

In a changing world, archives buildings are also changing...

Abstract

In a changing world, archives buildings are also changing. Certainly in terms of construction, changes can be long as years pass between the writing of an architectural program and the inauguration of a building. The architectural changes are visible to everyone in the construction of archives buildings, as in other types of buildings.

In the field of archives, France has a long tradition of buildings built specifically for their conservation. However, the buildings of the last century have often become off-specification or saturated and many buildings were built since the new millennium. Preservation of records requested conditions of temperature and specific humidity. High standards have evolved, however, these conditions remain very important in a building largely dedicated to the conservation of documents on paper. Also the need to design buildings saving energy is now an obligation regardless of the type of building. Preventive conservation and sustainable development are fully compatible.

A very brief overview of the architecture of archive buildings in France will serve as an introduction. Various constructions and recent or current projects under construction will be presented as they provide examples of architectural solutions and innovative techniques for sustainable architecture. The rehabilitation of existing buildings is an option often used - especially for the municipal archives. It also permit to save energy. In this case, the buildings change and its destination too.

The current recommendations about the climate stores are reminded : temperature, humidity and air treatment.

Finally, sustainable development is not the only cause of change for the design of archive buildings: new uses appear.. The influence of the various new technologies on the design of archives buildings will also be presented.

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presented as they provide examples of architectural solutions and innovative techniques for sustainable architecture.

The current recommendations about the climate in the storage area will be quoted : temperature, humidity and air treatment.

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Without giving a lesson on the history of the buildings of archives in France, we shall say simply that France has a relatively long tradition of construction or rehabilitation for its archives. One of the most remarkable of them is certainly the Hotel of Soubise in Paris that the Emperor Napoleon Bonaparte personally allocated to the national Archives in 1808 (photo). This building has been the object of numerous extensions since then.



In the French departments, some buildings were specifically built for archives at the end of the 19th century. They often looked like big libraries and it is not without a certain nostalgia that we look at their photos.



Formers archives building in two French departments : La Marne et le Puy-de-Dôme

Some buildings of the beginning of 20th century are still in service as in the departement of the Lot-et-Garonne. (Photos).



Archives départementales du Lot-et-Garonne (photos Ph. Henwood)

But whatever is the charm of those buildings, they are not any more for the standards specially concerning the safety against the fire. The areas of storage are saturated and the control of climatic conditions is practically non-existent.

In the long tradition of archives building in France, the tours of archives of the 1970s distinguish themselves from the architectural landscape. Tower or not tower... the construction of these buildings in which the premises of preservation represent approximately 60 to 70 % of the surface is always an architectural challenge.

One of the changes of these last years is that Archives became full cultural facilities with their meeting room and their exhibition room. And this is thanks to the efforts of opening to the public of the Archives' Directors and not only towards the young audience.

For Archives, we distinguish essentially two types of projects : the rehabilitation of an existing building which was not originally dedicated to archives or the construction of a new building. The case of extension and restructuring of existing building of archives is also rather frequent.

The rehabilitation of existing buildings is an option often used - especially for the municipal archives. This option allows for saving energy in several ways : first of all we save the energy intended for the demolition then for the use of new materials which fits into a context of sustainable development. They usually have a very good thermal inertia because the walls are very thick. Additionally those premises are generally readily available, so we save time and money by using them. More the ancient buildings are mostly situated in town or in inner suburbs thus the expenses connected to the transport of the public or the staff is lesser. Moreover converting historic buildings into archives allows us to benefit from their architectural qualities.

Let us now look at three projects of municipal archives - witnesses or rather actors of change : Brive-la-Gaillarde, Tarbes, Selestat.



First example in Brive-la-Gaillarde in the south of France with the conversion of a convent. The use of this historical monument of the 17th century - was not really easy because of the multiplicity of the levels and the size relatively limited of the inner spaces but the result is of the most successful.



In Tarbes, the conversion of this former 19 C military warehouse century in the South of France was doubtless simpler because of its simple geometry. This building is half occupied by archives and half by the reserves of the museum of the hussars, the soldiers of Emperor Napoleon.



With the use of the European currency - the euro-, numerous agencies of the Bank of France were closed. One of these, in Selestat a small city in Alsace, successfully became a municipal archives. The reception hall of the bank is now a space for exhibitions and the storage area is situated in the basement.

The other rehabilitated sites are highly varied too : we can quote among the recent projects two tobacco factories, two water tanks, one sorting office, one factory of umbrellas, some printing offices and two pharmaceutical warehouses. But it is essential that premises to be rehabilitated present a certain architectural or patrimonial quality. For the preservation of definitive archives, we must not realise low cost projects in places of poor quality presenting too many inconveniences.

In the buildings of small dimensions, it is maybe easier to respect the recommendations of the Archives of France especially regarding the separation of the public and the documents. That is why this choice of rehabilitation is more often made for municipal archives rather than for departmental archives.

In these rehabilitated premises, the sharing of places with other services is often a retained option, certainly mostly for municipal but also for departmental archives. The cohabitation with libraries is very frequent but it is not at all the only solution: the grouping with cultural services is current. Small museums or reserves of museum, conservatoire, inventory of historic monuments or services of archaeology are often associated with the archives. We can sometimes meet a more original association with a department of sports which is really a novelty.

One of the other changes of these last years is the interest of the architects - and even the most famous for this type of construction. For example, for a recent competition, no less than 120 architects presented their application and 5 were retained to present a project.

Construction of new buildings

The following projects - recent or under construction - are presented as they provide examples of architectural solutions and innovative techniques for sustainable architecture.



Les Archives Départementales du Nord à Lille.

The Archives of the North are the biggest center of archives after the National Archives in Pierrefitte-sur-Seine. This new construction, at the end of works, concerns essentially the storage areas and a few spaces of work but not the public spaces. (Architects : De Alzua & Zig-Zag. Cost: 33 million euro).

Under construction at present in Lille, this first building of archives with positive energy in France will have a capacity of 80 kml. The temperature and the hygrometry are of course in accordance with the new recommendations of the Archives of France.

It will have an energy consumption about eight times lower than that of a building of the same type. (13 kWh/m² in a year). Conceived as an isothermal bottle it is also equipped with solar panels on a vegetable roof and will produce more energy than it consumes, thanks to the renewable energies. The facade will be covered with a net suspended in stainless steel the drawing of which makes reference to parchments and to papyrus. This highly isolated facade is not only ornamental because it insures the protection of sunbeams. However it does not make everything : it is completed by a power plant of desiccation which is a kind of lung which warms, cools, dries out or moistens the air which passes in transit there but is low energy-consuming. In June the building will undergo diverse tests, the moving of archives is planned for September 2012 for a duration of 5 months.



Les Archives des Pyrénées Atlantiques à Bayonne in the south of France. Architects : Cabinet Séquence. Inaugurated in 2010, it has a storage capacity of 11 kml. Two thirds of its surface of 3000 m² are spaces of preservation (2000 m²). The reading room for its part has a surface area of 400 m². This building is particularly interesting in its conception because the very compact storage areas, are situated in the centre of the building. The architectural impact of this compact block is however minimised by its central situation and by the general design according to the slope of the ground. The stony cover of the facade strengthens this notion of long-lasting protection.

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Les Archives de Seine-Maritime à Rouen.

This building conceived originally as a library recently became one of the three sites of archiving of the Seine-Maritime department in Rouen. It was designed by a very famous French architect : Rudy Ricciotti. This distribution on three sites is certainly not the most functional but it is counterbalanced by the architectural quality of this cultural equipment.



Les Archives de l'Hérault.

The building of the archives of the Hérault in Montpellier was not designed in the same spirit as the Archives of the North but it is another very striking example. Its architect is Zaha Hadid, the Iraqi English star architect winner in 2004 of the Pritzker Prize which is more or less the Nobel prize of Architecture. Its capacity of conservation is 60 kml. 80 000 tons of concrete, glass and steel were used for this building 195 meters in length, 46 meters wide and 24 meters high.

The central media library of the Department, the service of sports, an auditorium and common exhibition rooms share places with the archives. Inaugurated in September 2012, its diagonals and its overhangs will not leave its diverse users indifferent.



Les Archives de Saint-Martin – a small island in the French Antilles.

Designed by the architects : Magma architecture et Véronique Bigeau from Guadeloupe.

Last but not least, this building of smaller dimension is interesting because it is situated in a different climate to continental France and implements several devices adapted to the tropical climate. It is air-conditioned but in an approach of high environmental quality. Impressive solar horizontal protections in overhang of the roof allow almost total avoidance of the direct solar contributions. Glazed “ventelles” (mobile small strips) allows, if necessary,

the entrance and the traffic of trade winds to all the spaces. The building is also equipped with a solar power plant and with photovoltaic panels. Furthermore some details are to be noted: glazing containing a solar protection, a big height sub-ceiling in the storage area, fixed shelves and not mobiles one, some double walls. A media library, an auditorium and archives are gathered in this building.

After this rather general presentation, there are some points to be seen in particular.: the climate of the storage area and recent changes in the internal arrangements.

The climate of the storage area

What are the current recommendations about the climate of the storage area currently in France for temperature, humidity and air treatment ?

Our former recommendations about environmental climate were: *Temperature : 18 ° C + or - 2° - relative humidity : 55 % + or - 5 %*. So a full air conditioning system was often considered the only answer. But this kind of system is expensive to install and maintain and energy-intensive to run. We now recommend a level of flexibility to avoid expensive system of air conditioning and elaborate maintenance. We accept slow variations in temperature, within certain acceptable limits:

- temperature must be kept between 16°C and 22/23° C.
- relative humidity between 45 % and 55 %.

It is very important to:

- avoid large temperature deviation and thermal shocks.
- correlate temperature and hygrometry.
- control climatic conditions on a ROOM by ROOM basis .

Our recommendations are now :

- the air intake is reduced to 0.10 volume/hour. Before, it was 0.25 volume/hour
- the air circulation : 3 volumes/hours.

These recommendations can be compared with the ones for the new National French Archives Building in Pierrefitte-sur-Seine which deserves a separated presentation.

With regard to the climatic treatment, the question most often asked is “is it necessary or not to air-condition the storage area? Although France is a small country, the climate of the North of France is very different from the climate of the South. In the North, a few buildings were designed without a system of air conditioning which is not the case in the South. However the options of air conditioning are very different from choices made in the last century. An architect was able to speak for a recent project about " sentinel air conditioning” . Which means that the processing plants of air-conditioning do not work permanently but only when the acceptable limits are exceeded. One of the big modifications of these last years is the multiplication of installations for the treatment of the air: we no longer treat the building in general but practically compartments by compartments. We indeed understood that the various parts of the same building react differently according to their position and their orientation.

Global conception and internal arrangements.

We can note some changes not only in the global conception of the building but also in the internal arrangements.

The large-dimension reading rooms seem less useful even if they did not totally disappear. For example the Departmental archives of the Rhône in Lyon, under construction now, will have a size of 600 m² being able to welcome 150 readers. Fortunately even though

consultation of the on-line documents can be done from the readers homes it has not meant that readers no longer use the archive buildings.

The arrangement of reading rooms is very classic:

- A part very close to the bank of reception or delivery of documents for the consultation of large sized documents. (Only the most consulted plans which were digitized). We usually consider that only 3 % of the documents of a center of archives are digitized.

- An other space which can be easily watched for the consultation of the original documents.

- A space further away for the consultation of documents digitized on the computers of the service.

We should not plan places too small so that the reader can put his personal computer, possibly the one of the service and the documents on his table.

The presence of a workshop of digitalization does not imply strong architectural constraints. It is however necessary to plan a space for the documents waiting to be digitized. The workshop of digitalization must be also protected against the theft because it contains expensive and sometimes small-sized equipment which can thus attract thieves.

A workshop of dust removal, to remove the dust from documents before their arrangement in the repositories is also planned in the program which is a new fact. This workshop is different from the room of quarantine room storing the suspect documents which may contaminate the already stored documents.

Finally, even if there are several examples of them, the repositories underground were not highly recommended until now by the Archives of France. But it could be the moment now to revise our position on this subject in this context of sustainable architecture because we could then take more advantage of the thermal inertia of the ground. All the technical means as the drainage, peripheral galleries or pumps must then be implemented to protect the preservation spaces.

On the subject of sustainable architecture you can see from this presentation many various and interesting techniques but first and foremost, it remains true that sustainable architecture is the one that we want to keep. Furthermore a long-lasting architecture is also an architecture which knows how to adapt itself to the changes. We hope that the buildings we are building now for our archives, will be able to adapt themselves to the changes in the future. If we wish to preserve archives for the future generations, it is certainly necessary to pay for it, there is a very strong relationship between the preservation of archives and the buildings which house them.

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