

Penthouse concept for seafood in Vietnam

The refrigeration requirements for warehouses are much the same the world over, but as usual it's the details that count. It takes experience and expertise to find the optimum solution for each particular application.



Line of Business:	Industrial Refrigeration
Application:	Food Cooling
Country / City:	Vietnam / Ho Chi Minh City
Fluid:	NH ₃
Product:	Evaporator AGHN, Evaporator GANP

This also applies to the Anpha AG Cold Storage project, a logistics centre that was set up in 2009 near the new SPCT container port near Ho Chi Minh City. Among other goods, the logistics centre stores and transships seafood. At 98m long, 97m wide and 12m high, this warehouse is one of the three largest in Vietnam.

The contracted refrigeration plant constructor RECOM Co. Ltd., who also took on maintenance of the cold storage facility following its completion, contacted Guntner to find a good solution for the stipulated requirements for the facility, particularly the evaporators.

The most important points were these:

- Maximum utilization of the storage space
- Good temperature distribution in the warehouse
- Reliability and operational safety
- Energy-optimised equipment
- As easy and straightforward as possible to service and maintain

The penthouse concept was chosen as a good way of fulfilling these requirements. This approach sites the aircoolers in an insulated penthouse on the roof of the warehouse, outside the actual storage areas. The cold air is blown into the warehouse via short ducts. Placing the evaporators in the penthouse makes it possible to use the storage space to the full, and there is no danger of the conveyor systems damaging them or the installed pipework. The coolers are also accessible at all times for servicing and maintenance without disrupting the logistics operations.



The penthouses are located on the roof of the insulated cold storage facility, underneath the protective pitched roof.

In view of the facility's tropical location it was decided to use a house-in-house construction: The outer building is constructed with a

Saigon Premier Container Terminal (SPCT)

Since the beginning of 2010 there has been a new container port in Ho Chi Minh City, the Saigon Premier Container Terminal (SPCT). Up to 1.5 million TEUs per year can be dealt with on an area of 23 hectares. (The abbreviation TEU stands for Twenty-foot Equivalent Unit, which is an internationally standardised unit for counting containers and the handling capacity of container terminals.)

pitched roof to screen it from solar radiation and provide runoff for tropical rainstorms. The insulated cold storage is located inside this. Between the ceiling of the cold storage and the pitched roof are the penthouses containing the aircoolers. For this project the weight of the penthouses is borne by wire cables attached to the roof supports.

The positioning of the evaporators and the penthouses depends on the dimensions and arrangement of the cold stores. In this case the penthouses are arranged off-centre and the cold air is emitted by ducts on either side. This provides for an even temperature distribution.



The evaporators are provided with service hatches for easy access to the fans



The ducts provide for the necessary air distribution

Technical Data

Storage details

- L x W x H = 98 m x 97 m x 12 m
- Storage capacity: 20,000 pallets
- Goods stored: Seafood, meat, poultry and other foodstuffs
- 5 low temperature storage areas (-25°C)
- 1 cool room (+10°C)
- 2 picking rooms
- 22 container loading docks

Refrigeration plant

- Refrigerating capacity: 1841 kW
- Refrigerant NH₃
- Operating mode: Pumped operation

Compressors

- 5 Mycom rotary screw compressors for operation at full load
- 1 Mycom rotary screw compressor for better regulation of partial load operation

Condenser

- 4 BAC evaporative condensers CXV 338

Evaporators

- 12x S-GANP 080.2J/212
- 12x S-GANP 080.2H/212
- 8x S-GANP 080.2I/212
- 4x S-AGHN 080.2F/27
- Defrosting: Hot gas
- Designed as penthouse cooler, 90° downblow; service hatches in the air connection ducts



Dipl.-Ing. Hong Quang Nguyen manages Güntner's office in Ho Chi Minh City and is responsible for the Vietnam sales area. Quang is a member of the Güntner **Global Expert Team**, GET, a network of experts from all the sales areas of the Güntner Organisation who regularly exchange technical information and experience. This network of experts enables Güntner to achieve a uniform high level of technical competence in all the world's markets and advise its customers with truly international expertise.