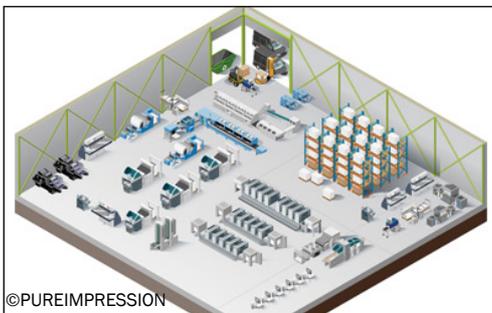




CASE STUDY

# PURE IMPRESSION, France



Created in 1979, the family company is installed at Muguio close to Montpellier in the south of France.

The offset and digital printer has a staff of 57 and is specialised in professional publishing, advertising and corporate communication.

The company became an early adopter of environmental protection and its first official environmental recognition was in 2003. Since then they have obtained the Imprm'Vert label, chain of control for FSC and PEFC, ISO14001 certification and they measure their carbon footprint with Bilan Carbone®.

The change of the company's name to Pure Impression in 2007 was a definitive engagement in the protection of the environment. This approach was reinforced by parallel quality actions – certified ISO9001 quality management in 1997, followed by the colour standard ISO12647-2 in 2012. Today the company has increased its field of action by a significant investment in Corporate Social Responsibility using the norm ISO26000.

The eco-construction project for their new building was realised in 2009 and represents the culmination of the environmental, social and growth strategy of Pure Impression – between 2009 and 2013 the company's turnover increased by 34%.

The construction project was defined by the constraints identified during the introduction of its environmental management system. It responds to the production needs (more space and better work flow) and the improvement of working conditions. People and the environment were placed at the centre of the project. Other strong points are the protection of biodiversity, reduction in energy consumption and the comfort of working in production zones.

## THE COMPANY (WWW.PURE-IMPRESSION.FR)

<b>Printing processes used at the site</b>	2 KBA Sheetfed offset HP, 2 Digital presses
<b>Tonnage of substrate processed</b>	3000 tonnes/year
<b>Products</b>	Professional publishing, advertising and corporate communication.
<b>Number of staff</b>	57
<b>Annual turnover</b>	11,5 M€
<b>Environmental certifications</b>	ISO14001, Imprim Vert, CoC PEFC & FSC, Bilan Carbone© 2008
<b>Other certifications (ISO9001, ISO12647...)</b>	ISO1264 to PSO, ISO9001, Imprim' Luxe



## THE SITE

<b>Location</b>	Montpellier, South-West France (Languedoc Rousillon)
<b>Climatic zone</b>	Mediterranean
<b>Installation zone</b>	New greenfield industrial zone
<b>Existing risks (seismic, flooding) or specific environmental constraints</b>	Zone regularly exposed to torrential rainfall required stormwater retention basin. Proximity to Montpellier airport restricted building height.
<b>Year of construction</b>	2008
<b>Total surface of the site</b>	30 000 m <sup>2</sup>
<b>Total surface of the building</b>	5 000m <sup>2</sup> (1 level)
<b>Structure</b>	Concrete pad supporting a steel structure covered with double-skin walls. The roof is covered with a bitumen coated steel box structure. The building height was determined by heritage value for a possible future sale and local height limitations.
<b>Flooring</b>	The pad is finished in polished concrete. Mechanical resistance is 3t/m <sup>2</sup> that was found to be insufficient to change presses. Press suppliers do not use the same methods to calculate foundation specifications, and machines of the same weight may not have the same recommended specifications.

# THE PARTICIPANTS IN THE PROJ

**CEO of the site**

Marise DEMATTÉ - Managing Director



©PUREIMPRESSION

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

- Our company possessed a real environmental maturity long before this project began. Our primary driver for this eco-construction project was to culminate the environmental commitment that we began many years ago.
- An essential key to success is to have a long term vision of at least 10 years. Thirdly, we obtained ISO140001 certification before implementation of the project and used its methodology to support our approach on the identified environmental constraints to construct the project.

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

- We would pay much more attention to the “annexe” needs of our collaborators. For example, we over specified the number of showers – that are under-used because most staff live close by – to the detriment of changing rooms that are too small.

Before over dimensioning certain elements (like installed electrical power, or the foundation specifications) we would now make precise calculations to define the financial interest of over dimensioning now v. future modification.

While using a single general contractor to manage the project was comfortable, today we would prefer to take management control of the project with the support of a good architect, engineering and quality control consultancies.

### 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>	<p>The origin of the construction project was the need for larger premises. The close by previous building had only 3000 m<sup>2</sup> compared to the new surface area of 5000 m<sup>2</sup>, an expansion project will add another 5000 m<sup>2</sup> in 2015. The project was also motivated by wanting to improve working conditions like reduced ambient noise levels and better luminosity in the production areas.</p>
<b>Motivation for an ecological construction</b>	<p>Environmental issues have been completely integrated into our strategy for many years. Our initial recognition was in 2003. This led to the change of the company name to reinforce this engagement in 2007. This eco construction project is the continuing logic of our commercial strategy. Since 2008, the local regional government financially supports this type of investment.</p>
<b>Project organisation</b>	<p>We used a general contractor who was responsible for conception and construction.</p>
<b>Planning</b>	<p>Site selection took about 9 months, with another 9 months for construction.</p>
<b>Cost of works</b>	<p>Total cost (excluding investment in production) was 3,7M€, of which 1,2€ was for the ground.</p>
<b>Durable construction cost</b>	<p>Estimated at 7% more than a conventional building.</p>
<b>Direct and indirect impact on the production</b>	<p>Productivity gains of around 15% come from improved working conditions, better organisation of the production areas, removal of space constraints. The replacement of machines (at the time of moving) led to a productivity improvement of about 30%. Bringing together the previously separate press and finishing areas has facilitated communication and improved production.</p>
<b>Principal sustainable characteristics – pillars for HQE®</b>	<p>Strong points are the integration of landscaping and biodiversity protection, the reduction in energy use, and improved working comfort. In the Mediterranean zone air conditioning is far more important than heating. Another point is the installation of photovoltaic panels on the roof.</p>
<b>Public or private financial aid</b>	<p>The company received direct aide of 70 000 €. In addition, the photovoltaic panels use a lease contract that has a zero cost.</p>

## WATER



### Water system

The company has 3 waste liquid systems. The sanitary system connects to the community waste water. Industrial water system collects waste liquid (used dampening solution, plate development and rinsing) in a double skin plastic storage tank – from which they are pumped into a collection vehicle for treatment as dangerous waste.

Rainwater from the roof and from internal roadways is collected in a stormwater collection sump before evacuation into the communal rainwater evacuation system.

## ENERGY



### Consumption

Annual electricity consumption is 2100 MW/h. The total energy cost is about 1,3 % of turnover. A heat exchanger heat and air conditions the entire building, including production areas. In 2012, the 2500 m<sup>2</sup> of rooftop photovoltaic panels produced around 5% of the company's electrical needs. The leasing system used generates a financial saving of about 3000 € a year.

### Estimation of need

The level for installed power was defined by the company's historical experience combined with its expected evolution. This indicated about 50% more power at the time of construction. However, this has proved to be inadequate and a new more powerful transformer was installed a few years after construction.

### Reduction actions

Additional insulation was specified at the design stage to reduce heating needs. In addition, a heat recovery system was installed near the compactor to reintroduce air into the workshop after filtration. Even if this system has not given complete technical satisfaction, it is justified by the automated air extraction of about 4000 m<sup>3</sup>/h of trim waste from the guillotines. The recent model offset presses use a liquid cooling system (water and glycol) the pipes of which are equipped with fittings to allow connection to a future heat exchanger to recover energy.

A centralised compressor system has been installed in an enclosed area outside of the building. PIAB vacuum pumps installed on the folders and finishing equipment are both economic and quieter.

### Monitoring

Detailed monthly analysis of all energy consumption.

## LIGHTING



### Types of lighting



Multiple windows and skylights provide natural light throughout the production zones. Artificial lighting uses neon tubes and ballast.

### Reduction actions

The use of daylight, and following procedures of ISO14001 have contributed to reducing artificial lighting consumption. The illuminated external company sign is switched off at 23:00.

## CIRCULATION



### Organisation



Internal logistics use an elevator truck and 9 pallet drag trucks. Goods are received at a loading dock. Elevator platforms are used for small delivery vehicles.

### Optimisation actions

The entire production flow was reviewed at the design of the new building. However, to improve the flow, the direction of the new presses was reversed to that initially decided.



### Ventilation & heating control

Three systems co-exist. An evacuation system to the outside removes emissions from UV acrylic varnish dryers. A network of textile ducting distributes fresh or heated air from the heat exchanger. In winter, the textile ducting re-injects recovered heat from the waste extraction system after filtration. The water and glycol cooled electrical cabinets remove this heat source in the workshop.

### Indoor air quality control

To minimise chemical emission at the source the company rigorously selects chemical products (cleaning solvents, dampening additives) and has significantly reduced ISP alcohol use. In addition, extraction systems regularly renew the internal air. The forced air ventilation system ensures that all air in the workshop is changed every 3 hours.

### Humidity

Humidification system is used in the storage zone.

### Noise reduction actions in the work areas

1. Installation of sonic insulation in all walls at time of construction.
2. Centralised air compression system installed outside the building in a separate area.
3. Use of PIAB vacuum pumps on folding and stitching lines.

## 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

A dedicated network evacuates waste liquids to a plastic storage container with a double skin. These liquids are then pumped into a collection vehicle for treatment as dangerous waste. To minimise waste, offset ink is contained in 300 kg cubitainers.

#### Fire precautions

Defined in collaboration with the insurance company. Only equipment are regulation extinguishers.

## LANDSCAPE/ BIODIVERSITY



#### Landscape integration



Height restrictions due to the nearby airport led to the building having different roof levels that given an interesting aesthetic effect. While the company wanted to keep the industrial character of the building (commercial consideration that clients realise that printing is an industrial activity) particular attention was given to landscape integration.

#### Green spaces

The building occupies 5000 m<sup>2</sup> of the 30 000 m<sup>2</sup> site, leaving an important building reserve. Currently 17 000 m<sup>2</sup> is leased to a farmer to grow wheat. A large portion of the site is covered with local plants adapted to the Mediterranean climate. These include grape vines (harvested by collaborators), along with numerous lavender shrubs, laurel and olive trees. A project to plant fruit trees is under review. In addition, 30 beehives are installed on the site.