



Chromatic Analysis of the Palace of Calatayud Pavements and Its Application in Design

Irene de la Torre Fornés^(✉), Ana Torres-Barchino, and Jon Ander Acarregui Pinedo

Universitat Politècnica de València, ESP, Valencia VLC 46022, València, Spain
{irdela, atorresb}@ega.upv.es

Abstract. The Palace of Calatayud is part of the bourgeois architectural heritage of the city of Valencia. Designed in the early twentieth century by the architect Juan Luis Calvo Catarineu, it retains much of the ornamental elements that characterize the eclectic style under which it was conceived. In particular, an interesting sample of the hydraulic tile pavements and ceramic mosaics by Nolla that lined the noble rooms of the building stands out. The work focuses on the chromatic and morphological analysis of these coverings, based on the in-situ measurement of the color parameters of the different ceramic pieces in NCS System notation and the subsequent graphic representation of the different combinations found, in particular those related to the Nolla mosaics. The variety of the resulting designs that define this ceramic typology -based on the play of colors and shapes of the modular pieces- is appreciable and evidences the versatility of this tiling and its capacity to adapt to the morphology of the spaces where it is inserted.

Keywords: Palace of Calatayud · Nolla ceramics · hydraulic pavement · color

1 Introduction

The Palace of Calatayud is a representative building of the bourgeois residential architecture of the city of Valencia. It is located in the historic center of the city within the protected area of several Assets of Cultural Interest, such as the Casa Vestuario, the Basilica of Nuestra Señora de los Desamparados and the Cathedral Church (Fig. 1) (Fig. 2).

The palace is made up of an architectural ensemble built in different phases, so it is not a unitary intervention. In 1909, the architect Juan Luis Calvo Catarineu designed, on a previous demolished building, the part facing Miguelete Street, the most representative of the palace, with a marked eclectic style. In 1913, the architect Vicente Ferrer Pérez designed the extension of the palace on Horno de los Apóstoles Street, following the same eclectic stylistic program. Subsequently, the complex has been completed with two constructions built in 1986 on pre-existing buildings, to incorporate them into the palace.

Among the ornamental elements that characterize the palace, we focus on the pavements that cover the main noble rooms of the building, mainly made up of hydraulic tiles and pieces of Nolla ceramics stoneware. Nolla ceramics are made up of small pieces

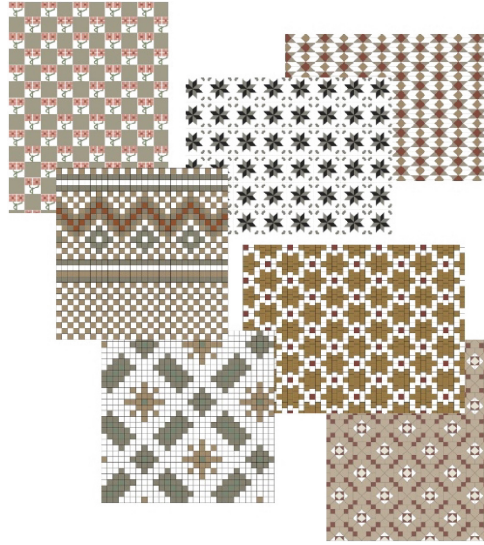


Fig. 1. Photomontage of some of the pavements of the Palace of Calatayud. Own elaboration.



Fig. 2. Interior of the Palace of Calatayud overlooking the Cathedral of Valencia, 2019. Own source.

of stoneware in the form of tesserae of different geometric shapes (mainly square, triangular, rhomboidal, hexagonal and octagonal), each of which is colored in a different tone. As stated above, there are also pavements in the building based on hydraulic tiles

(Fig. 3), whose construction characteristics differ from Nolla ceramics, although a certain similarity in the resulting ornamental motifs can lead to confusion.

In the context of the studies carried out for the drafting of the corresponding rehabilitation project, the present academic and parallel research study has been carried out in order to record the chromatic and morphological characteristics of these pavements and to analyze the resulting designs.



Fig. 3. Detail of one of the hydraulic paving present in the Palace of Calatayud, 2019. Own source.

2 Methodology

2.1 Focus of the Work

Based on the graphic documentation and planimetries of the building provided by the *Conselleria de Hacienda y Modelo Económico* -the organization promoting the rehabilitation project-, we carried out a graphic reinterpretation of the plans provided, as well as a graphic survey of carpentry and ornamental construction details that characterise the spaces, such as railings and window frames. The aim of this new documentation was to provide the basis for identifying the areas under study -these are, the rooms of the building that have original pavements of interest- and the chromatic and morphological characteristics of their ceramic and hydraulic coverings. The great majority of these rooms are concentrated in the mezzanine and second floor (Fig. 4 and Fig. 5) -some of them hidden under later coverings- so that a route is traced for the chromatic measurement of the pieces that make up the different coverings.

2.2 Data Collection

Once established our focus of interest, we went on to obtain photographs of every room with Nolla ceramic flooring or hydraulic tile flooring. We took pictures of the whole room and of each type of piece that characterizes its paving, in the knowing that the photographic record would be decisive for later comparing the arrangement of the various pieces -especially the Nolla ceramic pieces- in each room.

We then proceeded to take a dimensional measurement of each piece and made a sketch of its design in order to locate the chromatic data obtained. In the rooms covered with hydraulic pavement, each piece can contain different tones, and so we took a chromatic measurement of each one. In the rooms in which the pavement is made of



Fig. 4. Floor plan of the Palace of Calatayud mezzanine, 2021. Own elaboration.

Nolla stoneware tiles -the majority case- we identified the colors that define this ceramic typology, as well as their combination pattern. Given that the chromatic palette of Nolla ceramics is initially made up of a reduced number of colors -to which new gradations are added later (Espona 2015; Laumain and López 2016)-, we opted to take only a measurement of each differentiated tone for each room (Fig. 6), since our objective was not so much to obtain the statistics of variability of chromatic values of one specific tone in a room as to identify the different existing tones. We carried out the color measurement in Natural Color System (NCS) notation with a contact colorimeter “NCS Colour Scan”, after physical cleaning of the analyzed pieces.

2.3 Chromatic Cards and Patterns Elaboration

We organized the chromatic and morphological values of the different pieces in cards for each room. Each card is composed of two sheets. The first one (Fig. 7) shows the situation in plan of the room in question as well as the different walls that make it up and redraws, to scale, the combination pattern of the existing pieces in it by means of a chromatic modeling obtained with computer software. The second sheet (Fig. 8) shows the combination pattern of the pieces in the entire surface of the room, their chromatic



Fig. 5. Floor plan of the second floor of the Palace of Calatayud, 2021. Own elaboration.

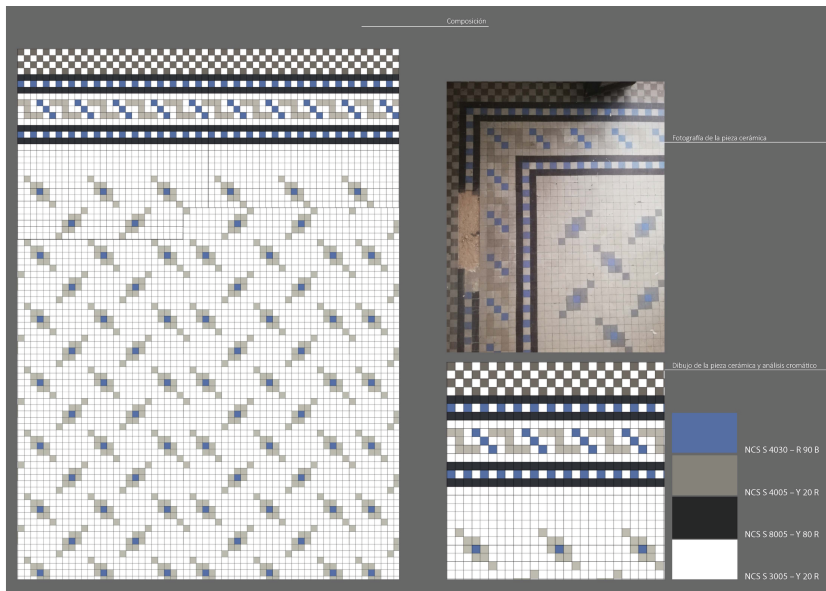


Fig. 6. Detail of hydraulic paving present in the Palace of Calatayud, 2021. Own elaboration.

values obtained in NCS notation, a photograph of them and their corresponding chromatic modeling scheme. In total, we obtained seven tiles from the mezzanine and nine tiles from the second floor.

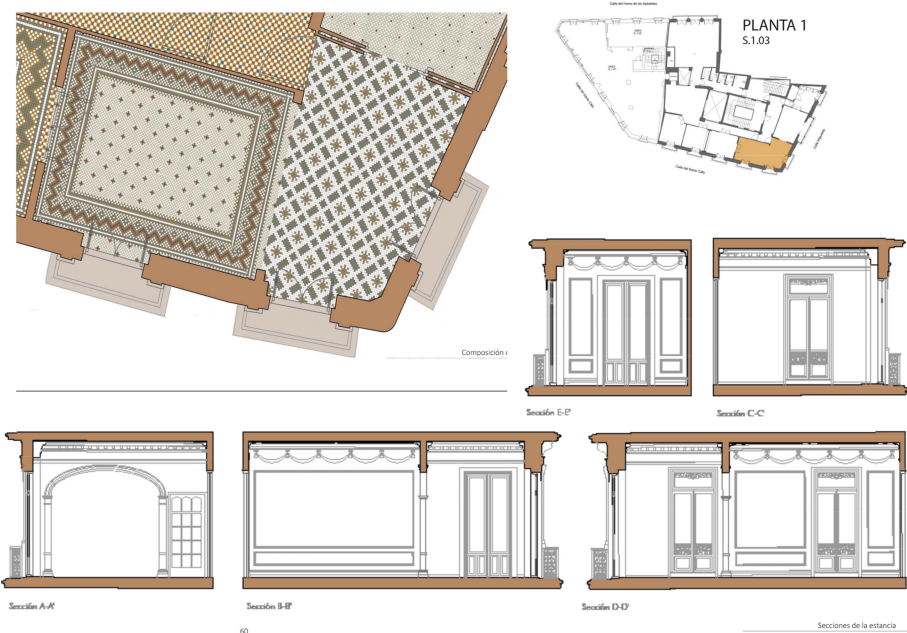


Fig. 7. Example of a data card (first sheet), 2021. Own elaboration

3 Results

In the case of the pavements made with hydraulic tiles, the composition is based on the repetition of the pieces on the surface of the room until reaching the limits of the same, without highlighting the perimeter. The rooms paved with Nolla stoneware tiles, however, mostly feature designs that follow the floor plan limits of the space, creating geometric borders that adapt to the space and run along it like a ceramic carpet. The versatility granted by the constructive configuration of this type of covering, composed of tiny pieces similar to the pixel of a digital image, allows the creation of an infinite number of mosaic combinations, like a patchwork. As Coll (2009) points out, the “Nolla mosaic” factory in Meliana proposed geometric or vegetal themes that were offered in closed sets, although in fact they could be customized to taste. Among the existing

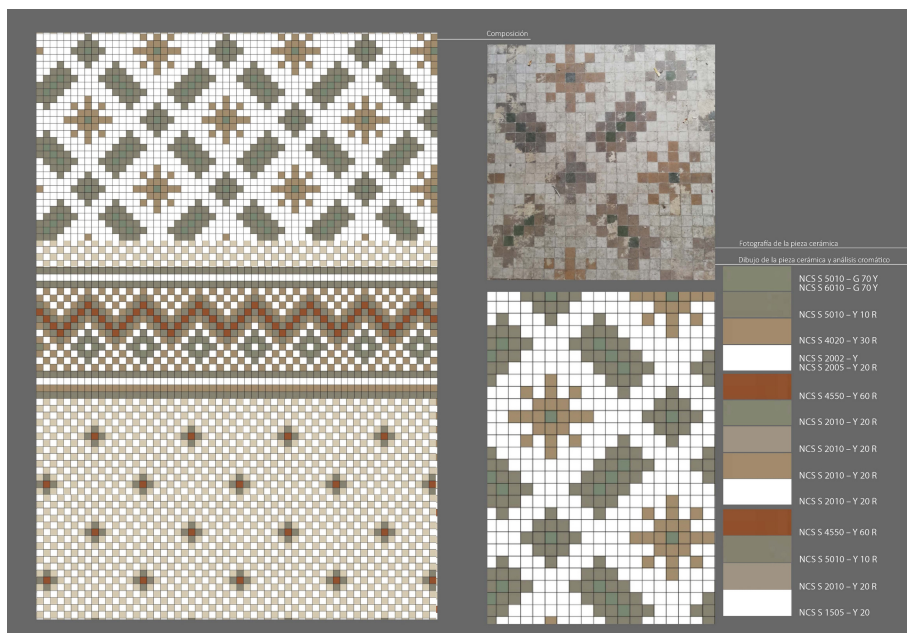


Fig. 8. Example of a card (second sheet), 2021. Own elaboration.

compositions in the palace we can identify one of these designs proposed in the catalog of the company *Hijos de Miguel Nolla*, a catalog dated approximately 1909 (cfr. Reig and Espí 2010).

4 Nolla Ceramics as Design Reference

We are witnessing a renewed interest and appreciation of the hydraulic pavement and, especially, the ceramic pavement of Nolla, as characteristic elements of the architecture they cover, particularly linked to Modernism of Eastern Spain. This new sensitivity is aimed not only at their knowledge and conservation, but also at their integration in spaces conceived under current standards of interior design. In the particular case of the Nolla ceramic tiles present in the Palace of Calatayud, it is proposed to consider both the chromatic palette obtained and the morphology of the existing pieces as a basis for the design, both in terms of coverings and furnishings, of certain interior spaces of the building (Fig. 9).

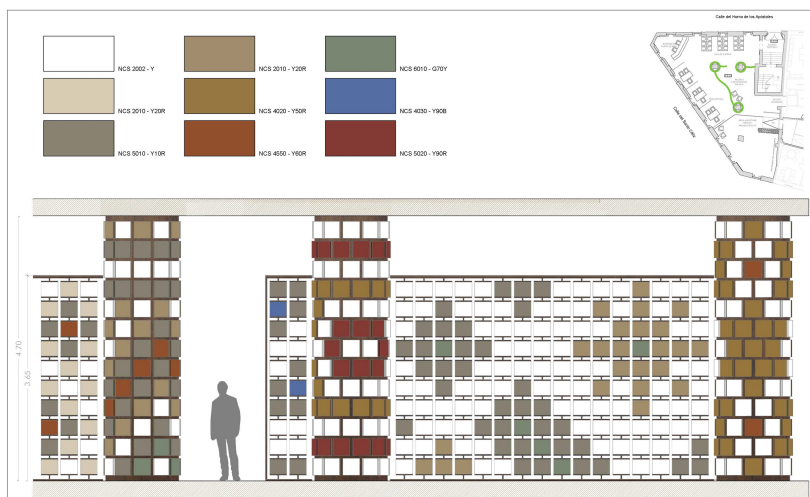


Fig. 9. Proposal of chromatic application in the interior design of the Palace of Calatayud, 2021. Own elaboration.

5 Conclusions

We note the importance of the original hydraulic and ceramic pavement of the Palace of Calatayud in Valencia. In particular, the ceramic mosaic popularized by Nolla is of great interest given the adaptability of its designs to the dimensions and geometry of the spaces where it is inserted, to which it confers a characteristic aesthetic and chromatism. The variety of the compositions present in the building shows the desire to differentiate and characterize each space, while the different designs respond to a homogeneous style directly linked to the building typology they cover. Nolla ceramics constitute, therefore, a heritage element inherent to the building and as such must be recovered and enhanced in future interventions.

Finally, the graphic and chromatic recording work carried out constitutes itself a valuable documentation that allows us to advance our knowledge of the Palace of Calatayud. This information can also serve as a basis for new design proposals for its spaces, based on the reinterpretation of the morphological and chromatic characteristics of the rich pavements that characterize it, thus confirming the current relevance of Nolla ceramics.

References

- Coll, J.: La cerámica valenciana. Apuntes para una síntesis. Asociación Valenciana de Cerámica. Ribarroja del Túria (2009)
- Espona, P.: La cerámica Nolla S.A. en el contexto del patrimonio privado. In: XVIII Congreso de la AC Xàtiva, 2015, pp. 243–255. Asociación de Ceramología. Onda (2021)
- Laumain, X., López, A.: Nolla y el Modernismo: un mosaico entre industria y artesanía. Congreso Internacional el Modernismo en el Arco Mediterráneo/CIMAM Universidad Politécnica de Cartagena, pp. 643–650 (2016)

- Pérez Guillén, I.: Las azulejerías de la ciudad de Valencia. En *La ciudad de Valencia: historia, geografía y arte de la ciudad de Valencia. (Geografía y arte)*, vol. 2, pp. 441–454 (2009)
- Reig, A.M., Espí, A.: La aplicación del diseño a la industria del mosaico valenciano del siglo XIX: Nolla y Piñón. *Archivo De Arte Valenciano. Volumen XCI*, pp. 201–216 (2010)