

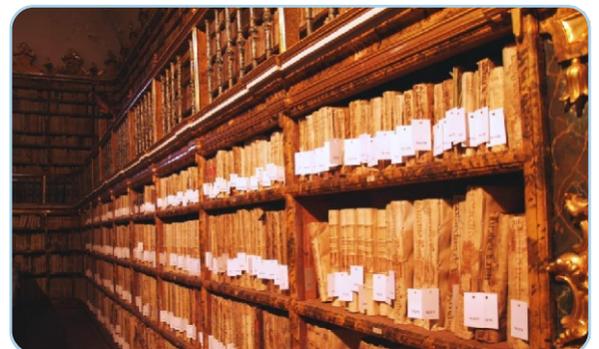


Humidity control in museums and libraries

The air-conditioning systems in old buildings are not always able to maintain the air conditions required for the conservation of certain materials.

What sort?

- Old books, dried animals and animal parts, dried plants, textile materials, paper, paint on canvas and parchments, photographs, films, wooden objects.
- Valuable materials susceptible to corrosion: Historical tools and machinery.

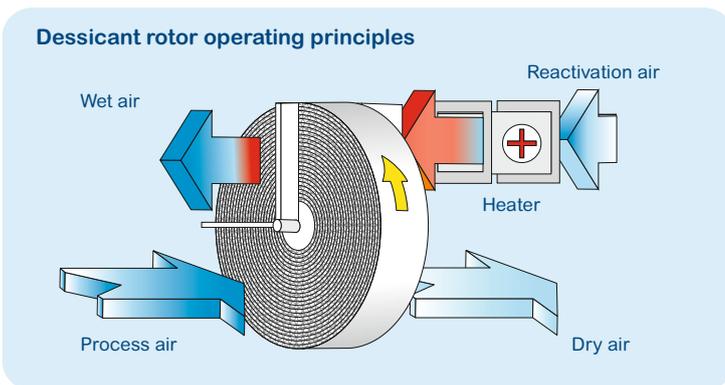




Air humidity control equipment - humidifiers and dehumidifiers- must be installed to dry and moist the fresh air flow from the mechanical ventilation systems and from infiltration as well.

This in turn provides the following **advantages** :

- It enables the control of Relative Humidity regardless of the exterior climatic conditions.
- The improvement can be made without having to detain the current installation.
- The treated air flow is not equivalent to the total for the Air Handling UnitA.
- It is only necessary to treat the exterior air supply (between 5% and 10% of the total volume). The air humidity control equipment will therefore be smaller and cheaper.
- A basic sensor modulates the unit. Energy is saved because it is not consumed when the fresh air conditions do not require operation.



Benefits:

- Elimination of mould, which can appear and cause damage to certain organic materials such as books, canvas and dried fauna and flora.
- Prevention of the reappearance of salts on the surface of dried animals (reducing the effects of their disinfection), as well as on the surface of old pieces of metal, to stop bronze disease for example.
- If the visitor area is treated, controlling humidity adds to the comfort levels of visits. Low humidity in winter can cause excessive cold.
- Prevention of unpleasant odours from mould.
- Low Relative Humidity reduces the presence of insects and avoids damage caused by condensation in buildings.



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Storage conditions:

*Table of recommended conditions for the storage of different materials. Source Royal: Decree Law 486/1997

Examination Rooms	Temperature 17°-27°C Humidity 45-65% Natural ventilation			
Standard Documentation Deposits	Temperature 15°-21°C Humidity 45-65%			
Offices and Work Areas	Temperatura 17°-27°C Humidity 45-65% Natural ventilation			
Deposits for Special Supports Environmental	Temperature 10°-18°C Humidity 40-50%			
Conditions for Other Support Types	Ambient Temperature (°C)	Oscilation	Relative Humidity (%)	Oscilation
Paper	From 16 to 20 (optimum 18)	+/-1	From 30 to 50	+/-5
Parchment	From 2 to 18	1°h	From 50 to 60	3%h
Vinyl	Less than 21		50	
B/W Photos	From 16 to 20 (optimum 18)	+/-2	From 30 to 35	
Colour Photos	From 2 to 4		From 30 to 45	
B/W Film	From 16 to 20 (optimum 18)	+/-2	From 30 to 40	
Colour Film	From 2 to 4	+/-2	From 25 to 35	
Magnetic Support: data, audio, video	From 17 to 20		From 20 to 30	
Optics	From 16 to 20		From 35 to 45	
Microfilms	From 18 to 20	+/-2	From 30 to 40	
Secure Microfilms	10		From 30 to 40	
Nitrates	10		From 30 to 40	



One of the world's finest pieces of architecture is the La Alhambra Palace in Granada, Spain. Its construction is a magnificent example of Andalusian Moorish art perfectly adapted to its natural setting. FISAIR's DFRB series desiccant rotor air dehumidifiers have been installed in the palace in order to reap the benefits described above.