



**First Church of Christ, Woodbridge**  
*Historic Paint Investigation*

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**Prepared By:**  
John Canning & Co., LTD  
150 Commerce Court  
Cheshire, CT 06410

**Prepared For:**  
First Church of Christ  
5 Meetinghouse Lane  
Woodbridge, CT 06525

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## INTRODUCTION

John Canning & Co. was retained by the First Church of Christ in Woodbridge, CT to investigate, analyze, and advise on the painted finishes in the Sanctuary. The project is funded, in part, by the State of Connecticut Department of Economic and Community Development through the State Historic Preservation Office. The purpose of the consultation is to provide recommendations for restoration and repainting. A historic finishes investigation was performed to document the paint chronology of the interior and identify the historic color scheme and palette. Principal and Professional Associate of the American Institute of Conservation (AIC), David Riccio, and Project Manager, Marcie Clifford, were on site the week of December 2, 2019 to review the existing conditions, provide exposures, and extract samples for microscopy analysis.

## PROJECT BACKGROUND & EXISTING CONDITIONS

The current meetinghouse was built in 1832 to reflect the Colonial style with influences of Gothic Revival Architecture. Designed by the Society of Amity Committee, the building was constructed of hand-hewn post and lumber with a traditional three-coat plaster system. The current 1986 interior is painted in a trompe l'oeil/grisaille style incorporating a beige and grey color scheme with accents of sky blue at decorative medallions and motifs at the ceiling. Trompe l'oeil, translating to “fool the eye”, provides a painted visual illusion of three-dimensional objects. This particular form of art requires skill and understanding in applying highlights, shadows, and the direction of light as it shifts throughout the space. In the Sanctuary, mouldings are painted to provide a coffered appearance at the ceiling. A large rosette on a vibrant blue background has been painted at the ceiling surrounding the chandelier. The same blue background is painted to highlight trompe l'oeil motifs within the coffers. Trompe l'oeil borders at the walls aim to provide a raise panel appearance above and below the balcony.

The Meetinghouse has gone through various decorative campaigns and beautifications throughout its history. Analyzing and understanding the history of the finishes will serve as a guide and tool in providing the Congregation with recommendations for restoration and redecoration.



Overall, Current decorative paint campaign.

## ONSITE INVESTIGATION

The finishes throughout the ceiling and walls are severely delaminating throughout the interior of the Sanctuary. In some cases the delamination reveals earlier decorative paint campaigns, and in other areas it reveals the original plaster substrate. Surrounding the wall sconces, previous repairs of skim coating, joint compound, mesh and/or tape are visible. Previous crack repairs are also visible at various locations at the walls on both levels. At these locations, however, the painted finish is generally adhered well. There are minimal cracks in the plaster system at the walls and failures appear to be limited to the paint coatings.



*Detail, Typical conditions of delaminating paint at the walls.*



*Detail, Typical conditions of delaminating paint at the walls.*



*Detail, Typical conditions of cracking and delaminating paint at the ceiling.*

The investigation began at the south wall behind the organ, which was built and installed in 1891. The organ box encapsulates an original trompe l'oeil feature that is currently exposed at the back wall with a clear delineation of overpaint at the edges. Historic documents note that the church was originally decorated by K. John Jaeckle in 1860 and has been described as a fresco consisting of a “*scheme of shaded panels and of stenciled and free painted medallions in the ceiling*”. This exposed decoration behind the organ is believed to be the first decorative paint campaign of the church’s paint history.

This campaign reveals a striped trompe l'oeil border above the wainscot and a trompe l'oeil cartouche, scroll, and floral garland. The color scheme consists of a paler/grayer color palette than the existing beige finish and the artistry of the trompe l'oeil features do not appear to be consistent with the current campaign, and the wainscoting below is of similar color to the wall field. A dry cleaning test was performed at this location for color matching and the decoration was documented as best as possible with the limited access. Samples were extracted at both the wall and wainscot for microscopy analysis.



*Overall, Original decoration behind organ.*



*Detail, Cleaned section of original striped border.*



*Detail, Original trompe l'oeil decoration.*

At the balcony level, exposures included mechanical and chemical exposures to further understand the paint history of the Sanctuary. Mechanical exposures were performed using a scalpel to remove existing layers of the delaminating paint. Mechanical exposures confirmed the grey field and border seen behind the organ. Chemical exposures revealed two later campaigns beneath the existing. With each decorative scheme, the design incorporated trompe l'oeil borders and the color palette seemed to transition to a warmer hue with each campaign.



*Detail, mechanical exposure of earlier decorative paint campaign.*

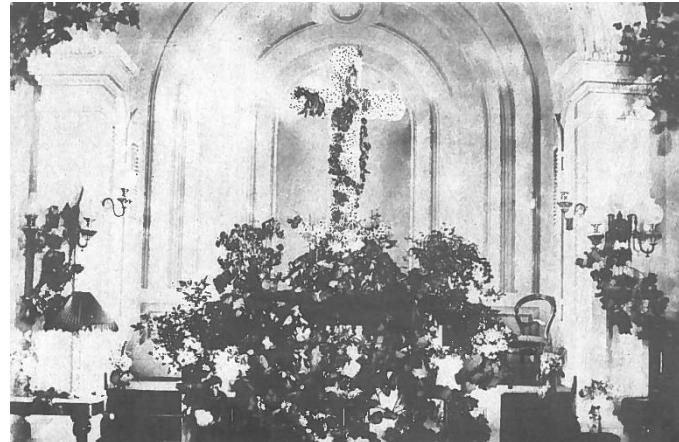
Through this paint investigation, five color schemes were identified. The original was executed in a distemper paint and later campaigns were likely executed in an oil or emulsion paint directly over the distemper. For this reason, uncovering the second campaign has proved to be difficult both chemically and mechanically. The fourth campaign was inspired by the third campaign in color and style, and referenced as a reduplication in the 1955 *Report of the Redecorating Committee to the Ecclesiastical Society's Committee of the Woodbridge Congregational Church*. The fifth, and current campaign by A.R. Chorney Inc., only varied from the fourth campaign in details such as the width and location of striping, shadows, and highlights.

Approximate Dates of Decorative Campaigns:

1. c.1860, Original by K. John Jaeckle, date unknown.
2. c.1891, Redecoration after the installation of the pipe organ.
3. c.1925, Restoration by George Dudley Seymour
4. c.1955, Redecoration and Restoration, also referenced as a “reduplication”
5. c.1986, Redecoration, current campaign by A.R. Chorney, Inc.



*Historic Photo c. 1891*



*Historic photo c. 1860*

### MICROSCOPY ANALYSIS

For sample extraction, small craters were created at various architectural features and other considered surfaces to examine paint stratigraphy under high magnification to evaluate its paint history. Craters were prepared using a scalpel and samples were set in resin to reveal the color stratigraphy of the painted finishes.

The historic colors of the first decorative campaign have been identified by the Munsell standard of color notation. The Munsell system identifies colors within a three-dimensional color space through describing the hue, value and chroma.

The historic treatment for First Church of Christ, Woodbridge has been matched to a grey/beige color between the two colors Munsell 10 YR 8/1 and 10 YR 7/1. This color, seen under high magnification as the first painted finish, correlates to the exposed decoration behind the organ.



Munsell  
10 YR 8/1



Munsell  
10 YR 7/1

Summary of Microscopy Analysis				
Sample Number	Room	Feature	Historic Treatment / Munsell Number	Stratigraphy
A1	Balcony Level	East Wall	Grey/Beige Munsell: 10YR 8/1 & 10YR 7/1	
A2	Lower Level	East Wall	Grey/Beige Grey/Beige Munsell: 10YR 8/1 & 10YR 7/1	
A3	Balcony Level	South Wall	Grey/Beige Munsell: 10YR 8/1 & 10YR 7/1	
A4	Lower Level	East Wall	Grey/Beige Munsell: 10YR 8/1 & 10YR 7/1	
B1	Lower Level	Arch Moulding	Grey/Beige Munsell: 10YR 8/1 & 10YR 7/1	
C1	Balcony Level	South Wall Wainscot	Grey/Beige Munsell: 10YR 8/1 & 10YR 7/1	

The widespread paint failure and delamination throughout the Sanctuary is likely caused by the incompatibility between distemper and oil/emulsion paints. Distemper paints are a water-based paint that were bound with an animal based glue, such as egg or animal hide. With the building being of thin construction and not originally acclimatized, the distemper paint would have been permeable to the plaster substrate as it expanded and contracted at varying levels of moisture with the change in seasons. As distemper paints age, however, the binder begins to fail leaving a chalky and unstable finish causing finishes on top of the paint, such as the later oil/emulsions, to fail and delaminate.

## **RECOMMENDATIONS**

When considering the repainting and redecoration of the Sanctuary, a priority is to address and mitigate the paint failure and provide a stable substrate for repainting and redecoration. It is not recommended that the existing interior be repainted without addressing these failures and recommendations vary based on costs and the needs of the Congregation in terms of availability of the Sanctuary, schedule, etc.

### **Option 1.**

1. Prior to repainting the Sanctuary, the existing finish needs to be scraped down to a stable substrate. It is unknown if the later campaigns contain a lead-based adhesive, and scraping and surface preparation should be performed by a firm certified in lead abatement and/or EPA RRP Certified.
2. Flat walls, ceilings and surfaces should be meshed and skim coated, as needed, to provide a smooth and level surface for the installation of new paint. The existing historic decorative scheme behind the organ should remain as a means for future conservation efforts and for historic significance.
3. Reinstate a historic scheme that is sympathetic to the original decorative campaign. Using the findings of the paint investigation and historic photographs, the new design should include the original color palette and trompe l'oeil features.

### **Option 2.**

1. Chemically strip and neutralize the walls at the upper and lower level to the plaster substrate.
2. Walls to be repaired using traditional plaster to receive new paint finish. Paint to a potassium silicate based paint to allow for vapor permeability. This includes areas that have been previously patched with gypsum based materials.
3. Ceiling to be meshed and skim coated, as needed, to prevent crack repairs from reopening and to provide a smooth and level surface for the installation of new paint.
4. The existing historic decorative scheme behind the organ should remain as a means for future conservation efforts and for historic significance.
5. Reinstate a historic scheme that is sympathetic to the original decorative campaign.

### **Option 3.**

1. Prior to repainting the Sanctuary, the existing finish needs to be scraped down to a stable substrate. It is unknown if the later campaigns contain a lead-based adhesive, and scraping and surface preparation should be performed by a firm certified in lead abatement and/or EPA RRP Certified.
2. Flat walls, ceilings and surfaces should be patched and repaired, as needed, to provide a smooth and level surface for redecoration.
3. Implement decorative scheme on canvas for installation at the walls and ceilings of the Sanctuary. Decorative scheme should be sympathetic to the original decorative campaign. The existing historic decorative scheme behind the organ should remain as a means for future conservation efforts and for historic significance.
4. Surface should be prepared and sized properly to receive marouflaged canvas. Using the findings of the paint investigation and historic photographs, the new design should include the original color palette and trompe l'oeil features.

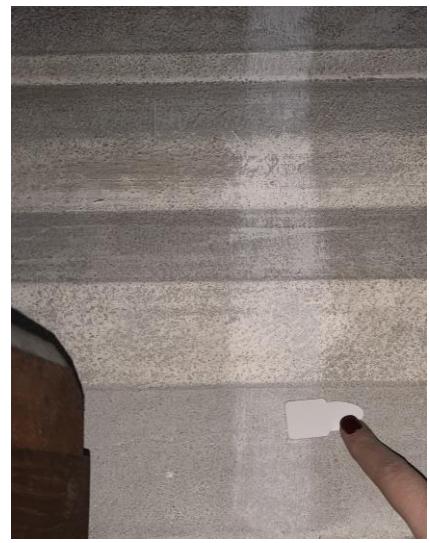
### **Additional Considerations**

1. Additional investigation, exposures, and microscopy analysis should be performed at the ceiling to confirm the original design intent when access is available.
2. Restoration and reinstatement should be completed by a qualified firm experienced with projects of similar scope and style. References and project examples should be provided prior to award of contract. The key person should be a Professional Associate of AIC (American Institute of Conservation) and a Recognized Professional of the Association of Preservation Technology (APT).

## PHOTOGRAPHS



*Detail, Original decoration behind organ.*



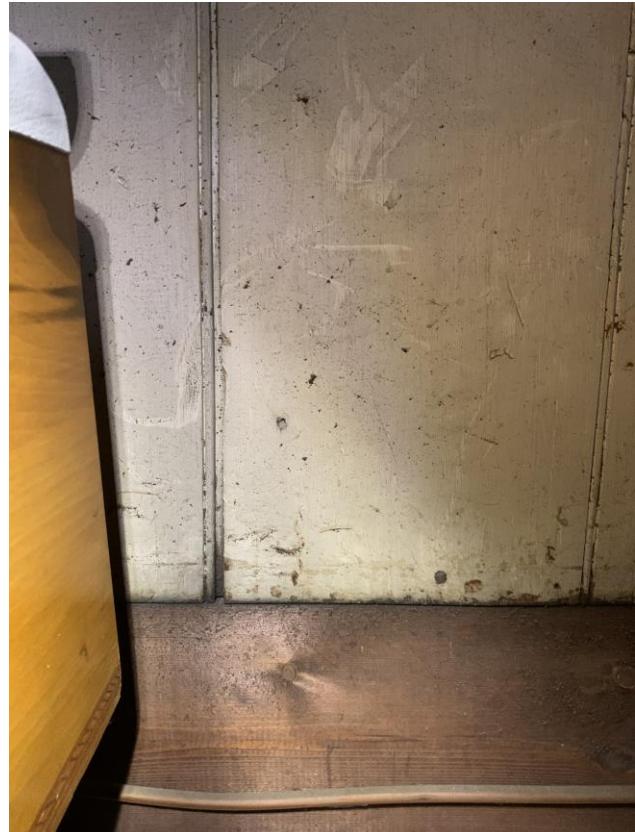
*Overall, Color matching striped border.*



*Detail, Original decoration behind organ.*



*Detail, Extraction location behind organ.*



*Detail, Extraction location behind organ.*



*Detail, Mechanical exposure revealing original striping.*



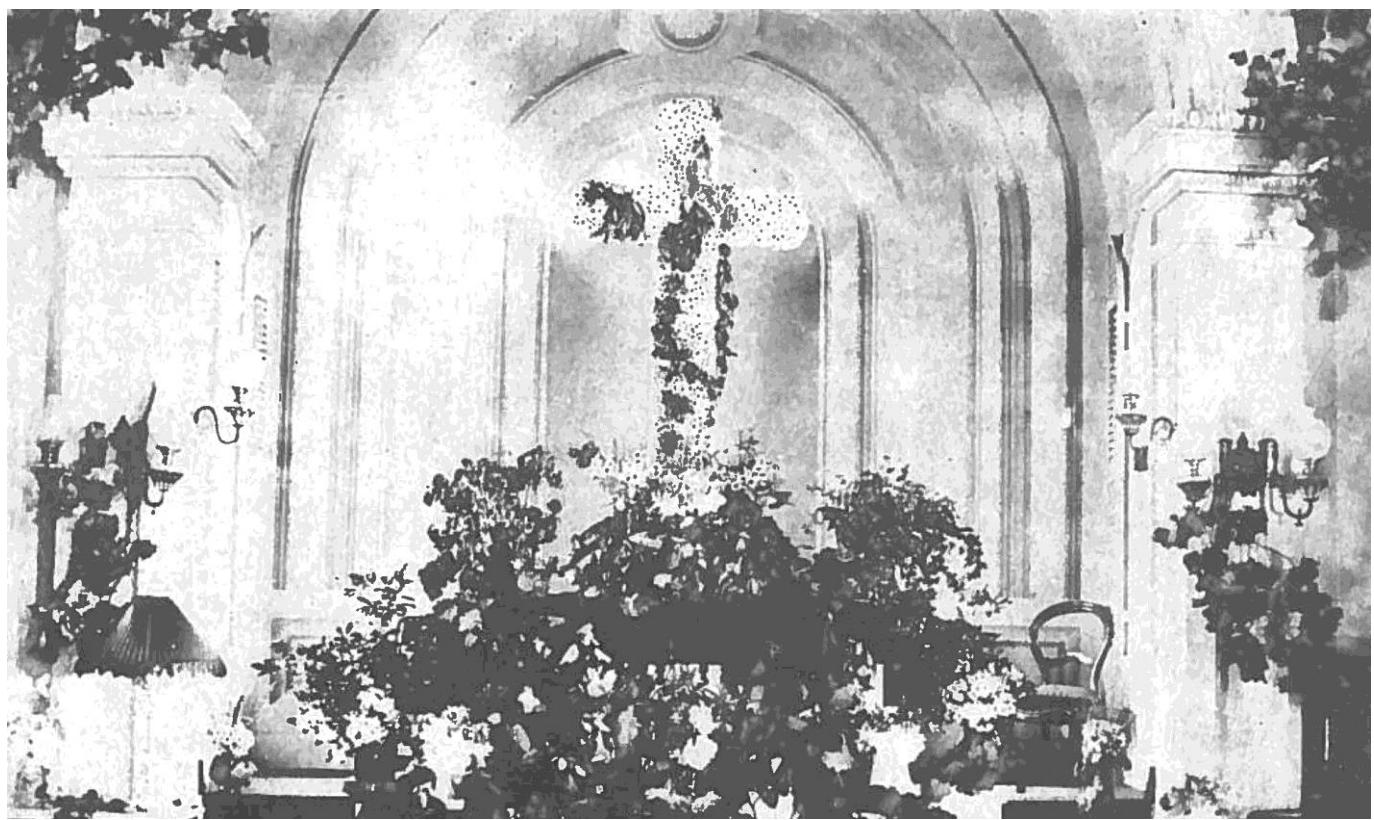
*Overall, Chemical exposure in progress.*



*Detail, Third campaign exposed beneath existing campaign.*



*Detail, Second and third campaign exposed beneath existing. Modern repairs/taping visible beneath existing campaign.*



*Historic photo c. 1860*



*Historic photo c. 1891*



*Historic photo c. 1891*



*INTERIOR*

## APPENDIX A

### ***Design Rendering***

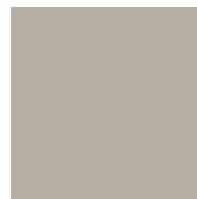
The design rendering incorporates the findings of historic paint investigation to develop a color scheme that is sympathetic to the original c 1860 decoration at First Church of Christ. These colors are a representation of what was identified and may require adjustments in the field to consider modern lighting, furnishings, etc.

An exact color match for the blue details could not be established and it is possible a custom color may be required. We recommend a color similar to those shown above. Paint samples were not extracted at the ceiling, and microscopy analysis is recommended when access is available.

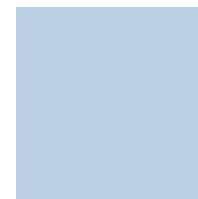
Additional colors to be used in executing the trompe l'oeil decoration for highlights, shadows, details, etc. are at the discretion of the artist and should be reviewed with samples prior to the implementation of the work.



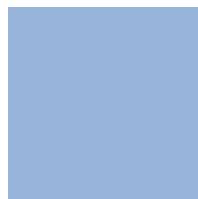
Munsell  
10 YR 8/1



Munsell  
10 YR 7/1

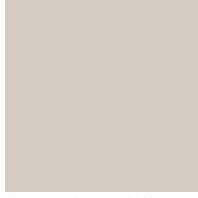


Sherwin Williams  
6960 Bewitching  
Blue



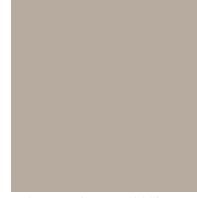
Sherwin Williams  
6961 Blue Beyond

Closest Commercial  
Color:



Sherwin Williams  
6071 Popular Gray

Closest Commercial  
Color:



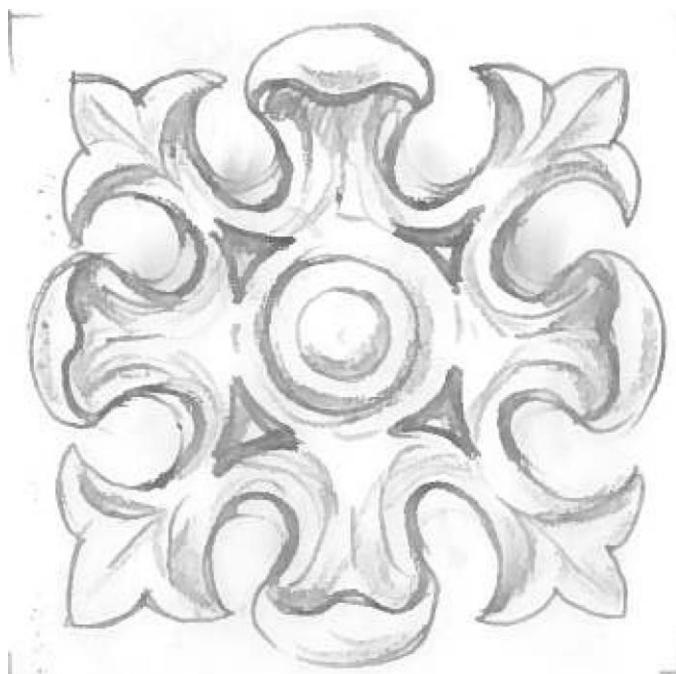
Sherwin Williams  
6073 Perfect Greige

Due to the limitations of desktop scanners and the relative inconsistencies of various display monitors and printers, the colors you see on your screen may not be a totally accurate reproduction of the actual product.

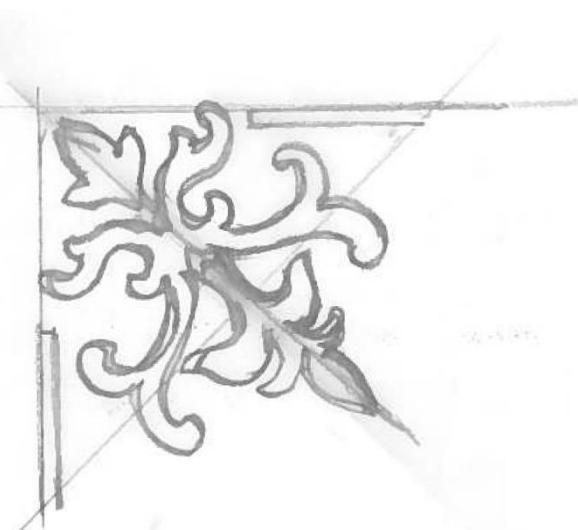
We strive to make our colors as accurate as possible, but images are intended as a guide only and should not be regarded as absolutely correct.



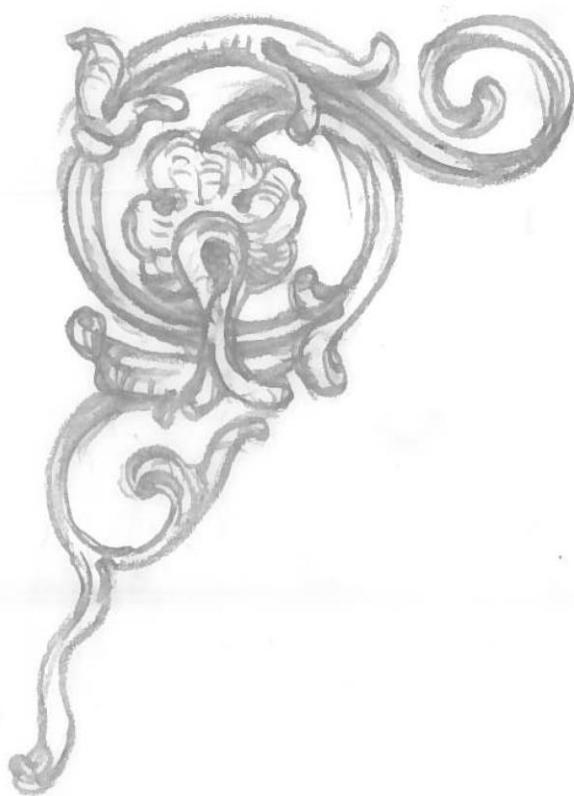
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*Detail, Ceiling medallion.*



*Detail, Corner motif.*



*Detail, Arch spandrel.*

## APPENDIX B

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### ***Materials***

#### **Plaster Material**

1. Fiberglass Mesh
2. USG Durabond
3. USG Quikrete or alternate bonding Agent

#### **Chemical Strippers**

1. Dumont Smart Strip or equal

#### **General Painting**

1. Sherwin Williams Grip N Seal
2. Benjamin Moore Fresh Start
3. Sherwin Williams Emerald
4. Benjamin Moore Aura

*Oil-based paint of the above listed products should be used for wood components such as the wainscot, shutters, etc.*

#### **Decorative Painting**

1. Ronan Japan Colors or equal
2. Mixol Tints or equal
3. Winsor Newton Artist Oils
4. Winsor Newton Liquin

#### **Canvas**

1. Installer's preference, cotton, linen, or polyflax.