

## Historic paint colors of Spanish St. Augustine

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### ABSTRACT

Founded in 1565 by Don Pedro Menendez de Aviles, San Augustine was the capitol of Spain's colony of La Florida. By 1740, the walled city of Saint Augustine was a military hub of the region and was defended by the massive Castillo de San Marcos. In 1821, Spanish rule ended and Florida gained statehood. Today, St. Augustine survives as the oldest continually occupied European settlement in the United States.

Over the past 25 years architects and museum professionals have asked about the identification of original colors of historic structures in Saint Augustine. Detective work and microscopy have played a vital role in answering their questions, especially when they relate to paints. Historic paint color evidence from more than 15 buildings,<sup>1</sup> dating from the Spanish colonial period (1760 – 1840), has been collected and micro-analyzed in the laboratory of Welsh Color and Conservation, Inc. The resultant color palette, referenced to the Munsell color system, has been studied and used in the restoration of numerous house museums<sup>2</sup> and to produce an historic paint color card.<sup>3</sup> Both inform and educate about the colors of a unique heritage, culture and architectural style rooted in Spain.

### 1. INTRODUCTION

Color is one of the most important elements in architecture. Restoring authentic colors to historic buildings brings them back to life, and in historic towns like St. Augustine, Florida, contributes to the authenticity of the surrounding community.

The interest in paint and colors associated with historic buildings in the United States developed in the early part of the 20<sup>th</sup> century during the renowned restoration of the colonial town of Williamsburg in Virginia. Attention was principally focused on the colors of the paints that were revealed by simple, in-situ scraping to expose early paint layers. The visual inspection was occasionally aided with a magnifying glass. In the late 1950's, fine art conservators introduced restoration architects at the National Park Service in Philadelphia to the stereomicroscope for use in examining paint layer structure at a higher level of magnification (10 – 40X) than possible with a simple magnifying glass. This in turn introduced the idea of taking samples away from the buildings and analyzing them in a laboratory setting. Almost at once, the way of researching historic paint colors was revolutionized. With the higher magnification and careful scrutiny, observations were made for the first time concerning: layer thickness, varnish or glaze coats, accumulated surface dirt, large hand-ground pigment particles and also the discoloration or yellowing of oil-based paints. Most important of all, when samples were viewed in crosssection, layers of early paint were discovered that were not previously discernable.

Along with the introduction of the stereomicroscope, the use of the two-volume Munsell Book of Color was adopted. Not only did the Munsell system provide a means of standardizing color description for consistent recording but also the color books provided small removable color samples (visual reference standards) to permit visual comparison and matching of the original color of a paint layer under the stereomicroscope. In the early 1970's, Welsh adopted the use of the National Bureau of Standards (NBS) Color Name Charts to permit the consistent naming of observed colors. The use

of the stereomicroscope, using artificial illumination, and the Munsell color books also introduced a set of problems associated with metamerism that continues to challenge the process of accurate color evaluation for which we still seek improvements and resolutions.

## 2. METHOD

The on-site investigation necessary to find the best evidence of historic paint colors that survives on a building's interior or exterior surfaces is a complex and challenging process. The best places to search for information concerning period paint colors are in historic documents such as photographs and also on the buildings themselves. The paints that were used typically remain hidden under layers of more recent paint. The process is archeological in nature and, because of the hidden conditions, requires detective work and investigation of the building fabric, primarily by scraping locations where the paints are in good condition because they have been protected from wear or excessive weathering.

The evidence that is normally excellent for the microscopical evaluation of layer structure (as well as for original color in the lab) is found at interior corners or along an underside edge of a molding where the paints, when applied as a liquid, would have accumulated into a thick layer. Since the objective of the investigation, sampling and analysis effort is to accurately identify a specific layer or layers and to evaluate their original colors with a high degree of certainty, obtaining sample evidence from these types of protected locations is essential.

On many occasions, architects and museum administrators like to undertake this investigation themselves and send us the samples they collect. To assist them and to avoid receiving samples gathered at locations where the coatings exhibit wear or degradation, we developed an *Investigation & Sampling Guide* to describe and illustrate the process. (See: <http://www.welshcolor.com/sampling.html>.) Over the past 25 years in St. Augustine, we have visited many sites to collect evidence ourselves and we have also received numerous samples of wood and plaster, in sizes ranging from a few centimeters to a meter, from clients who have collected the samples themselves.

In our lab, we continue to use the stereomicroscope, the Munsell color system and the NBS Color Name Charts, however they are now accompanied by the use of the portable spectrophotometer, which provides CIE LAB values and the petrographic, or polarized light microscope (PLM). The analysis of paints is enhanced with the use of PLM to analyze pigments, many of which are finely ground minerals. Employing PLM is advantageous to understand the original color of a paint, particularly when there is discoloration or when questions of age or authenticity arise. With PLM, a variety of techniques are used to observe and measure physical and optical characteristics of pigments in order to identify an unknown. Using both plane and crossed polarized light, the characteristics typically observed include shape, size, color, pleochroism, refractive index, birefringence, polarization colors, dispersion staining colors, interference figures, optic sign and sign of elongation.

We have utilized these techniques and instruments in the investigation and analysis of original finishes and colors at many notable 18<sup>th</sup> – 20<sup>th</sup> century historic American buildings, a few of which include: Independence Hall, Monticello, West Point, The White House, The U.S. Capitol, Grand Central Terminal, Fallingwater, and Dulles International Airport as well as extensive studies in historic colonial American towns such as Annapolis, Williamsburg and St. Augustine.

### 3. RESULTS

The Spanish colonial buildings of St. Augustine are primarily plastered masonry that are trimmed with wood. The paint evidence investigated and collected from more than 15 buildings, therefore, was inclusive of both materials on the interiors and exteriors of the structures. After centuries of wear and exposure, early building materials that also retained original paint evidence were not easy to find on every building. In addition, the documentary evidence tells us very little about the use of paint and color in St. Augustine.<sup>4</sup> We learned that the early paints on exterior stuccoed or interior plastered masonry were typically lime washes that had a matte appearance, and those used on wood trim were typically oil-based paints that typically had a semi-gloss to gloss appearance.

The 25-year effort of paint archeology and lab analysis generated significant information about the color palette of historic St. Augustine. Although more than 40 individual colors were identified, the color palette for the period of the ca. 1760's to the ca.1830's was not elaborate and not unlike that of contemporary English colonial colors that we have identified in the region of Charleston, Savannah and Bermuda.

Overall, on building exteriors, there was a predominant use of white on the masonry walls and a moderate yellowish pink was often used as an accent color on the plastered walls of balconies and porches. A wide band of color, painted at the base of exterior stuccoed walls, called a zocalo, was often painted dark bluish gray. In the very earliest years of the Spanish colonial period, wood trim associated with windows, doorways and porches was frequently painted moderate reddish brown, made with red iron oxide; however, that color preference yielded to light grays and then to the more predominant use of yellowish white and white, made primarily with white lead pigment. The louvered blinds or shutters at the windows were often painted dark or moderate yellowish green.

**Table 1:** Summary of the most frequently used historic exterior paint colors in Spanish St. Augustine in the period 1760's – 1830's.

Building/House(s)	Exterior Features	Color Names	Munsell Values
Fatio and Gonzalez Alvarez:	Stuccoed Walls	White	N 9.5/
Fatio and DeMesa Sanchez:	Porch Walls	Moderate Pinks	10 R 7/6 & 7.5 R 8/4
King's Bakery:	Stucco (Zocalo)	Dark Bluish Gray	10 B 3/1
Fatio, DeMesa and Tovar:	Wood Trim	Moderate Reddish Browns	10 R 3/5 & 10 R 3/6
Fatio and Paredes:	Wood Trim	Light Grays	N 6.5/ & 5 Y 7/1
Fatio, Tovar, and Dow:	Wood Trim	White & Yellowish White	5 Y 9/0.5 & 5 Y 9/1
Pena Peck:	Shutters	Dark Green	5 G 3/4

On the interiors, plastered walls also were routinely painted white with the ubiquitous lime wash, but light blues also were used occasionally. The colors most often used for the wood trim of doorways and windows were white, yellowish white and sometimes yellowish gray. However, light greenish blues and medium blues were used in the early 1800's on trim in several houses. Clear coat varnish finishes were used also, so pigments did not impart the color on the trim, rather the color was that of the natural wood tone. The baseboards were typically dark brown or dark gray, and this served a utilitarian purpose of hiding the dirt, in a way similar to that of the zocalos on the exteriors.

**Table 2:** Summary of the most frequently used historic interior paint colors in Spanish St. Augustine in the period 1760's – 1830's.

Building/House(s)	Interior Feature	Color Name	Munsell Value
Majority of Houses:	Plaster Walls	White	N9.5/
Fatio:	Plaster Wall	Light Blue	5 B 8/1
De Mesa Sanchez:	Wood Trim	None	Clear Coat Varnish
Fatio:	Wood Trim	Yellowish White	2.5 Y 8.5/2
Fatio and Gonzalez	Wood Trim	Light Greenish	5 B 7/3.5 &
Alvarez:		Blue and Medium Blue	8.6 B 5.2/3.5
Dow:	Wood Trim	Yellowish Gray	3.0 Y 7.8/2.2
Fatio and De Mesa:	Baseboards:	Dark Brown	10 R 2/1 & 10 R 2/2

#### 4. CONCLUSIONS

Paint color research was once a matter only of guesswork, based upon the crude scraping of a surface, down through the painted layers, to find colors to match. Today it is a scientific discipline recognized in fine restoration projects all over the world. Over the past 25 years in St. Augustine we investigated and sampled many of the colonial buildings. The evidence was microscopically analyzed in the laboratory to determine the layer structure and to evaluate the colors associated with the earliest paints. We determined that although the architecture in St. Augustine is Spanish in style<sup>6</sup>, the color palette is not unlike that of the English colonies that we have studied in Charleston, Savannah and Bermuda. Whether or not the colors are similar to those popularly used on and in the same types of buildings in Spain, in this time period, is yet to be revealed.



**Ximenez-Fatio House ca. 1800  
Original Exterior Paint Colors  
Restored<sup>5</sup>**

Masonry: White and Pink  
Trim: Yellowish White  
Shutters: Medium Green

#### References

1. Welsh, Frank S., "Comparative Microscopical Paint and Color Analyses of St. Augustine Exteriors", (1988).
2. Welsh, Frank S., "Ximenez-Fatio House, Comparative Microscopical Paint and Color Analysis", (1979).
3. St Augustine City Commission, "Historic Colors of Spanish St. Augustine", St. Augustine, Florida, (1988). Recipient of Florida Trust's Award of Merit for Achievement in the Field of Preservation.
4. Manucy, Albert, "The Houses of St. Augustine, 1565 – 1821", St Augustine Historical Society, St. Augustine, Florida, (1978).
5. Harper, Robert W. and Rogers, Rebecca Yerkes, "Ximenez Fatio House", (1993).
6. Gordon, Elizabeth K., "Florida's Colonial Architectural Heritage", University of Florida Press, 2002