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The color of the tiles in the architecture of Valencia's Central Market (Spain)

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INTRODUCTION

The final launch of the ceramic industry in Spain starts in the last quarter of the 19th century, this stage is linked to the renewal and growth of the main cities, being the ceramic coating one of the materials linked to the architectural building that registered the highest growth. Valencian manufacturers will become, in the first third of the 20th century, the main national market suppliers, only some industries close to prominent cities such as Seville and Barcelona produced tiles that competed with Valencian ones.

Population growth and its urban concentration was, therefore, an essential factor that fueled architectural development, together with other factors such as the Hygienic Movement and the decorative fashion expressed both inside and outside the buildings. The hygienism was considered a sign of the improving in living standards that the middle class experienced in this early period of the 20th century.

The wall surfaces of the flats, especially in “wet rooms” (bathrooms and kitchens), were covered with such a material, that commercial catalogues described as hard, durable and washable. In this context it highlights its use on the markets, big civil buildings for a new flourishing urban society. Valencia's Central Market, beyond its hygienist aspect, is a magnificent representative of the use of architectural ceramics in its public space, both inside and outside.

TECHNIQUE AND SHAPES

During the second quarter of the 19th century, for economic reasons and to ensure the accuracy of the motifs they represent, it starts in Valencia the use of *trepá* tiles, as it happens in the case we study. In 1836, in a list of materials used during the building of the market, architect Franco Calatayud noted: *tiles with flower released, of trepá*.

In this time, coloring methods are improved and hue finds the following shades: basic colors, oxides, are few and constant; yellow of lead or antimoniate; brown ferruginous; cobalt blue, manganese purple and copper green.

The shape of tiles is square, a handspan long (about 22.5 cm, 1/4 rod) or the result of the partition of the square into two equal rectangles for the friezes.

THE GLAZED CERAMICS OF VALENCIA'S CENTRAL MARKET

All Central Market glazed ceramics are made with this technique. The historical manufacturing process has remained pre-industrial up to the present in a number of workshops with a semi-artisanal production, only changing the cooking system by the

replacement of wood kilns for electric ones. A manufacturing process to replace some broken tiles has been done during the restoration works, with the following steps:

Preparation of the bisque: Brought the bisque from the ceramic manufacturing plants in Castellón, a material that passes the tests of bending strength, breaking load and linear thermal expansion. Executed in a workshop, it will work as a basis for the glazes.

Preparation for the glaze: White opaque applied in a bath on the bisque, dried for 4 minutes, after 24 h. of outdoor drying it is ready to start the glaze painting.



Figure 1. Preparation for the glaze. Figures 2 and 3. Application of glaze with *trepas*.

Application of glazes: Water based colors are used, adapting the RAL letter to the references given in the color palette provided by the technical specifications, its application is made by *trepas*. The *tropa* is made on waxed paper that matches with the size of the piece, on which the picture to reproduce has been drawn and cut. The number of *trepas* depends on the composition. The paint is brushed manually on the surface, broad bristle brushes for wide spaces, or in a more intense way for small spaces.

Firing: At 985 °C for 8-10 h. The tilt detects the temperature and automatically keeps it, for 30-45' cooling naturally, it is in this moment that the liquid glazes turn solid, acquiring their final brightness and living colors.

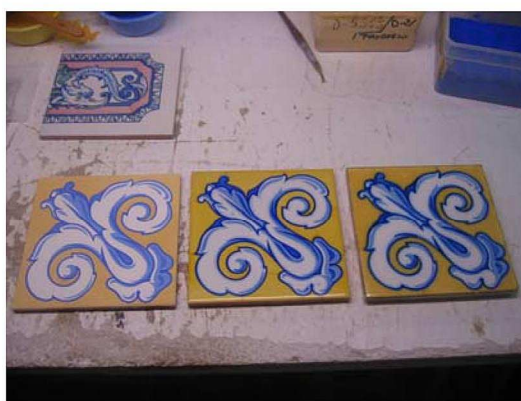


Figure 4. Glazed with *tropa*, before and after the firing.

These ceramics are widely used in the market, either as a decorative or finish material. On the facades it is used extensively as a finishing over the hidden surfaces of the market, on the “fish vault” and as finishing on the upper parts of the arches in windows. We found

them too in the spaces between the pairs of cast-iron columns that separate the different windows of the market.

In the inner spaces, there are tiles in different positions. First, tiles cover inner surfaces of the market walls. These are generally white, although there are decorative friezes on two different heights. There are also tiles set on the friezes at the base of the skylight, inside the vaults and on the sides of the low skylights.

The decorative motifs on tiles are, generally, floral, stylized leaves, usual fruits from Valencian orchards and zoomorphic shapes.

The pathologies they suffered were: bleaching at the base of the tile walls due to the use of inadequate cleaning products and loss of tiles in some places due to mechanic aggressions and humidity.



Figure 5. Motifs.

All the motifs of the market have been analyzed and investigated; the result of this work is set in the technical cards that follow with some representative examples of such an investigation. The colors of tiles have been noted with the Pantone color system for a future identification and an accurate color printing, and also translated to the CIELAB colour notation which will make it possible a rigorous and complete study of color properties in future restoration. Here we show one of the color cards of the project, settling the composition and color mapping to identify tiles located in one of the rooms in Central Market.

Table 1. Color notation of tiles from the “fish room”.

	CIELAB
Blue PANTONE 7455	L:40 a: 11 b: -50
Light blue PANTONE 5425	L: 61 a: -6 b: -15
Yellow PANTONE 7492	L:88 a:-9 b: 40
Light green PANTONE 5575	L:82 a: -8 b: 2
Dark green PANTONE 556	L: 63 a: -19 b: 5
Red PANTONE 5195	L: 27 a: 52 b: 8
Orange PANTONE 7517	L: 42 a: 30 b: 58
Light orange PANTONE 7510	L: 75 a: 15 b: 57

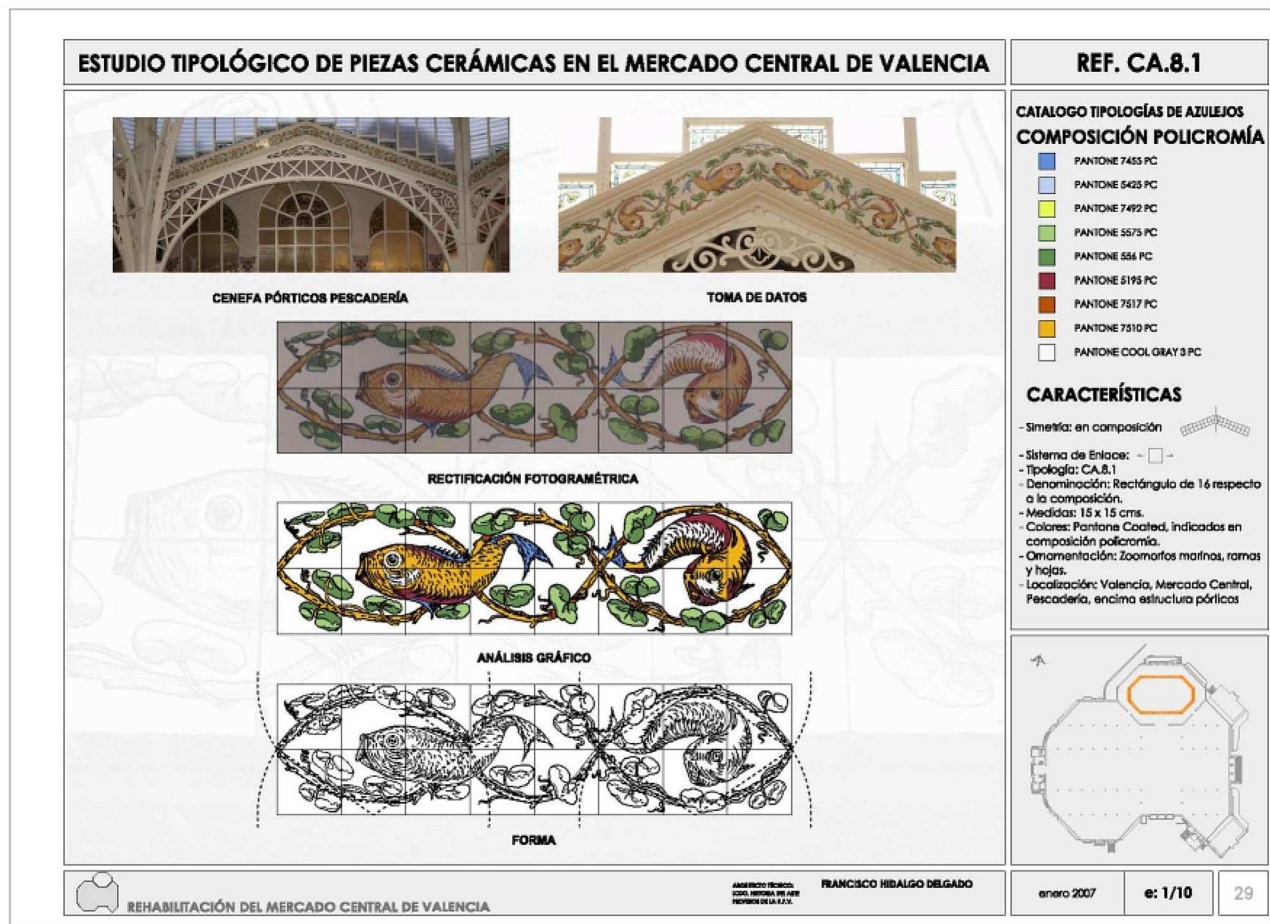


Figure 6. Typological study of tiles. Fish room, inside the market. Data gathering. Photogrammetric correction and graphic analysis of the pieces. Composition and polychromy.

BIBLIOGRAPHY

- Azulejos Artísticos Bondía, Restauraciones. 2006. *Catálogo de azulejos manuales y artesanos, restauraciones realizadas a trepa*. Quart de Poblet.
- Benito Goerlich, D. 1992. *Arquitectura Modernista valenciana*. Valencia: Bancaixa Obra Social.
- Hidalgo Delgado, F. 2010. *Investigación integral de las unidades constructivas arquitectónicas que definen el Mercado Central de Valencia como ejemplo singular de la Arquitectura Modernista valenciana*. Tesis inédita, directora: Ángela García Codoñer.
- Iranzo, Maria A., and F. Jarque. 1985. *Cerámica en Valencia*. Valencia: Ayuntamiento de Valencia.
- Perez Montiel, I. 2002. *La cerámica arquitectónica Valenciana, los productos preindustriales XV-XIX*. Valencia: Consell Valencià de Cultura, Institut de Promoció Ceràmica de Castelló.
- Vitel, C. 1978. *Cerámica, pastas y vidriados*. Madrid: Paraninfo.

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