



CASE STUDY

# AZAPRIM, France



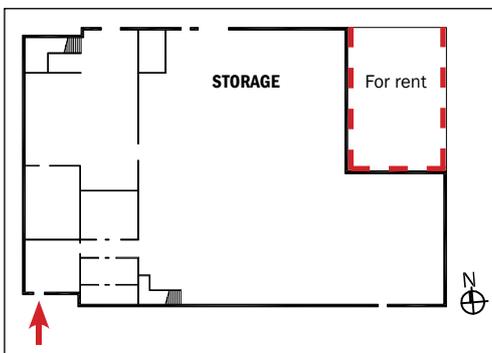
The company is located 20 km to the east of Paris. It provides a broad range of high quality commercial and communication products with print management services including a creative studio, offset and digital production, and delivery. Azaprim was created from combining several companies and the strategy to install them on the same site was to allow operational efficiencies, encourage staff cohesion and provide a common identity.

The company decided to build a new construction after rejecting some existing buildings as unsatisfactory. The site selected was a new industrial zone being developed by the nearby regional government as showcase for architectural and environmental quality. The site situated next to a park provided good freeway access.

The CEO has been active in the printing industry for 28 years and wanted to create a “place of life” rather than a simple work place – somewhere that would promote cohesion between different workers coming together for the first time. He was an early adopter of environmental practices and the new building reflects the economic, environmental and social aspects seen as fundamental to long term investment and flexibility. The new building meets 12 of the 14 HQE criteria, but is not registered for this label.

The project obliged a complete re-think of strategy, organisation and integration. It provided the opportunity to change most production equipment and allowed a reduction from 3 presses to 2 yet increasing output by 30% – this also allowed uninterrupted production during construction.

Rather than a two-stage project, the company decided to build the entire constructible surface immediately and leased the additional space to a strategic digital printer partner. A strong point of the project is its global approach that even considers its eventual deconstruction, as well as its construction and operation. Energy performance was optimised by using high performance insulation for the walls and roof.



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## THE COMPANY (WWW.AZAPRIM.FR)

<b>Printing processes used at the site</b>	2 Heidelberg Sheetfed offset presses.
<b>Tonnage of substrate processed</b>	450 tonnes paper/year.
<b>Products</b>	Commercial and promotional
<b>Number of staff</b>	18
<b>Annual turnover</b>	2,8 M€
<b>Environmental certifications</b>	Imprim'Vert, ISO 14001, CoC PEFC & FSC, Safety and Health in Workplace
<b>Other certifications (ISO9001, ISO12647...)</b>	Imprim'Luxe



## THE SITE

<b>Location</b>	France, Ile-de-France (Region of Paris).
<b>Climatic zone</b>	Temperate
<b>Installation zone</b>	New industrial zone
<b>Existing risks (seismic, flooding) or specific environmental constraints</b>	None
<b>Year of construction</b>	New construction - 2009
<b>Total surface of the site</b>	3 000 m <sup>2</sup>
<b>Total surface of the building</b>	1700 m <sup>2</sup> (includes 200 m <sup>2</sup> mezzanine offices, 500 m <sup>2</sup> rented to a separate digital printing company)
<b>Structure</b>	A concrete slab supports a laminated timber structural frame (PEFC certified). Walls are insulated double-skin and the insulated steel roof is coated with bitumen. The building was acquired via a lease-purchase with the financier requiring the building to offer modular flexibility for multiple purposes. The mezzanine office was left completely open plan – internal walls may be added later to add value to the studio area and more discretion for sales activities.
<b>Flooring</b>	The slab is finished with a concrete quartz surface. The entire concrete slab is specified to be capable of supporting presses – the supplier's specification was slightly reduced by the general contractor.

# THE PARTICIPANTS IN THE PROJET

## CEO of the site

William PEREIRA - The President



### What do you identify as the key success factors of the project?

- Correct preparation is the primary condition for a successful project. We created several working groups with our collaborators to define our needs. I also defined some demanding and non-negotiable elements like the capacity for the building to evolve and the environmental approach for the project. Equally, important was to view the future building as a heritage over the long term.
- The second success key was the choice of participants. Because of limited availability, I realised that I needed a good general contractor capable of taking responsibility for the entire project organisation. I therefore took the time to select the right person and then visited some sites managed by the selected contractor.
- Finally, it seems important to be motivated to complete such a project and to find an intellectual interest from it.

### What would you change if you started again?

- The newly developed industrial zone suffered from delayed connected to the electricity grid. Therefore be particularly attentive to electricity and communication networks.
- We under estimated the problem of dust.
- Office air conditioning and heating installation is being reviewed along with duct positions that are sources of discomfort from draughts. I regret the installation of a false ceiling over the mezzanine offices rather than leaving as an open plan loft style.

## The general contractor

IPE, Gilles Blanchard



### What do you identify as the key success factors of the project?

- The first key of success is the involvement of the client and the general contractor. This is essential to elaborate the project, ask the right questions, and challenge some points. The working and operational considerations of the printer need to be integrated as early as possible, particularly the production equipment.
- The second key is to have a long-term global vision of the project. Obviously we integrated the building's operating costs, but we went much further by considering the costs of deconstruction and the materials selected (rockwool insulation, wood, steel and concrete) can all be re-valued. The management of the end of the building's life in case of obsolescence does not have a negative influence on financial negotiations with a possible future owner.

### How do you perceive the performance from the new building?

Function	Poor	Moderate	Good	Excellent
Better temperature humidity & dust conditions				X
More stable production & storage conditions				X
Improved productivity			X	
Reduced energy consumption & costs of building		X		
Better and lower cost lighting day/night				X
Reduced water consumption			X	
Improved waste management		X		
Reduced contamination liability and risk		X		
Reduced noise disturbance		X		
Healthier & stimulating place to work			X	
Image to customers				X
Flexible & future-proofed assets				X
lower lifetime operating costs of building			X	
Overall sustainable environmental profile				X

## PROJECT CONCEPTION/ SUSTAINABLE CONSTRUCTION

<b>Origin of construction/reorganisation</b>	The company wanted to move from its previously rented old building with low ceilings, that was badly insulated and not very functional. In addition, Azaprim was created from the grouping of several companies and installing them on the same site would allow the cohesion of all of the staff. Heritage considerations guided the choice of renting or purchase. After visiting several existing buildings we were left unsatisfied from both financial and quality aspects. As a result we decided to build a new construction. The move also led us to replace most of our production equipment.
<b>Motivation for an ecological construction</b>	The initial motivation came from the management to develop the company on the 3 criteria of sustainable development (environmental, economic and social). In addition, an eco-construction seemed appropriate both from the functional and long term heritage points of view. The new industrial zone managed by the local government community imposed strict environmental construction conditions – as a result, the zone is now an environmental showplace. The project also answered the president’s ambition to open up the enterprise to the exterior. By improving the quality of its site, the company has improved its general image and without hesitation hosts open days, political receptions and visits from customers and school groups.
<b>Project organisation</b>	A general contractor managed the entire project and delivered it “key in hand” to the company. Because the building was acquired as a lease-purchase, the financier had the right to review the project The company decided to build the entire constructible surface immediately and to rent out the non-used space, rather than make a future extension.
<b>Planning</b>	The need to move was identified in 2005. In 2007, after visiting several existing sites the president decided to build a new construction. The general contractor was appointed in 2008 and work was launched that September, and in July 2009 the company moved into its new site.
<b>Cost of works (excluding investment in production)</b>	Total investment was 1,4 M € of which the land cost 0,2 M €. The investment in new equipment (CTP, presses, guillotines . . .) was 1,5 M €.
<b>Durable construction cost</b>	Estimated at about 15% over a conventional building.
<b>Direct and indirect impact on the production</b>	The President wanted to create a “place of life” rather than a simple work place – a place that would promote cohesion between different workers coming together for the first time . . . this is difficult to quantify. It is also difficult to compare old and new sites because all of the production equipment was renewed. Nevertheless, production at the new site is 30% higher than the old site.
<b>Principal sustainable characteristics – pillars for HQE®</b>	<ul style="list-style-type: none"> <li>• The use of a laminated timber structure.</li> <li>• Over-dimensioned insulation of the roof and walls.</li> <li>• Recovery of rainwater for sanitary use.</li> <li>• Natural lighting in the production areas and offices (roof lights and bay windows).</li> <li>• Solar hot water heating for sanitary use.</li> </ul>
<b>Public or private financial aid</b>	A reduced interest rate from the local government estimated to be worth 80 000 €.

## WATER



### Supply

Rainwater is collected from a rooftop network that feeds a 5000 litre tank that is used to supply sanitary water.

### Reduction actions

An offset plate system was selected that requires no development and eliminates rinsing water use and disposal. Dampening water is filtered with a Technotrans BetaF system to reduce frequency of changing water and related consumption and disposal.

## ENERGY



### Consumption

Annual electricity consumption 207 000 kW/h, gas 130 000 kW/h. Total energy costs are 1% of turnover.

- Production equipment drives and water cooling systems for presses.
- Press cooling circuit (inking and dampening system requires temperature control to 1 °C).
- Gas space heating of workshop, plus air conditioning of offices and CTP room.

### Estimation of need

Installed electric power was estimated from historical consumption that was then substantially increased. This figure was largely confirmed after start up and only slightly reduced.

### Reduction actions

The primary reduction source comes from the over-dimensioned insulation used in walls and roof that has significantly reduced gas heating and electric air conditioning energy.

The second source is using a glycol-based water cooling system for the presses (previous system air-based).

Another source of energy reduction is solar heated sanitary water

### Monitoring

Currently only annual.

## LIGHTING



### Types of lighting

Preference for natural lighting combined with views to the outside was one of the important criteria for the design and construction of the building with over-dimensioned windows. The offices and workshop are lit by wall windows and roof lights.

Artificial lighting uses classic fluorescent tubes with electronic ballast.

### Reduction actions

Lights in occasionally used areas are controlled by presence detectors.

## CIRCULATION



### Organisation

The building has no loading ramp. An electric lift truck is used to load and unload vehicles. A pallet drag truck is used to move loads internally.

### Optimisation actions

The designed site workflow plan has optimised materials handling.



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### Ventilation & heating control

In the workshop the air from the acrylic coating dryer is exhausted to the exterior. In winter the workshop is heated by gas space heaters located in the corners. The offices have reverse cycle air condition/heating systems.

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### Indoor air quality control

The original project included heat recovery from the acrylic coating dryer, however, this was abandoned because of the absence of a filter and exchanger that would ensure the quality of internal air. A homogenous vertical temperature is ensured in the winter from de-stratification devices suspended from the ceiling of the workshop. No humidification systems are used.

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### Humidification

The company do not use a humidifying system in the offset press room.

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### Noise reduction actions in the work areas

No specific action taken. It was noted that the very high ceilings, and minimum level of noisy equipment did not justify any specific actions.

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## FIRE SAFETY

## DANGEROUS MATERIALS / WASTE



### Sorting of waste at the site

The company applies regulation sorting of dangerous and ordinary waste.

### Equipment to minimise accidental pollution (retention)

All dangerous liquids and waste are stored with retention devices.

### Waste collection conditions

Three actions were initiated to reduce waste generation:

- Use of 2 kg ink cartridges instead of 1 kg cans.
- Dampening filtration system reduced quantity of waste water.
- Using developer-free plates avoids disposal of used developer.

### Fire protection/ Definition of needs

Requirements were defined in partnership with the insurance company at the conception of the building.

### Fire protection equipment

The company only has mandated extinguishers and an automatic smoke extraction system.

## LANDSCAPE/ BIODIVERSITY



### Landscape integration

Integrated landscaping was a key requirement of the industrial zone. For example, a border of mature trees that masked the western façade had to be maintained.

### Green spaces

The building is surrounded by green spaces except for the parking zones. The industrial zone management also required that all species planted were chosen to meet local climatic conditions, for example oak trees