Cheshire Oaks
Walkaround Guide

Biggest greenest M&S, built using innovations to reduce the impact on our planet.
Overview

M&S’ commitment to Plan A influences the way we build, operate and maintain our estate.

Not only are we reducing the impact of M&S buildings on the environment, we are also saving money by becoming more resource efficient in terms of energy, water and waste.

Located in a heavily populated area with 600 homes immediately behind and businesses on every side means that there were many stakeholders, lots of local interest and people to consider.

Cheshire Oaks represents our desire to create a positive store environment which not only improves sustainability, but we hope can improve the health & wellbeing of our staff, customers and the society in which we operate.

It is our most carbon efficient, biodiverse and materially innovative store which has engaged the community at every step. The store has achieved a BREEAM Excellent rating, an industry recognised environmental assessment of buildings.

The Cheshire Oaks store is our second largest M&S store offering 148,000 sq ft of sales space, covering two floors.

It is also our third sustainable learning store (SLS), which aims as part of our Plan A commitment to build a strong bank of knowledge and experience in sustainable building practices. Through a comprehensive POE (post occupancy evaluation) study we have evaluated the success of this project to help inform our future specification.
Good community engagement was integral to our process, given its close proximity to neighbours and businesses.

- The store employs nearly 500 people with 400 new positions. Approximately 50 were allocated for Marks & Start.
- M&S has contributed to a town centre remodelling improvement fund of £1m and to the design of a children’s play area, 1km from the store.
- 50 per cent of the value of the project construction spend was in the North West and 12.5 per cent in the local area.
- The principal contractor hosted educational site visits by Salford & Chester Universities, West Cheshire College and Christchurch school’s Eco-Council, spending over 100 hours giving guided walks around the site.
- Used website, social media pages and newsletters to keep the community informed.
- Achieved a Considerate Constructors Scheme score of 38 out of 40.
Exterior overview

Timber

- Building fabric has been carefully selected to reduce energy consumption and environmental impact.
- Our roof is made of FSC-certified glulam timber (engineered softwood), a first for retail.

Aluminium roof

- Cheshire Oaks has a “white” roof with reflective properties to reflect excess heat.
- 100 per cent of the aluminium is from a recycled source and the insulation contains recycled post consumer waste (bottle glass) along with recycled glass wool.

Hemclad®

- Cheshire Oaks is the first retail store to use Hemclad®, an innovative pre-fabricated wall panel developed by Lime Technology.
- 230 prefabricated panels have been used in the store’s external walls. The panels are made from a lime based binder and hemp and deliver a U-value of 0.12.
- Hemp absorbs CO₂ from the atmosphere during growth, reducing the embodied carbon footprint. The panels give a more stable internal temperature and lower energy use.

Living Wall

- We have installed M&S’ largest and most varied green wall system which not only looks attractive but will also help protect the car park from the elements, trap particulates from car exhausts, give thermal and acoustic insulation and provide a natural habitat for birds and other wildlife.
- The ANS Living Wall System™ is made up of four living walls, 300m² in total and includes 30 plant species.
- The plants are watered automatically through a rainwater harvesting system.
- The second type of wall is the MMA Jakob Green Wall system. The steel mesh system and ropes provide a suitable structure for plants to climb up and cover about 300m².

Energy / carbon

- Operational energy is 42 per cent lower and carbon 40 per cent lower than a peer store.
- Natural light has been maximised via North lights and clerestory glazing.
- Insulation has been improved by partially sinking the building in the ground with earth mounding around the perimeter, with a wildflower planting mix to make this an attractive and biodiverse feature.
- Energy efficient LED lighting is used for the car park and external lighting.
- Western Red cedar solar shading (Brise Soleil) has been installed to reduce energy costs. The high summer sun is reflected and lower winter sun is allowed to pass through, heating the store.

Travel & access

How customers travel to and from our stores is an important part of the sustainable construction programme. To encourage this we have:

- Invested in a £5m highways scheme, improving junctions, crossings, cycle ways and footpaths.
- Contributed 100K per annum over 10 years towards improvements to the existing bus services.
- Installed electric car charging points, travel information point, staff showers and 100 covered cycle stands.
Biodiversity

Engineering services

Tree protection, gabion walls, swift boxes

Rainwater harvesting

Climate change resilience

Waste
Exterior overview

Tree protection, gabion walls, swift boxes
- Here are the two protected Cheshire Oak trees. Their roots were protected during the build with sheet piling and gabion baskets.
- Nine swift boxes (about the size of a shoe box) designed for mating swifts, have been installed in concealed locations above the service yard entrance.
- Our gabion walls are free from mortar and cement and full of crevices that make perfect homes for all sorts of insects and plants.

Engineering services
- This pre-fabricated plant room houses the store’s biomass and air handling units.

Biodiversity
- We used a local ecologist and the local biodiversity action plan to ensure Cheshire Oaks is a biodiverse site with a wider number of species of plant than in the original scheme.
- We’ve added 228 new trees and 12,000 square metres of landscape planting. In addition, enhancements to the swale will encourage flora, insects and amphibians to the area within five years of completion.
- We were the first retailer to achieve the Wildlife Trust Biodiversity Benchmark for our ongoing management of the landscaping features of the store.

Rainwater harvesting
- An 80,000 litre underground rainwater harvesting tank will collect water from the roof of the store and will serve the green wall and all toilets. Rainwater harvesting displaces a third of the store’s main water demand.

Climate change resilience
- Climate change resilient features include the white reflective roof, rainwater harvesting, displacement ventilation and Hemclad® external wall panels.
- Insulation has been improved by partially sinking the building in the ground with earth mounding around the perimeter.
- Energy efficient LED lighting is used for the car park and external lighting.
- Solar shading (Brise Soleil) has been installed to reduce energy costs. The high summer sun is reflected and lower winter sun is allowed to pass through, heating the store.
- The store is more resilient to flash flooding thanks in part to its mature trees, green walls and its sustainable urban drainage system (SUDS).

Waste
- 100 per cent of waste has been diverted from landfill with 87.5 per cent of all waste segregated on site.
- 54,000 tonnes of quality soils and clay from the initial bulk excavation works were used in projects such as capping a contaminated quarry and developing a local Moto-X park.
- Resource sharing of left over materials and packaging through community initiatives.
**Zero operational waste**

**Materials**

**Carbon**

**Foods refrigeration**

**Biodiversity**

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**Ground Floor**

- **Cafe**
- **Lingerie**
- **Beauty**
- **Womens**
- **Cards**
- **Foods**
We've now reached a key Plan A goal of sending no waste to landfill from M&S run stores, including this one, in the UK and Republic of Ireland. Absolutely everything gets recycled and it's the same for our offices, warehouses and building projects too.

Zero operational waste

- The store has been designed to be light on materials. Look above, there is no suspended ceiling, the exposed Ultralam planks which are visible are the finished product. The timber planks replace traditional concrete.

- The materials which make up the store are over 30 per cent recycled.

- They include Fermacell Dry Lining Board made from 100 per cent recycled gypsum and paper. Recyclable at end of life. It replaces the need for plasterboard which would have required twice the volume.

- Strata Riflessione Floor tile – Material completely inert, recyclable at the end of its life. ≥40 per cent recycled.

Materials

- Air tightness in the store is <3 m3/hr/m2 @50 pascals.

- “Free cool” air is delivered to sales floors via Displacement Air Columns and below two meter diameter ground air distribution ducts.

- The salesfloor has a highly efficient linear lighting solution that is fully dimmable and is provided with integrated daylight control to optimise the use of natural daylight.

- Comprehensive metering and sub-metering is provided throughout to allow remote monitoring and interrogation by the M&S energy department.

- 100 per cent of electricity is supplied via a Green electricity supply contract.

- Revolving doors more energy efficient than automatic doors.

- Energy efficient lifts and escalators are now standard specification.

- A biomass boiler plant supplies nearly 75 per cent of Cheshire Oaks’ heating.

Carbon

- Our main refrigeration system uses no HFC gases which reduces the impact on global warming and is better for the environment. The refrigeration system comprises a Hydrocarbon compressor pack that works together with distributed CO2 to serve the chilled and frozen food cases and the cold room.

Foods refrigeration

- A further six bird boxes have been added in perimeter hedgerows.

- We have also installed over 20 bird and bat boxes off site at local primary schools.

Biodiversity
Interior overview

Water

- Waterless urinals replace conventional flushing urinal systems with systems that allow urine to flow out, but trap odour, without the use of water.

- Sensor taps with flow restrictors are only activated when a hand is underneath them, thereby preventing waste from conventional taps being left on.

Materials

- Here you can see the elegant structural glulam frame.

- This aesthetically attractive and environmentally-friendly material not only uses a fifth of the energy used in typical steel manufacturing and a tenth of concrete, but it also absorbs CO2 too.

- The quantity of timber used in the building represents sequestration of atmospheric carbon dioxide of almost 2000 tonnes or 100kg CO2 / m² of floor area.

- Cheshire Oaks, through Simons Group, has achieved FSC project certification with 99.5 per cent of the timber used in the shell build provided from FSC-certified sources.

Customer communications

- In this area and around the store, we want visitors to Cheshire Oaks to be able to connect and learn about the sustainable features of this store in a way we have not been able to achieve before with traditional signage.

- We want to aid learning by fusing sustainability and technology.

Natural light

- Here you can see the beneficial effects of the North lights and clerestory glazing as well as brise soleil.
In operation, the store is 42 per cent more energy efficient and 40 per cent more carbon efficient than a peer store.

Cheshire Oaks is a more biodiverse site with a wider number of plant species than in the original landscape.

A third of the store’s water demand comes from a 80,000 litre rainwater harvesting tank below ground.

The amount of waste that has been diverted from landfill.

Biomass boiler plant supplies nearly three-quarters of Cheshire Oaks’ heating.

The number of new trees planted at Cheshire Oaks.

The number of swift boxes installed at the site.

The materials used in the building help reduce energy consumption and environmental impact.

The number of timber used is provided from FSC-certified sources.