

Saving CO₂ emissions at energy efficient archive

Lille Archives du Nord, France



For over 200 years the Lille Archives du Nord have been internationally recognized for their cartographic and photographic records. Their collection of heritage documents plays a key role in the remembrance of these important historical documents.

Munters' air treatment maintains archives

Thanks to the Munters' air treatment system, excellent record preservation conditions are created and energy is saved. The system meets the commitment made by the archive to reduce CO₂ emissions, energy use and running costs. The cooling effect is achieved by using Munters' indirect evaporative cooling system. The Munters' systems are located in the basement.

Energy savings

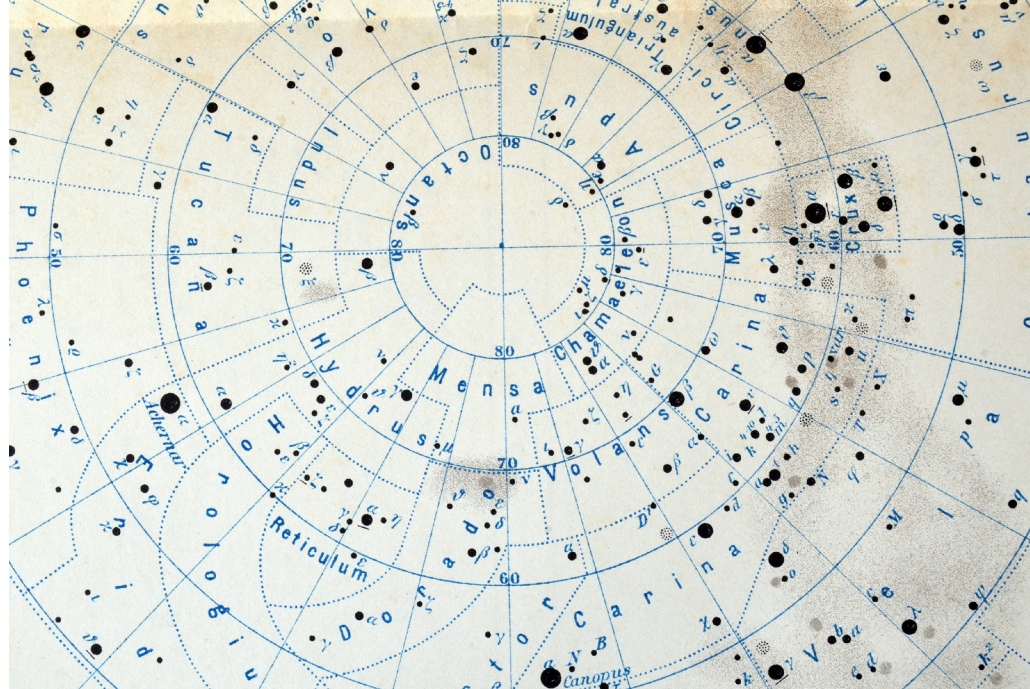
The Munters' cooling system process absorbs building heat by evaporating water. Heat from the photovoltaic panels is used to regenerate the air treatment system and dehumidify supply air. Electrical energy is saved since conventional chillers will only be required on the very hottest of summer days. The greatest heat demand in the archive will be during peak summer months, when the systems cool via desiccant dehumidification and evaporative cooling. This will capitalize on the waste heat from the photovoltaic panels, which would otherwise be surplus, since there is a low demand for heating in the archive.

Case study

- Saving CO₂ emissions at Lille Archives du Nord

Advantages:

- Environmentally-friendly cooling
- High-quality air and single system to operate
- Use of surplus heat as an energy source
- Running costs 30% lower than conventional solutions
- Complete unit supply and fast and easy installation



Desiccant cooling solution

Munters' air treatment systems can be powered at 55-60C and use nature's own method for humidifying and cooling air in the form of desiccant cooling - a solution more effective since it converts surplus heat.

Waste heat is converted into cooled and dehumidified air, which is then distributed into the archive building. Munters' evaporative cooling system uses this principle to convert surplus heat at the Archive Du Nord in one unit, which contains neither compressor, cooling surfaces nor condensers.

Best year-round climate

In winter the system provides an extra bonus as its heat recovery unit provides a 60% reduction in electricity consumption when compared with compressor cooling, and 90% heat recovery efficiency in the winter.

The Munters' air treatment system produces the best year-round indoor climate year for archives because it doesn't mix fresh air and exhaust air. 100% fresh air from the Munters' system is always used. Munters' air treatment systems dehumidify air, then cool the air in a thermal wheel (rotating heat exchanger) and air is further cooled with the evaporative cooler.



Energy savings saves money

The Munters' system uses waste heat from the photovoltaic panels (300 m²) as the primary energy source for the cooling process – not electricity. The desiccant sector contains a rotating desiccant wheel and reactivation coil.

The indirect evaporative cooling component cools the exhaust air from the archive so that one can indirectly, via the rotating heat exchanger, cool the warm, dry air generated after drying.

The evaporative cooler in the intake air lowers the temperature of the cool, dry air from the rotating heat exchanger before it is fed into the Archives du Nord building. At an average of 0.15 Euro per Kwh, the Archives du Nord will save an average 60 000 Kwhr of energy per year, which equals roughly 9 000 Euros a year.

A European first

This Archives du Nord building with its dry climate and latest-generation air treatment system is the first in Europe monitored by computer to study the points of heat loss while creating ideal conditions for retaining these valuable historic records in this iconic building.

Munters' has over 300,000 air treatment systems installed worldwide. For more information why not look on www.munters.com/archives

Would you like to find out if Munters has a solution for your company too? If so, please visit our website, www.munters.com

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