PART OF MANNI GROUP

MONDO FRIGO PROJECTS

ISOPAN
INSULATING DESIGN

The evolution of the food industry, with the introduction of automation, and the growing importance of logistics brought up the issue of **product safety**.

The insulating panels industry keeps on investing in research on **technically advanced solutions** to meet the needs of the food world and contribute to development and innovation in the sector, as well as to ensure consumer health.

Also the choice of materials used to build a cold room can help keep rooms clean and reduce the risk of alteration or contamination for products stored or processed inside it. For instance, **insulated panels** have various characteristics that make them an excellent choice to make the infill panels of a refrigerated warehouse.

For more information and to request specific advice go to: www.isopan.it

THE PROJECT'S FIGURES

9,100 mq

DEVOTED TO PRESERVING FRUIT

AND VEGETABLES, MEAT AND COLD CUTS

2,700 mq

OF COLD ROOMS TO PRESERVE

DEEP-FROZEN FOOD AND DAIRY PRODUCTS

18,300 mq

OVERALL SURFACE

24 milioni

OF PARCELS

CONAD DISTRIBUTION CENTRE IN THE TYRRHENIAN AREA

Conad del Tirreno's new distribution centre:
a more efficient, safer and more sustainable logistics hub.

THE NEW REFRIGERATION HUB OF THE BOLOGNA-BASED COOPERATIVE IS TRULY OUTSTANDING BOTH IN TERMS OF OPTIMISATION OF THE DISTRIBUTION CHAIN AND ENVIRONMENTAL SUSTAINABILITY AND ENERGY EFFICIENCY.

Conad del Tirreno's new distribution centre in Tarquinia is one of the most interesting Italian projects in the logistics sector applied to a refrigeration hub and is part of a larger project launched in 2014 with the definition of the Conad Sustainability Plan. This continued in 2016 with the automation of the 55,000 sqm logistics headquarters of Montopoli in Val d'Arno, in the area around Pisa.

CONAD del Tirreno's distribution centre is located in Pian d'Organo, just 5 kilometres from the other logistics areas of Civitavecchia and has 9,100 sqm devoted to the preservation of fruit and vegetables, meat and cold cuts, plus three cold rooms: a 750 sqm one for fresh fish and two 2,700 sqm ones with shelving to preserve deep-frozen foods and dairy products, for a **total covered area measuring 18,300 sqm**.

At full capacity, through the 63 unloading and loading openings, Conad del Tirreno's distribution centre in Tarquinia handles up to 24 million parcels – it is full at 5pm and empty at 3am.

ENVIRONMENTAL SUSTAINABILITY AND ENERGY SAVINGS

Conad del Tirreno CEO Ugo Baldi

*With this project we have confirmed the commitment towards our customers in terms of **price** and **efficiency**, and towards the local area, in terms of **environmental and economic benefits**. A strong commitment in line with quality and innovation targets, which are the cornerstones of our development strategy, as well as the conditions for medium and long-term economic growth. Today we offer more guarantees and a better service to an increasing number of stores and we have also rebalanced our strength through more efficient logistics, laying the foundations for future development.*

HOW THE PROJECT CAME ABOUT

What makes this project unique in its kind is the great attention paid not only to the **optimisation of the distribution chain**, but also to **energy efficiency** and **environmental sustainability**.

The warehouse was created to accommodate any option in terms of organisation. The C-like shape of the premises and the lack of partition walls in the largest department measuring over 9,100 sqm optimises operation and storage. Here, also the requested temperature to preserve fresh products can be adjusted by zone. The need to remove all traditional structural restrictions such as doors and walls, as well as making it easier to move from one room to another, led us to design innovative logics to divide areas with a different temperature without using partition walls, entirely in keeping with the safety requirements to prevent fire hazards. In actual fact, the whole surface of the warehouse has been designed to constantly keep the room temperature at zero degrees, except for the area devoted to deep-frozen food, where the temperature reaches -24°C.

I think that this new logistics platform is a unique example, as all its details have been conceived by a team of professionals.

Lorenzo Fusco,
Logistics Manager for Lazio and Project Manager at Conad del Tirreno

THE WAREHOUSE HAS BEEN DESIGNED TO CONSTANTLY KEEP THE TEMPERATURE AT ZERO DEGREES.

The over **50 dock houses** have been designed according to well-defined specifications, which are also a distinctive element: rather than walls, as structural 30x15-metre mesh was used to avoid the inconvenience of columns as much as possible. The **roof is innovative** too, with no traditional smoke and heat evacuators, which have been replaced by a forced extraction system to allow for more room for the installation of a **new-generation photovoltaic system, which can develop as much as 1000 kW, which is enough to cover 40% of the overall energy requirements of the premises. Both indoor and outdoor lighting is provided by high-efficiency LED lights** controlled by inverter-operated electric drives and fitted with high-efficiency transformers. **The production of cold**, the most energy-consuming utility, takes place thanks to **a natural refrigeration system** – NH3/CO2 in cascade – that allows for a **25% drop in energy consumption on average** compared to systems working with synthetic refrigerants.

One of the most critical aspects of temperature-controlled environments is the energy consumption that involves the production of climate-altering gases such as CO2 and causes bills to go up. The previous warehouse, which only had 7000 sqm, did not have room to store types of products that require low temperatures, like fish and deep-frozen food. Now, thanks to the technologies applied in the new 9100 sqm distribution centre and with slightly higher energy consumption, a single truck can stock up different types of products, both fresh and deep-frozen, in the same logistics centre and serve a whole area on its own.

NETWORK LOGISTICS SERVICE

Paolo Vadalà, Supply Chain Director at Conad del Tirreno
Network Logistics Service

The creation of a single Distribution Centre for all fresh product categories enables us to enhance the service level of our distribution network, reducing costs and yet extending the option of applying rigid quality control standards on products coming directly from the primary sector, i.e. fruit and freshly-caught fish. The current Distribution Centre consumer slightly more energy than the previous warehouse, which had just 7000 sqm and where types of product that require lower temperatures and greater energy, i.e. fish and deep-frozen food, were not stocked. Moreover, thanks to the use of specific containers, with a single truck we can simultaneously fill up all the types of products requested by our stores. This has a beneficial impact on supply chain costs, whilst reducing the number of cars on the road, traffic and pollution.

This result is determined by an accurate design focusing on ensuring **optimal insulation and top energy performance** by using isothermal materials and solutions such as:

Isopan insulating panels
for walls with specific characteristics according to the intended use of the cold room.

Floors with double layer insulation
and barriers against steam

Double sectional doors
with quick roll-up

Roofs with high-density insulation
to reduce transmittance

GREENER COLD LOGISTICS

Giovanni Tordi, CEO of 3EPC, the firm appointed to carry out the project and with a keen eye on green energy.

Logistics is one of the industrial supply chains undergoing the highest development and with a high energy recovery potential, especially in terms of cold chain. According to the 2012-2020 National logistics plan of the General Haulage and Logistics Council, Italy loses about 40bn euros every year to various forms of inefficiency in the field of logistics, which means that one can and one must do more in terms of environmental impact and efficiency.

Insulation

The shell becomes the building's barrier and must guarantee the seal and performance of the space inside. In the case of CONAD del Tirreno, materials specifically designed for the needs of cold rooms, i.e. sandwich panels with a polyisocyanurate (PIR) insulating core, were chosen. PIR provides a thermal insulation coefficient with a higher performance compared to other solutions available on the market and, as it is a closed-cell anigroscopic material, it keeps the storage environment with the right safety and hygiene levels. Also the excellent mechanical strength, versatility and lightness of Isopan insulated panels for cold rooms **improve the energy performance of the building, reducing consumption and, as a result, also CO2 emissions and the relative management costs**.

Reaction to fire

The solution provided by Isopan suitably meets the need to contain flames in the event of a fire in order to protect the safety of employees and the integrity of the goods stocked. **It is essential to choose a product that does not let the fire spread and develop smoke, so that one can take action in a reasonably short space of time**. Indeed, PIR foam or rock wool sandwich panels fully cover this need according to the designed risk profile, providing excellent resistance and reaction to fire.

THE ADVANTAGES OF INSULATING PANELS FOR COLD ROOMS

For Conad del Tirreno's distribution centre in Tarquinia, Isopan provided some 32,000 sqm of **Isofrigo, Isofire roof/wall** and **Isobox** insulating panels in variable thicknesses and types according to the insulation and reaction to fire required by the specific intended use of the room where they are installed.

Rocco Traini
Isopan Group Technical Department Manager

By sharing the client's requirements, our technicians discuss the technical solutions adopted with the design engineer, helping the client understand the best-suited ***features of the panel, of the metal supports and the insulation*** *to meet his/her needs. The design engineer can draw on an* ***extensive and detailed range of manuals, which have the necessary technical details in terms of building to ensure an optimal design****, along with assembly instructions to ensure the integrity of the panels and a better performance once installed. Also the delivery of material followed the needs of the project and was managed according to the pace, time and space of a very large site. This allowed us to coordinate the supply of each batch with the other things happening on site.*


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THE PROJECT'S FIGURES

54

HECTARES OF STRUCTURES INTENDED FOR STORING AND PRESERVING FOOD

21

NEGATIVE TEMPERATURE COLD ROOMS

39

POSITIVE TEMPERATURE COLD ROOMS

59

CONTROLLED-TEMPERATURE WORK AREAS

THE RADUMLYA DISTRIBUTION CENTRE
Efficiency and sustainability

In Moscow, 60 cold rooms and 59 controlled-temperature areas made across a total of 54 hectares: the fridge cells are made with Isofrozen and Isofrozen HT insulating panels by Isopan.

THE WHOLESALE DISTRIBUTION CENTRE IN RADUMLYA, ON THE OUTSKIRTS OF MOSCOW, IS A LEADING-EDGE FACILITY FOR THE PRESERVATION AND PROCESSING OF AGRICULTURAL AND FOOD PRODUCTS.

It is located in Solnečnogorsk, across an overall surface of 54 hectares which include the facilities intended for the storage and preservation of food, phytosanitary and veterinary laboratories, but also offices, banks, bars, restaurants, shops, a 16-hectare car park and the Kubrik Hotel for the employees and visitors of the logistics centre in Moscow.

Inaugurated in 2016, it is an example of **high-tech, efficient and sustainable** cold logistics. **The Thermocool Group project allowed for the creation of 39 positive temperature cold rooms, 21 negative temperature ones and 59 controlled-temperature work areas** of a variable size between 112 and 450 metres, 6 metres high. **The selection of Isopan, Isofrozen and Isofrozen HT panels with a labyrinth joint** enabled the premises to reach extremely high insulation, energy efficiency and safety standards in the event of a fire.

The system has been designed to provide a direct connection between the manufacturers and the consumers of agricultural products. This is where the storage, processing, pre-sale preparation and distribution of food ends.

To meet the key need to guarantee the maintenance of the temperature of each cold room and every controlled-temperature room, all the design aspects needed to take into account the energy performance of the premises, with the specific goal of reducing energy losses and maintenance costs – and therefore the production of CO2 – to a minimum.

Also the choice of materials proved to be essential, as it fell on Isonpan sandwich panels for the cold sector, Isofrozen and Isofrozen HT in order to provide the highest level of energy efficiency and durability for the premises, whilst keeping aesthetics in mind.

- Isofrozen
- Isofrozen HT

ISOFROZEN AND ISOFROZEN HT, THE ISOPAN INSULATING PANELS USED FOR THE DISTRIBUTION CENTRE

The **Isofrozen** and **Isofrozen HT wall panels**, specifically designed to cater for the needs of the cold sector, were used to make the 59 cold rooms and 60 controlled-temperature areas. These are insulated sandwich panels with a double polyurethane foam self-bearing metal coating, suitable for installation both on walls and roofs and with very high thermal insulation performance, combined with good reaction and resistance to fire, as well as excellent mechanical strength, versatility and lightness. The panels used for the outer panelling are 80 mm thick, while the indoor ones used in a refrigerated environment are 60mm thick. Isopan can thereby help improve the building's energy performance, reducing its consumption and, as a result, also CO2 emissions and the relative management costs. As well as improving the comfort of those living in it, A building with effective insulation is also more efficient.

HOW THE PROJECT CAME ABOUT

Timofei Grishkov, ingegnere progettista di Thermocool Group

We have implemented an extraordinary project – says Timofei Grishkov, design engineer of Thermocool Group – by meeting the deadlines to complete all the works.

Due to the nature of the project and the specific request from the client to focus on premises with high energy efficiency levels, we needed to guarantee that the temperature in the cold rooms was not affected. We chose Isopan because it was able to provide us with the perfect solution: Isofrozen sandwich panels, the best choice to create thermal insulation profiles for fridges. The material meets the set thermal conductivity requirements and parameters such as excellent fire resistance.

THE PROJECT'S FIGURES

60,000

QUINTALS OF APRICOTS PER DAY

IN NEW-GENERATION COLD ROOMS

26,000

SQUARE METRES BUILT

WITH THE ENVIRONMENT IN MIND

2,000

QUINTALS OF APRICOTS

PROCESSED EVERY DAY

30 million

EUROS A YEAR THANKS TO THE TWO MEAT

AND FRUIT PROCESSING DIVISIONS

THE HISTORY OF THE GUIDI FAMILY
From hens to apricots

The new controlled-temperature Albisole plant

A 16,000 SQM WAREHOUSE, ONE OF THE LARGEST AND MOST INNOVATIVE IN EUROPE: THANKS TO THE TECHNOLOGY OF ISOPAN'S INSULATING PANELS, COLD ROOMS WITH HIGH THERMAL PERFORMANCE WERE CREATED.

Inaugurated in 2017 in Carpinello, near Forlì, it is one of the most innovative and large warehouses in Europe: we are talking about the new Albisole plant built by the Guidi di Roncofreddo farm as a processing and distribution centre for apricots. The latest pride and joy of Cav. Giancarlo Guidi, the entrepreneur, already established in the poultry sector, is the new Albisole plant for storing and processing approximately 2,000 quintals of apricots a day. With a production equal to 4% of the national output, in less than ten years Albisole has become one of the most interesting companies in the sector. A 26,000-square metre plant built with special attention to the environment: the result is a cutting-edge, energy-efficient building. Powered by the photovoltaic system installed on the roof of the building, the structure is covered with Isocop and Isobox sandwich panels to reduce heat loss, while the indoor temperature-controlled environments have been made with Isofrigo.

THE ADVANTAGES OF INSULATING PANELS FOR ALBISOLE

The latest pride and joy of Cav. Giancarlo Guidi, the entrepreneur, already established in the poultry sector, is the new **Albisole** plant for storing and processing approximately 2,000 quintals of apricots a day. With a production equal to 4% of the national output, in less than ten years Albisole has become one of the most interesting companies in the sector. A 26,000-square metre plant built with special attention to the environment: the result is a **cutting-edge, energy-efficient building**.

Powered by the photovoltaic system installed on the roof of the building, the structure is covered with **Isocop** and **Isobox sandwich panels** to reduce heat loss, while the indoor temperature-controlled environments have been made with Isofrigo.

HOW THE PROJECT CAME ABOUT

About ten years ago, Cav. Guidi and his family decided to turn to single-product production, opting for apricots. The new premises built for Albisole have an area of about 16,000 sqm spread across two floors, inside which it is possible to store **60,000 quintals of apricots in the latest-generation cold rooms, with a production of 2,000 quintals per day**.

The Guidi Family applied its experience in the agricultural sector to the fruit and vegetable one, replicating its principles and philosophies, providing for controlled-atmosphere environments to always preserve the cold chain.

Cav. Giancarlo Guidi, owner of Albisole

As we were already working in the avicultural sector, we applied the same philosophy to the fruit and vegetable one, too.

CORPORATE VALUES: SAFETY AND PROTECTION

The Guidi family has been true to its values for over 30 years: **food safety and attention to detail**. Careful design of spaces for more efficient processes, processing and packaging in a controlled atmosphere, maintenance of the cold chain and thorough cleaning and hygiene in the environments. Giancarlo Guidi has decided to apply the same meat production logic to the production of apricots to maintain the commitment made with consumers to **preserve the fragrance** of his apricots in the fresh food departments of large retailers within 24 hours from harvesting.

Our company stemmed from an idea my parents had in 1968: today it has an annual turnover of over 30m euros, thanks to the two production divisions, meat and fruit.

Roberto Guidi, Albisole Sales Director

THE ISOPAN PRODUCTS USED BY ALBISOLE

For the new plant in Carpinello we used:

Isocop

ideal for the roofs of agro-zootechnical premises due to the high quality of thermal insulation.

Isoparete Plissé

for the walls, with excellent insulating features

Isofrigo

to obtain a perfect insulation for cold rooms, controlled-temperature environments. Thanks to the joints used for the hermetic anchoring between one panel and the other, we guaranteed almost no heat loss and improved airtightness of the shell for the correct operation of the refrigeration system.

THE ADVANTAGES OF INSULATING PANELS FOR ALBISOLE

Rocco Traini
Isopan Group Technical Department Manager

In making the Albisole project, the focus was on providing a product that would allow the building to maintain ***high levels of hygiene and be very clean****, along with* ***high thermal insulation performance****, which is key in the cold cycle. Thanks to Isopan panels, the client was able to meet the technical needs of the investment, by also adding* ***aesthetics*** *to enhance the long-term experience of the Guidi family in the agro-zootechnical sector. The Isopan sandwich panels used for the project consist of an insulating polyurethane core with pre-painted metal supports suitable for contact with food and widely used in the sector. The properties of steel, such as elasticity, hardness, bendability and resilience, meet the needs of the food industry as they guarantee* ***durability and safety****, while the choice of the painting system improves the resistance of the surface to washing, corrosion, mould or fungi. Finally, the response to the attention of the Guidi family to the quality of their product processing in the cold chain has been extensively met by the behaviour of the Isopan panel joint, which offers adequate* ***airtightness****, certified and guaranteed over time.*

ISOPAN
INSULATING DESIGN

www.isopan.com

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