

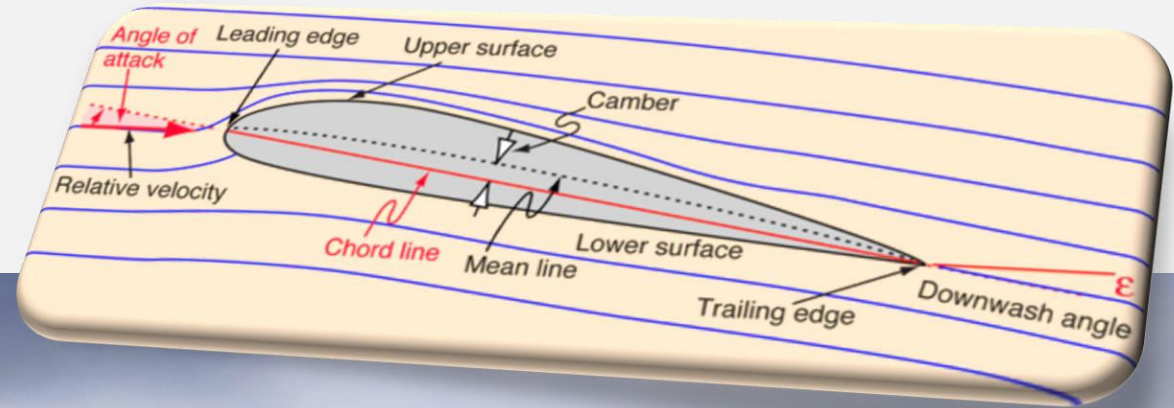


Our technology family
for open-display
refrigeration



Created in the natural world

- Designed by nature over millions of years
- Highly complex aerodynamic profile
- Studied by scientists for over 300 years

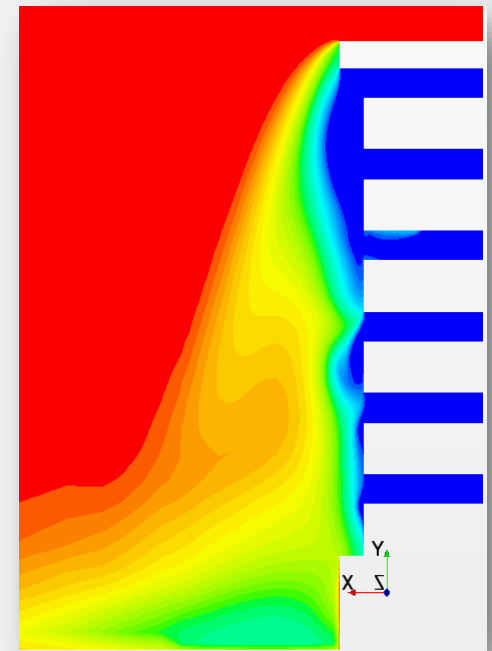


Modelled in the virtual world

- We build high definition, virtual fridges and test them in Computational Fluid Dynamic (CFD) Models
- CFD allows us to see what nobody else can see – how air moves inside every part of a fridge
- Each model consists of ca. 300m cells
- Super-cluster processes 56,000,000,000 calculations p/second
- CFD shows how the air-curtain breaks apart and is lost from the fridge
- CFD also shows how Aerofoils stop this loss

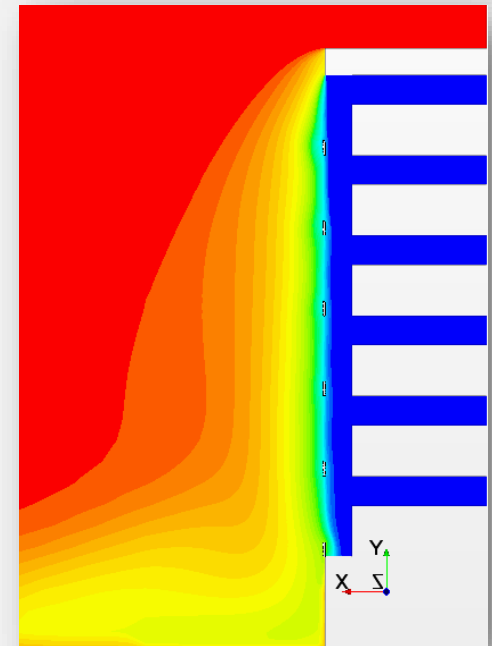
Standard Fridge

The cold air curtain breaks apart and falls out of the fridge



With Aerofoils

The cold air curtain maintains coherence and stays inside the fridge





Applied in the real world...

...all over the world



Sainsbury's

ASDA

TESCO

M&S



WHSmith

The co-operative



Walmart



Walmart Canada



coles

Aerofoils address one of the most energy-intensive features of grocery retail

‘Fogging’ shows the extent of cold-air spill from a typical open-fronted cabinet

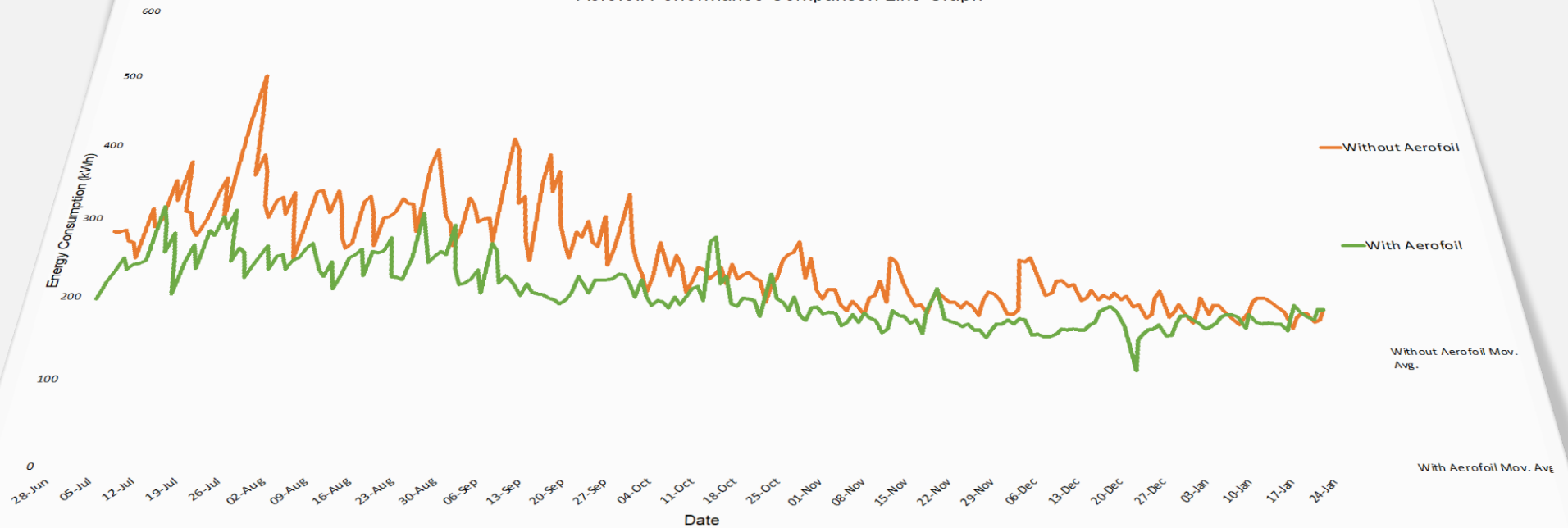
This wastes energy, causes cold aisles, and can lead to poor product temperatures and resultant deterioration in product quality



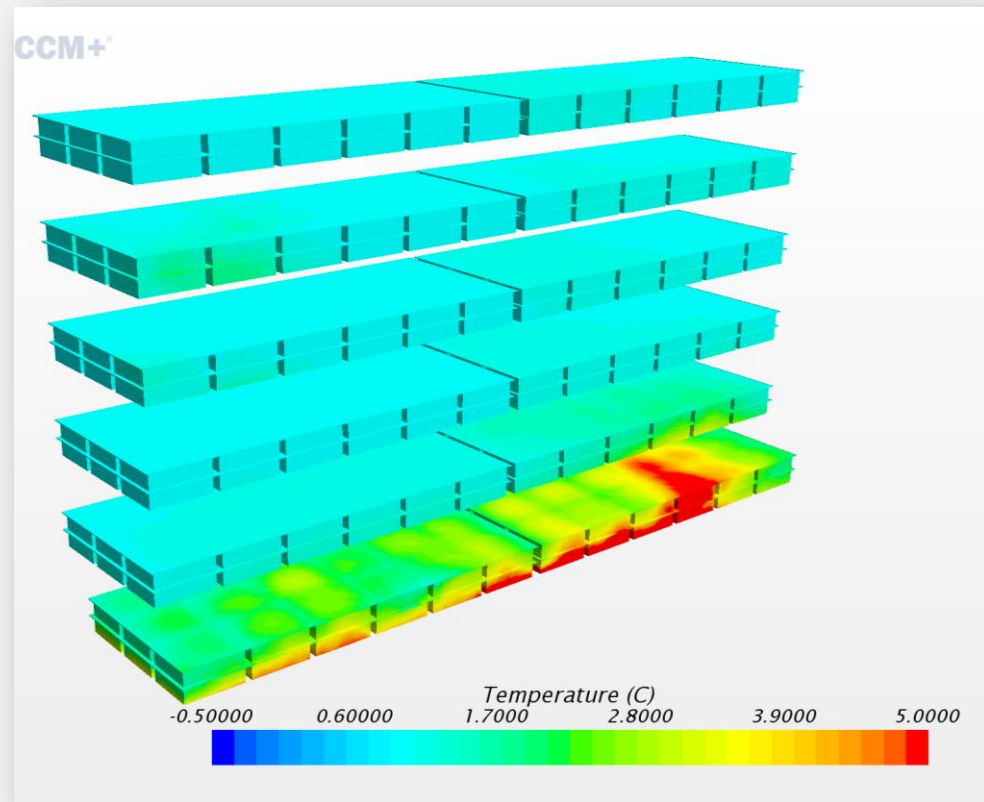
Extensive laboratory and store trials have proved Aerofoil technology works

- Proven in long-term, independent live-store tests
- Aerofoils show 17% saving
- No other technology was applied and no adjustments made for fridge settings
- Hence energy savings can be increased to up to 30% by simple plant adjustments

Aerofoil Performance Comparison Line Graph



Aerofoils significantly improve product temperatures inside the cabinet

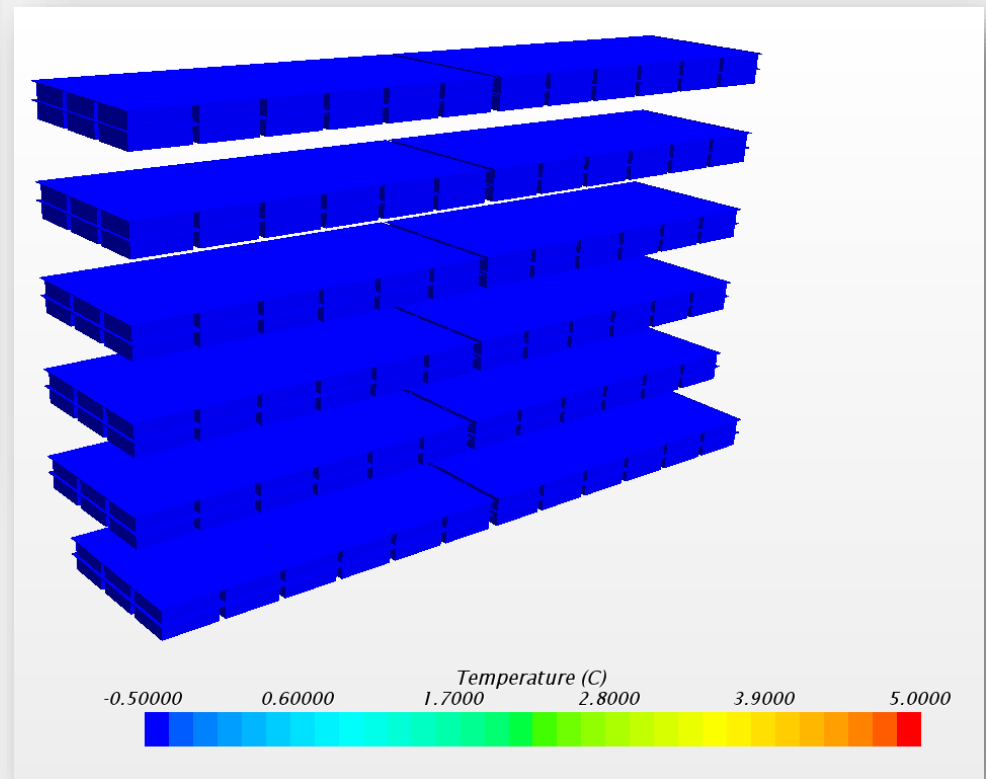


Without Aerofoils

Cabinet exhibits generally higher product temperatures throughout ...
 ... and several areas of hot spots

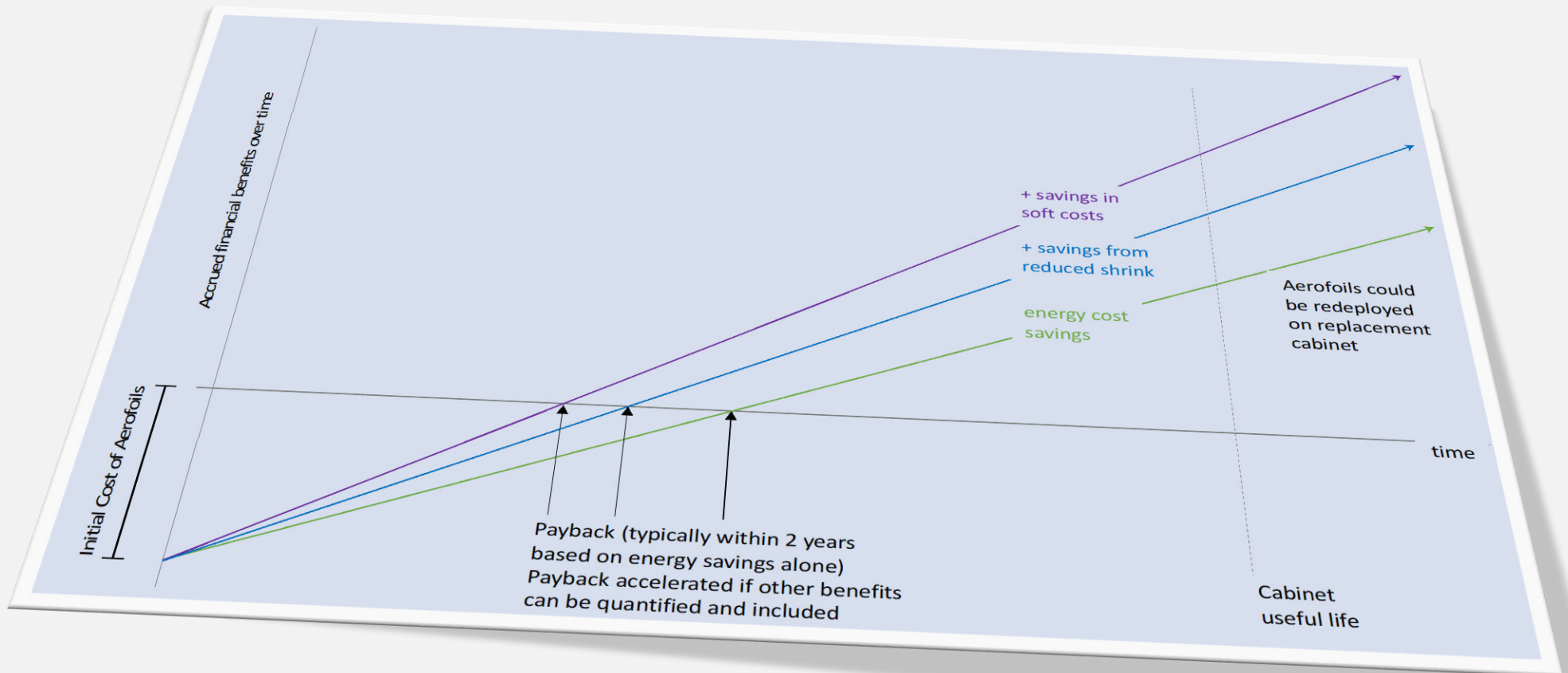
With Aerofoils

Overall lower product temperatures and complete elimination of hot spots
 Consequent improvement in product quality and shelf-life, hence reduced shrink and waste



Aerofoils can deliver a pay-back within two years

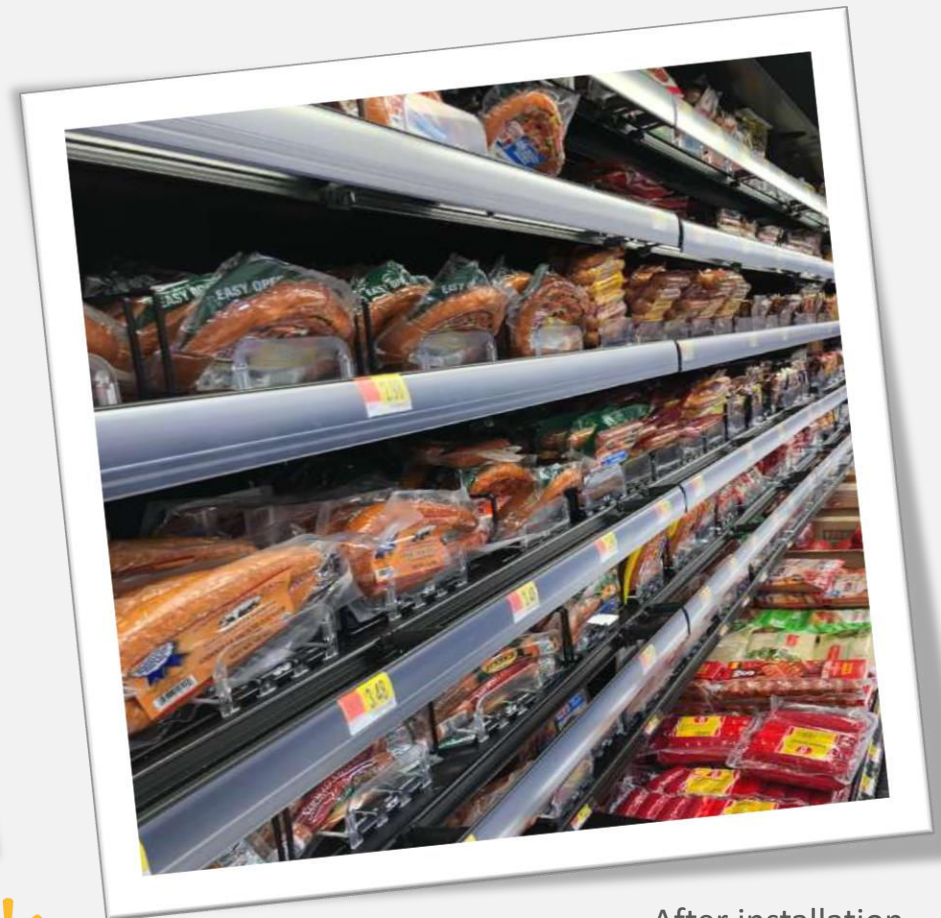
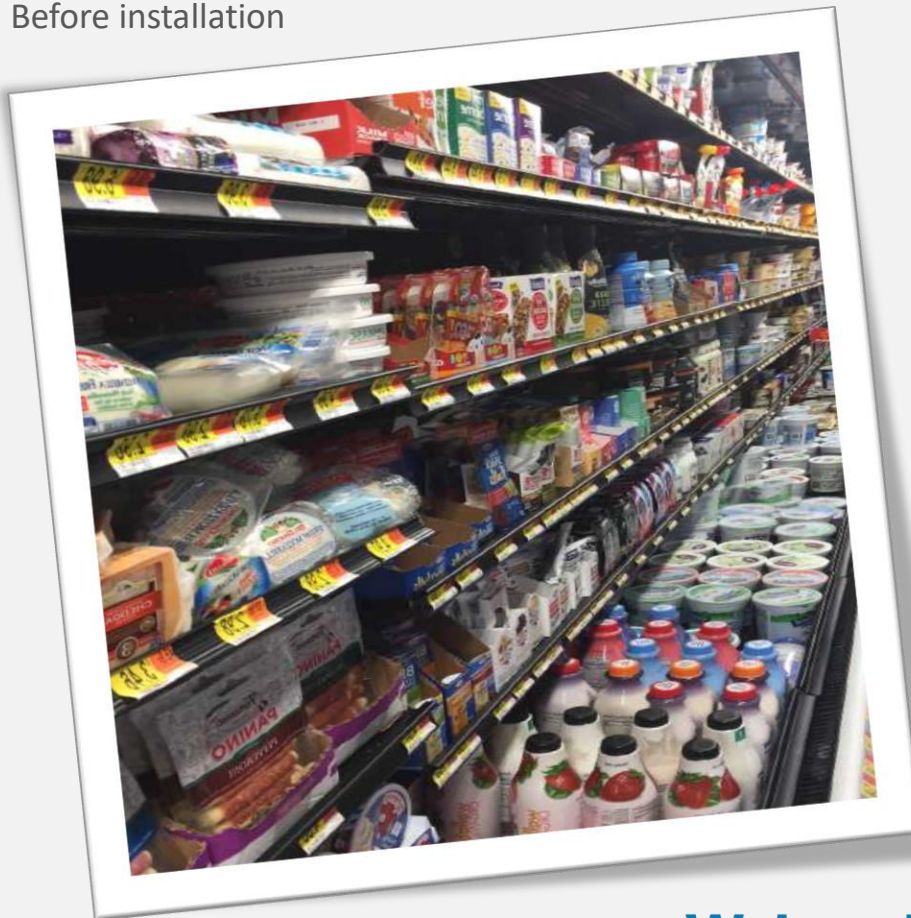
- Payback typically within 2 years based on energy cost savings alone
- Other benefits (shrink and associated soft costs) will accelerate payback
- Aerofoils require zero maintenance and will outlast life of cabinet (in theory could be re-used)



Aesthetic benefits for improved merchandising

- Aerofoils lend a cleaner, more consistent look to the shelves
- Incorporate transparent plastic ticket strips to display price labels and protect from damage or spillage

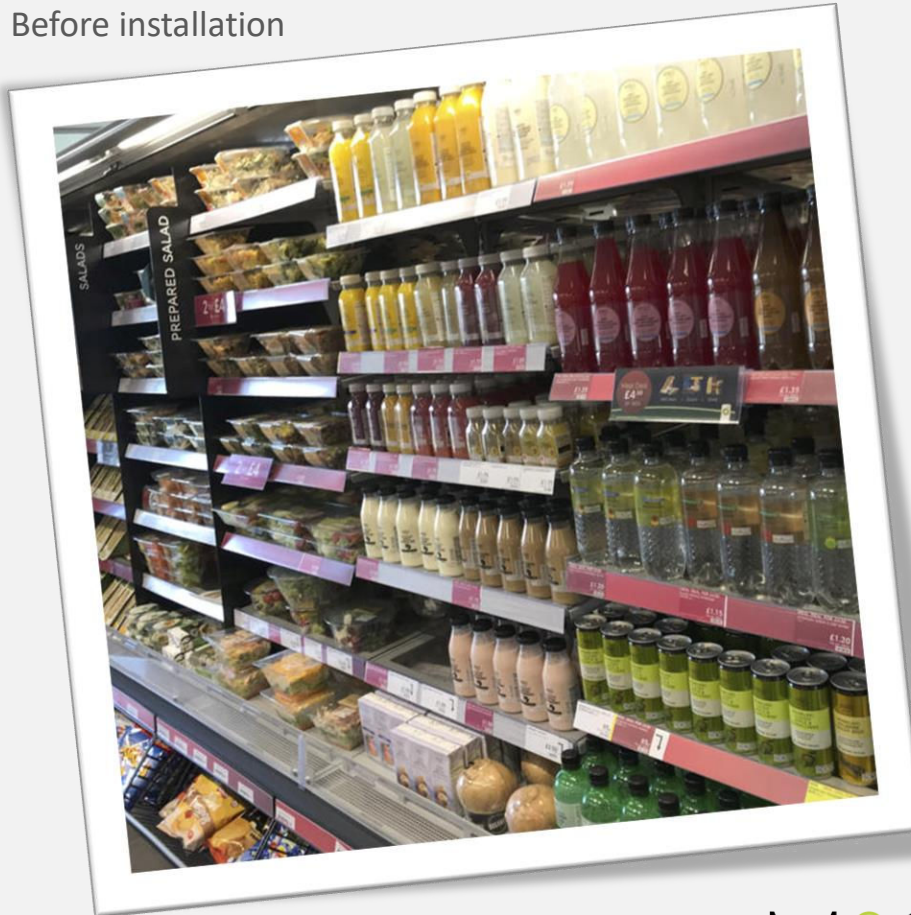
Before installation



Aesthetic benefits for improved merchandising

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Before installation

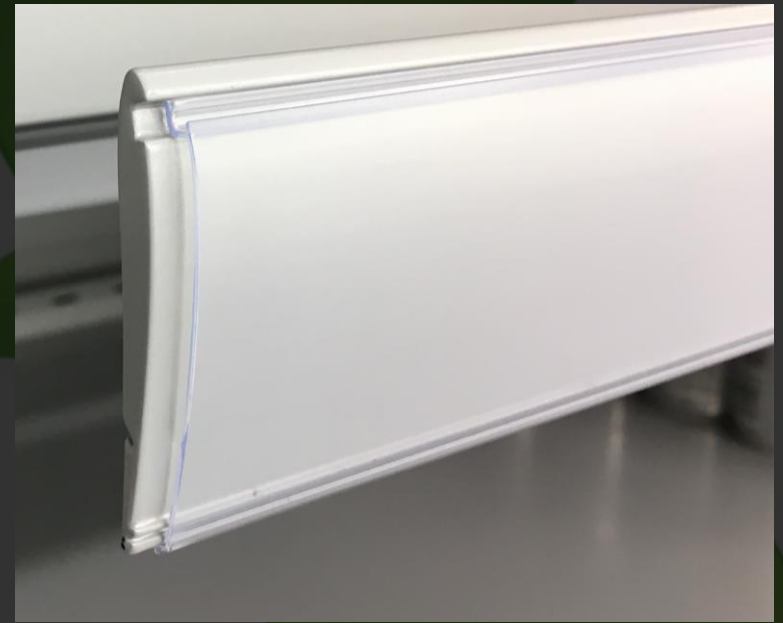


M&S

After installation



Produced sustainably
and engineered to last



The Aerofoil kit is a high-performance system, built to withstand the challenging operating conditions in a busy supermarket and is very likely to outlast the lifetime of the cabinet. In fact, of the one million plus Aerofoils installed so far, we have not heard of a single failure.

The Aerofoils themselves are made in the UK from 100% recycled aluminium, which therefore requires only 5% of the energy needed to produce them by sourcing new metal. Moreover, aluminium itself is 100% recyclable. We have, therefore, further enhanced the technology's energy-saving credentials by reducing our upstream manufacturing footprint as well as the environmental externalities that would otherwise arise from overseas production and shipment.



References from some of our largest projects

“We placed emphasis on the quality of materials used, in particular that they are made almost entirely from recycled sources and can themselves be recycled at the end of their useful life.”

“We continue to engage with Aerofoil Energy on extended application of their Aerofoil and Vortex technology in our existing and new stores.”



Tesco Stores Ltd
Highwood's Building
Shire Park
Welwyn Garden City
Herts

To whom it may concern

Tesco Roll-Out of Aerofoil Technology

In July 2019, Tesco awarded a contract to Aerofoil Energy Ltd to supply and install Aerofoil technology across our refrigerated food estate. The details of the programme were as follows:

Project duration:	Phase 1: October 2019 to December 2019 Phase 2: January 2020 to March 2020 Phase 3: June 2020 to August 2020
Total installation timeline:	26 weeks
Number of stores fitted with Aerofoils:	767 Tesco Extra and Superstores
Total number of Aerofoils installed:	263,727

We selected Aerofoils following independent laboratory and store trials, this demonstrated that their shelf-edge technology delivered an energy benefit with a robust design and construction. We placed emphasis on the quality of materials used, in particular that they are made almost entirely from recycled sources and can themselves be recycled at the end of their useful life.

In conjunction with our delivery teams, the programme was project-managed by Aerofoil Energy, who arranged for the manufacture, quality-control and delivery of Aerofoil kits, as well as coordinating and overseeing the installations. Aerofoil Energy implemented its Risk Assessment Method Statements and Golden Rules in full compliance with Tesco's own Health and Safety policy framework.

Overall, the project was completed successfully and to our full satisfaction. We continue to engage with Aerofoil Energy on extended application of their Aerofoil and Vortex technology in our existing and new stores.

Signed:

Name: Steven Rigby

Position: Chief Property Officer

References from some of our largest projects

“Sainsbury's annual electricity bill is in the hundreds of millions of pounds, and refrigeration accounts for about half of that. Fitting the aerofoils is reducing the chain's refrigeration costs by up to 15%.”

“We're committed to becoming a Net Zero business by 2040 and have already begun to make headway by investing substantial time, research and money into different areas that can help us achieve this goal – including the fitting of the pioneering Aerofoil technology.”

To whom it may concern

Sainsbury's Supermarkets Ltd
Coventry Store Support Centre
Draken Drive
Anstj Park, Anstj
Coventry
CV7 9RD

J Sainsbury Roll-Out of Aerofoil Technology

In November 2017, Sainsbury's awarded a contract to Aerofoil Energy Ltd to supply and install Aerofoil and Aerosteer technology across our supermarket and convenience estate. The details of the programme were as follows:

Project duration:	February 2018 to March 2019
Installation timeline:	30 weeks
Number of stores fitted with Aerofoils and Aerosteers:	1,380
Total number of Aerofoils installed:	350,000
Total number of Aerosteers installed:	25,000

In conjunction with our delivery teams, the programme was project-managed by Aerofoil Energy Ltd, who arranged for the manufacture, quality-control and delivery of materials, and the coordination and oversight of the installations. Aerofoil Energy implemented its Risk Assessment Method Statements and Golden Rules in full compliance with Sainsbury's own Health and Safety policy framework. Aerofoil Energy also managed communications with Sainsbury's own project team such that all parties were kept fully informed throughout the programme.

Overall, the project was completed on time and on budget, and to the full satisfaction of Sainsbury's.

Signed:



Name: Patrick Dunne

Position: Director of Group Procurement, Cost Based Transformation and Property



References from some of our largest projects

“We set ambitious objectives for the Aerofoil project in terms of reducing the energy consumption and associated environmental footprint of our food stores ... we are seeing energy savings in practice that are fully in line with expectations.”

“The Aerofoil roll-out has also led to significantly higher aisle temperatures, improving the store environment for both our colleagues and customers. Overall, we are delighted with the technology and our ongoing relationship with Aerofoil Energy.”



M&S

EST. 1884

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35 North Wharf Road
London W2 1NW

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marksandspencer.com

To whom it may concern

M&S Roll-Out of Aerofoil Technology

In January 2019, M&S awarded a contract to Aerofoil Energy Ltd to supply and install Aerofoil and Aerosteer technology across our food retail estate. The details of the programme were as follows:

Project duration:	February 2019 to June 2019
Installation timeline:	21 weeks
Number of stores fitted with Aerofoils and Aerosteers:	505
Total number of Aerofoils installed:	349,500
Total number of Aerosteers installed:	41,300

We selected Aerofoil Energy following our independent laboratory trials, which demonstrated that Aerofoils significantly outperformed alternative shelf-edge technology. Aerofoil Energy arranged for the manufacture, quality-control and delivery of materials to our own installation partners. Overall, the project was completed on time and on budget, and to our full satisfaction. We continue to engage with Aerofoil Energy on extended application of their Aerofoil and Vortex technology to other aspects of our refrigerated estate.

Ian Moore
Head of Store Development

Marks and Spencer plc
Registered Office:
Waterside House
35 North Wharf Road
London W2 1NW
Registered No. 214436
(England and Wales)

The Aerofoil-Energy Technology Family for Open-Display Refrigeration



aerofoils

- Shelf-edge technology
- Maintains coherent cold air curtain, prevents spill
- Can be retrofitted and specified for new-build



vortex

- Suite of products enhancing effects of Aerofoils
- Fitted to interior and exterior of cabinet
- Addresses other aero-/thermo- dynamic problems
- Vortex can be specified for new-build
- Some components can be retrofitted



elite

- Bespoke cabinet optimisation programme
- Virtual case modelling and re-design
- In partnership with retailer and Williams Advanced Engineering





WILLIAMS | ADVANCED
ENGINEERING



Want to learn more? -
Reach out!

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Nashville, TN 37211

Email: info@mphglobal.com Phone:

(574) 849-2740

