal comfort in the laboratory and office areas.

For what energy is required, there is onsite renewable generation. Almost 1,500m^2 of PV panels, including high-efficiency roof panels and vertical Solarix PV façades, generate more energy than the building consumes at the core and shell level, achieving an energy balance of -68,244 kWh annually (based on NTA-8800 calculations). The building integrates a geothermal ATES system that uses the underground Dutch aquifers as a source of natural energy storage. Heat is pulled from or stored in the aquifer to generate the building's domestic hot water and heating or cooling loads, enabling efficient seasonal energy reuse.

These integrated systems and engineering solutions all contribute to One Helix's BREEAM Outstanding certification and EPC A rating, positioning the building as Europe's first fully-fitted laboratory to achieve such a distinction.

The ATES delivers efficient year-round comfort by providing both heating and cooling in one smart solution, as shown in the diagram.



In the summer, cold water is extracted from the aquifer to cool the building via a heat exchanger. The heated water is rejected back into the aquifer, which maintains a constant water temperature due to the large volume of water.

Embodied Carbon

Much like its energy strategy, One Helix's embodied carbon strategy pushes the boundaries for what is possible for a laboratory building, driven by innovative design strategies and advanced material selection.

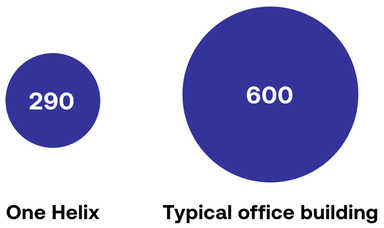
At construction phase, One Helix achieves an embodied carbon intensity of 290 $kgCO_2e/m^2$ GFA – less than half the typical value for office buildings, which can reach 600 $kgCO_2e/m^2$ GFA. This is particularly notable given that laboratory facilities typically require more carbon-intensive materials and systems to meet stringent operational and structural performance criteria.

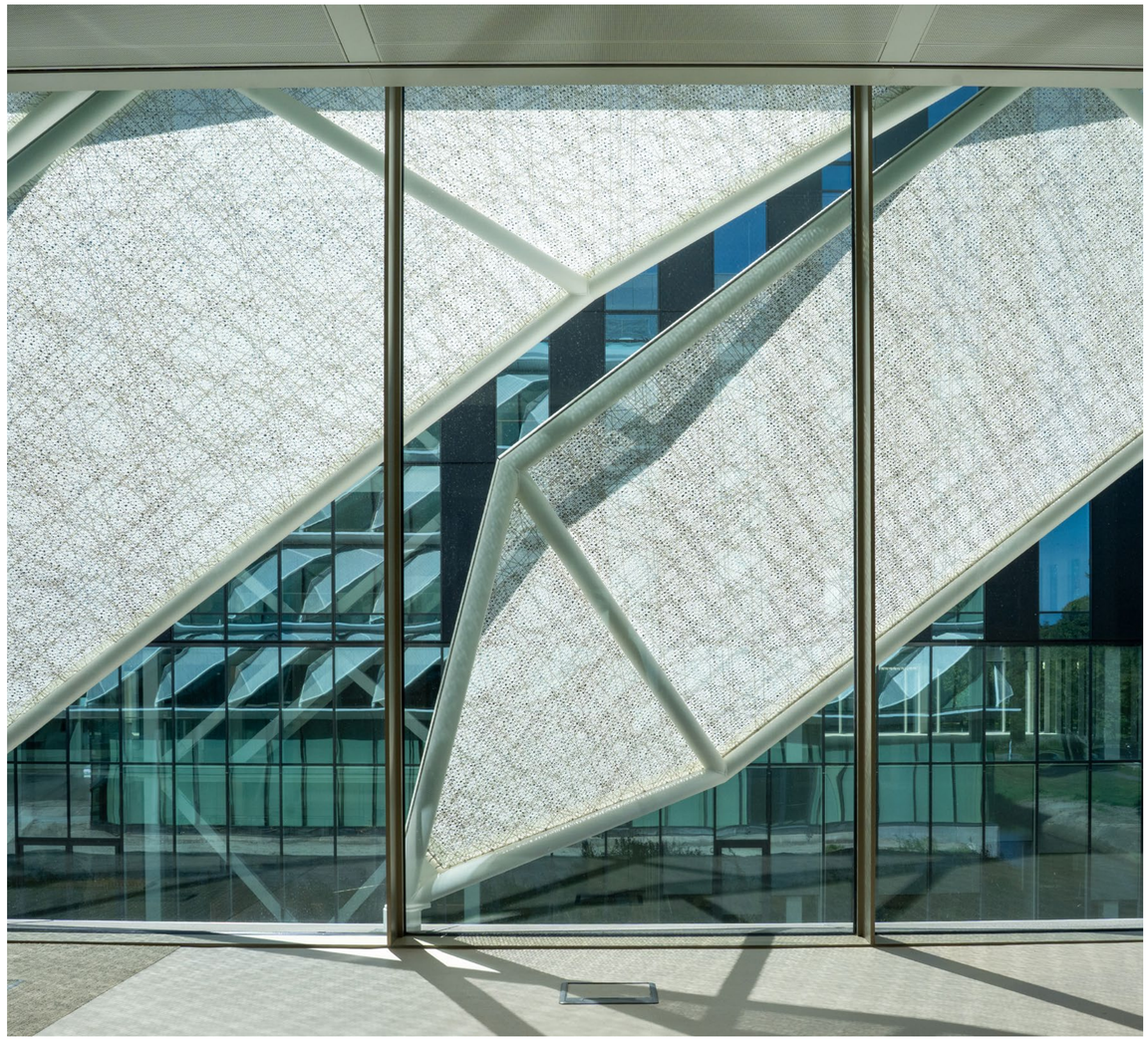
To reduce material demand and support long-term adaptability, One Helix employs a lightweight, demountable steel–concrete hybrid floor system. Hollow-core slabs minimize material use and emissions while also accelerating construction. These structural choices are paired with circular design strategies such as design for disassembly and targeted prefabrication that reduce waste, increase construction efficiency, and enable future material recovery.

The project's embodied carbon reduction is further advanced through deliberate material selection. The substructure utilizes low-cement concrete incorporating over 30% recycled aggregates, significantly lowering upfront carbon. The project also incorporates xCarb steel, produced using electric arc furnaces powered by 100% renewable energy and containing a high proportion of recycled content.

Together, these design strategies and material choices substantially reduce emissions across the construction process and reinforce One Helix's achievement of a lower-carbon, future-ready laboratory environment.

Embodied carbon intensity ($kgCO_2e/m^2$)





Materials, Reuse, and Circularity

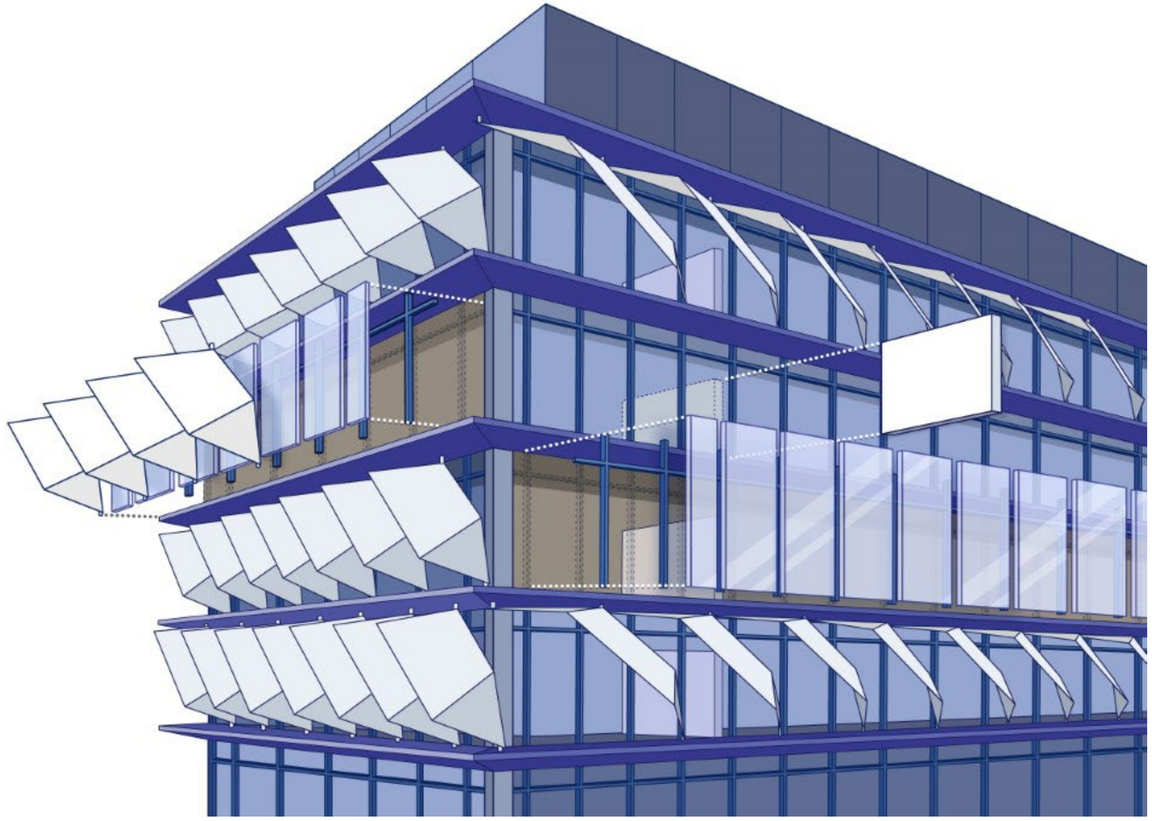
One Helix applies a holistic materials strategy that prioritizes circularity, long-term adaptability, and human health to reduce environmental impacts while creating a flexible, future-ready laboratory environment.

The building's above-ground structure is based on a demountable steel frame paired with hollow-core slabs, enabling major components to be dismantled and reused at end-of-life. The curtain wall uses a stick-built façade system designed for staged disassembly so glazing and framing elements can be recovered rather than discarded. Inside the building, modular system walls replace traditional drywall partitions. This approach significantly reduces waste from future client fit-outs and enables interior layouts to evolve as scientific needs change, supporting the long-term adaptability essential for laboratory environments.

These building features are illustrated in the diagram, highlighting how each system contributes to flexibility, disassembly and material recovery across the building's lifespan.

Interior materials were selected to support both environmental and human health goals. Bio-based resilient flooring with no Volatile Organic Compound (VOC) emissions contributes to healthy indoor air quality, while acoustic wall panels that incorporate recycled content reduce material impacts. These choices complement the broader emphasis on material efficiency, durability, and the ability to reclaim products at the end of their useful life.

To ensure accountability and inform future reuse, Environmental Product Declarations (EPDs) were obtained for all major building materials, providing verified data on resource use, carbon emissions, and waste generation. Material passports capture component-level information such as composition, expected lifespan, and disassembly considerations, while the building's modular structural grid supports long-term flexibility and efficient refurbishment cycles.



Biodiversity & Biophilia

One Helix is carefully designed to enhance biodiversity and ecological resilience within an urban setting.

A 50m² gravel roof provides foraging and nesting area for protected ground-nesting birds such as oystercatchers and gulls. There are additional ecological features throughout the site that support local biodiversity and pollinator populations, including native plants in the landscaping, a green roof, and habitat provisions including bat boxes and a bee hotel.

A dedicated herb garden and native, nectar-rich species are used in planters to attract birds, butterflies, and bees. This includes sedum, lavender, and mint - all of which attract pollinators - and local grasses, which provide habitat and foraging opportunities for diverse fauna. This complements Amsterdam University Medical Center's wildflower landscaping, designed to strengthen ecological corridors across the campus, and ensures resilience to Dutch climate conditions by using species adapted to local rainfall patterns, seasonal temperature shifts, and soil characteristics.

The building also features biophilic elements such as a green wall in reception and planters on balconies, contributing to both biodiversity and occupant wellbeing by providing a connection to the natural world.

250m²
green roof and sedum for pollinators and general wildlife including bees, butterflies, and birds.

50m²
gravel roof for oystercatchers, gulls, and other pioneer birds.

10m²
herb roof which is planted for birds and butterflies.

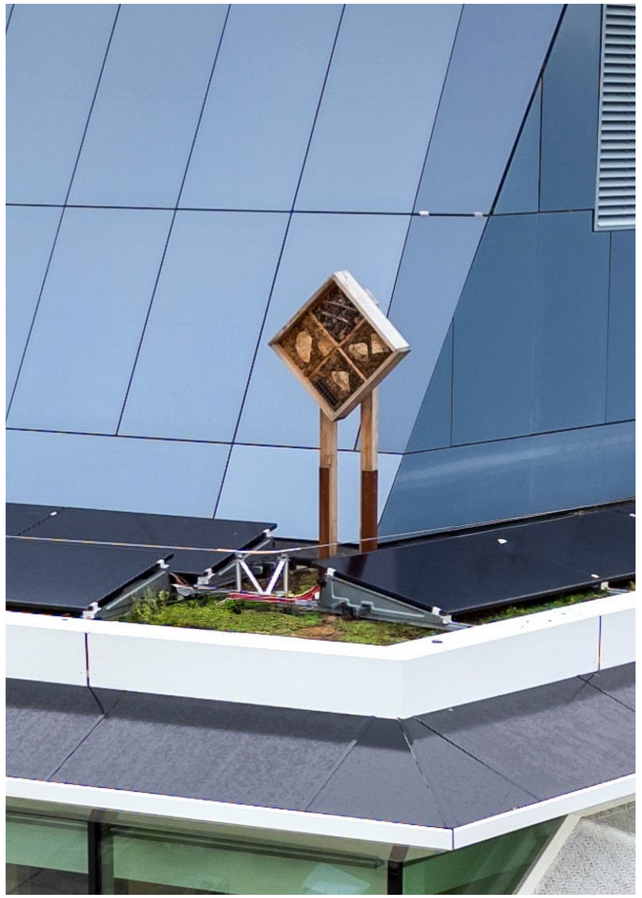
14
habitats including:

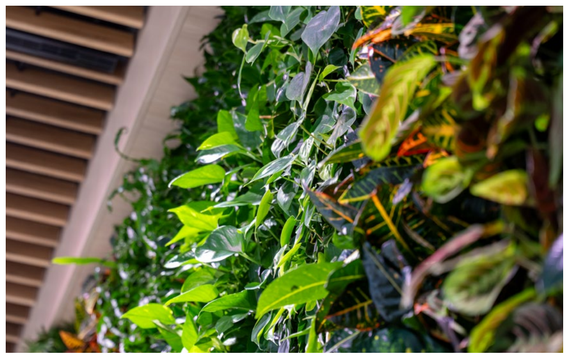
Eight bird boxes, four specifically for house sparrow and four for swifts.

Four bat boxes.

One bee hotel.

One clay pipe to provide a sheltered space for chicks during early development.





Disclosures

Important Notices
This document is being provided for informational purposes only and is not an offer, or a solicitation of an offer, to buy or sell any security or strategy.

All investing involves risks, including a loss of principal. The risks associated with real estate investing can include fluctuations in the value of underlying properties; defaults by borrowers or tenants; market saturation; changes in general and local economic conditions; decreases in market rates for rents; increases in competition, property taxes, capital expenditures, or operating expenses; and other economic, political or regulatory occurrences affecting the real estate industry.

Each recipient of this document agrees to treat the information contained herein in a confidential manner. Such information may not be reproduced or used in whole or in part for any purpose other than evaluation of the information set forth herein, nor may it be disclosed without the prior written consent of Breakthrough Properties to anyone other than representatives of the recipient directly involved with the recipient's review and who have agreed to abide by the foregoing restrictions.

The distribution of the information contained herein in certain jurisdictions may be restricted, and, accordingly, it is the responsibility of any recipient to satisfy itself as to compliance with relevant laws and regulations.

Definitions

Best-in-Class:
- Infrastructure: High-quality, flexible, reusable internal and external laboratory infrastructure which meets or exceeds the real estate operation and design requirements of a broad range of client users. Specific infrastructure requirements include ceiling heights, floor loading capacity, hazardous material storage, loading/access, parking, air handling/air exchanges, mechanical, plumbing, and electrical capacity including back-up power generation.
- Design: Design superior client space, facilities, and common areas with high-end finishes. Overall building functionality and design/ aesthetics including light and air, access to outdoor spaces, landscaping, amenities, and sustainability features.
- Location: Properties located in central submarkets which exhibit macro-level growth (e.g., strong employment gains and a highly educated workforce) and provide access and proximity to leading research institutions, transit options, retail, and amenities. These locations typically include a more limited supply of available space and exhibit high barriers to entry.

Building Research Establishment Environmental Assessment Method (BREEAM): first published by the Building Research Establishment (BRE) in 1990, BREEAM is the world's longest established method of assessing, rating, and certifying the sustainability of buildings. BREEAM can be applied to key building typologies, helping to improve asset performance at every stage, from design through to construction, in-use and refurbishment.

Energy Performance Certificate (EPC): An EPC provides a rating of how energy efficient a building is, from A (highly efficient) to G (highly inefficient). An EPC typically highlights cost-effective ways to achieve a higher rating, as well as indicative carbon emissions for the building.

Milieu Prestatie Gebouwen (MPG): The MPG calculation identifies the embodied carbon or carbon associated with a building.

Thank you to our project partners for helping us bring One Helix to life.

Consultant Team

Project Management – Savills
Architect – UNStudio
Structural Engineer – Aronsohn
MEP Engineers – Buro Happold, Ingenieursbureau Linssen
Sustainability Consultant – Build 2 Live
BENG/NZEB Consultant – Ingenieursbureau Linssen
Building Physics, MPG & FLS – Cauberg Huygen
Cost Consultant – Linesight

Contractor Team

Main Contractor – De Vries en Verburg
MEP Contractor – Schulte en Lestraden
Façade Contractor – Wijnveen

Contact Us
Global Headquarters
Breakthrough Properties
10100 Santa Monica Blvd., 15th Floor
Los Angeles, CA 90067
investors@btprop.com