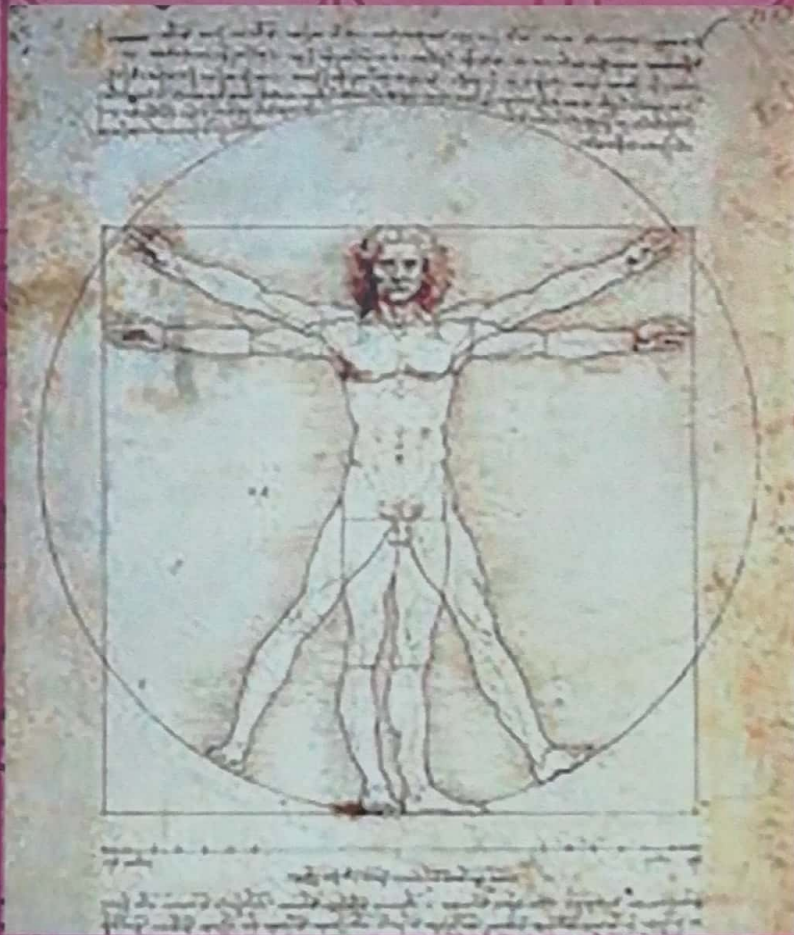


# Intelligence, Creativity and Fantasy

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Chief-Editors:  
Mário S. Ming Kong  
Maria do Rosário Monteiro

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**CRC Press**

Taylor & Francis Group

Boca Raton London New York Leiden

CRC Press is an imprint of the  
Taylor & Francis Group, an **informa** business

A BALKEMA BOOK

*CRC Press/Balkema is an imprint of the Taylor & Francis Group, an informa business*

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Typeset by MPS Limited, Chennai, India

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*Library of Congress Cataloging-in-Publication Data*

Applied for

Published by: CRC Press/Balkema  
Schipholweg 107C, 2316 XC Leiden, The Netherlands  
e-mail: Pub.NL@taylorandfrancis.com  
www.crcpress.com – www.taylorandfrancis.com

ISBN: 978-0-367-27719-2 (Hbk)

ISBN: 978-0-429-29775-5 (eBook)

DOI: <https://doi.org/10.1201/9780429297755>

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# From fantasy to reality: Adaptive reuse for flour mills in Venice

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**ABSTRACT:** When designers are faced with interventions in abandoned industrial buildings, their imagination leads them, among other things, to spaces that, like a palimpsest, accumulate the stratigraphy of their history. This fantasy gives rise to different design solutions that will inevitably differ from one person to another, leading interventions in our industrial, architectural heritage to become increasingly varied and complex. Reuse has been a constant in Venetian architecture. Churches, convents and religious buildings were turned into factories in the 19th and early 20th centuries, as was the case with the Stucky or the Passuello e Provera mills, symbols of the local flour industry. These mills, in addition to filling the space of old convents after these were shut down, filled the imagination of the designers and owners who tried to bring these buildings back to life. Finally, and after a period of neglect, they now have new uses.

In this paper, and using the mills mentioned above as case studies, we intend to reflect on the life cycle of the two industrial buildings, and analyse the interventions aimed at their reuse, focusing on how the imagination of the designers gave rise to different solutions.

**Keywords:** Industrial Architecture, Industrial Heritage Adaptive reuse, Flour mills, Venice.

## 1 INTRODUCTION. FROM FANTASY TO REALITY, THE ART OF DESIGN

Fantasy: “means the same as imagination” (Covarrubias, 1611: 397). According to the dictionary of the Spanish language, “Imagination” is the “Ease to create new ideas, new projects, etc.”<sup>1</sup>

When architects or engineers have to design a new project, they face the challenge of translating the ideas they have imagined in their heads for these new spaces into their plans, or later on, into the building.

This task becomes even more difficult when it comes to renovating or retrofitting a building regarded as industrial heritage because the assumptions that will condition the development of the work are an important input for imagination.

When designers are faced with interventions in abandoned industrial buildings, their imagination leads them, among other things, to spaces that, like a palimpsest, accumulate the stratigraphy of their history. This fantasy gives rise to different design solutions that will inevitably differ from one person to another, leading interventions in our industrial,

architectural heritage to become increasingly varied and complex.

Se c'è una città dove il problema del “che fare” di questo importante patrimonio non esiste – e questa è l'altra singolarità che mi preme segnalare – ebbene questa è proprio Venezia. (Mancuso, 1980, p. 37)

Reuse has been a constant in Venetian architecture. Churches, convents and religious buildings were turned into factories in the 19th and early 20th centuries (Mancuso, 2009, p. 67). These are spaces with significant value as heritage, not only from an architectural, social, historical, technological or economic point of view but also in terms of the role they play in the urban landscape.

Nella città l'arte per eccellenza anche il luoghi e gli impianti della produzione dovessero mimetizzarsi tra l'edilizia monumentale e quella tipica veneziana. (Randolfi, 1979, p. 15)

The industrial flour mills built at the dawn of the 19th century are characterised, among other things, by their large scale. They are usually imposing and very tall buildings that, despite this, in some cases, can blend into the urban landscape; the Stucky or the Passuello mills, symbols of the Venetian flour industry, are only two examples of that.

1. Royal Spanish Academy. Dictionary of the Spanish Language. Available at <https://dle.rae.es/?id=L08fZlc>

These mills, in addition to filling the space of old convents after these were shut down, filled the imagination of the designers and owners who tried to bring these buildings back to life. Finally, and after a period of neglect, they now have new uses.

In this paper, and using the mills mentioned above as case studies, we intend to reflect on the life cycle of the two industrial buildings, and analyse the interventions aimed at their reuse, focusing on how the imagination of the designers gave rise to different solutions.

## 2 THE ARCHITECTURAL HERITAGE OF THE FLOUR MILLING INDUSTRY IN VENICE: FROM USE TO REUSE

The Italian food industry was only modernised from the first decades of the 19th century onwards. There were several reasons for that, among which the lack of energy resources; the strong presence of self-consumption; the absence of a specialised workforce; internal and external political problems, or the financial limitations of the domestic market. (Giuseppetti, 1995, p. 12) These circumstances meant that there was no development of the large modern food industry, based on extensive mechanisation, vast economies of scale and standardised production (Chiapparino, 2009, p. 32) until the second half of the 19th century.

From the 1870s onwards, there was an expansion of markets that contributed to an improvement in communications, especially by rail, and modernisation of the machinery used in different industries. The opening of the Suez Canal in 1870 also benefited commercial traffic in cities such as Venice. (Giuseppetti, 1995, p. 13)

Even so, the buildings related to the agri-food industry did not have a large scale nor were they arranged in large manufacturing plants, except for specific situations, especially in the flour milling sector, mostly located in the north of the country, such as the Stucky mill. (Chiapparino, 2009, p. 44)

### 2.1 *The stucky mill: Currently, a hotel, congress centre, and residential building*

On the Giudecca island, the church and convent of *Santi Biagio e Cataldo*<sup>2</sup> (Giuseppetti, 1995, p. 24) were demolished to allow for the construction of what was considered the most significant industrial flour milling complex in 19th-century Venice and the largest and

2. A church and hospice were built in the 10th century and consecrated in 1188. Years later, in 1222, they were replaced by a Benedictine monastery and church founded by Giuliana dei Conti di Collalto. After several renovations, it was closed down and plundered in 1810. Since then, it was reused as a hospital for contagious diseases until 1846, belonging to different owners; the campanile was demolished in 1872, and in 1882 Giovanni Stucky, purchased it and started demolishing it. (Giuseppetti, 1995, p. 24)



Figure 1. Stucky Mill. Exterior view from Santa Marta, Venice (Italy). Photo by: Sheila Palomares Alarcón. 2017.

most modern cylinder mill<sup>3</sup> in Italy until World War I: the Stucky mill.

Giovanni Stucky, who had built a flour milling factory based on the Austro-Hungarian system in Treviso, decided to move to Venice and build a steam mill<sup>4</sup> on the Giudecca island. This decision was driven, among other things, by the fact that most of the grain was imported in bags from North America, Russia or Turkey (Giuseppetti, 1995, p. 15) by sea, so transportation was faster to Venice, especially after the construction of the maritime station (1880), resulting in time and cost savings. (Cacciari, 1997)

This first building, which dates back to 1884 and was based on the multi-storey factory typology, had four diaphanous floors, a rectangular floor plan, numerous windows clad with Istrian limestone, cast iron pillars with capitals, wooden ceilings, and gabled roofs. Preference was given to functionality and production, rather than architecture or decorative aspects. (Giuseppetti, 1995, p. 26)

These facilities were extended three years later, with the construction of a new building with characteristics similar to those of the original one. Offices, warehouses, a three-storey building for storing finished products, workers' homes, a canteen, a mechanical workshop. The Stucky mill grew and was continuously

3. In the cylinder milling system the wheat runs through a series of rollers placed at variable distances from one another, with more or less grooves; after each grinding, the fine flour is sifted out, and the leaving of each sifting are themselves ground and sifted several times. (Amorós, 192-: 102) The first mills of this type, using iron cylinders, were built between 1821 and 1832 in countries such as Switzerland or Germany. (Maddalluno & Monte, 2012). Among the most commonly used systems were the ones developed by the Swiss companies DAVERIO (1850) or BÜHLER (1860; Daverio branch that split off in 1880), whose main advantage was that the grain casings were preserved during the manufacturing process, clearly separating the flour from by-products such as bran. Thus, performance improved and production increased. (Bayó & Borrás, 2009, p. 271 quoted by Palomares, 2016, p. 59)

4. The first steam mill built in Venice was located in the Church of San Geromalo (1842), whose tower was used as a chimney to extract steam. (Giuseppetti, 1995, p. 22).

improved. Plansichters were introduced in 1890<sup>5</sup>, and in 1895 an application was submitted at the city council to renovate and extend the mill, with a project signed by the German architect Ernest Wullekopf. (Julier, 1978, p. 8–13)

The architecture of the Stucky mill was consistent with the training that the architect received at the Hanover Polytechnic, which at the time was promoting the “Gothic-Norman”, or even the Romanesque or Neoclassical style, distant from the Venetian tradition, for industrial architecture. (Giuseppetti, 1995, p. 46)

From the early years of the 20th century onwards they also produced bread, pasta and introduced improvements that solved hygiene issues. There were several fires, and the building underwent various extension and renovation works:

- A second silo was built in 1907, this time with a reinforced concrete structure, but with the same ornamental technique used in the building by Wullekopf, according to a design by Giancarlo Stucky;
- The façade of the pasta factory was renovated and extended in 1920 by Emil Wurt;
- A new warehouse was built in 1922 by Giancarlo Stucky, who also designed a house that was used as reception between 1924 and 1927.

It was decommissioned in 1954. Without maintenance, the silos were virtually empty in the 1990s, and almost none of the machinery that attested to their industrial power had been preserved. (Giuseppetti, 1995, p. 60–61)

In 1990, Società Acqua Pia, together with Banco San Popolo and other private investors, launched procedures to purchase the mill and discussed different possibilities for its renovation with the city council. Several uses, such as residential, sports, commercial, or hotel were considered. One of the problems involved in the renovation was the size of the building, which made it difficult to intervene in the complex as a whole. (Rafondi, 2000, p. 36)

Finally, Società Acqua Pia, a group of designers specialising in conservative restoration led by Francesco Amendolagine and Giuseppe Boccanegra, and the Venice City Council, in a public-private intervention, moved forward with the renovation of the Stucky mill, turning it into a five-star hotel, a congress centre, and residential building.

The renovation took 12 years to complete. The mill was regarded as

un valore storico in ogni sua parte, senza possibilità di sottoporlo a giudizi di valore soggettivi e fuori dalla storia. (Amendolagine & Boccanegra, 2007, p. 16).

5. A plansichter is a machine with a large number of square sieves that move back and forth in a zigzag pattern, separating the flour from the bran and the semolina and classifying them (Moreno & López, 2011, p. 56)

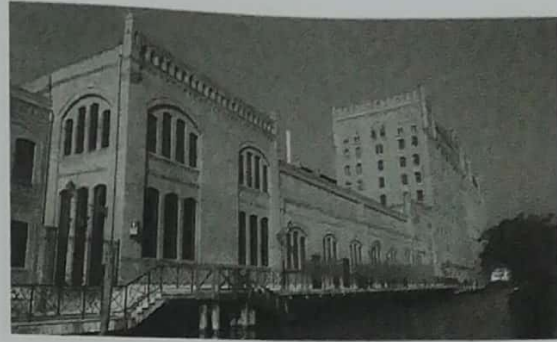


Figure 2. Stucky Mill. Exterior view from the congress centre. In the background, the two silos, currently a hotel. Venice (Italy). Photo by: Sheila Palomares Alarcón. 2017.

The methodological respect of conservative restoration allowed preserving the structure while solving the technical and formal problems that arose. After cleaning the undergrowth, most of the materials were preserved in their places as history had left them, seeking to preserve most of the existing construction elements, even if they no longer served their original purpose, focusing on their reuse. All structural additions were built in red beech, the same material that had been used in the mill. The congress centre was built where the pasta factory used to be; the residential areas in the old flour warehouses; and the hotel in the largest volume of the factory (former Church of San Biagio, Wullekopf tower, and the two silos). (Amendolagine & Boccanegra, 2007).

## 2.2 *The passuello e proverà mill, currently ca' foscari university*

In Cannaregio, north of the city, the convent of San Giobbe was reused in a variety of ways: part of it was used as a cemetery by the church of San Giobbe, and the rest was turned into a wax factory decommissioned in the first half of the 19th century.

The company *Società Anonima Commerciale e Industriale Passuello e Proverà* used the old wax factory as grain warehouse and mill. Faced with the need to extend its facilities, the company bought adjacent land and commissioned the extension project to the engineer Filippo Zanetti in 1921. (Giuseppetti, 1995, p. 48)

Only one two-storey construction was drawn in the Mill extension project as a pre-existing building.<sup>6</sup> The project envisaged the construction of two additional floors above it and an adjacent warehouse. There was also an area for the construction of silos. We should add that the mill's façade overlooked the River Crea and the railroad tracks, making the transport of goods substantially easier.

6. Archivio Generale. Comune de Venezia. Record. 57275/1920. X/2/4.



Figure 3. Passuello e Povera Mill. Exterior view from the Valeria Solesin bridge. Venice (Italy). Photo by: Sheila Palomares Alarcón. 2017.

The engineer explains<sup>7</sup> that the intention was to demolish the remains of an older structure and replace it with new reinforced concrete columns and beams, with painted exterior walls that would be 26 cm thick on the ground floor and 13 cm thick on the other floors. Slabs would be planked. Foundations would consist of reinforced concrete piles. The ground floor would be 3.6 m high and the upper floors 3.5 m high. The ground floor would have areas for accommodating two motors and transformers, which would be connected to trippers located on the first floor, accessible through a metal staircase.

Looking at the plans, we can see that the reinforced concrete structure had two light porticoes. The section of the intermediate pillars changed as the building's height increased, i.e., on the ground floor they would have a 40 cm section, 35 cm on the first floor, 30 cm on the second floor; there would be no pillars on the last floor, as a wooden structure topped the building.

The new warehouse would also be built with a reinforced concrete structure, with pillars, beams, and reinforcements halfway along the porticoes.

Aesthetically speaking, the structure was as simple as that of the old building. The type of openings and location is similar. The barred windows were 1 × 1.60 m.

There is a record<sup>8</sup> dated 1923 in which *Società Adriatica Industriale e Commerciale Molino Passuello e Provera* asks permission to build corn silos. The project was designed by "Ferrobeton S.A.I. Ufficio di Venezia". The silos, designed with a height of 20.10 m, would have 14 cells with a total storage capacity of 15,000 Qli.

Although unfortunately it has not been possible to know the exact date on which the mill was decommissioned, probably in the 1970s, we do know that, after a period of neglect, it was used for sports activities ("remiera") and finally transformed to accommodate some of the facilities of the Ca' Foscari University.

It has been part of the economic campus of the university, based in San Giobbe, since 2015. The intervention involved transforming the silo cells, building new slabs at the flour mill floor levels, and building two additional floors.

Inside there are classrooms, research rooms, a library, didactic laboratories and the offices of the Economics and Management department.<sup>9</sup>

In order to achieve this, while preserving the building envelope, as well as the configuration of the openings and the colour of the cladding, there was the need to build new connection spaces and renovate the building as a whole, including the wooden structure of the factory's roof, which was left visible and adapted to its new use.

### 3 CONCLUSION

The Stucky and the Passuello e Provera mills were the largest in the city<sup>10</sup>. Being typologically similar (multi-storey factory, Austro-Hungarian system) and architecturally different (scale, size, decoration, construction system), they represent the rich industrial past of the Venetian flour milling industry and exemplify the continuous reuse of the city's buildings.

From convent to factory. From factory to neglect. From neglect to "what do we do?" From "what do we do?" to a hotel, a congress centre, residential building, and a university.

There are numerous possibilities for reusing industrial architecture, and Venice is an example of that.

### ACKNOWLEDGEMENT

This work is funded by national funds through the Foundation for Science and Technology, under the project UID/HIS/00057/2019 and HERITAS [PhD]-Heritage Studies [Ref. PD/00297/2013]. Sheila Palomares Alarcón. PD/BD/135142/2017.

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9. Università Ca' Foscari. Venezia. Available at <https://www.unive.it/pag/30505/>  
10. There were other silos, built in 1900–1901 by the engineers Carissimo and Croti, which were demolished in 1979. They were a great mass visible from all over the city. (Fontana, 1995: vii, viii) There is an interesting series of photographs in the "Fondo Reale Fotografia Giacomelli" from 1923 to 1978 in which we can see the evolution of these silos. Available at <http://www.albumdivenezia.it/> (Venetian Album)

7. Archivio Generale. Comune de Venezia. Record. 57275/1920. X/2/4.

8. Archivio Generale. Comune di Venezia. Records. 27804/23. IX/2/3.



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