

# Cool customer

## Local & global trends, insights & innovations in commercial refrigeration

**W**hen it comes to refrigeration, local retailers and wholesalers can rest assured that South African manufacturers and resellers are at the top of their game. Keeping abreast of international innovations, adapting these to local conditions, and recognising the need to meet global environmental standards even before they are introduced in South Africa are just some of the ways local refrigeration solutions experts are ensuring their customers keep cool under pressure.

Staycold International Sales Director Sebastian Hills, and Scott Messenger, Sales and Marketing Director at Concord Retail Solutions, share some valuable insights into the local market, touching on trends, innovations, and new tech that will impact the South African refrigeration industry.

**Background and context:** Staycold units are manufactured locally, to exacting specifications, and energy efficiency as well as a reduced environmental impact are a core company philosophy. Concord Retail Solutions specialises in local and imported products that are designed to international standards, coupled with the latest trends and advancement in technology. Both companies are committed to improving energy efficiency and sustainability in the commercial refrigeration sector.



Image courtesy of Simon Berger, Pexels

### Innovations and new tech

**Q: What innovations and new developments have occurred in the local and global refrigeration industry over the last few years?**

The recent move to HC (hydrocarbon) refrigerant gas solutions has been a significant innovation in the world of refrigeration. The gas itself is far more

environmentally friendly than its predecessor, but the components that need to be used within the unit are also substantially more efficient than previous components, making for a far superior product. Hills says, "The fan motors are a major point – as HC gas is flammable, the use of old tech shaded pole fans has now been replaced

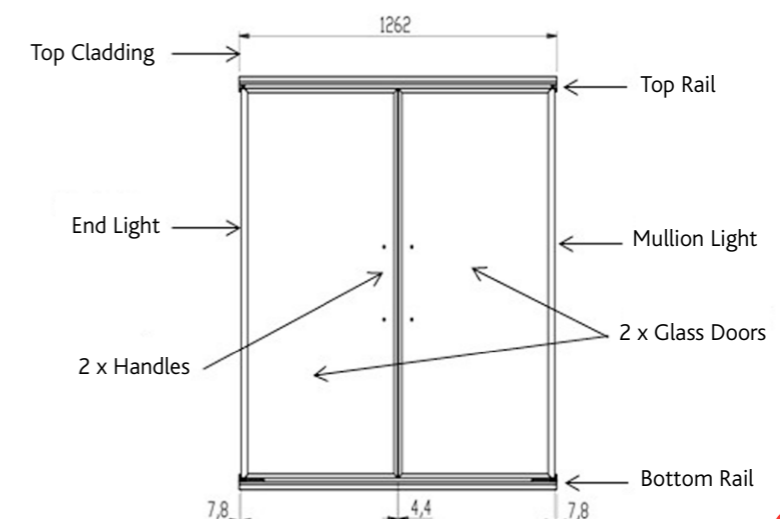
## Close The Case

Designed as a retrofit solution for existing Supermarket display cases, the Glacier Air Shield Glass Doors offer up to a 40% energy saving in an ever-increasing energy cost environment as well as improved cabinet temperatures and product benefits.



## Features and Benefits

- Reduced energy consumption.
- Extended product shelf life.
- Double glazed Argon Gas filled void for superior insulation.
- Optimal product temperatures.
- Spring loaded glass doors.
- Solutions for new cabinets or retrofitted on existing cabinets.
- Less cold air spillage – warmer aisles.
- Optional Mullion LED lights and door hold-open brackets.
- Heated option on our Standard Airshield Doors to suit coastal conditions.
- Integrated (full length) handle option.



## Infinity / Infinity Integrate Glass Doors

The new Infinity Glass Door is designed with edge-to-edge glass and screen print border. This door offers increased visibility and a more modernised look and feel. Glacier has also launched their new Integrated Glass Door which incorporates a full length profiled handle.

### Low Temp Eco Leaf (Energy Saving) Doors Aluminium Frames:

- Heated Door and Architrave
- Natural 15 micron anodized or black textured powder coating (Coating to SABS standards).

#### Glass

- Safety toughened 4mm glass inside and outside standard on all doors. (Toughened to SABS standards).
- All Glass Doors are Argon Gas filled for superior insulation.
- Low temperature doors are fitted with a heated front glass and a clear rear glass, both safety toughened.

### Normal Temp Doors Aluminium Frames:

- Door and heated Architrave
- Natural 15 micron anodized or black textured powder coating (Coating to SABS standards)
- There is a thermal break on the inside of the door frame.
- All architraves are fitted with anti-sweat heaters.

#### Glass

- Safety toughened 4mm glass inside and outside standard on all doors. (Toughened to SABS standards)
- All Glass Doors are Argon Gas filled for superior insulation.
- Normal temperature doors are fitted with Low emission front glass and a clear rear glass, both safety toughened.

#### Lights (LED)

Energy Saving LED 22W, 6000K, LED Light fitted on the inside of the architrave in a closed polycarbonate light diffuser.

#### Lights (LED)

Energy Saving LED 22W, 6000K, LED Light fitted on the inside of the architrave in a closed polycarbonate light diffuser.



by sparkless EC (electronically commutated) fans which offer significant energy savings (up to 70%) compared to shaded pole fans.” An EC motor combines the best of both AC and DC voltages.

Hills says that overall, making a cabinet as efficient as possible is key to reducing its consumption, and as the cornerstone of refrigeration is the removal of heat, technology that prevents that heat from entering the cabinet in the first place is as much of a priority as the mechanics of how that heat is removed by an efficient heat pump.

“This is where factors such as good insulation – such as environmentally friendly blowing agents like EcoMate in the polyurethane mixture – comes into play. Equally as important in a display cooler is the glass itself, as up to 80% of the heat ingress into a display cooler is via the glass door. This is why we use Low-E (low thermal emissivity) glass as standard in our units. Similar to the technology used on visors used by astronauts, the Low-E coating reflects away some of the heat radiation that would normally travel through the glass into the case.”

For Concord’s Messenger, their imported European-made Fricon self-contained freezers represent a groundbreaking stride in redefining energy-efficient products. He says, “These freezers herald a new era of sustainable refrigeration. Their energy efficiency, synergy with solar power, potential for energy and cost savings, user-friendly operation, and adaptability for retrofitting underscore their position as pioneers in the field.”

Image courtesy of  
www.facilitiesnet.com/



Image courtesy of www.aescontrols.co.uk/

**Q: We’ve seen global companies talk a lot about energy management. How does that affect the local market?**

Energy management is another area that has seen impressive improvements and new developments in terms of technology, software, and hardware. Hills says, “Control of the refrigeration system, as well as the functionality of the machine itself, is achieved using an EMD (Energy Management Device). We use the Danfoss ERC112d EMDs in our units, and these offer full digital control of the

refrigeration system, as well as the lighting and fans, with clever functionality that reduces each unit’s use of energy during off peak times with its ECO mode function. This function engages automatically and can save up to 30% electricity consumption over a 24-hour period.” He adds, “We recently introduced a telemetry device that plugs directly into the EMD and allows for remote monitoring of the key condition and usage elements of the fridge via a web portal. This also enables owners of large fleets of units to better

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monitor their usage and condition and implement behavioural changes that will make their use more efficient and cost effective.”

Hills agrees, saying customers can benefit greatly from product ranges that are available with these features. “Refrigeration cases that are powerful, reliable, durable, fit for purpose, and energy efficient provide the optimum value.”

## Solar conversions

### Q: Is solar energy a viable option for local retailers and wholesalers?

The impact of load shedding on commercial refrigeration cannot be underestimated. A compromised cold chain affects not only product quality and customer satisfaction, but it can also be a significant health and safety concern. Uninterrupted refrigeration and freezer systems are crucial in the FMCG retail and wholesale sector.

“The use of solar in conjunction with refrigeration is an area that is being developed at the moment,” explains Hills. “Currently the power requirement of larger commercial units, such as 2m uprights, both single and double door, is too great to be practically used with a DC heat pump system. As such, we are working with component manufacturers to develop this technology as an affordable viable option to the current AC-powered units. Of course, a typical solar and AC inverter-run system is possible, and ultimately the more efficient the unit being run by such a system, the smaller the solar/inverter system requirement becomes.”

Images courtesy of <https://mag.ebmpapst.com/>



Innovative drive technology has to transform today's technological trends, market demands and specific user requirements into new, highly efficient quality products. Elements like mechatronics, electronics and software have to be precisely integrated, be optimised to specific sectors and fulfil economic and ecological demands.

## Energy and cost savings

### Q: How can retailers and wholesalers maximise energy and cost savings?

Reducing energy consumption, as both a cost-saving and an environmental impact exercise, has been a key goal of the refrigeration and retail/wholesale industries for quite some time. And the effects are becoming apparent. Messenger says, “While the initial investment in energy-efficient appliances might appear higher, it ultimately offers a solid return on investment. We have seen that the energy savings accrued over the lifespan of this



Rough transportation by truck, aircraft, or ship can reduce the service life of fans before they are ever used at the customer's premises. ebm-papst tests these kinds of shock and vibration loads in their Hollenbach testing centre to prevent this from happening.

equipment outweighs the initial cost, making them a prudent choice for forward-thinking businesses.”

Hills agrees. He says, “Over the past 10 to 15 years, we have seen the energy requirements of a typical double door display cooler drop from an average consumption of ~10kWh/24hrs to as low as ~3kWh/24hrs. This significant reduction shows the advancements that have taken place over time, and once you start to factor in the escalating costs of electricity, the benefits of buying the most efficient systems becomes very affordable over the lifetime of a unit.”

# 40 years anniversary AHT Cooling Systems

For 40 years, AHT, with its headquarters in Austria, has stood for quality at the highest level. With its green refrigerant R290, AHT became the pioneer of an entire industry. Building on this legacy, Multilayer Trading has championed AHT's innovation in Africa for over a decade. By successfully introducing the green refrigerant to the continent, Multilayer Trading has not only upheld AHT's pioneering spirit but has also emerged as the market leader in plug-in green commercial refrigeration in Africa.



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“For example, at R3.00 per kWh, a unit that costs R24 000 to buy and consumes 3kWh/24hrs compared to a cheaper, less efficient unit for R18 000 that consumes 5kWh/24hrs, means your ROI is realised in less than three years. Over the lifespan of the unit, which is realistically about seven years or so, the savings amount to about R10 000 – and that’s at current energy costs! Once you factor in energy inflation, which is at double digit percentages currently, the savings are even more significant.”

## Ease of use

**Q: Is the new technology all it’s cracked up to be, or are retailers and wholesalers just creating a rod for their own backs by employing increasingly complex solutions?**

All too often, as technology advances, so too does its complexity. This should not be the case with refrigeration, and advancements in technology or energy savings should not increase the burden of use on the store. Hills explains, “A typical purchaser of a display cooler does not wish to spend time out of their day ensuring that they can realise its benefits. It is for this reason that the efficiency features such as those we incorporate into our units can be maximised either automatically via the EMD or are built into the system and design of the cooler. This leaves the user to carry on with running their business while benefiting from not just perfectly displayed, cold products, but also the savings on their energy bill, with no extra time or energy spent on complex operations.”

Image courtesy of www.gea.com/



To anchor circularity in GEA’s product portfolio, their engineers are tasked with guiding mantra to “Design for Sustainability.” This means designing products to enable retrofits and maintenance for maximum lifetime and minimum total cost of ownership. Their goal... modular and configurable solutions that reduce resource consumption and increase productivity.

Concord Retail Solutions shares the belief that sophistication should not automatically lead to complexity. The use of intuitive interfaces and accessible, uncomplicated controls provides user-friendly operation. In addition to this, an innovative auto-defrost function eliminates the need for manual intervention. Messenger says, “You can forget battling icy build-up with a rubber mallet every week. The auto-defrost function maintains an optimal cooling performance and removes the need for routine manual defrosting. This streamlines operations and boosts energy efficiency, as a frost-free interior keeps the appliance running smoothly, consuming less energy.”

## Feasibility for use in retrofitting

**Q: How easy is it to retrofit existing units?**

In a perfect world, retailers would be replacing their refrigeration systems at end of life with new, top-shelf solutions. The reality, however, is that this is not always financially feasible. “Circularity has become a major focal area for our business,” says Hills. “We are always developing concepts and design changes with retrofit ability in mind. Even with one of our 10- to 15-year-old models, you could quite easily retrofit elements such as the fan motors, glass doors, and even the EMD.”



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These items would be a simple like-for-like replacement of the older items within the unit. We are also working on ideas that will allow older units to benefit from future technological advancements in the energy space.”

## Global trends

South African retailers can look to their international counterparts for a glimpse at what could soon be impacting stores locally. From environmental legislation and energy-efficient practices, to how store design should change to meet evolving consumer needs, local stores need to be ahead of the game to future-proof their businesses.

### The rise of sustainability legislation

Energy efficiency, eco-friendly refrigerants, and reducing GHG (greenhouse gas) emissions remain at the top of the agenda for countries across the globe. We can expect to see the tightening up of existing legislation dealing with these issues, and new legislation being introduced. While most new commercial refrigeration and freezer units meet recognised standards, older units will need to be replaced in the near future.

In addition to this, refrigerators still using hydrofluorocarbon (HFC) refrigerants will need to be replaced, as these contribute heavily to GHG emissions. We can expect to see lower GWP (global warming potential) standards being introduced in legislation, or compliance with existing legislation becoming better enforced. In the same breath, energy-efficient systems are crucial for business success as they provide profitable solutions and align with eco-friendly business models.

Image courtesy of [www.gea.com/](http://www.gea.com/)



GEA's emphasis is on the use of reliable, energy-efficient design, natural refrigerants and innovative energy-reuse systems.

### Aggressive maintenance

As one of the major expenses for retailers and wholesalers, from initial purchase and installation, energy usage, maintenance, and repairs, refrigeration should be top of the list for cost-saving measures. This includes pre-emptive maintenance and constant, ongoing monitoring. Local and international manufacturers are urging retailers and wholesalers to include aggressive maintenance as part of the refrigeration solution. This means quarterly, monthly, and even daily inspections and maintenance to ensure efficiency and lifespan are maintained. An aggressive maintenance regime should also include proper and focused cleaning. By implementing this process, stores can reduce product loss due to system failure, as well as avoid downtime due

to costly repairs, energy costs, and also lower greenhouse gas (GHG) emissions.

### Predictive maintenance

Energy management and monitoring systems as well as systems using IOT (Internet of Things) in order to monitor and analyse cooling and refrigeration systems will help to optimise your investment. Technologies for predictive maintenance include predictive analytics such as ultrasound technology, infrared analysis, vibration analysis, laser-shaft alignment, and AI. The ability to gather, understand, and use data-driven solutions is crucial, so expect new and developing technologies and equipment to become increasingly important to your operations.

Predictive maintenance enables retailers to avoid refrigeration failure by identifying possible problem areas before they impact efficiency or functionality.

## New shopping habits require adaptable spaces – and refrigeration

According to City (<https://www.cityfm.us/>), an international facilities management company established in Scotland in 1985 and now based in the US, we can expect to see store design continue to change and adapt to evolving consumer needs and expectations, particularly when it comes to convenience shopping. 'Click and collect', also known as BOPIS (buy online pickup in-store) to continue to drive a significant portion of the retail market, accounting for over 40 percent of US grocery ecommerce sales by 2026.

Image courtesy of [www.petitforestier.com](http://www.petitforestier.com)

Additionally, grocers are seeing higher demand for hot grab-and-go meals, as well as healthier to-go options for the increasingly wellness-minded consumer. As a result, grocery facilities management leaders should expect to oversee more post-pandemic building retrofits, and there will be more importance than ever placed on the management of refrigeration and other food and beverage equipment designed to keep ready-to-go meals and groceries waiting for pick up safe and easily accessible for shoppers.

Image courtesy of [www.petitforestier.com](http://www.petitforestier.com)



## Convenience as a purchase driver

No longer the sole province of middle to upper LSM households and time-strapped mothers attempting to feed their families, convenience foods are increasingly in demand across LSMs, age groups, and shopper categories. In-store refrigeration needs to reflect this, as many convenience foods fall into the chilled or frozen category. Things to consider are:

- Space – to enable a sufficient range of options
- Display – to effectively attract shoppers
- Ease of access – convenience purchases need to be easy to locate, easy to access, and easy to use.

FMCG products requiring self-service cooling or refrigeration solutions are predicted to grow significantly over the next few years.

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### Innovation in the cold chain

Globally, but particularly in Europe and North America, refrigerated transport is increasingly utilising electric or solar-powered solutions. The rise of online shopping has also increased the need for on-the-go refrigeration solutions that are effective, affordable, and sustainable. Continuous cold chain monitoring is imperative for food safety, product longevity, and customer satisfaction.

### Refurbished refrigerator and freezer units

This global trend is yet to gain significant traction locally, but as manufacturing costs continue to soar, it is possible that local entrepreneurs will be inspired. New, top-of-the-range energy-efficient and sustainable equipment is an expense not many smaller or independent retailers can comfortably afford. Refurbished units that provide high-quality and high efficiency are becoming more popular with international retailers looking to upgrade their refrigeration systems without having to pay for a brand-new product. Currently there seems to be a wide variety of refurbished solutions on offer, including glass sliding door coolers, glass door merchandiser refrigerators, floral coolers, novelty coolers and freezers, and ice cream display freezers.



Image courtesy of Milwaukee Area Technical College

## Pioneering sustainability

Concord's Messenger says, "In the era of conscious consumerism and sustainable living, the spotlight is firmly fixed on energy-efficient solutions that not only meet our needs as businesses and consumers, but also nurture the planet. Innovation and eco-consciousness are reshaping the landscape

of refrigeration technology." Redefining energy-efficient products is, Messenger believes, the only sustainable way forward. Cutting-edge technology that drastically reduces energy consumption while ensuring optimal cooling performance. It not only translates into a reduced environmental impact but also heralds substantial savings on energy bills for both businesses and households."

Messenger says, "Technology that amalgamates energy-efficient components and intelligent design results in remarkable energy savings, translating to substantial cost reductions over time. This dual benefit not only resonates with environmentally conscious consumers but also bolsters the bottom line of businesses, allowing them to allocate resources more strategically."

"In addition, the feasibility of replacing conventional units with energy-efficient solutions not only aligns with global environmental goals but also sets

Image courtesy of www.hauser.com/



the stage for practical solutions in sectors where energy consumption is high. Embracing innovation is not just a step towards a better tomorrow; it's an investment in a future where innovation meets responsibility." **SR**

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## Effective solutions to reduce the cost of in-store refrigeration

### Polyurethane Injected Panels

- Standard panels: Outer and inner skin of frost white Chromodek, also available in black finish.
- Polyurethane injected panels for superior insulation and adhesion.
- High-impact PVC interlock profiles on all edges provides totally sealed insulation and a perfect vapour barrier.
- Tongue and Groove panel options available.
- Easily erected.
- Optional skin finish in Stainless Steel – Grades AISI 304 AIS 403.

## Cold & Freezer Rooms



### Floors – Fabricated and Concrete

#### Fabricated Floors

- The inside floor finish is 1.5mm Aluminium tread plate glued and screwed to a marine ply base.
- Galvanised plate options available in lieu of the Aluminium Chequer Plate finish.

#### Concrete Floor

- Concrete floors are used for flush or step-up entry and in permanent structures. Usually a recess of 150–170mm is used to accommodate the foam slab insulation and the concrete screed.



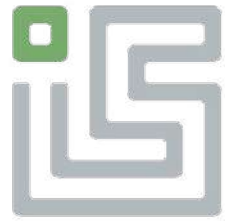
### Meat Rails

- Hot Dipped Galvanised system.
- Support structure integrated into insulated panels.
- Optional free-standing continuous galvanised system with bends and switch gear.

### Aluminium Chequer Plate

- Installed as an option to protect panels from scratches and light impact damage.
- 1.5mm and 2.0mm thick options.
- Standard height 1 250mm AFFL.





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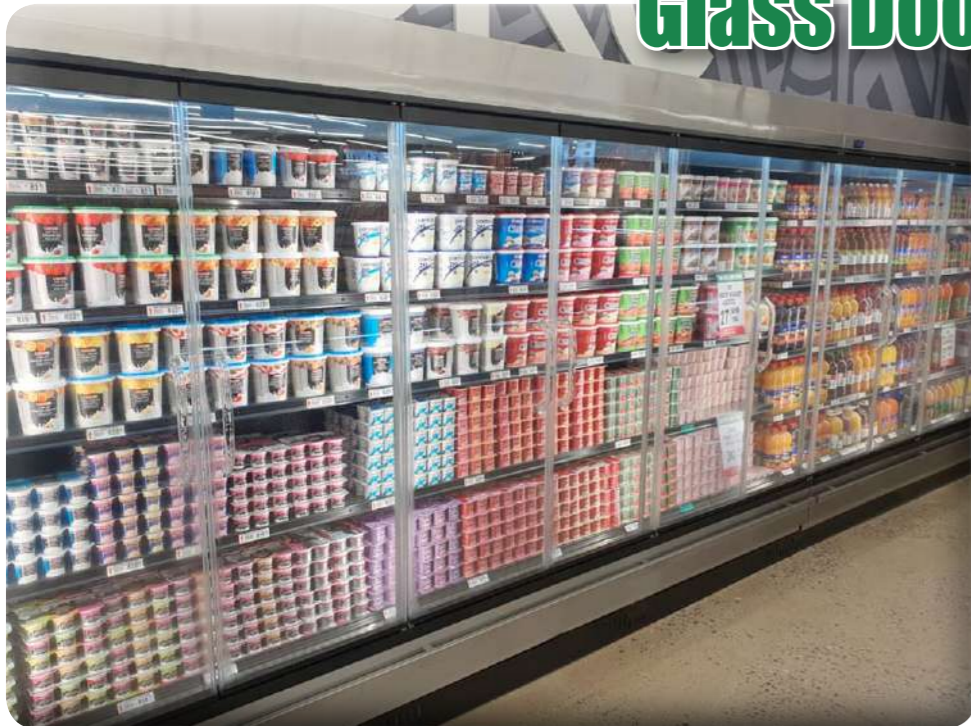


Environment  
Respect

## Benefits of Airshield Glass Doors

- Reduce Energy consumption.
- Extend Product shelf life.
- Double Glazed Argon filled void for better insulation.
- Optimal Product temperature.
- Glass doors have an option of Mullion lights. Quoted separate.
- Handles included.
- Up to 40% energy saving.
- Solution for new cabinets or retrofitted on existing cabinets.
- Doors are spring loaded.
- Less cold air spillage – warmer aisles.

## Airshield Glass Doors



## Ways to save

With energy cost rising and food retailers looking to improve the shopping experience environment for customers, Insulated Structures has developed an effective solution to reduce the cost of in-store refrigeration while enhancing the customer experience.

Insulated Structures doors are easy to retrofit on in-store cabinets to reduce the energy required to keep chilled foods at the correct temperature.

Meanwhile, customers are able to clearly see and access the products on offer. Reduced energy requirements means smaller refrigeration plant selection for new stores. These savings will off-set the initial cost of the doors. Up to 40% reduction in refrigeration requirement has been achieved.



Standard Airshield Glass Doors with a Black Frame.  
Heated Hybrid also available in this design.  
Heated Hybrid Glass Doors are fitted with a heater to reduce condensation on the doors in Coastal areas.  
Heated Hybrid is fitted with soft closers.

Premium Airshield Glass Doors.  
Frameless Door with Argon Gas filled for better insulation.



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