

  
**JOHN CANNING**  
PERFECTING PRESERVATION™

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**First Church of Christ, Woodbridge**  
**Final Report**  
*Sanctuary Repainting & Redecoration – Phase I*

December 15, 2021

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**Prepared For:**  
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## INTRODUCTION

John Canning & Co., Ltd. (JCC) was retained by the First Church of Christ in Woodbridge, CT to complete Phase I of the Sanctuary Repainting & Redecoration project. Phase I work included the repair & restoration of the historic trompe l’oeil ceiling decoration, repair and repainting of the cornice, repair and repainting of the arch, and repair & restoration of the historic north wall trompe l’oeil decoration. The project was funded, in part, by the State of Connecticut Department of Economic and Community Development through the State Historic Preservation Office.

## KEY TERMS & DEFINITIONS

1. CORNICE= an ornamental moulding around the wall of a room, just below the ceiling.
2. FLAKING PAINT= when paint chips off or flakes, and becomes loose.
3. GRISAILLE= a method of painting executed entirely in shades of grey or of another neutral greyish color, typically used to imitate sculpture.
4. PAINT LOSS= an area where there is no paint.
5. RESTORATION= the repair or renovation of artwork that has already sustained decay and/or damage, in order to preserve the artists original intent.
6. SPANDREL= the almost triangular space between one side of the outer curve of an arch, a wall, and the ceiling or framework.
7. TROMPE L’OEIL= translating to “fool the eye,” is visual illusion in art typically used to trick the eye into perceiving a painted detail as a three dimensional object. This particular form of art requires skill and understanding in applying highlights, shadows, and the direction of light as it shifts throughout the space

## BRIEF HISTORY

The current meetinghouse was built in 1832 to reflect the Colonial style with influences of Gothic Revival Architecture. The Meetinghouse has gone through various decorative campaigns and beautifications throughout its history. The earliest trompe l’oeil campaign was completed in the sanctuary in 1880. The most current 1986 interior campaign was executed 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 borders at the walls aim to provide a raised panel appearance above and below the balcony.



Figure 1, Historic Photo, 1891



Figure 2, Existing decoration before Phase I Restoration, 2021

JCC has been involved with restoration efforts in the church for a number of years. In December of 2016, JCC was responsible for a limited plaster ceiling survey & conditions assessment. This assessment led to the plaster stabilization and consolidation of the Sanctuary ceiling, as well as selective cornice repairs throughout the Sanctuary of the church. This work was completed by JCC in August of 2017. Most recently, JCC was responsible for a historic paint investigation which took place in December of 2019 and is made part of this report in Appendix F. This historic paint investigation is the basis for Phase I of the Sanctuary Repainting & Redecoration project that will be summarized below.

### SUMMARY OF WORK

Phase I of the Sanctuary Repainting & Redecoration project began in September of 2021. Scaffolding was installed to provide full access to the ceiling and north wall. JCC was onsite to document and take measurements of the existing ceiling and wall decoration, before any onsite surface preparation work began. Ceiling documentation was used to create a full ceiling layout in CAD (See Appendix B) while also aiding in the preparation of canvas mockups.

Canvas mockups of two proposed color palettes were created and installed on the ceiling for review by the church. Mockups and color schemes were developed based on historic evidence and a historic paint analysis, which can be viewed in Appendix F. The general intent of the project was to honor the historic 1891 interior (*Figure 1*) while slightly modifying the trompe l’oeil ceiling design. The blue color scheme was selected by the church (See Appendix C) which allowed JCC to begin offsite canvas production as well as onsite surface preparation work. An acrylic paint system was selected for this project due to its colorfastness and stability. This acrylic system will not amber over time, as oil based systems tend to.

The existing Sanctuary ceiling is stable, due to the 2017 stabilization/consolidation project, but had many areas of flaking and loose paint, areas of loss, and various plaster cracks running throughout the decoration. At these areas the ceiling was scraped down to a sound and stable substrate before being infilled with plaster patching material to create a smooth and level plane. Once surface preparation was complete the ceiling was primed and painted with an interior acrylic commercial paint system. The same surface preparation technique was utilized to prepare the north wall, which also received the same paint system as the ceiling. The cornice and arch were also prepped, repaired as required, and painted, as part of this project. Decorative plaster repairs at the arch were executed using moulding plaster and were hand tooled to match the existing arch profile.

Production of the trompe l’oeil canvas decoration for both the ceiling and wall took place offsite at JCC studios. All canvas was cut, prepared, hand striped, and decorated to match the final approved design. The overall design incorporated the lighting image model created (See Appendix D) using a digital light source modeling program. This program generated an accurate light source(s) image modeled to show when the sun is directly over the church. Also taken into account were the three windows (light sources) on either side of the Sanctuary and how they would impact and shift the



Figure 3, Existing trompe l’oeil panels before Phase I Restoration



Figure 4, JCC trompe l’oeil canvas mockups



Figure 5, During JCC installation of plaster medallion

lighting throughout the space. These details were incorporated in the shadowing throughout the trompe l'oeil panels.

When completed trompe l'oeil canvas was ready to be installed, a ceiling grid was laid out onsite, using chalk lines as a guide. All decorative ceiling and wall canvas was installed using a clay based wallpaper adhesive. The center plaster ceiling medallion was also painted, decorated, and reinstalled, as part of this project. Phase I work was completed in December of 2021.

## APPENDIX A

### *Color Schedule for General Painting*

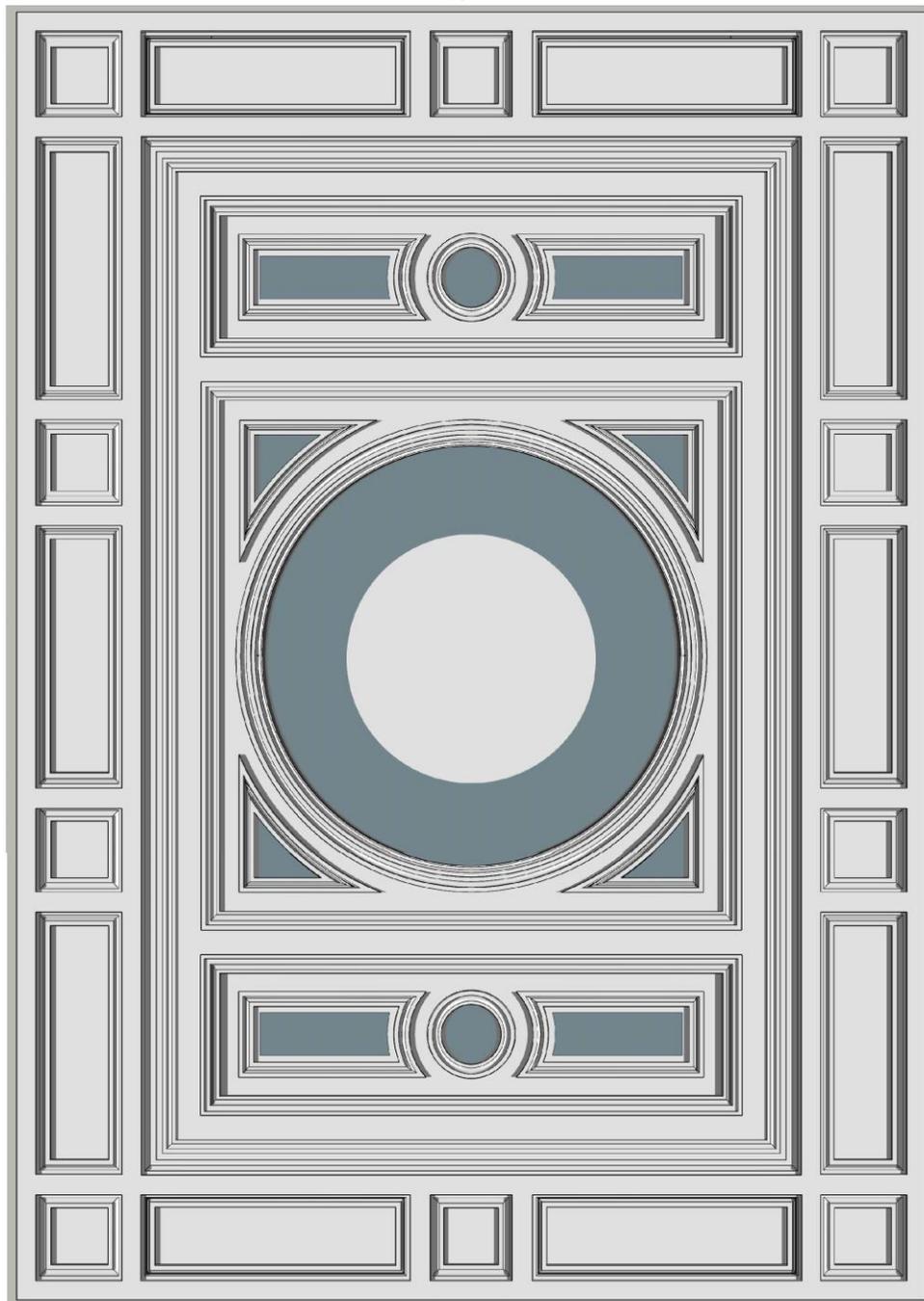
Name	Location	Brand/Type	Color	Sheen	Swatch
Color #1	Ceiling, Cornice, North Wall, Arch & Plaster Medallion Base Color	Sherwin Williams Interior Emerald	Sherwin Williams Agreeable Gray SW 7029	Flat	
Color #2	Ceiling Blue Field Color	Benjamin Moore Regal Select Interior	Custom Color Match (quart) <u>547- 2X</u> Y3 0x 2.6875 S1 0x 11.1875 W1 0x 5.3750 B1 0x 4.7500	Flat	
Color #3	North Wall Inner Panel Field Color	Sherwin Williams Interior Emerald	Sherwin Williams Anew Gray SW 7030	Flat	



## APPENDIX C

### *Final Schematic Color Ceiling Layout*

*North*

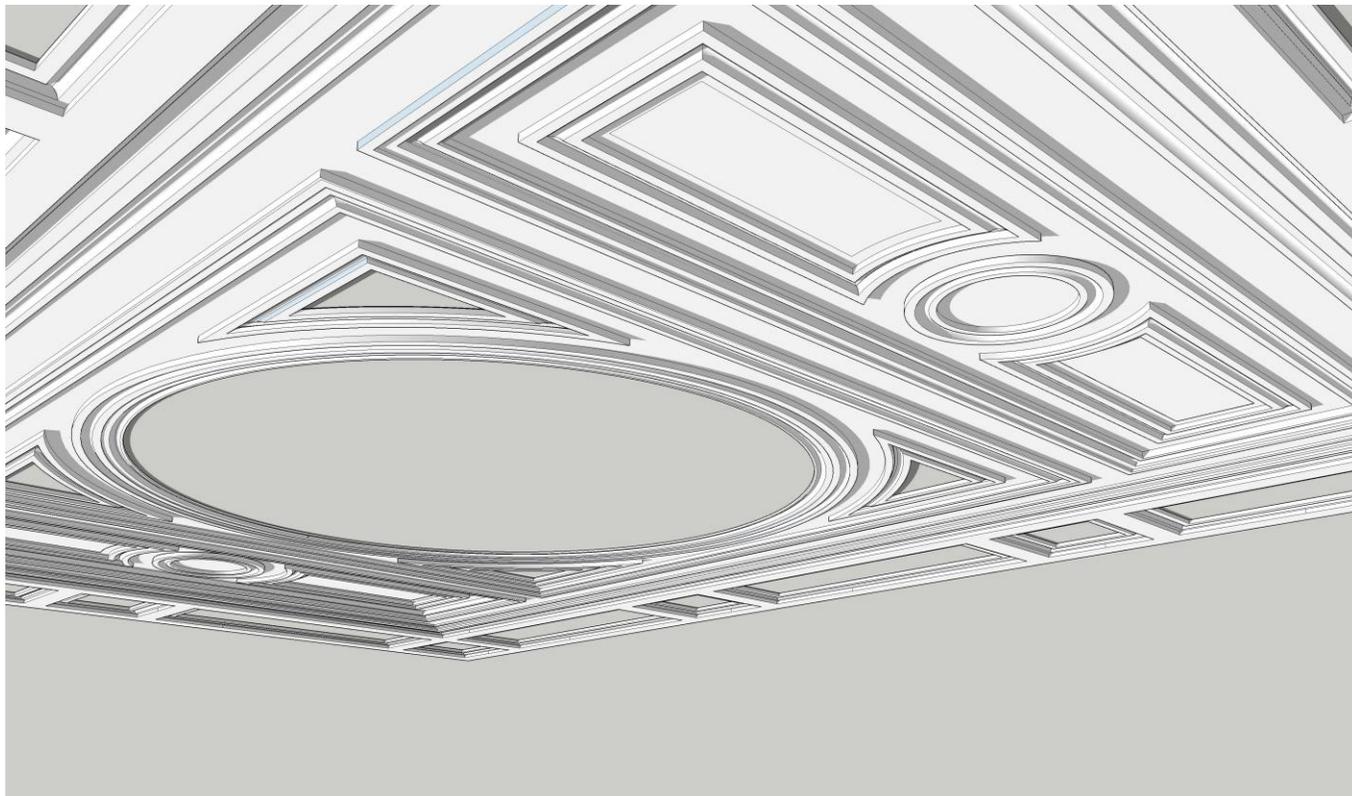


*South*

*Figure 7, Scale= Not To Scale*

## APPENDIX D

### *Final Lighting Model Image*



*Figure 8, Lighting model image generated by digital light source modeling*

## **APPENDIX E**

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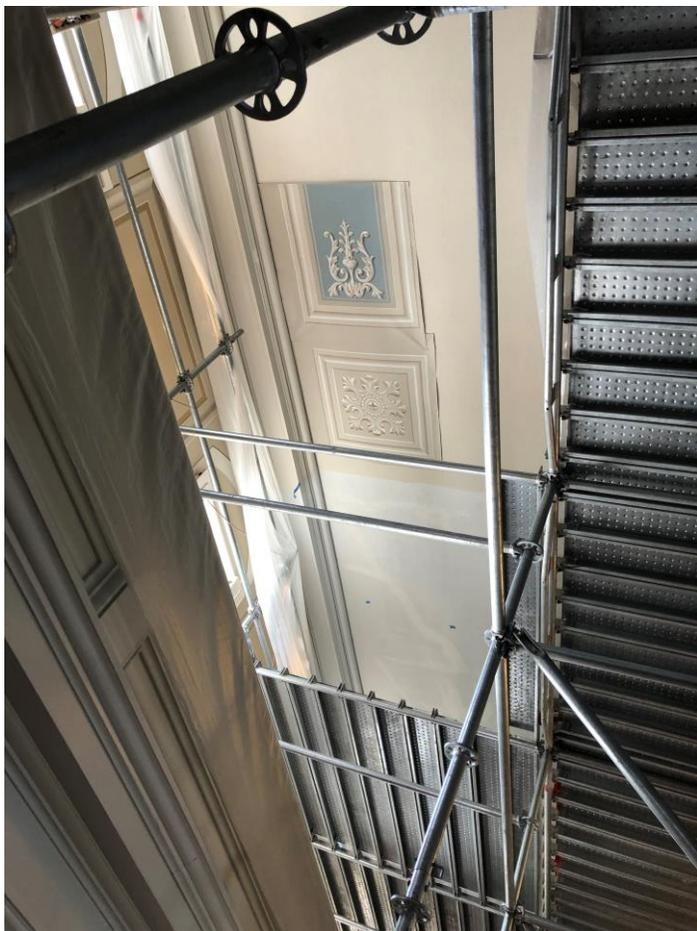
### ***Select Project Photographs***



*Figure 9, Overall, Mockups in progress*



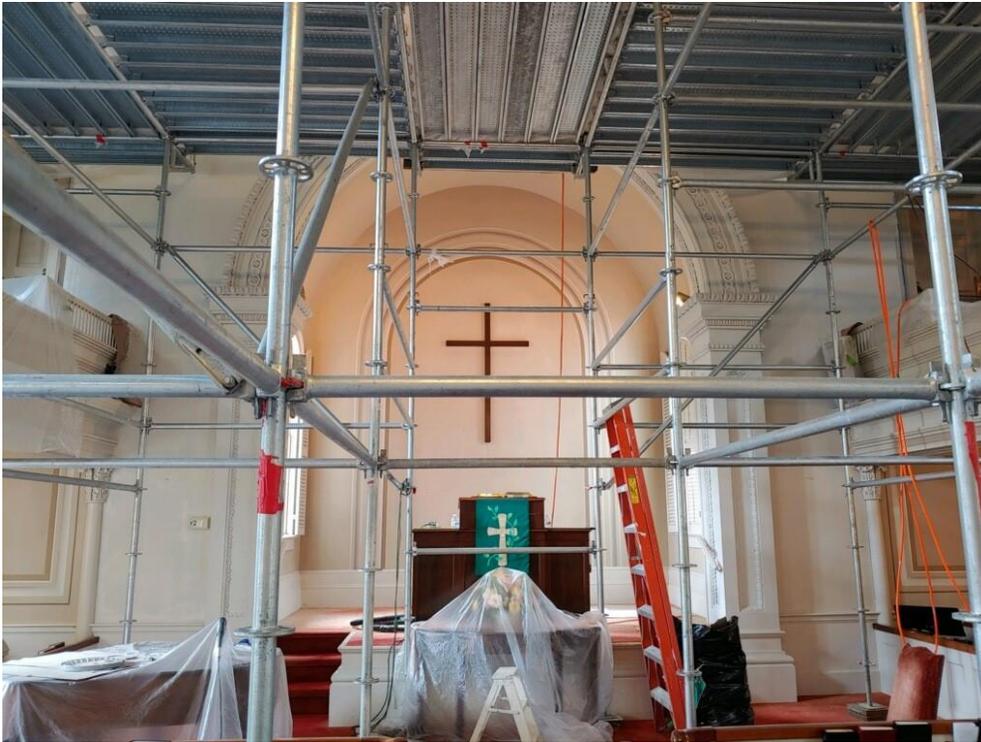
*Figure 10, Overall, Mockups in progress*



*Figure 11, Overall, Mockups installed onsite*



*Figure 12, Detail, Mockups installed onsite*



*Figure 13, Overall, After prep & general painting*



*Figure 14, Overall, After prep & general painting*



*Figure 15, Overall, After prep & general painting*



*Figure 16, Overall, After prep & general painting*



*Figure 17, Overall, After prep & general painting*



*Figure 18, Overall, After prep & general painting*



*Figure 19, Overall, After prep & general painting*



*Figure 20, Overall, During trompe l'oeil canvas production*



*Figure 21, Overall, During trompe l'oeil canvas production*



*Figure 22, Overall, During trompe l'oeil canvas production*



*Figure 23, Detail, During trompe l'oeil canvas production*



*Figure 24, Overall, During trompe l'oeil center medallion canvas production*



*Figure 25, Overall, During trompe l'oeil center medallion canvas production*



*Figure 65, Detail, During trompe l'oeil center medallion canvas production*



*Figure 27, Overall,  
During trompe l'oeil  
center medallion  
canvas production*



*Figure 28, Overall, During trompe l'oeil  
center medallion  
canvas production*



*Figure 29, Overall, During trompe l'oeil center medallion canvas production*



*Figure 30, Overall, During trompe l'oeil center medallion canvas production*



*Figure 31, Detail, During trompe l'oeil  
canvas production*



*Figure 32, Detail, During trompe l'oeil  
canvas production*



*Figure 33, Detail, During trompe l'oeil canvas production*



*Figure 34, Detail, During trompe l'oeil canvas production*



*Figure 35, Detail, During trompe l'oeil  
canvas production*



*Figure 36, Detail, During trompe l'oeil  
canvas production*



*Figure 37, Detail, During trompe l'oeil canvas production*



*Figure 38, Detail, During trompe l'oeil canvas production*



*Figure 39, Detail, During trompe l'oeil canvas production*



*Figure 40, Detail, During trompe l'oeil canvas production*



*Figure 41, Overall, During trompe l'oeil canvas production*



*Figure 42, Overall, During trompe l'oeil canvas production*



*Figure 43, Overall, During trompe l'oeil canvas production*



*Figure 44, Overall, During trompe l'oeil canvas onsite installation*



*Figure 45, Overall, During trompe l'oeil canvas onsite installation*



*Figure 46, Overall, During trompe l'oeil canvas onsite installation*



*Figure 47, Overall, During trompe l'oeil canvas onsite installation*



*Figure 48, Overall, During trompe l'oeil canvas onsite installation*



*Figure 49, Overall, During trompe l'oeil canvas onsite installation*



*Figure 50, Detail, After trompe l'oeil canvas installation at ceiling*



*Figure 51, Overall,  
After trompe l'oeil  
canvas installation at  
north wall & ceiling*



*Figure 52, Detail,  
After trompe l'oeil  
canvas installation at  
ceiling*



*Figure 53, Overall,  
After trompe l'oeil  
canvas installation at  
north wall*



*Figure 54, Detail,  
After trompe l'oeil  
canvas installation at  
ceiling*



*Figure 55, Overall,  
After trompe l'oeil  
canvas installation at  
north wall*



*Figure 56, Overall,  
After trompe l'oeil  
canvas installation at  
north wall*

## **APPENDIX F**

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### ***JCC Historic Paint Investigation***

  
**JOHN CANNING**  
PERFECTING PRESERVATION™

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

February 14, 2020

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2. Project Background & Existing Conditions
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**Appendix A:** Design Rendering

**Appendix B:** Materials

## 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 raised 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.



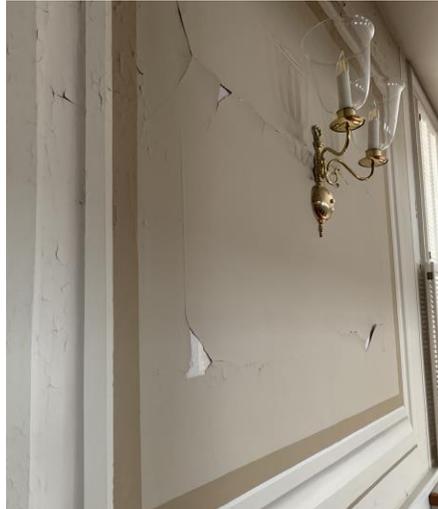
Overall, Current decorative paint campaign.

### 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.*

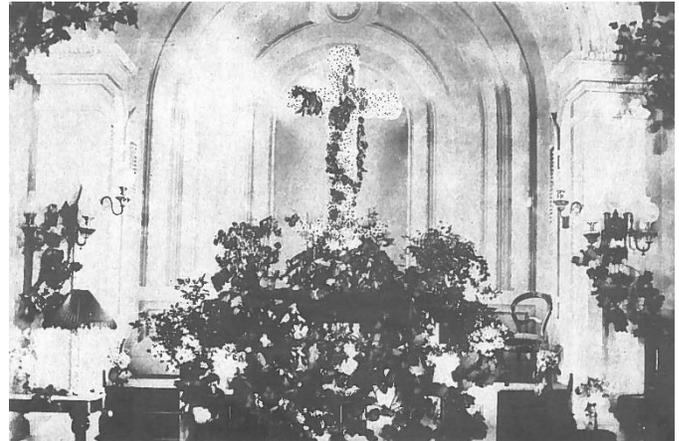
Through this paint investigation, five color schemes were identified. The original was executed in a distemper paint and later campaigns were likely executed in an oil or emulsion paint directly over the distemper. For this reason, uncovering the second campaign has proved to be difficult both chemically 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. Reinstatement 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. Reinstatement 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.*



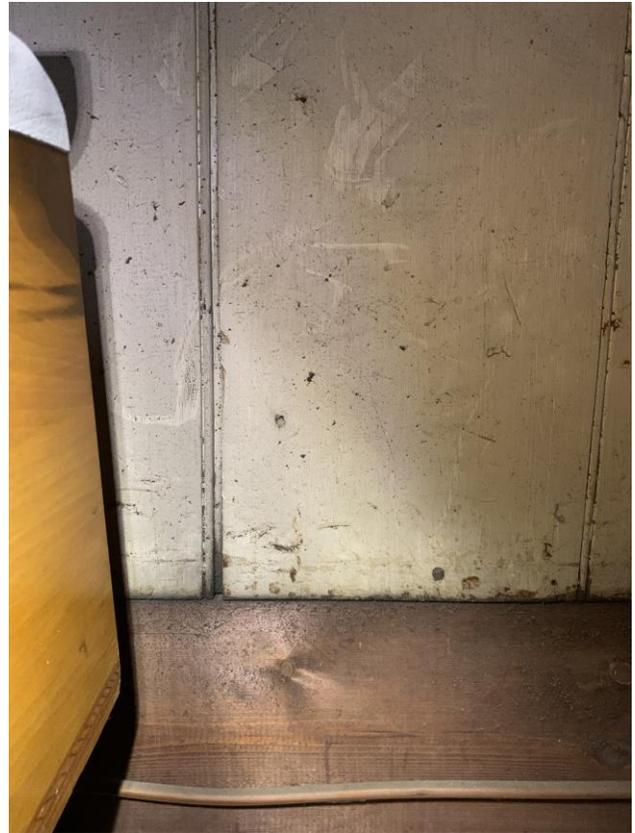
*Overall, Color matching striped border.*



*Detail, Original decoration behind organ.*



*Detail, Extraction location behind organ.*



*Detail, Extraction location behind organ.*



*Detail, Mechanical exposure revealing original striping.*



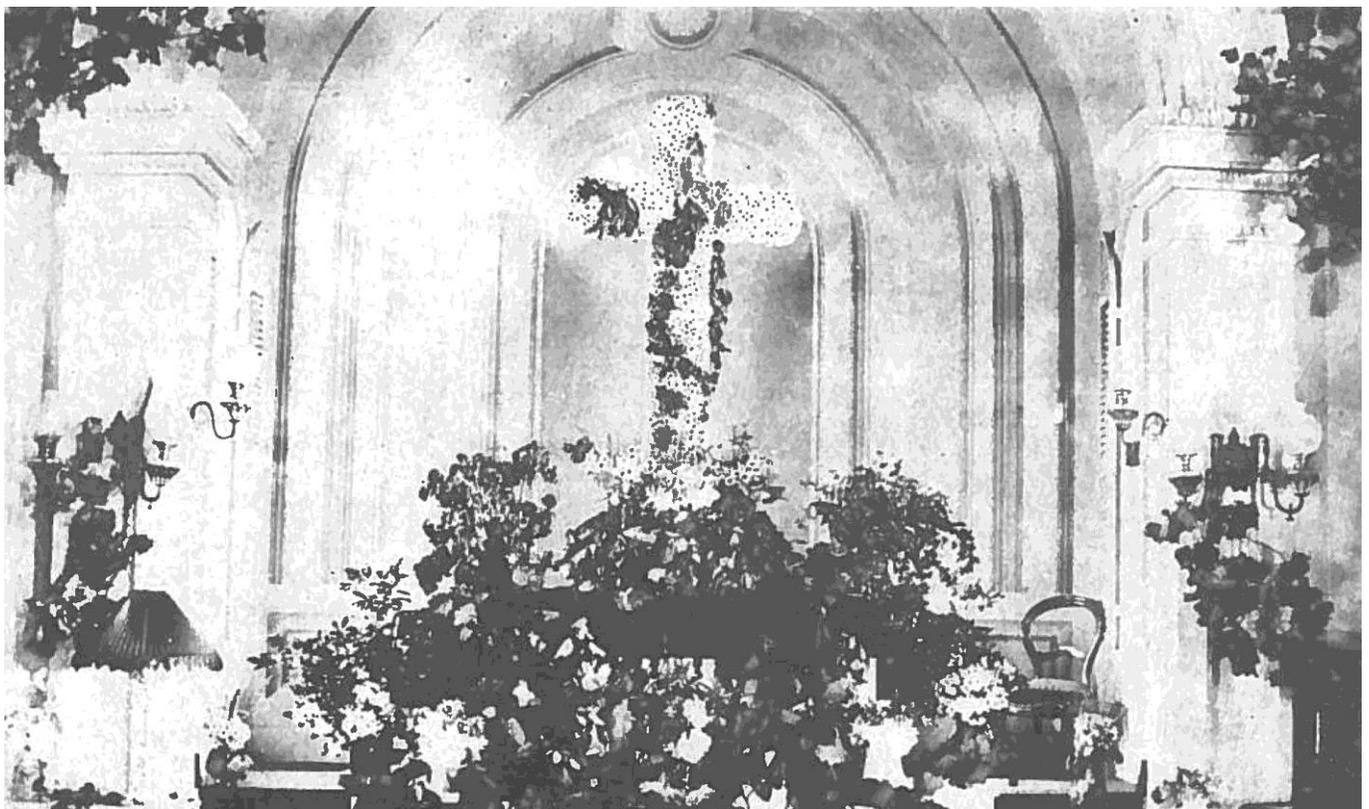
*Overall, Chemical exposure in progress.*



*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 photos c. 1891

## 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.



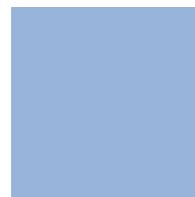
Munsell  
10 YR 8/1



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:



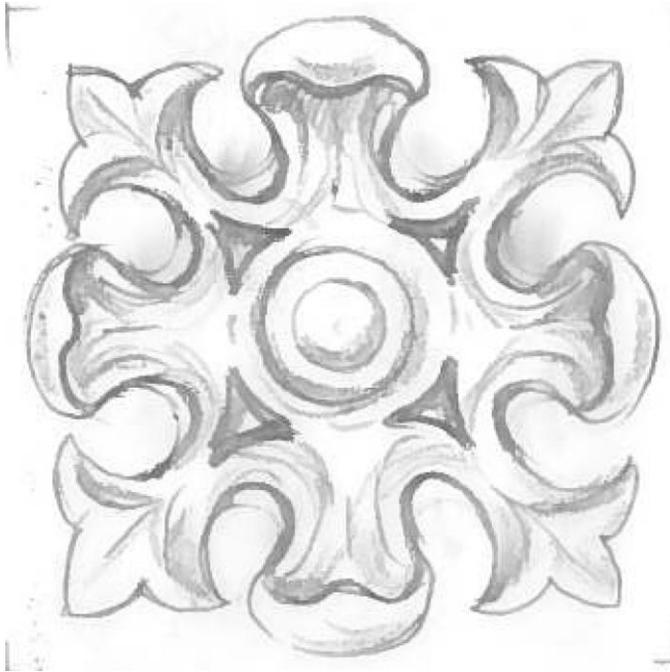
Sherwin Williams  
6073 Perfect Greige

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.

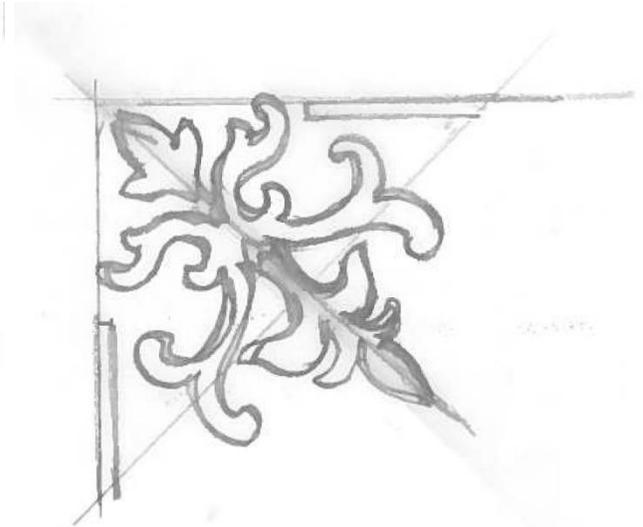
We strive to make our colors as accurate as possible, but images are intended as a guide only and should not be regarded as absolutely correct.



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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.