



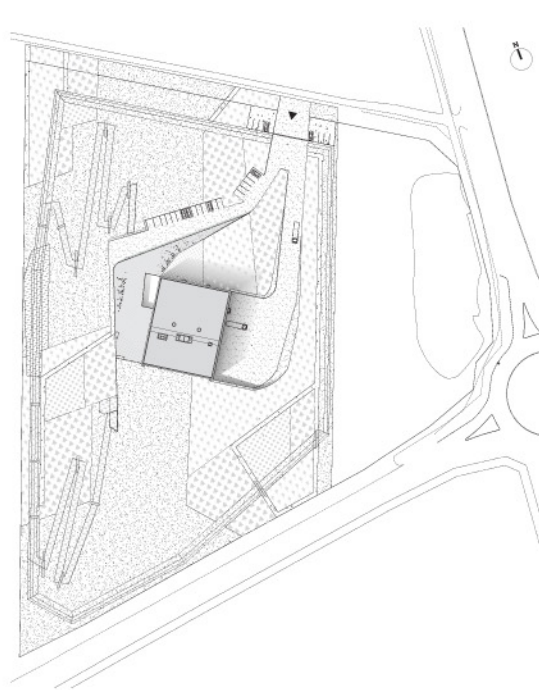
Aerial view of the site



The continuity with the territory



The terrace giving onto the offices



Site plan

TECHNICAL INFORMATIONS:

PROJECT: National Archives Centre
CLIENT: EDF
LOCATION: Bure-Saudron, France
COST: € 10.1 M excl. VAT
SITE AREA: 5.30 hectares
BUILT UP AREA: 6,800 m²
COMPETITION: 2008
COMPLETION: 2011
TEAM: LAN Architecture (lead architect), Frank Bouré (HEQ consultant), Batiserf
Ingénierie (structure), Michel Fogue (surveyor), Base (landscape architects), LBE (utilities)
PHOTOGRAPHERS: Julien Lanoë, Iwan Baan, LAN

A strategic project providing a social and environmental positive impact on the region.
This building fully integrates into the landscape as well as it meets environmental quality standards, a fundamental aspect for EDF's building strategy.

This building, symbol of the long term and visible presence of EDF in the Meuse and Haute Marne region, hosts the company's industrial records. Within the framework of the Meuse and Haute Marne economic support programme, EDF has decided to centralise all its intermediary Engineering Production Management archives in Bure-Saudron. Until now, these paper copy archives had been stored in nuclear, hydraulic and thermal production units, as well as in engineering units and associated services.

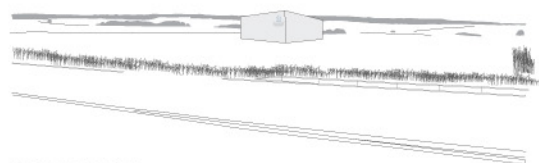
The new centre allows the documents' organisation and it also ameliorates the storage and the utilisation processes. These archives, on paper-based and microfilm-based formats, will occupy about 70 km of shelves. The building has also a laboratory for micro-films, specifically designed for this purpose.

The concept

We realised a five level, 19 m high building within a plot of 3.30 hectares comprehensive of an archives area covering approximately 1,400 m² and a total surface of approximately 7,000 m².

This approach results in:

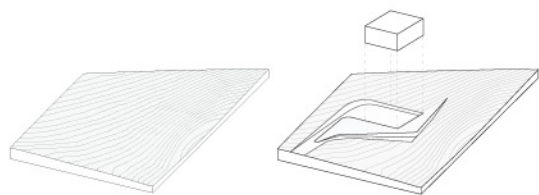
- considerable saving in terms of the building's envelope
- improved functionality translated by a reduced number of kilometres covered per year,
- a marginal impact on the landscape (with view points at a considerable distance from the building),
- the possibility of a maximum use of the excavated land around the building's footprint to control water recuperation and treatment on the site,
- an energetically and environmentally extremely high performance building,
- the creation of a symbol representative of the approach taken by the Meuse and Haute Marne economic support programme.



The impact on the landscape

Implantation into the site

Like a tectonic plate, the ground lifts up showing the entrance and its square. A large opening in the eastern facade allows the appearance of the unloading dock.
To increase the topographic continuity, we used the natural slope of the site to partly embed the office space.
This enabled us to plant the roof with trees and plants, to create ideal orientations and open up the interior to the surrounding landscape.



The implantation into the territory

The landscape

Tree-planted surfaces give some advantages: from an ecological point of view the trees protect the building against climatic issues.
From an aesthetical point of view - and within an idea of landscape integration - they complete the building by inserting a pattern recurring from the landscape: the "merlons", narrow strips of land planted with hardwoods.

The project of the landscape foresees the framing of the views from the offices by planting vegetable masses. Some framings already exist from the highway in the project's direction. A game of sequences is set in combination with the architectural plan in order to vary the visuals and to put an accent on the building's continuity with its landscape.



The "ha-ha system" and the lagoon system

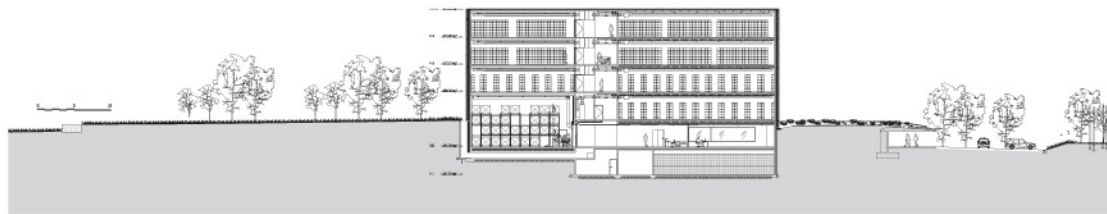
Continuity with the territory

An important aspect of integrating the project into the landscape was dissolving the plot's boundaries. So we hid the perimeter fence in a "ha-ha", a ditch that also helps drain the site. This choice strengthens the site's integration while limiting the visual impact of the barriers which are placed inside ditches that are 1.5mt deep.
We used the more sloped part of the plot for wastewater treatment.

In order to preserve the building's autonomy, a system of lagoons ensure the treatment of the water that can then be reinserted and reused to save the environment's resources.



Sections AA



Sections BB



Sections CC

LAN

EDF Archives Centre

Bure-Saudron, France



The archives' storage area



Ground floor plan with service distribution:

OFFICES & STAFF PREMISES

- 01. Entrance Hall
- 02. Multipurpose Hall
- 03. Offices
- 04. Patio

TECHNICAL PREMISES

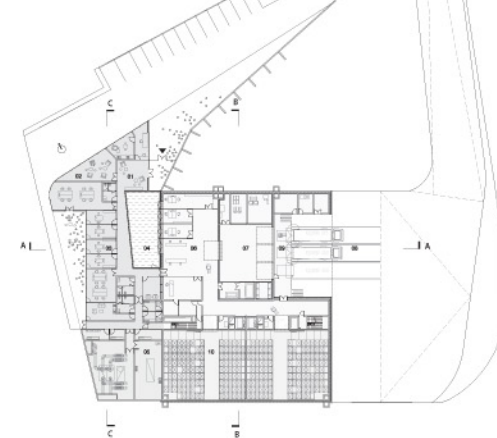
- 05. Technical premises

LOGISTIC AND TREATMENT AREA

- 06. Sorting area
- 07. Transit area
- 08. Delivery area
- 09. Unloading platform

ARCHIVES STORAGE

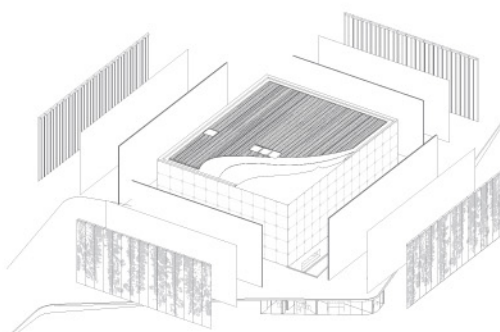
- 10. Archives storage



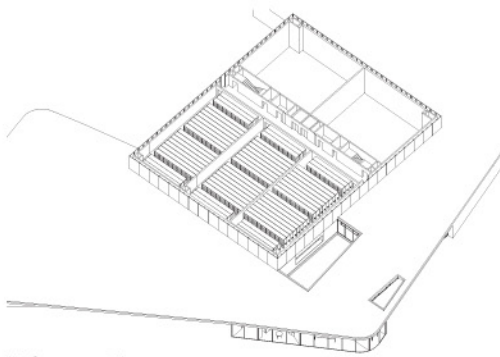
AWARDS

The building, even before its realization, has been recognised for its energetical qualities, which allowed it to be awarded with the following prizes:

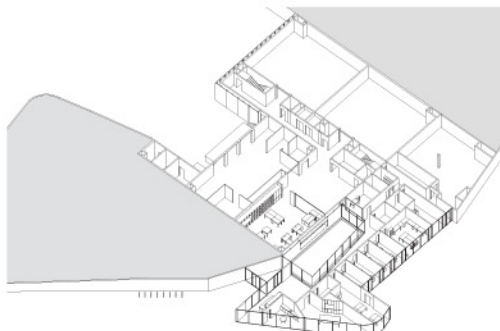
- LEAF AWARDS 2011, Best Sustainable Development in Keeping with its Environment
- SAE SELECTION '10, 2nd prize
- ARCHI BAU AWARDS 2009, 1st prize - Green building
- INTERNATIONAL ARCHITECTURE AWARDS 2009, The Chicago Athenaeum & Museum of Architecture and Design
- INTERARCH 2009, Special prize of the architects' society of Sofia



To maintain a constant temperature the building is constructed as a "cellar"



First floor axonometric view



Ground floor axonometric view

The images below shows the prefabricated panel's construction process



Casting the concrete



Rotation of the panels from horizontal to vertical position

The typology

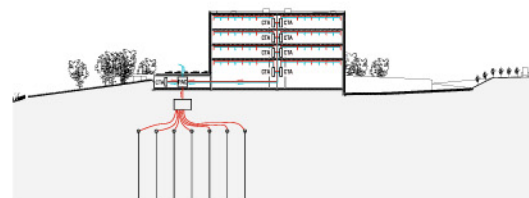
An archives storage building needs to have a considerable inertia with a minimal exchange with its external setting. The need for fast and simple site management and optimum storage efficiency led us to develop a simple and rational layout.

The building is divided into 2 programmes: archives and offices.

The archives' part is composed by 20 storerooms of 200 m² each; with regulated temperature and hygrometry. The blocks can resist fire for 2 hours and they are equipped with a sprinkling system.

The offices' part is N/W oriented, embedded in a natural slope planted with trees and plants.

The offices have an ideal view on the surrounding landscape.



Geothermal heat pump system

Energy

Heat production is principally based on renewable energies and a heat pump.

The choice made for the ventilation was to use a double flow ventilation system with heat recuperation. This limits energy consumption resulting from heating and ensures the good sanitary quality of the air.

Low voltage luminaries will result in considerable savings in terms of internal loads.

Storage areas will be equipped with presence detectors.

The high performance of the envelope combined with economic ventilation and lighting systems reduces energy requirements.

The use of renewable energies and a heat pump will result in a high level of energy autonomy. The total power consumed by the building represents 29 kWh/m².

The building's envelope

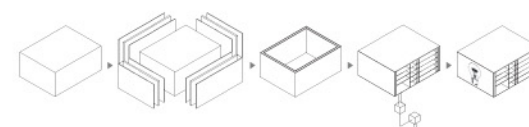
The main technical challenge was the facade.

To give the impression of a lightweight building in movement, we proposed incorporating stainless steel studs into the earth-coloured concrete cladding. This solution had the effect of blurring the building's limits and reflecting the surrounding colours and changing seasons.

The envelope has a very high performance resulting from the materials employed and the technology used for attaching the concrete facing (reduced thermal bridges).

The combination of two layers of concrete (structure + facing) and insulation (30 cm) ensures that the building has a high level of inertia favouring comfort during the summer and reduces cooling requirements.

The facade's building process was the subject of a patent.



The envelope's constitution

The facade

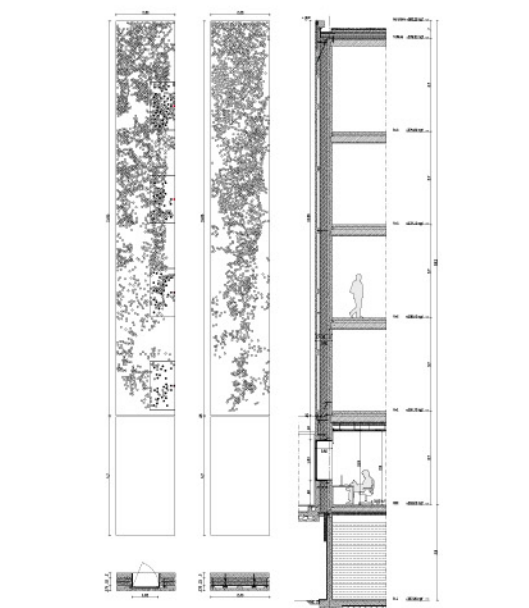
"This invention allows the construction of facades including reflecting units with the aim of giving the building a changing appearance determined partially by the environment partially by the weather around the building (...)".
Extract from the EDF facades' patent

The elevations will incorporate a total of 120,000 stainless steel studs.

Those studs (7 cm diameter and 1 mm thick) will be incorporated into the formwork during the casting of the integrally coloured prefabricated concrete elevation panels.

The panels will be 15.65 m high and either 2.26 m or 2.33 m wide depending on whether they are on the long or short side of the building.

The 8 cm thick panels will be reinforced with concrete ribbing (+ 7 cm). The complex will be suspended from reinforced concrete walls and held in position using distancing jacks. The elevations will have a total thickness of 68 cm.



Facade's construction detail



The panels on the inner patio



Embedding the stainless steel studs



Transport of the panels to the construction site



Cleaning and removal of the studs' protective film



Storage



The hanging of the panels to the facade