# Exploring Industrial Heritage through the design process -the case with the last Masonite factory.

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## Abstract

Due to globalisation Industrial heritages, local manufacturing cultures and traditional material are about to disappear. In order to preserve more than just a shell of our industrial heritage we suggest a designer role with close relation to production, and a material that visualise and communicate these environments. This paper investigates the potential of materials and manufacturing processes and suggests that this could be embraced in the design process to inspire designers and enhance the expression and experience of the end product.

As a design case we describe the experimental design work with a Masonite hardboard factory in Rundvik in the north of Sweden that went on for eight years and resulted in both material innovation, new furniture, exhibitions and catalogues. The paper is submitted together with a piece of experimental furniture, a cabinet made out of hardboard with pressed flowers, pictures from the factory, sawdust and other items from the process of the manufacturing of the material.

KEYWORDS: material thinking, craft, narrative, history, industrial heritage, practice based research

## Introduction

The beautiful brick building with its majestic chimneys was still being used. Steaming wood pulp filled the space with its particular odour and the loud noise of the machines was persistent. The first time we visited the Masonite factory we were completely taken aback by the environment and the manufacturing process of the material. This experience marked the beginning of a series of design projects in which the vicinity to the production was fundamental and an essential part in creating the story of the final product. This paper attempts to reflect on how the design process expresses narratives embedded in the material and the production process. It also shows how the design process where inspired by the material itself and the site of the factory. Further, the paper suggests that the narrative potential of a material and a manufacturing process is something that could be embraced in the design and be used as a source for inspiration and that this material narrative will enhance the expression and experience of the end product.

The forest based industries have historically played a large role in the Swedish economy. This research is concerned with the Masonite board, which is a pressed wood fiber material, made from left over saw dust from the saw mill industry. The collaboration with the board factory started with a design competition in 2004, in connection to the 75th anniversary of the factory. The design studio Folkform were given an honourable mention and were invited to the factory to by the head of the laboratory to try out the idea in reality. The initial experiment led to a collaboration that stretched over eight years and that resulted both in material innovation, furniture and objects as well as exhibitions, catalogues and design awards.

In this paper we tell the story about this work and draw some conclusions on how the design process can be used as a tool to communicate knowledge from old industrial heritages and local manufacturing cultures on the verge of extinction. We start by describing our research approach and then we continue with an introduction to the Masonite material itself, its history and production process.

## Research approach

The research project evolved from observations and reflections on our own practice working as industrial designers at Folkform. The research project contributes to the field of practice based research where designers/artists use their own work as an outset for reflection and knowledge production. Practice-based research is an original investigation undertaken in order to gain new knowledge partly by means of practice and the outcomes of that practice. Research through design was originally proposed by Frayling (1993) and is based on the idea that the design process itself is a tool to generate new knowledge, in our case this was done by giving form to a new material, prototypes, furniture and reflecting about them.

In the paper we also investigate a narrative approach to design research, lending our thinking towards a wider interpretation of what a narrative is or could be. A narrative is mostly communicated through text, but could be open to other mediums such as a particular material and real life experiences that have narrative qualities (Abbott 2008). According to Patricia Leavy (2009) a narrative enquiry is building on the tradition of ethnography, or oral history. The narrative methods attempts to collaboratively access the participant life experiences and engage in a process of storytelling. Following that we use travelogue writing and the exhibition catalogue as a tool to create new knowledge about our experience.

The data collection approach is inspired by the hermeneutic case study that emphasize on the researcher as a participant with an observer role, building on tacit knowledge (intuitive, subjective, experimental, empathetic) and focuses on the narrative and the qualitative interactions in the project. Besides the artefacts that the project resulted in, the use of pictures has been an important part of the project for the research and data commentary.
This practice based research also contributes to the field of designer/researchers working in the border of craft and mass production, for example Otto von Buschs work with the shoe factory Dale Sko hack (von Busch 2008) and Thomas Thwaites work with the Toaster Project (Thwaites 2009).

## The Masonite Material

The Masonite process originated from America and was invented by W.H Mason in the early 20st century and received a lot of attention at this time because it was a by-product from the forest industry, the saw dust which were considered worthless were converted into commodities of great economic value. The masonite process was a revolutionary process since instead of reducing the wood structure by chemical means or by grinding, the chips were exploded under a steam pressure of 1000 pounds per square inch, thus preserving the fiber structure without loss through chemical action (Boehm, 1930). There are few materials with as much inherent meanings as this hardboard. Masonite is closely linked to functionalism and during the Stockholm Exposition in 1930 it was used as a construction material in several of the model houses that were built for the exposition (Fröberg, 2004).


**Figure 1: The Masonite pavilion at the Stockholm exhibition 1930**

The areas of use for the material seemed limitless during this period, the wooden hardboard was used to everything from building temporary pavilions and kiosks to more permanent buildings such as garages and a surface material in interiors especially in kitchens. The material was even used as transportation equipment such as a surface material inside caravans and coaches. In Sweden masonite was used as insulation panels during the winter and small cabins where the family could spend their holiday during summer. The Masonite hardboard was part of the construction of the Swedish Welfare State and became a symbol of the period's belief in the future. Since the hardboards were used all over Sweden at this time, and by a large part of the population, you can still find traces of them today. Many people have a well-established personal relationship to this material and would recognise the surface anywhere. It was definitely a challenge to breathe new life into a material with such an extensive history.

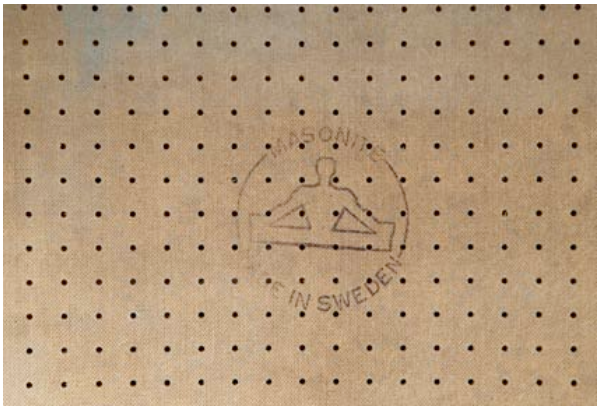


**Figure 2: Masonite Hard Board**

## The factory

The first time we visited the factory in Rundvik was an early winter morning in 2005. The head of laboratory Jan Persson collected us from the airport. After what seemed an eternity in his blue Volvo on a country road lined with dark forest on each side, we drew closer to the factory. We were completely taken aback - it felt as if time had stood still since it was built in 1929. The beautiful brick building with its majestic chimneys was still being used and we were given a tour of the factory. Steaming wood pulp filled the space with its particular odour and the loud noise of the machines was persistent – almost frightening. The heat was overwhelming. Jan Persson showed us the large steaming press that would compress the Masonite material. He showed us the machine hall, where hundreds of gears and engine parts lay spread across the floor. We said a quick hello to the factory employees, who were sat in a circle having their coffee break.

**Figure 3: The Masonite factory in Rundvik with woodchip pulp**

When the factory was still operational it was surrounded by ten metre high mountains of woodchips from the surrounding sawmills; this waste constituted the material that the boards were made of. This cheap, local raw material from the great forests of Norrland was the fundamental element in the manufacturing of Masonite hardboard. Items made from wood have long been one of Sweden's most important products. Masonite was a cheap surface material designed to utilize the woodchips produced by the sawmills. The woodchips were mixed with water and compressed under enormous pressure. Thus the resulting board material is both environmentally friendly and renewable.

The first visit to the factory made a deep impact on us. We realised that this was a unique opportunity and that we were about to work with a material that was just as much a living story of the 20th century. This project would be an experiment in design process just as much as in material innovation. In order to document this journey we decided to bring a photographer on all our visits to the site. The images have been an important tool for us to remember and understand the work, for research documentation and as to communicate the project.

## Design case

The design work with the hardboard material at the factory in Rundvik started of by a design competition in 2004 while we were still students at Konstfack College of Art in Stockholm. Our proposal for the competition was a concept where the surface of the material was changed by blending in new organic material such as flowers into the wood pulp. Our aim with the concept was to challenge the actual composition of the material and change the surface to give this humble material a completely new expression. By changing the surface we attempted to make the everyday, often hidden, surface material, more visible - to give these boards new life and meaning. During the 1930's when the material was invented there were different boards patterns and reliefs but no one of them were still in production. The idea to add flowers to the woodchip pulp to create natural ornaments on the surface was something completely new. The material itself had not changed for a very long time although numerous new products had been developed.

A sketch of the Masonite hardboard with plants pressed into the surface was made in photoshop, and submitted to the competition. The proposal received an award and we were invited to visit the factory and try out the idea in reality. Our initial experiments were conducted at night, whilst the product line was not running. Jan Persson, head of the laboratory, first tried out all of the tests with rose petals in secret from the management, and it turned out that our idea worked. However, the colour of the rose disappeared and resulted in something that looked like wilted leaves.

**Figure 3: Our initial experiments took place at night when the factory was closed.**

Once the wooden boards were pressed, a series of "quick fossils" were formed. The flowers became embedded into the surface of the composite boards. The experiments resulted in a collection of mass-produced one-offs that gave the hard board a completely new expression. When the boards had been displayed at the architectural museum and published, we were commissioned by a number of architectural firms to create interior designs using the Masonite, for example, for the Fjällnäs Chapel and the head office of Diligentia in Stockholm. We received so many requests that we had to stop buying flowers in Stockholm and instead initiate collaboration with various herb gardens in Västerbotten, who would deliver sacks full of herbs directly to the factory so that we could make our hardboards on a larger scale. When the first sack of thyme arrived early one spring morning, the staff at the factory entrance thought that the delivery had ended up in the wrong place and ardently argued, "This is a Masonite factory, not a restaurant".

**Figure 4: The huge Masonite press were the chips exploded under a steam pressure of 1000 pounds per square inch.**

We began designing our own furniture using the floral hardboards and after having exhibited them at the Milan Furniture Fair, we started getting orders from all over the world. It is absurd to think that the last order of flower Masonite we received prior to the closing of the factory was from the Queen of Jordan, who ordered boards with pressed-in olive leaves. These boards turned out to be the last we ever made.

**Figure 5: Real flowers were pressed into the material and became embedded into the hardboard**

## Masonite furnitures

In the Masonite furniture series we continued to investigate how perception of the simple mass-produced material such as hard board could be altered by design. We designed unique cabinets

with pressed in flowers and butterflies. Many people had a personal experiences and memories connected to the material, because of this the Masonite cabinets became conversational pieces and a symbol for a collectively shared material heritage.

Visitors to the exhibitions wanted to donate their old herbariums to our design work and we decided to make a series of furniture were we invited herbarium collectors to take part in the design process. Each piece is a one off, made from a donated herbarium or insect from the collector´s collection. The boards were hand made in the factory with pressed in flowers and butterflies. The pieces became gallery objects and exhibited in design biennales around the world, in 2014 two cabinets were even sold at the Stockholm auction house.

In the Unique Standard series from 2008 flowers were not pressed into the boards but instead we were using different kinds of standard boards in the same cabinet, trying to find new expression by combining the material in new ways. A series of 10 cabinets were made, one of them sold to the National Museum in Oslo.

In 2011 we designed the Masonite memorial collection where each cabinet is made from recovered Masonite from 1929 in combination original Masonite boards from the 1930's and 1950's and the last boards that were made at the factory in April 2011. Each cabinet became a collage of Masonite from different time periods as a memorial monument to the last of the Masonite factories.

**Figure 6: From left Forest Cupboard, Masonite hardboard, Torbjörn Peterson´s collection of natural forest plants, birch wood. W460 H1200 D280 mm**

**Sea Cupboard, Alfred Sandström´s collection of real plants from the Baltic sea, Masonite hardboard, birch wood. W460 H1200 D280**

**Meadow Cupboard, Masonite Hardboard 32 real butterflies from Adam Stechs collection, birch wood. W 460 H 1200 D 280**

## Exhibitions and catalogues

The Masonite furniture series were presented in exhibitions and design festivals, this type of venue became crucial to communicate our work. An important part of the design process was also to make the disappearing environments visible to a larger public and to capture the actions still taking place in the factories before it was too late. The exhibitions and the visual material played an important role to communicate the story of the manufacturing of the Flower Masonite Board but also to reach out to the general public, design galleries, buyers and media.

Redström (2011) and his colleagues argues that the design exhibition with objects such as prototypes and photographs is as important as writing books and articles for the design researcher. The gallery is a point where research meets design and art. The exhibitions with our Masonite cabinets often took place in interior shops because this was a space were we easily could reach out. According to Redström exhibitions in showrooms and shops links to a tradition where designers connect their work to the commercial roots of design with references to furniture shops. Exhibiting in places like shops and showrooms also positions critical design work in everyday life (Redstöm, 2011)
The catalogues for the Masonite exhibitions were inspired by catalogues for art-galleries and museums. They contained, pictures from the manufacturing process, short stories describing the work at the factory and were a way to communicate our personal experience of being inside the factory. In one exhibition in London a man came back to the exhibition a few days later, after he red the text and bought one a cabinet, just because he was so taken aback by the story of the Masonite board.


**Figure 8: Exhibition at Svenskt Tenn furniture shop in Stockholm in 2011**

## Discussion

In the work with the Masonite factory we were exploring Masonite through experiments and furniture as well as different narratives related to the material. The material is in itself filled with stories about modernism and 20th century history. The design with flowers melted into the surface somehow helped to visualise the beauty of this humble material that had so much history tied to it. For us as designers the industrial heritage and production in itself became a great source of inspiration and experimental joy, as well as all the human encounters at the Masonite factory. Ever since we scattered the first flowers we have kept returning to Rundvik. We wanted to show the people, the craftsmanship and the industrial processes in the spotlight. The Masonite factory tells a story of a globalised world in which the domestic manufacturing industry of Sweden has a hard time competing with the cheap products from low-waged countries. The factory also symbolize a different story, namely the one about how energy-consuming manufacturing processes and crafts are disappearing in Sweden. They will never make a profit, as the energy costs are too high. In their wake, a complex environmental debate follows. In a society of mass-consumption that breeds a system built on long-distance transports and production in low-waged countries.
In the Masonite project we have realised the importance of communicating our personal embodied experience of being inside the machinery of the factory and to visualise the manufacturing process. Pictures are used as visual rhetoric to illustrate the processes and the people and places behind the design pieces. They were important factors in creating new value to the humble Masonite material and ways to highlight the old industrial processes and craft techniques. The beauty of the craftsmanship and a more open production appeals to us in a period of ethical consumption and leads to an emotional connection with the artefact (Chapman 2005). This new momentum of consumption begins in the buyers mind.

The collaboration with the Masonite hardboard factory was important since it marked the beginning of a series of design projects in which the vicinity to the production was a fundamental and essential part in the story of the final product. The visits to the hardboard factory also became a stop on a voyage into the history of a dying Swedish industry. By focusing on the places, the craftsmanship and the industrial manufacturing processes behind the products, we wanted to shed light on new opportunities but also have an impact on this manufacturing industry on the brink of extinction. In the design case with the Masonite material the catalogue text and the travelogue writing was a useful tool creating new knowledge about the experience of being inside the factory.

To sum up this discussion we see a potential for design to create objects that visualises the production process and material. This point towards a new designer role inspired by craft - a designer working close to production to highlight old manufacturing techniques and make the industrial heritage visible.

### Acknowledgements

Chandra Ahlsell Industrial designer Folkform, Sara Ilstedt professor product and service design KTH, Jan Person former head of the laboratory at Masonite AB, Jonas Fröberg journalist and writer, Magnus Laupa Photographer.

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