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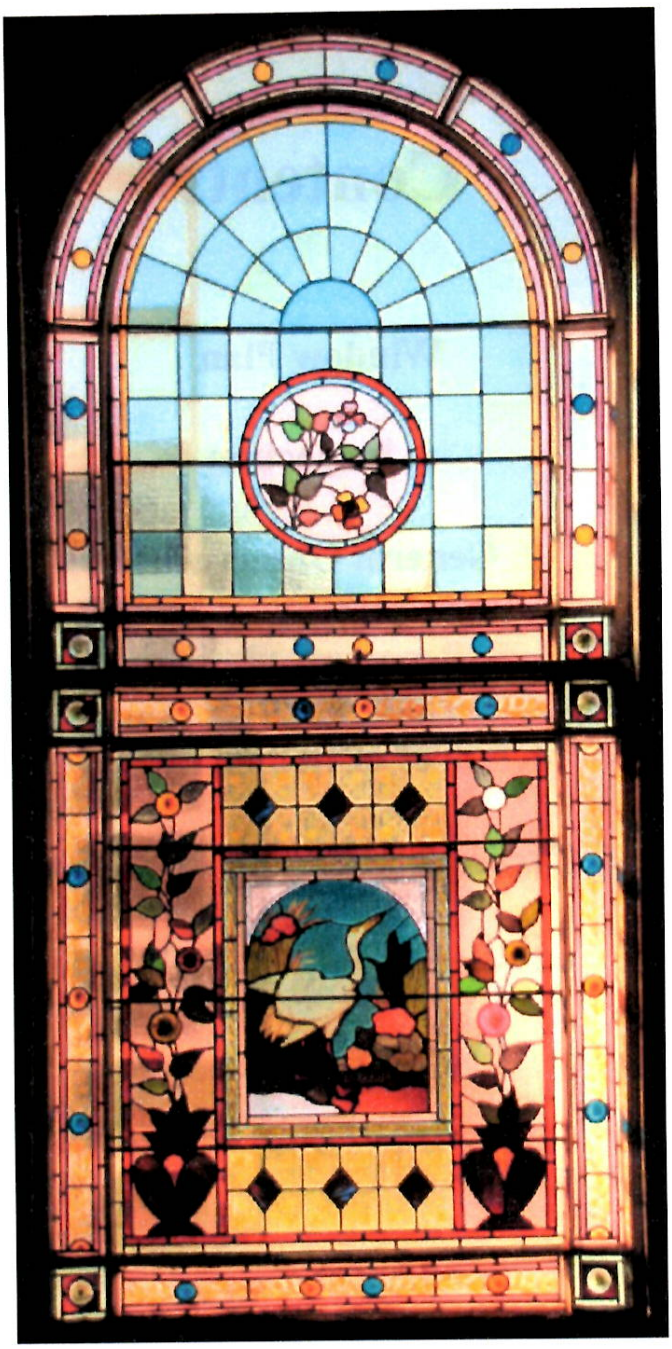
Report on the Condition of Stained and Leaded Glass Windows at 293 Church Street, Richmond



Robert Rusev Stained Glass
7/1625 Main Road
Research, Victoria, 3095
0407092841
robertrusev@iprimus.com.au

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Robert Rusev Stained Glass
7/1625 Main Road
Research, Victoria, 3095
0407092841
robertrusev@iprimus.com.au

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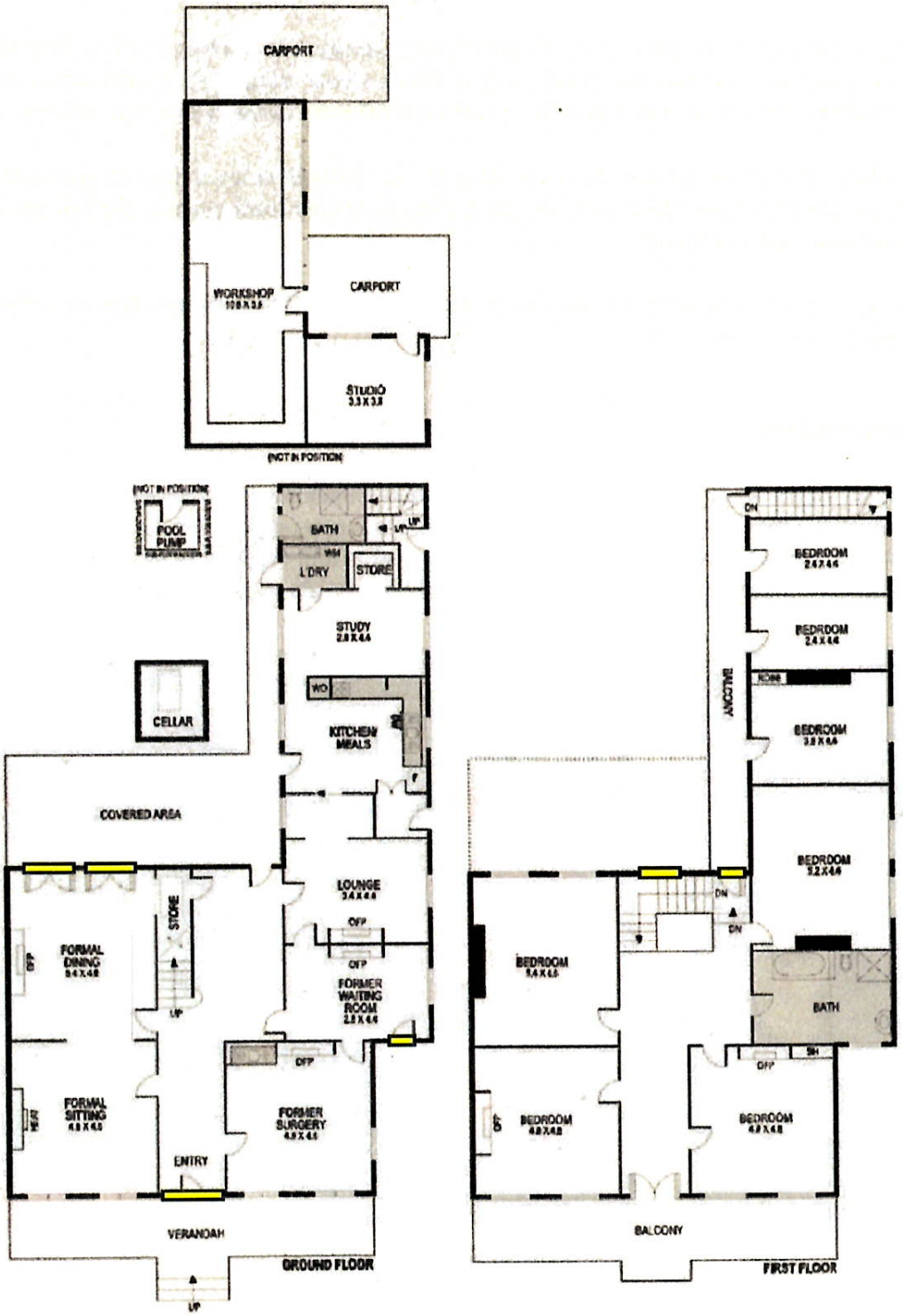

Window Location

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Report on the Condition of Stained and Leaded Glass Windows at 293 Church Street, Richmond

1. Inspection

The stained and leaded glass windows at 293 Church Street, Richmond were inspected on 18th July 2018 in order to ascertain the extent of their deterioration, formulate a conservation strategy and submit an estimate of cost. The windows were inspected internally from floor level and externally from ground level.

The inspection took in the five lights in the main entrance, one fanlight in the former surgery waiting room, two casement lights in the formal dinning room, the second floor door leading out to the balcony and the stained glass window in the stairwell.

The windows all vary in condition from sound to severe and almost all of them now require maintenance or restoration work to ensure their stability.

2. General Observations

The main entrance lights are in sound condition. There is minor buckling in the uppermost lights and the fanlight directly above the door is a recent replacement. There is several glass breaks, the most prominent being the lower left painted roundel. This roundel is a fair quality non original replacement and should be reproduced. There are several other good quality non original painted replacements throughout the entrance.

Non original painted replacements

Robert Rusev Stained Glass
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Research, Victoria, 3095
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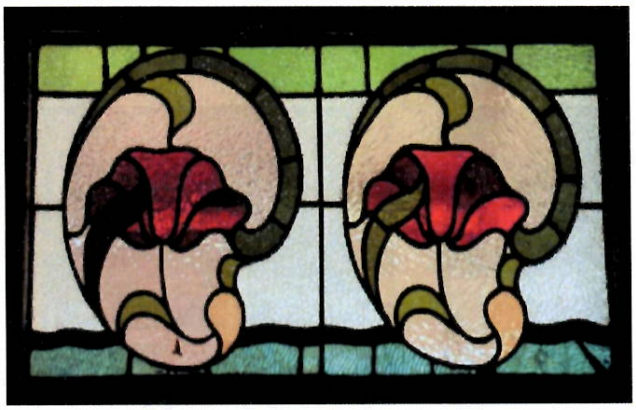
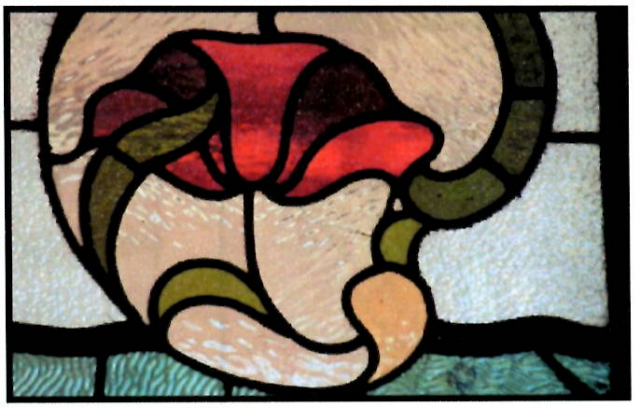
The waiting room fanlight has ten glass breaks and is bulging inward and as a result the window has worked itself out of its rebate along the top arch. It has been graded at Stage 2 of deterioration.

The formal dining room contains two leadlight windows. The left panel has two glass breaks, the right panel has three. Both panels however are sound.





The door on the second floor exiting out onto the balcony contains stained glass of high quality. It is made up of twelve individual panels with two painted roundels. It is at Stage 2-3 of deterioration. Multiple glass breaks can be found across all the panels along with torn tie wires and severe buckling. Two of the side panel are damaged beyond repair and will require excavating to the work bench.

The two main central panels have been set one atop the other using the traditional method of seating a window onto a joining seam. This is traditionally used in church installations. This is failing and the window is bulging outward due to the external timber bead being lost or never installed. A number of tie wires have also torn away from the panel compromising the windows structural support.

The door itself needs remedial work to ensure it opens and closes easily and gently to minimize the stress on the glass within.

7/1625 Main Road
Research, Victoria, 3095
0407092841
robertrusev@iprimus.com.au

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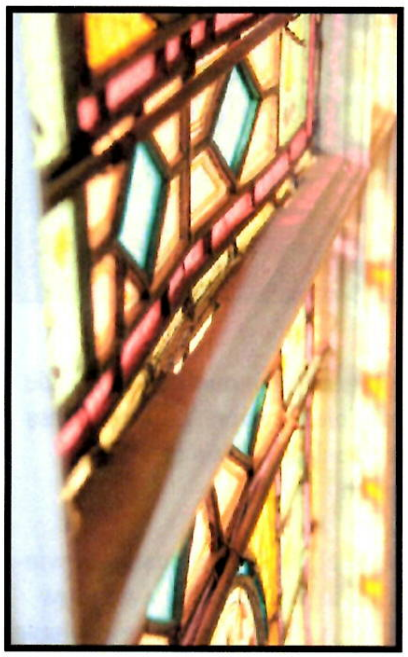
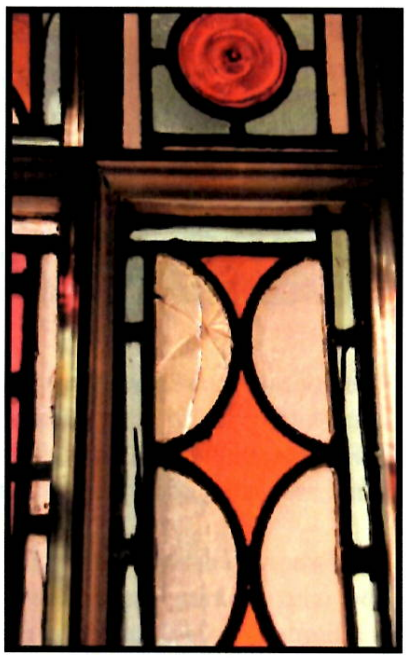


Bulging and torn tie wires

Severe buckling



Multiple glass breaks

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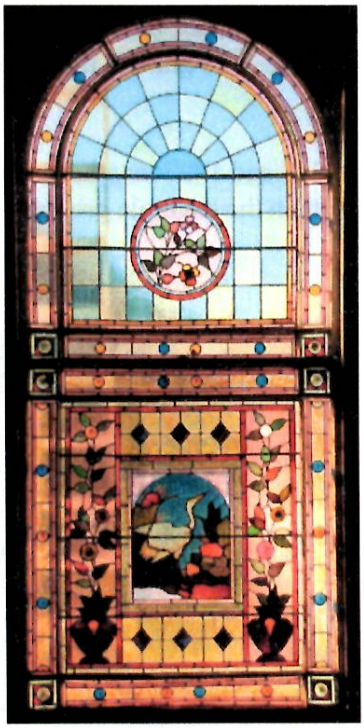
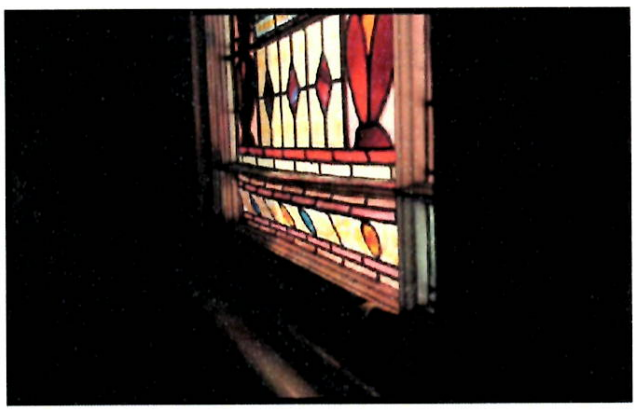


Internal view

External view

Similar window

Of greatest concern is the widespread buckling, bulging and collapse across the bottom sash of the stairwell window. This buckling and bulging ranges from medium to severe. These windows will require full excavation of either the individual panels within the bottom sash or by excavating the entire lower timber sash and delivering it to the workshop. The timber sash will also require remedial work. This should be seen as a priority when planning future works.



Window collapsing under its own weight

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0407092841
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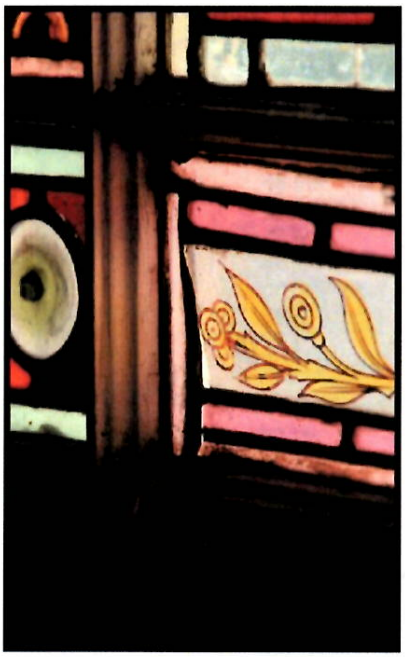
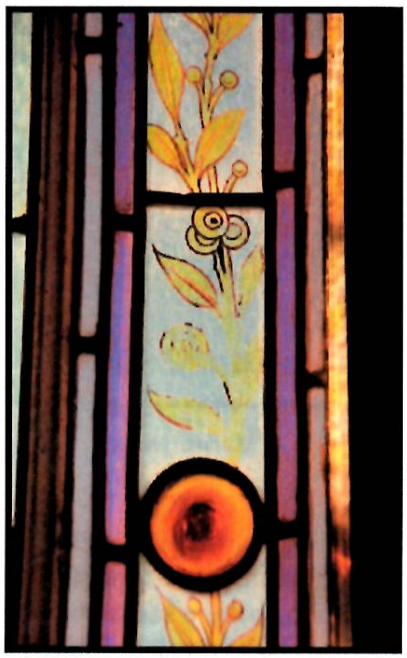
The arched section of the window contains non original leadights installed in recent times, probably at the same time the fanlight in the main entrance was installed. This indicates that the stained glass in the arched section has either been lost or was never commissioned.

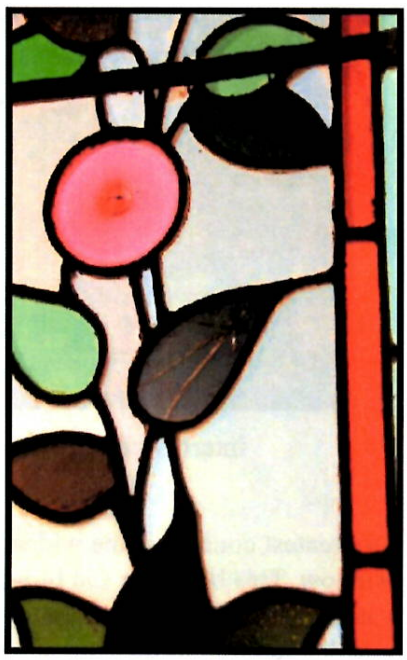
William Montgomery, who was Melbourne's premier glass painter between 1887 and 1927 may have been responsible for the painted work in the lower sash. The window is less ornate than the example provided above suggesting that the clients may have been working to a budget.



Exposed glass edges



Paint loss



Glass breaks

The windows are generally dirty with a build up of grime on the exterior. Exposed raw glass edges can be seen along the lower sections and the window is suffering paint loss. All ferramenta are affected by rust to varying degrees. The leadlight cement that bonds the glass and lead has dried out and is no longer performing its function allowing water and deposits to leach inside.

A stained glass window gains it's inherent strength, rigidity and waterproofing from the leadlight cement that is worked under the flanges and around the heart of the lead came forming a tight bond between glass and lead. This cement/lead structure supports the weight of the window with the lead providing the elasticity to cope with expansion and contraction and the leadlight cement providing the rigidity.

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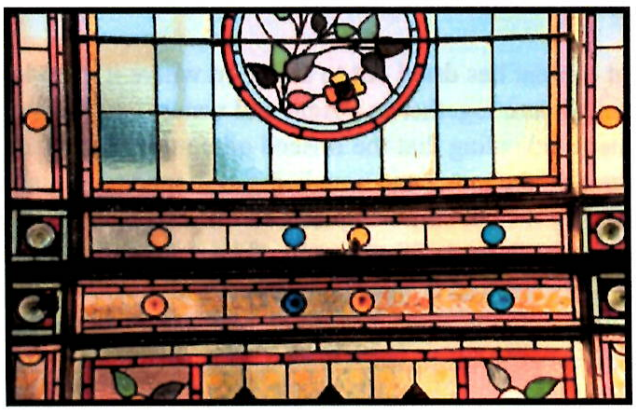

Grime and deposits leaching in due to water ingress

Leadlight cement, like all linseed oil based putties will eventually dry out and progressively lose bonding strength which leads to the weight of the window needing to be supported more and more by the fragile lead structure alone. A task it is unable to perform with out the supporting leadlight cement. Under this excessive load, the window begins to buckle and sag, solder joints develop stress breaks, tie wires break or separate from their window and glass is crushed.

3. Recommendations

The lower portion of the stairwell window should be seen as the first priority in the order of works. It's condition is critical and should be excavated to the workshop for repairs. The upper section of the stairwell window is sound. Full Cyclic Maintenance Procedure in situ is recommended. Additional reinforcing should be considered.

The stained glass in the balcony door requires partial excavation of the damaged panels followed by the Full Cyclic Maintenance Procedure. Consider additional reinforcing.

Excavate the fanlight in the surgery waiting room for straightening and repairs on the workbench.

The dinning room windows are sound and do not require any work.

The main entrance windows with the exception of the left sidelight are sound and require no work. Excavation of the left side light is required to replace several broken pieces of glass and to replicate the broken painted roundel.

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Re-cementing

A leadlight cement mixture will be prepared to a soupy consistency that will allow maximum oil absorption by the old cement. After removal of any old loose cement, the new mixture is liberally applied to the external lead cames. The excess cement mixture is left on the windows long enough for the old cement to suck in the new linseed oil through capillary action and the process is repeated until suction ceases, then cleaned off with natural bristle brushes and polished with dry cotton cloths.

Ferramenta

All ferramenta, including vent frames, saddle bars and casements, will be descaled using wire brushes and sand paper before applying rust converter and repainting. Glass panels in hopper vents will be resealed with glazing putty as required and broken glass replaced. Non functioning or broken vents will be repaired, where possible, or replaced.

Fatigued Solder Joints

On otherwise stable panels, broken or cracked joints are resoldered in situ. Where joints have fatigued but not broken due to buckling or movement, discretion is used as to the need for resoldering taking into account improved structural support after maintenance works.

Copper Wire Ties

All existing tie wires are checked for strength and replace if stretched or broken. All replacement tie wires are crimped for bonding strength before soldering. Soft copper wire of 1.6mm diameter is used throughout.

Buckling and Bulging

Severe buckling will require excavation for straightening of the panel on the work bench.

Re-pointing

Mortar fillets to the glazing channels and stone frame are to be checked for soundness and water proofing and unstable fillets are to be cleanly hacked back to stable mortar. The channels are to be re-pointed where required with traditional lime putty mortar.

Glass Repair and Replacement

Minor glass cracks that remain weatherproof and pose no threat of dislodgment will be left untreated. Severe glass breaks and poorly matching introduced glass in leadlight windows will be replaced with new glass similar in texture and colour to the original. All broken glass in painted and stained windows will be retained and repaired where necessary using fully reversible heritage conservation methods for stained glass. No glues, silicones or chemicals will be used.

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4. Stages of Deterioration:

Stage 1 is where the leadlight cement has dried out to the point where it is no longer performing its function of binding the glass/lead structure together in a rigid and water tight manner. Cracks and powdering are observed in the leadlight cement indicating that the linseed oil component of the cement mix has dried out and is decomposing. Rain water on the outside is now being siphoned to the inside through capillary action created by the voids left behind by the decomposing linseed oil. The siphoned water is usually observed internally as a damp band around each piece of glass and when dry, often leaves a white calcium deposit on the inside surface of the glass. Intervention at this stage is preventive and is aimed at prolonging the life of the window and halting the progression to stage 2. A regular 25 year maintenance program at stage 1 will prolong the life of a window for several centuries.

Stage 2 is indicated where small sections of leadlight cement are beginning to dislodge from under the lead cames, and the weight of the window is required to be supported more and more by the fragile lead structure alone which is now unable to withstand the forces without the strengthening provided originally by the leadlight cement. Stress to the lead structure can be seen in minor buckling and the window is no longer water tight. Permanent weakening of the lead occurs at this stage in the form of localised metal fatigue but early intervention can reverse this situation and prevent further deterioration.

Stage 3 is reached when breaks begin to appear in the lead, usually at solder joints. The window now has localised failure of the lead structure usually accompanied by buckling and exposed edges of glass. Without intervention, this condition will spread throughout the window leading to eventual splitting of the fabric and a slow structural collapse. The window has already suffered permanent and irreversible damage to the lead structure at this stage and will need to be excavated and dismantled for partial or full re-leadling.

5. Cyclic Maintenance Procedure

Where recommended, the cyclic maintenance procedure will be as follows. This work is carried out mostly in situ, with no need to excavate the windows except where indicated.

External Cleaning

Opaque grime and algae is cleaned from all the panes and quarries. Introduced putty, silicone, etc. is removed. Cleaning methods are mechanical only and no chemicals or detergents are introduced.

Internal Cleaning

Cobwebs and accumulated dust are removed with natural bristle brushes and a vacuum cleaner. On painted glass, interior grime is loosened using a damp cotton cloth and natural bristle brushes and then removed from the glass with clean dry cloths. No chemicals, solvents or detergents are introduced to the glass. Extensive care and specialised cleaning methods are used to avoid damage to unstable glass paint.

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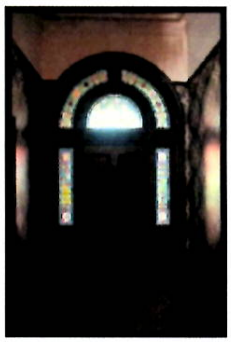
6. Condition of Individual Windows

Main Entrance: Stained glass
Installation: 2 side lights, 3 fan lights
Maker: Unknown
Observations: Stage 1 deterioration. Minor bulging on top fan lights. Several glass breaks. Non original installation of fan light above the entry door. Several good quality painted replacements. Lower left sidelight has several broken pieces including the painted roundel.
Recommendations: Excavate left side light to the work-bench for repairs. Remaining windows sound, no work required.



Surgery Waiting Room: Stained glass
Installation: 1 fanlight
Maker: Unknown
Observations: Stage 2. Multiple glass breaks. Panel bulging inward and coming out of it's rebate.
Recommendations: Excavate to the workbench for repairs.

Formal Dining Room: Leadlight
Installation: 2 casement windows.
Maker: Unknown
Observations: Stage 1. Several glass breaks. Panels are sound. No work required.
Recommendations: No work required.

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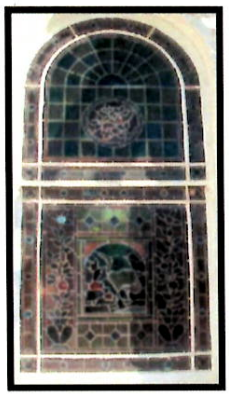
Balcony Exit Door: Stained Glass
Installation: Single window made up of 12 panels.
Maker: Unknown
Observations: Stage 2-3. Multiple glass breaks and severe damage to several panels. Central window have broken free of their tie wires and are come away from their rebate,
Recommendations: Excavate 2 top left panels to the work-bench for repairs. Full cyclic maintenance procedure on remaining windows.

Stair Well: Stained glass
Installation: Double hung window made up of 18 panels.
Maker: Possibly William Montgomery, Melbourne.
Observations Top section is sound. Lower section is collapsing under it's weight and has been graded Stage 3. Glass breaks, paint loss and exposed edges throughout the window.
Recommendations: Full cyclic maintenance procedure in situ on the upper section. Excavate entire bottom sash to the workbench for repairs. Consider additional reinforcing.



7. Budget

To complete the works as recommended would cost:

Main Entrance:	$1400.00
Surgery Waiting Room:	$ 650.00
Formal Dining Room:	No Work
Balcony Exit Door:	$1500.00
Stair Well - upper section:	$ 800.00
Stair Well - lower section:	$4000.00

Plus GST

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