

ARTICLE 16B: To see if the Town will vote to transfer from the Community Preservation Historical Fund, estimated annual revenues, fund balance, or reserves, or otherwise fund, a sum of money for the preservation rehabilitation and restoration work of the identified forty stain glass windows, which are identified as #1 through #40 in the Community Preservation Application submitted to the Community Preservation Committee on January 11, 2012 by the First Parish Meetinghouse Church for the stain glass windows in the First Parish Meetinghouse Church located at the Town Square as Lot 21, plat 19; in exchange for a Historic Preservation Restriction to be placed on the windows and also greater public access through mutually agreed upon easement in the amount of \$300,000.00, and authorize the Board of Selectmen to accept said easement, or take any other action relative thereto.
COMMUNITY PRESERVATION COMMITTEE

CPC RECOMMENDATION: Approval (unanimous)

The Community Preservation Committee voted unanimously in favor of article 16B at their meeting held Monday, February 13, 2012

SUMMARY:

The intent of Article 16B is to use Historical Fund and undesignated fund balance for the restoration rehabilitation and preservation of forty stain glass windows at the First Parish Meetinghouse Church, in exchange for the CPA expenditure the town would be given a Historic Preservation Restriction and greater public access to the building through a mutually agreed upon easement.

PLYMOUTH COMMUNITY PRESERVATION COMMITTEE

FALL 2011 / SPRING 2012 APPLICATION

Project Name: First Parish Meetinghouse Restoration - Stained Glass windows

CPA Funding requested: \$ 307,000 (REQUIRED)

Total project cost: \$ 1,007,000

Category (check all that apply): ☐ Open Space / Recreation ☒ Historic ☐ Housing

Lot and Plat: Lot 21, Plat 19

Assessors Map #: 019-000-021-000

Number of acres in parcel: 11.65

Number of proposed housing units: n/a

Are there any existing deed restrictions on this property? ☒ Yes (please describe) ☐ No ☐ Don't know

Project Sponsor/ Organization: First Parish Meetinghouse

Contact Name: Darcy H. Lee, Campaign Consultant

Address: 2 Westcliff Drive, Plymouth, MA 02360

Phone #: 508-904-1942 Email: dlee@aldercharterassociates.com

Applicant Signature: [Signature] Date Submitted: 1/11/12

Application Requirements:

A complete application consists of this application page (the specific amount of CPA funding is required), along with the following:

1. A detailed description of the project explaining how your proposal benefits the Town of Plymouth and how it meets CPA goals and selection criteria outlined at the end of this application packet. Are there any special permit, variance or other approvals required? Are there any legal ramifications or impediments to this project?
2. A detailed project budget including any additional revenue sources. Will there be any annual costs to the town once the project is operational?
3. A project timeline.
4. Additional supporting information such as photographs, plot plans, and maps (if applicable).

Please send 11 copies (double-sided) of your application to: The Community Preservation Committee, Plymouth Town Hall, 11 Lincoln Street, Plymouth, MA. 02360. Applications may also be dropped off at the Town Clerk's office or in the CPC mailbox at Plymouth Town Hall.

The deadline for submitting an application is twelve weeks before Spring or Fall Town Meetings.

MEMORANDUM OF UNDERSTANDING

Project Name/Applicant Name and Address:

First Parish Meetinghouse Restoration
19 Town Square
Plymouth, MA 02360

Telephone: 508-747-1606

Email: dlee@aldencharlesassociates.com

I understand that there are certain conditions and responsibilities involved in receiving CPA funding.

My signature below indicates that I have read the following conditions and agree to follow them if my application is recommended to and approved by Town Meeting:

1. I understand that the funding process follows procedures described in the Community Preservation Act, M.G.L. Ch. 44B and that this places certain restrictions on how payments may be made.
2. In order to acknowledge the Community Preservation Act, and thus the contributions of the Plymouth taxpayers, I will:
 - Order, pay for and place a temporary "Community Preservation Works" sign or banner in front of the project. The Community Preservation Committee will provide the approved design. Approximate cost for the banner is generally \$250 - \$300.
 - Acknowledge the contributions of the Community Preservation Act in all press releases, newsletters, and other publicity.
 - Include recognition of the Community Preservation Act if a permanent plaque or sign is placed on the project.
3. If requested I will supply the Community Preservation Committee with quarterly financial up-dates on the project.
4. As needed, I will assist in the process of obtaining the required deed restriction to help protect the property in perpetuity.

Jarvis H. Lee

Print Name

Jarvis H. Lee

Signature

1/11/12

Date

First Parish Meetinghouse – Plymouth, Massachusetts
Application to the Community Preservation Committee – 2012

A. Project Description- Stained Glass Window Repair, Restoration, and Conservation:

The First Parish Meetinghouse restoration project focuses its efforts on two urgent priorities:

- Preservation and restoration of the Meetinghouse façade, including removing eroded masonry, re-pointing mortar, and installing preventative measures to guard against moisture. The building's masonry is its primary defense against water and weather, and after a century of exposure, the façade requires immediate attention or serious damage will occur.
- Restoration, conservation, and reinstallation of the stained glass windows, including the Tiffany stained glass windows which are a unique historical feature in downtown Plymouth and are threatened by the aging metalwork and damaging moisture.

Unfortunately, moisture, combined with temperature differentials and environmental elements, greatly affect the stained glass windows, their lead and ironwork supports, interior and exterior frames, wood trim, sashes, weights, locks, caulking, glazing, masonry, and paint.

All forty windows installed in the Meetinghouse between 1899 and 1920 require treatment including proper ventilation to prevent further damage; Twenty-one windows require more significant restoration and repair. Twelve windows were designed by Edward Peck Sperry, who was one of the artisans employed by the Tiffany Glass and Decorating Company. One window, "The Signing of the Compact", is signed by Louis Comfort Tiffany, and its companion windows, "Civil Liberty" and "Religious Liberty" were designed and crafted by the Church Glass and Decorating Company, which was the name Tiffany Studios called itself at the time. The three Tiffany designed and crafted stained glass windows, "John Robinson Blessing the Pilgrims on Their Departure from Delftshaven," exhibit the most serious structural problems – cracked glass, lead deterioration, weakened supports – and are in danger of collapse.

The urgent needs of the stained glass windows will be corrected through the following primary goals of the restoration project:

- **Correcting deflection** – Deflection is the bowing and bending of the individual leaded panels away from their original, flat design plane. The primary cause is the force generated by the expansion/contraction cycle. The force is distributed throughout the window as a function of the concentration of the lead comes present in an area, and the temperature differentials that the window experiences. The ability of the window to resist deflection is determined by many factors, including pattern of lead lines; insufficient or poorly applied support bars; the panel fitting too tightly into its frame; the use of hard-setting sealant compounds; and the use of soft alloy to fabricate the lead comes. All of the stained glass windows exhibit some deflection. In particular,

multiple, thin borders have allowed the panel to fold as seen at the bottom section of the "Civil Liberty" window in the chancel area.

- **Repairing broken glass** – There is incidence of cracked and broken glass throughout the windows in need of restoration, especially in the windows located in the left and right nave aisle of the Sanctuary. The cracks and breaks are mainly caused by deflection where the window bends beyond the tensile strength of the glass. Long, thin pieces and complex concave shaped pieces tend to be the first to break. Also, rapid deceleration is a common cause of glass breakage. When the ventilators are closed shut, strong forces exerted on the panel, breaking the weaker pieces.

- **Basic conservation treatment** – Hygroscopic layers of accretions and dirt that hold moisture and damage fragile glass will become detrimental to the integrity of the stained glass windows at First Parish Meetinghouse (interior and exterior). Carefully removing built-up layers of accretions and dirt is necessary.

- **Correcting metal fatigue** – Stained and leaded glass windows are designed to flex and move when subject to the stresses of wind loads and the effects of expansion and contraction. This constant flexing of the lead came matrix results in failure due to metal fatigue over long periods of time. The evidence of this failure can be seen with close inspection of the lead comes in some of the stained glass windows in the nave aisle, and also in the plated opalescent glass windows of the balcony ("John Robinson"). Broken solder joints and small cracks in the lead came develop. These stress cracks are more serious, and evince the need for the replacement of the lead comes. The addition of trace amounts of copper and/or silver to the lead alloy used for the comes during the restoration of the windows will greatly magnify the lead comes resistance to metal fatigue.

- **Conserving and repairing window sashes and exterior woodwork** – Erecting scaffolding and removing the existing plexi-protective glass is necessary for the stained glass restoration to occur. Woodwork and sashes will also require extensive work, including, venting, removal of existing paint layers, wet and dry sanding, apply of Val-Oil consolidant to reverse dryness, apply West System epoxy in conjunction with Araldite faring epoxy to repair areas of deterioration, provide wooden "Dutchman" to areas beyond epoxy repair, replace missing sections of woodwork, prime with alkyd primer, apply Sikaflex caulking in joints of woodwork and at woodwork junctions and masonry junctions, apply two coats of latex coat to exterior, removal of existing window sashes and install temporary plywood, apply interior matching paint, reinstall sashes to working order, including weights and locks, etc., complete weather-stripping system, apply marine varnish where necessary.

This particular restoration and preservation project will allow First Parish:

1. To save a treasured and vital part of Plymouth history, one of the Town's most visible and visited downtown historic sites.
2. To embark on a program to address immediate and serious building needs, and obviate the need for major work for approximately the next 100 years or longer.

B. Project Budget:

Stained Glass Window Restoration:

Forty windows	\$307,000
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Meetinghouse Restoration:

Replace tower gutter	\$35,000
North and South gutters	\$50,000
Eastern Elevation mortar replacement with scaffolding	\$160,000
Replace mortar for Bell Tower (3 sides)	\$70,000
Repoint North and South elevations	\$20,000
Chimney repair	\$30,000
Furnace	\$85,000
Contingency	\$50,000
Subtotal	\$500,000

Future Maintenance Fund	\$100,000
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Fundraising, Engineering, Architectural and Administrative Costs	\$100,000
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TOTAL PROJECT COST:	\$1,007,000
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C. Amount of Funding Requested:

First Parish Meetinghouse (1899) respectfully requests \$307,000 from the Community Preservation Committee to repair, restore, and conserve the building's stained glass windows. This amount represents one-third of the total project budget.

D. Other Sources of Funding:

First Parish Meetinghouse has embarked on a \$1 million capital campaign in support of this project, *Our History, Our Heritage, Our Community – The Campaign for First Parish Meetinghouse*. In just six months, nearly \$100,000 has been raised from private donors to support the repair and restoration of the façade, and fundraising continues. A volunteer Honorary Committee are assisting with fundraising for the Campaign, and includes a diverse group of experts in history, tourism, community relations and individuals with a direct connection to First Parish. If Community Preservation Act funds are granted, additional funds can be leveraged from foundations, corporations and individuals.

E. Projected Timeline:

July 2012 – December 2012	Preliminary restoration of the façade work begins
January 2013 – June 2013	Restoration work continues on the façade; Stained glass restoration work begins
July 2013 – December 2013	Restoration work continues
January 2014 – June 2014	Restoration work is completed

F. How does this request benefit the Town of Plymouth and meet the goals of the Community Preservation Act?

The restoration and preservation of First Parish Meetinghouse and its stained glass windows provides significant benefits to the Town of Plymouth.

First Parish Meetinghouse (1899) stands sentinel over 400 years of rich history in Plymouth. While it is recognized as the oldest continuous church and the oldest ministerial organization of any kind in the United States, First Parish is an integral and necessary part of secular community life in Plymouth.

First Parish Meetinghouse is the centerpiece of Plymouth's historic Town Square, and is at the gateway of Plymouth's historic Burial Hill. Dedicated as the National Memorial Pilgrim Church, it represents the Pilgrim Story, a story at the genesis of our collective history as Americans.

The mythic images of the Pilgrims are vividly captured in the stained glass windows of First Parish. There are forty windows throughout the parish, windows that provide light and inspiration, tell the epic story of the Pilgrims and the founding of America, showcase the exquisite craftsmanship of Edward Peck Sperry of Tiffany Studios, and represent the pride and legacy of Mayflower descendants and their families.

Within the belfry resides the Town Bell. Since the 1600s, a Town Bell, housed in each of the First Churches, has marked time for Plymouth's residents and visitors.

Plymouth residents rely on First Parish to provide a venue for services in the Unitarian Universalist faith, life-affirming events like weddings, funerals, memorial services, and celebrations of family and love, education programs, counseling programs, meeting space, artist space, youth groups, interfaith projects, overnight shelter to homeless men during the winter season, cultural activities, including book groups, theatrical performances, vocal performances, as well as practice space for performers. Over the past three years, nearly 12,000 individuals have benefitted from First Parish's generous open door policy for Plymouth residents and the greater Plymouth community.

In addition, Kendall Hall is the meeting place for Native American groups to gather on Thanksgiving Day for their National Day of Mourning, and the General Society of Mayflower Descendants hold their opening meetings at First Parish every other session.

Tourism is a major revenue generator for Plymouth and the region, with more than one million people visiting every year. With its rich history, First Parish is a historical and cultural destination point for visitors from around the world. First Parish has welcomed 3,000 visitors in the last three years from 38 states and 12 foreign countries for historically accurate tours during the summer season.

First Parish's restoration project fully reflects the goals of the Community Preservation Act specific to preservation and restoration of historic sources. The historic appearance of First Parish will remain, and only approved materials and processes will be used for the historic restoration of the façade and windows.

Standing where the Pilgrims built their fort, First Parish Meetinghouse was and is the center of the Plymouth community for residents and visitors, is a resource for community groups, and remains the centerpiece of the historic downtown community.

G. Addendum

1. Estimates for proposed work – Stained glass window consultants
2. Proof of historical significance
3. Preservation restriction
4. IRS determination letter
6. List of volunteers involved with the project
5. Letters of support

Serpentino Stained & leaded Glass INC.

21 Highland Circle, Needham, MA 02494, Tel. (781) 449-2074, Fax. (781) 449-0821 www.serpentinostainedglass.com

April 22, 2011

Ms. Jan Palmer-Tarbox
Mr. Rick McDonald
First Parish in Plymouth
19 Town Square
Plymouth, MA 02360

Re: Repair and restoration of the stained glass windows at the First Parish Church

STAINED GLASS WINDOW RESTORATION REPORT FIRST PARISH IN PLYMOUTH

Dear Jan and Rick,

It was a pleasure meeting you both at the Preservation Alliance event held at our studio. I hope you enjoyed the day and hopefully left knowing a little more about stained glass, its deterioration and proper restoration.

Thank you for giving me the opportunity to view and inspect the glorious windows in your Church, and provide you with a report and proposal for the repair and restoration work necessary on these most exquisite windows. I was glad to hear that you share my philosophy in regards to the conservation methods to be used while working on the windows. During the last thirty years, our company has restored numerous plated, multi-layered opalescent windows designed and fabricated by some of the most well-known and respected artists of the opalescent glass era. We are very familiar with the methods of fabrication and related issues, such as structural weaknesses and paint instability. The goal is to restore these windows maintaining as much of the original fabric as possible, thus preserving a part of history and the work created by some of America's most talented artists, ones who changed the way we look at stained glass today by using opalescent glass in this centuries-old art form.

Most of the windows in the First Parish are in good condition, requiring little to no work at this time. There are some, however, which exhibit varying degrees of deterioration, such as deflection, lead fatigue as well as cracked and broken glass. The most obvious and in most need of work are the clear textured decorative windows located on the left and right nave aisle of the Sanctuary, and the three Balcony windows,

"John Robinson Blessing the Pilgrims on their Departure from Delft Haven".

DESCRIPTION.

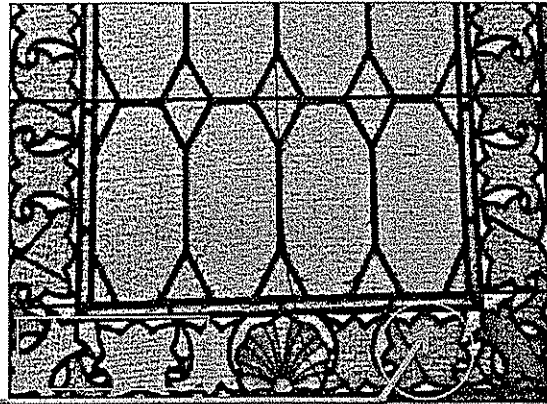
The majority of the windows in The First Parish in Plymouth were designed by the well-known artist, Edward Peck Sperry, and fabricated at the Tiffany Studio, also known at the time as the Church Glass and Decorating Company. In designing the windows that decorate The First Parish, Mr. Sperry exhibits his incredible and wide spectrum of capabilities as an artist and painter, from the stunning plated opalescent windows in the Chancel and Balcony, to the exquisite and delicate traditional painting and use of silver stain exhibited in the Narthex windows. Your parish is indeed very fortunate to have such an amazing collection of windows.

Main Sanctuary Windows

As mentioned to you during my visit, some of the leaded glass windows in the nave aisle were previously repaired. Unfortunately, most of them have suffered from ill-advised and poorly-executed workmanship, such as numerous pieces of mismatched glass replacement, shoddy soldering joints, wrong size and profile leads and poorly attached support bars.

Mismatched replacement glass →

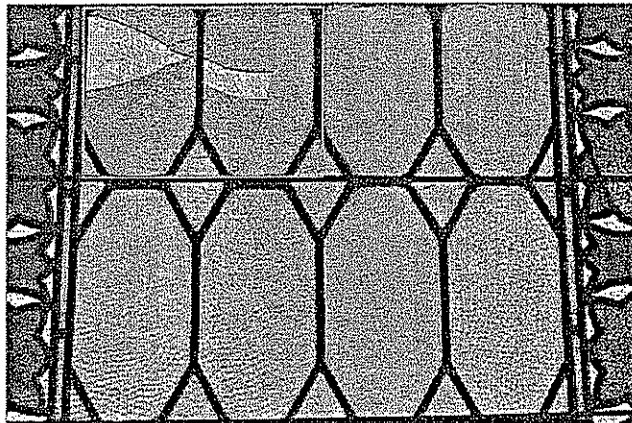
Dutchman repairs



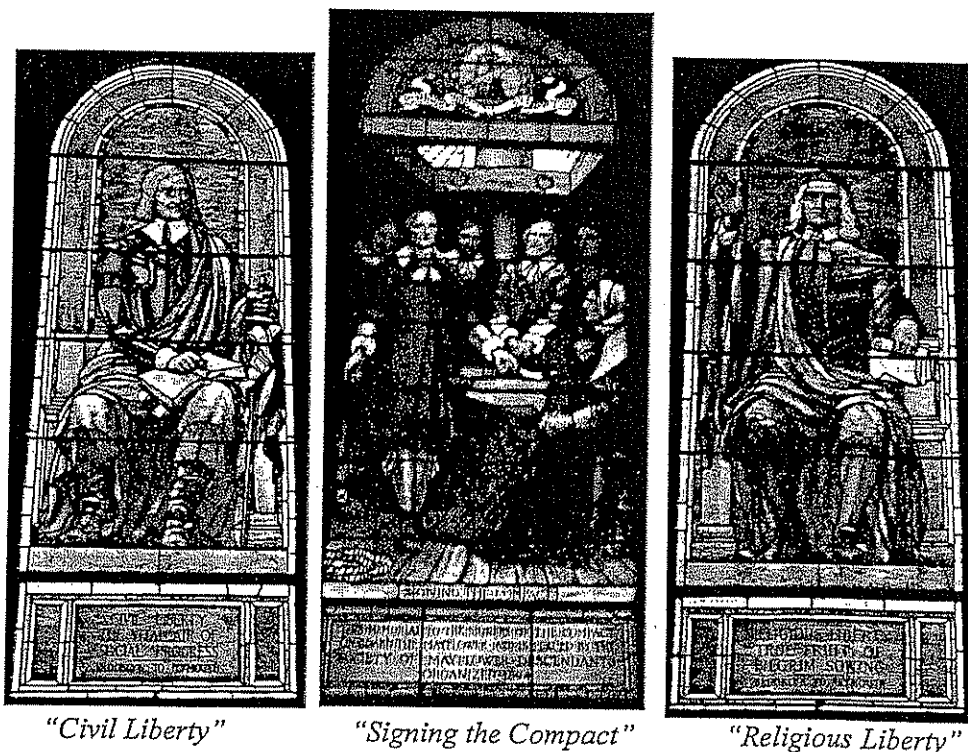
When the windows were removed and reinstalled during the last repair attempt, the wood moldings that secure the windows in their frames, were not re-installed and the windows are currently held in place with nails that are not firmly engaging the frames. As part of this upcoming restoration project, wood moldings should be cut and installed as they were originally.

Many of the decorative windows located on the right nave aisle of the Sanctuary, are in much worse condition than the windows on the left side. There are numerous pieces of broken and missing glass throughout some of these windows (see photo above). Many of the Sanctuary windows will need to be removed and re-leaded.

An itemized list of windows to be restored in order of priority will follow.



Chancel Windows



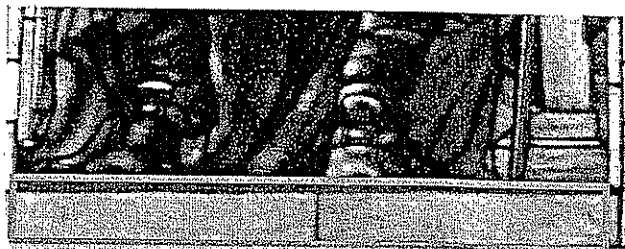
"Civil Liberty"

"Signing the Compact"

"Religious Liberty"

The three plated opalescent glass windows located in the Chancel, "Civil Liberty", "Signing the Compact" and "Religious Liberty", are a wonderful example of the American school of opalescent glass. Although the windows display the "Tiffany Glass & Decorating Co." signature plate they were, no doubt, designed by Edward Peck Sperry. For the most part, these windows are in good condition. The ventilator panels, which were at one point operable, have been sealed shut with silicone and also covered from the exterior with plastic.

The "Civil Liberty" window displays some lead deterioration, cracked glass as well as slight deflection, more pronounced in the bottom right of the window, just above the ventilator frame. The deflection is due to the weak leading design, where a long perpendicular lead line was used,



coupled with the weight of the multiple-layered section above this area, causing this already weak area to hinge. There is a long streak on the right side of the figure's face. My guess is that there is a crack in this area and it used to be covered by a lead flange. At some point the lead flange was removed and the area cleaned with a harsh chemical, leaving a bright, streak. It also appears that someone started to clean the area under the man's right eye, which also left a bright spot. These areas should be closely examined over a light table and under a microscope to determine extent of damage in order to determine the possible restoration solutions.

Balcony Windows



"JOHN ROBINSON BLESSING THE PILGRIMS ON THEIR DEPARTURE FROM DELFT HAVEN"

These three plated opalescent glass windows are in need of attention as they all exhibit lead deterioration, deflection and glass breakage. Most of the copper tie-wires that were soldered to the panels and twisted around the support bars, have pulled away and broken off, leaving the windows with no means of support. The deterioration of these windows has been accelerated by water infiltration in, and around, the walls. These three windows should be removed and restored as soon as possible.

North & South Narthex

All of the glass in the Narthex windows has one or more specialized surface treatment, such as glass painting and silver stain. The glass has been skillfully painted with trace, matte and enamel vitreous paints, with copious use of silver stain, one of the true stains in stained glass. The paint is made of ground glass, metallic oxide coloring agents and a flux to lower the melting temperature. It is typically applied to the interior surface of the glass via one or more media (eg. gum arabic and water, oil, alcohol). After drying, and manipulation of the paint with stiff brushes and/or wood picks, the glass is fired in a kiln between 1050F and 1250F depending on the chemical nature of the particular paint. Silver stain is a mixture of silver nitrate and a flux. It is typically applied to the exterior of the glass and



fired at 1000F to 1100F. The stain penetrates the surface of the glass, imparting a stain that may range from pale amber to deep orange. The final color of the stain is dependent upon the chemistry of the stain, the chemistry of the glass, the amount of stain applied and the temperature to which it is fired. A great example of range that can be obtained with silver stain can be seen in window N°6 located in the South Narthex.

All of the windows in the Narthex are in very good condition and require no major work at this time. Some of the Narthex windows, most prominently Window #6, exhibit some pitting of the fired paint. This is clearly visible on the figure's face (see photo on the right). There could be several reasons why this has occurred. There could have been some remnants of oil on the glass, which later caused the fired paint in those areas to lift and disappear. Or, there could have been an issue with that particular batch of vitreous paint. I do believe that it will not deteriorate further. If the Church wishes to, we can infill the "spots" using artists' oil paint. This technique is safe and completely reversible.



The following general types of deterioration were found during my inspection of the stained glass windows at The First Parish Church in Plymouth.

DEFLECTION.

Deflection is the bowing and bending of the individual leaded panels away from their original, flat design plane. Contrary to common belief, gravity and wind-loading play minor roles in the deflection of stained glass windows. The primary cause is the force generated by the expansion/contraction cycle. This force is distributed throughout the window as a function of the concentration of lead comes present in an area, and the temperature differential that the window experiences. The exact portion of the window that deflects is a function of the strength of the local force exerted, and the ability of that area of the window to resist deflection. The ability of the window to resist deflection is determined by many factors, some of which are:

1. Pattern of the lead lines. Weak patterns: straight lines form hinge joints allowing the panel to fold; concentric circles allow the focus of the circles to telescope in or out; multiple, thin borders allow the panel to fold as seen at the bottom section of the "Civil Liberty" window, in the Chancel area.
2. Insufficient or poorly applied support bars.
3. The panel fitting too tightly into its frame. This inhibits the ability of the panel to expand and contract within a flat plane.
4. The use of hard-setting sealant compounds. This inhibits the ability of the panel to expand within a flat plane.
5. The use of a soft alloy to fabricate the lead comes. These are more subject to bending than alloys containing small percentages of tin, silver and antimony.

BROKEN GLASS.

There is incidence of cracked and broken glass throughout the windows in need of restoration, especially in the windows located in the left and right nave aisle of the Sanctuary. The cracks and breaks are mainly caused by deflection where the window bends beyond the tensile strength of the glass. Long, thin pieces and complex concave shaped pieces tend to be the first to break. Also, rapid deceleration is a common cause of glass breakage. When the ventilators are slammed shut, strong forces are exerted on the panel, breaking the weaker pieces.

DIRT.

There is a great accretion of dirt on both surfaces of the glass. This layer of dirt may become hygroscopic, absorbing water and holding it close to the glass. This can be very detrimental to the painted glass, especially if it is fragile. The plated windows in the chancel and balcony show a greater amount of dirt and soot, not only on the surface of the glass, but in between each of the layers. If the windows are fabricated with three layers, they essentially have six layers of dirt and soot.

METAL FATIGUE.

Stained and leaded glass windows are designed to flex and move when subject to the stresses of wind loads and the effects of expansion and contraction. This constant flexing of the lead came matrix results in failure due to metal fatigue over long periods of time. The evidence of this failure can be seen with close inspection of the lead comes in some of the stained glass windows in the nave aisle, and also in the plated opalescent glass windows in the balcony. Broken solder joints and small cracks in the lead came develop. These stress cracks are more serious, and evince the need for replacement of the lead comes. The addition of trace amounts of copper and/or silver to the lead alloy used for the comes during the restoration of the windows will greatly magnify the lead come's resistance to metal fatigue.

PROPOSED RESTORATION

INTENT:

- There are two important aspects to any preservation program that will adequately deal with the problems of the stained glass windows at The First Parish Church in Plymouth.
1. The first is to make sure that the poor restoration practices of the past are not repeated.
 2. The second is to embark on a program that will rectify the problems of the present and obviate the need for major work for approximately the next century or longer. For the windows herein discussed, this means completely re-leading some of the stained glass windows in the nave aisle of the Sanctuary, and restoring by partially re-leading other windows as outlined in this report. During restoration it is important to rectify the original design flaws discussed earlier.

RESTORATION RECOMMENDATIONS.

(Please see attached window map)

Window #1

Main Entrance Transom

This arched leaded glass transom measuring approximately 84" x 42" is in good condition and requires no work at this time. There are a few pieces of cracked glass which seem to be stable.

Window #2

Interior Entrance Transom

This arched leaded glass transom measuring approximately 70" x 36" is in good condition and requires no work at this time.

SOUTH NARTHEX

Window #3

Painted window measuring approximately 14" x 46"

Figure of a roman soldier with painted inscription that reads:

"Be of good courage and he shall strengthen thy heart"

Window is in good condition. No work required at this time.

Exterior covered with obscured plastic, not vented.

Recommendation: Replace existing exterior covering with properly vented laminated glass.

Cost: \$455



Window #4

Painted window measuring approximately 14" x 46"

Five Pilgrims landing at Plymouth with painted inscription that reads: *"The landing at Plimoth"*

Window is in good condition. No work required at this time.

Exterior covered with obscured plastic, not vented.

Recommendation: Replace existing exterior covering with properly vented laminated glass.

Cost: \$455



Window #5

Painted window measuring approximately 14" x 46"

Signed by Edward Sperry, 1910

Pilgrims meeting Indians, with painted inscription that reads:

"The treaty with Massasoit"

Window is in good condition. No work required at this time.

Exterior covered with obscured plastic, not vented.

Recommendation: Replace existing exterior covering with properly vented laminated glass.

Cost: \$455



Window #6

Painted window measuring approximately 14" x 46"

Female figure holding a dove, with painted inscription that reads: *"As much as lieth in you live peaceably with all man"*

Window is in good condition. No work required at this time.

Exterior covered with obscured plastic, not vented.

Recommendation: Replace existing exterior covering with properly vented laminated glass.

Cost: \$455



Window #7

Painted window measuring approximately 14" x 46"

Female figure with painted inscription that reads:

"Justice and judgment are the habitation of thy throne"

Window is in good condition. No work required at this time.

Exterior covered with obscured plastic, not vented.

Recommendation: Replace existing exterior covering with properly vented laminated glass.

Cost: \$455



Window #8

Painted window measuring approximately 14" x 46"

"Bradford's rebuke to Oldham and Lyford"

Window is in good condition. No work required at this time.

Exterior covered with obscured plastic, not vented.

Recommendation: Replace existing exterior covering with properly vented laminated glass.

Cost: \$455



Window #9

Painted window measuring approximately 14" x 46"

"I have finished my court y have kept my faith"

Window is in good condition. No work required at this time.

Exterior covered with obscured plastic, not vented.

Recommendation: Replace existing exterior covering with properly vented laminated glass.

Cost: \$455



MAIN SANCTUARY - LEFT NAVE AISLE

Window #10 The ventilator panel, measuring approximately 26" x 21", exhibits advanced lead fatigue and deterioration as well as severe deflection. Many of the solder joints have cracked. There are numerous pieces of cracked, broken and missing original glass. This ventilator panel should be removed, properly restored and re-leaded as soon as possible. The rest of the window was previously repaired and is in good condition. The wood moldings on the interior that hold the window in place are missing and will be replaced. The exterior protective glazing should be vented for air circulation, which will minimize lead deterioration in the future.

Cost for the above work on this window is: \$4,250

Window #11 This window, measuring approximately 27" x 60", exhibits a slight deflection at the bottom section, but the lead is in good condition. The window should be removed, flattened and its structural system augmented. The wood moldings on the interior that hold the window in place are missing and will be replaced. The exterior protective glazing should be vented for air circulation, which will minimize lead deterioration in the future.

Cost for the above work on this window is: \$4,750

Window #12 The ventilator panel, measuring approximately 26" x 21", exhibits advanced lead fatigue and deterioration as well as severe deflection. Many of the solder joints have cracked. There are numerous pieces of cracked, broken and missing original glass. This ventilator panel should be removed, properly restored and re-leaded as soon as possible. The top section of the window also needs to be removed and the bottom section repaired. The wood moldings on the interior that hold the window in place are missing and will be replaced. The exterior protective glazing should be vented for air circulation, which will minimize lead deterioration in the future.

Cost for the above work on this window is: \$5,150

Window #13 Overall condition is good and no major work is required at this time. There is a slight deflection at the bottom of the window, but it is not severe enough to warrant the removal of the window. I recommend monitoring the window periodically to see if the deflection progresses. The exterior protective glazing should be vented for air circulation, which will minimize future lead deterioration.

Cost for the above work on this window is: \$750

Window #14 The ventilator panel, measuring approximately 26" x 21", exhibits advanced lead fatigue and deterioration as well as severe deflection. Many of the solder joints have cracked and there are several pieces of cracked glass. This ventilator panel should be removed, properly restored and re-leaded as soon as possible. The rest of the window is in good condition and needs no work at this time. The exterior protective glazing should be vented for air circulation, which will minimize future lead deterioration.

Cost for the above work on this window is: \$4,250

*re-repaired
re-leaded
F. Schip*

Window #15 The ventilator panel in this window measuring approximately 26" x 21", exhibits advanced lead fatigue and deterioration as well as severe deflection. Many of the solder joints have cracked and there are several pieces of cracked glass. This ventilator panel should be removed, properly restored and re-leaded as soon as possible. The rest of the window was previously repaired and is in good condition. However, it was reinstalled incorrectly which should be rectified. This can be done by removing the window and re-setting it properly in its frame. The exterior protective glazing should be vented for air circulation, which will minimize future lead deterioration.
Cost for the above work on this window is: \$4,350

Window #16 Overall condition is good and no major work is required at this time. There is a slight deflection at the bottom of the window, but it is not severe enough to warrant the removal of the window. I recommend monitoring the window periodically to see if the deflection progresses. The exterior protective glazing should be vented for air circulation, which will minimize future lead deterioration.
Cost for the above work on this window is: \$750

Window #17 The ventilator panel, measuring approximately 26" x 21", exhibits advanced lead fatigue and deterioration as well as severe deflection. Many of the solder joints have cracked. There are numerous pieces of cracked, broken and missing original glass. This ventilator panel should be removed, properly restored and re-leaded as soon as possible. The rest of the window also needs to be repaired, but not re-leaded as the lead matrix is in good condition. The top section above the ventilator should be removed, flattened, repaired, and re-waterproofed. The exterior protective glazing should be vented for air circulation, which will minimize future lead deterioration.
Cost for the above work on this window is: \$7,620.

Window #18 Overall condition is good and no major work is required at this time. The exterior protective glazing should be vented for air circulation, which will minimize future lead deterioration.
Cost for the above work on this window is: \$750

Window #19 The ventilator panel, measuring approximately 26" x 21", exhibits advanced lead fatigue and deterioration as well as severe deflection. Many of the solder joints have cracked. There are several pieces of cracked, broken and missing original glass. This ventilator panel should be removed, properly restored and re-leaded as soon as possible. The rest of the window is in good condition and no work is necessary at this time. The exterior protective glazing should be vented for air circulation, which will minimize future lead deterioration.
Cost for the above work on this window is: \$4,250

CHANCEL

Window #20 "Civil Liberty" This is a plated opalescent window, most likely designed by Edward Peck Sperry and fabricated by the Tiffany Studios. This window exhibits some deflection on the right side of the bottom section, caused by a weak leading concept, where one continuous long perpendicular lead came was used, eventually causing this particular area to "hinge" and deflect. The lead matrix throughout the window is in generally good condition, so the window does not need to be completely re-leaded. There are several pieces of cracked glass throughout the window. Of most concern is the missing paint under the right eye and the long white streak across the right side of the figure's face. It is very difficult to determine exactly what could have caused this, but we can speculate that it was a well, intended person who tried to clean the dirt off the face. In order to understand better what has happened to these areas, and a proper conservation approach, the window must be removed and the painted face inspected under a microscope on a light table. My recommendation is to remove this entire window and flatten the deflection at the bottom panel. After flattening, the structural system in the problem area will be augmented in order to prevent deflection from occurring again. The window will be partially and selectively dismantled and re-leaded only where necessary. All cracked glass will be repaired and retained. The face of the male figure will be closely inspected, and once we determine the cause of the paint loss, the Church will be notified and a plan of conservation will be recommended. The silicone sealing the ventilator panel shut will be cut and removed and the ventilator will be rendered operable again. After restoration and conservation, the window will be reinstalled in its opening. The existing obscured plastic covering the exterior of the window will be removed and discarded and new, vented clear laminated glass will be installed.

Cost for the above work on this window is: \$39,850

Window #21 "Signing the Compact" This window is in good condition and requires little work at this time. My only recommendation would be to remove the obscured plastic covering the exterior of the window, and install new, vented, clear laminated glass. The once operable ventilator panel was previously removed and re-leaded and it is in good condition structurally, however it was sealed shut with silicone sealant. We will cut and removed the silicone and the ventilator will be rendered operable again.

Cost for the above work on this window is: \$3,850

Window #22 "Religious Liberty" This window is in good condition and requires little work at this time. As with the "Signing the Compact" window, I recommend to removing the obscured plastic covering the exterior of the window, and installing new, vented, clear laminated glass. The silicone sealing the ventilator panel shut will be cut and removed and the ventilator will be rendered operable again.

Cost for the above work on this window is: \$2,750

MAIN SANCTUARY - RIGHT NAVE AISLE

Window #23 The ventilator panel, measuring approximately 26" x 21", exhibits advanced lead fatigue and deterioration as well as severe deflection. Many of the solder joints are cracked and broken. There are numerous pieces of cracked, broken and missing original glass. This ventilator panel should be removed, properly restored and re-leaded as soon as possible. The rest of the window is in good condition and requires no work at this time. The exterior protective glazing should be vented for air circulation, which will minimize future lead deterioration.

Cost for the above work on this window is: \$4,150

Window #24 The ventilator panel, measuring approximately 26" x 21", exhibits advanced lead fatigue and deterioration as well as severe deflection. Many of the solder joints are cracked and broken. There are numerous pieces of cracked, broken and missing original glass. This ventilator panel should be removed, properly restored and re-leaded as soon as possible. The rest of the window also needs to be repaired, but not re-leaded as the lead matrix is in good condition. The top section above the ventilator should be removed, flattened, repaired, and re-waterproofed. The exterior protective glazing should be vented for air circulation, which will minimize future lead deterioration.

Cost for the above work on this window is: \$7,620

Window #25 The ventilator panel, measuring approximately 26" x 21", exhibits advanced lead fatigue and deterioration as well as severe deflection. Many of the solder joints are cracked and broken. There are numerous pieces of cracked, broken and missing original glass. This ventilator panel should be removed, properly restored and re-leaded as soon as possible. The rest of the window is in good condition and requires no work at this time. The exterior protective glazing should be vented for air circulation, which will minimize future lead deterioration.

Cost for the above work on this window is: \$4,150

Window #26 This window is in good condition and requires no work at this time. There is a slight deflection at the bottom, but it is not of concern at this time. The window should be monitored and periodically inspected to see if the deflection progresses. The exterior protective glazing should be vented for air circulation, which will minimize future lead deterioration.

Cost for the above work on this window is: \$750

Window #27 The ventilator panel, measuring approximately 26" x 21", exhibits advanced lead fatigue and deterioration as well as severe deflection. Many of the solder joints are cracked and broken, and there are several pieces of cracked, broken and missing glass. This ventilator panel should be removed, properly restored and re-leaded as soon as possible. The rest of the window is in good condition and needs no work at this time. The exterior protective glazing should be vented for air circulation, which will minimize future lead deterioration.

Cost for the above work on this window is: \$4,650

Window #28 The ventilator panel, measuring approximately 26" x 21", exhibits advanced lead fatigue and deterioration as well as severe deflection. Many of the solder joints are cracked and broken, and there are several pieces of cracked, broken and

missing glass. This ventilator panel should be removed, properly restored and re-lead as soon as possible. The rest of the window is in good condition and needs no work at this time. The exterior protective glazing should be vented for air circulation, which will minimize future lead deterioration.

Cost for the above work on this window is: \$4,530

Window #29 The stained glass window is in good condition and requires no major work at this time. The wood moldings are missing and should be replaced. The exterior protective glazing should be vented for air circulation, which will minimize future lead deterioration.

Cost for the above work on this window is: \$1,250

Window #30 The ventilator panel, measuring approximately 26" x 21", exhibits advanced lead fatigue and deterioration as well as severe deflection. Many of the solder joints are cracked and broken, and there are several pieces of cracked, broken and missing glass. This ventilator panel should be removed, properly restored and re-lead as soon as possible. The rest of the window is in good condition and needs no work at this time. New wood moldings will be provided and reinstalled. The exterior protective glazing is broken and should be replaced with new glass vented for air circulation, which will minimize future lead deterioration.

Cost for the above work on this window is: \$5,250

Window #31 The stained glass window is in good condition and requires no major work at this time. The wood moldings are missing and should be replaced. The exterior protective glazing is broken and should be replaced with new glass vented for air circulation, which will minimize future lead deterioration.

Cost for the above work on this window is: \$2,850

Window #32 The ventilator panel, measuring approximately 26" x 21", exhibits advanced lead fatigue and deterioration as well as severe deflection. Many of the solder joints are cracked and broken. There are several pieces of cracked, broken and missing original glass. This ventilator panel should be removed, properly restored and re-lead as soon as possible. The rest of the window is in good condition and no work is necessary at this time. The exterior protective glazing should be vented for air circulation, which will minimize future lead deterioration.

Cost for the above work on this window is: \$4,850

NORTH NARTHEX

Window #33 "Truth"

Painted window measuring approximately 19" x 36".

Window is in good condition. No work required at this time.

Exterior covered with obscured plastic, not vented.

Recommendation: Replace existing exterior covering with properly vented laminated glass.

Cost: \$420



Window #34 "*Destruction of the Pilgrim's press*", painted window measuring approximately 19" x 36".

Window is in good condition. No work required at this time. Slight deflection observed at the center of the window, but not of concern at this time. Exterior covered with obscured plastic, not vented.

Recommendation: Replace existing exterior covering with properly vented laminated glass.

Cost: \$420



Window #35 "*Light*", painted window measuring approximately 19" x 36".

Window is in good condition. No work required at this time. Exterior covered with obscured plastic, not vented.

Recommendation: Replace existing exterior covering with properly vented laminated glass.

Cost: \$420



Window #36 "*The signers of then compact*", painted window measuring approximately 19" x 36".

Window is in good condition. No work required at this time. Exterior covered with obscured plastic, not vented.

Recommendation: Replace existing exterior covering with properly vented laminated glass.

Cost: \$420



Window #37 "*The Mayflower at Cape Cod*"

Painted window measuring approximately 19" x 36".

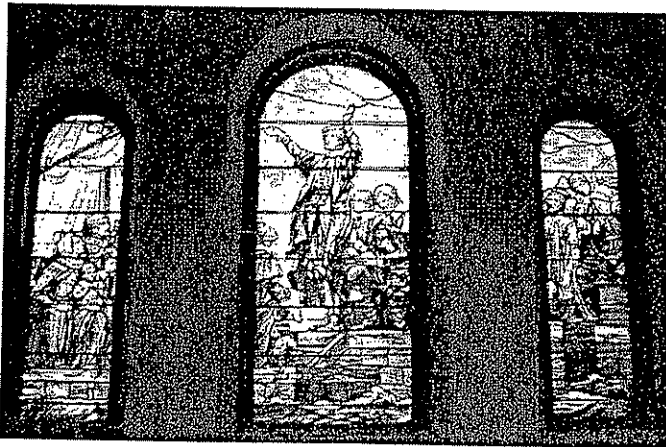
Window is in good condition. No work required at this time. Exterior covered with obscured plastic, not vented.

Recommendation: Replace existing exterior covering with properly vented laminated glass.

Cost: \$420



BALCONY



JOHN ROBINSON BLESSING THE PILGRIMS ON THEIR DEPARTURE FROM DELFT HAVEN

These three plated opalescent windows (#'s 38, 39, 40) display serious structural problems as well as some lead deterioration. Most of the copper tie wires have pulled away from the leads and support bars, leaving the individual panels very weak and in danger. Most of the perimeter glazing-compound (putty), sealing the windows in their frames has come off. There are numerous pieces of cracked glass throughout the windows. These three windows should be removed restored and properly re-installed. After re-installation, the exterior plastic, covering the stained glass windows, will be removed and new, vented, clear laminated glass will be installed. If not removed soon, this window will continue to deteriorate, more historic glass will crack and it will eventually collapse.

Cost for the restoration of the three stained glass windows and new laminated protective glazing: \$105,250

All costs include labor, materials, insurance, ladders, scaffolding and/or aerial lifts.

RESTORATION PROCEDURES.

The following are procedures that will be employed during the restoration of the stained glass windows at The First Parish Church in Plymouth.

IN SITU DOCUMENTATION: Before removal, the windows will be photographed digitally in RAW format. All photography will be clear and in-focus.

REMOVAL & TRANSPORTATION: The windows will be removed from their current location using the utmost care and sensitivity. Any loose fragments of glass will be cataloged, and unstable pieces will be stabilized, to assure that no historic glass is lost or moved from its original setting. If necessary, the windows will be stabilized with 3M #471 adhesive tape. This tape has a solvent-resistant backing that allows for the tape to be removed without damaging the glass. No tape will be adhered to painted surfaces. All tape will be removed in the studio with cotton swabs dipped in acetone. All blocking materials will be securely fastened and caulked to prevent the infiltration of water and air from the exterior, and painted in order to harmonize with the building's interior and exterior. The windows will be safely and securely transported to our studio in Needham.

IN STUDIO PHOTOGRAPHY: Once in the studio, and before commencing work, each section of the windows will be photographed digitally in color in RAW format. A panel identification sign and a scale will be included within the photo frame. All photography will be clear and in-focus.

DOCUMENTATION RUBBINGS: The documentation rubbings will include all sections and layers of the panels and the following information will be recorded on the rubbings: All lead lines; Overall sizes of the panel; Widths of the leads and designation as to flat or round; Broken, missing, or cracked pieces of glass; Deflected areas; Support bar and tie wire attachment points.

DISMANTLING: Where necessary, the panels will be carefully taken apart and the glass placed onto its respective locations on the rubbings. It is important that as much of the original lead as possible be retained.

CLEANING: Cleaning will be accomplished with a mild solution of Triton X (a non-ionic detergent) and water. Utmost care will be used around all painted areas. Painted areas will be cleaned with cotton swabs and Naphtha (Petroleum) under a microscope. More detailed information on the painted glass to follow in this report.

CRACKED GLASS: The treatment of the cracked glass is critical to the success of this project. There are many cracked pieces of glass now in the windows. All cracked glass will be repaired. Wherever possible, this will be accomplished by edge-gluing or copper-foil repairs. All of the original glass will be kept in the

windows. One of the following procedures will be used for the repair of cracked glass:

COPPER-FOIL TECHNIQUE. This technique will be used in areas where a high degree of strength is necessary; the impact of the added line is negligible; and the need for reversibility is high.

SILICONE EDGE-GLUING. This technique will be used where the need for strength is moderate; a flexible joint is desirable (due to continued stress); and the minimal adverse visual effect of the joint is negligible. This type of glue is not affected by temperature, humidity, or ultra-violet radiation.

EPOXY EDGE-GLUING. This technique will be used where the need for strength is high; the need for a near invisible joint is high; and where the repair can be protected from ultra-violet radiation. This is most appropriate for gluing painted pieces of glass; infusing cracks in the glass and infusing shattered glass.

RELEADING: Only where necessary, areas of the panels will be re-leaded. In these cases, new lead comes will match the original profile in all dimensions. Where indicated, the lead matrix in the ventilator panels located on the left and right nave aisle of the main sanctuary, is deteriorated enough that complete re-leading is recommended at this time.

WATERPROOFING. After re-leading or partial re-leading, waterproofing putty will be forced under the leads of the panels. The putty will be composed of whiting (calcium carbonate) and an organic oil medium.

SUPPORT SYSTEM: All of the original support bars of the windows we transport to our studio will be cleaned, sandblasted and powder coated with a flat black finish. Additional support, such as brass fins or brass bars, may be used on the exterior of the windows where severe deflection is present. The purpose of adding brass fins or brass bars to the exterior of the windows is to augment the existing support system in sections of the windows have deflected, yet remaining unobtrusive from the interior.

REINSTALLATION: The stained glass windows will be set into a flexible, polyurethane caulk system employing appropriate ethafoam backer rods or bond breaking tape. The windows must be correctly sized to fit into the opening. This means that the actual window opening size should be 1/8" to 3/16" larger than the full size of the stained glass window, in height as well as width. These allowances will permit the window to expand and contract without bowing and bulging.

FINAL DOCUMENTATION: After restoration and conservation, digital photos in RAW format will be taken of each panel, in the studio and in situ after reinstallation. All archival rubbings, and digital photography will be returned to The First Parish Church.

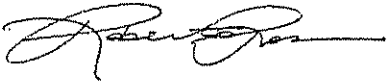
PROTECTION GLAZING: Wherever specified, the existing protective glazing will be vented for air circulation. Where indicated, the windows currently covered with obscured plastic, new clear laminated glass will be installed and vented for air circulation.

I hope you find this report helpful. If I can be of further assistance to you, please do not hesitate to contact me. If you would like to discuss your options, or proceed with all or some of the work outlined in my report, please let me know as our schedule for 2011 is quickly filling.

I look forward to hearing from you and to the possibility of working with you on these most exquisite windows.

Please feel free to call me on my cell phone (781) 760-7602.

Report prepared by:

A handwritten signature in cursive script, appearing to read 'Roberto Rosa', with a horizontal line extending to the right.

Roberto Rosa
Serpentino Stained Glass, Inc.