HERITAGE GRADE
ARCHITECTURAL RESTORATION SERVICES

CONSERVATION PLAN

254 ARGYLE AVE, OTTAWA, ON

L'ÉGLISE CHRIST-ROI (CHRIST THE KING CHAPEL)

SUBMITTED TO: Azure Urban Developments Inc.
PREPARED BY: Emily B. Leonoff, MAC, CAHP
DATE: September 27, 2024

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HERITAGE GRADE

ARCHITECTURAL RESTORATION SERVICES

ABOUT US:

As a division of Asbex Environmental Contractors, **Heritage Grade Architectural Restoration Services** complements our parent company's focus on creating safe, healthy spaces by bringing new life to heritage structures. We expertly blend newly fabricated elements with existing heritage assemblies, employing creative solutions to transform heritage spaces through thoughtful reuse.

Heritage Grade is driven by a dedicated staff working in varying capacities to support and reinforce each other, including Project Managers, Coordinators, conservators, carpenters, welders, and material experts. Our in-house woodworking and metalworking facilities are equipped with specialized equipment, enabling us to achieve the highest standards of quality in every project.

From Calgary to Charlottetown, Heritage Grade has worked on some of the most culturally and historically significant buildings and monuments in the country, with all work being carried out according to the Standards and Guidelines for the Conservation of Historic Places - the benchmark for built heritage conservation within Canada.

CONTRIBUTORS:

This Conservation Plan was prepared by Heritage Grade Architectural Restoration Services for John Stewart (Commonwealth Historic Resource Management) and Barry Padolsky Associates Inc. (heritage and urban design consulting services) as an addendum to their Heritage Impact Assessment (HIA) for Azure Urban Developments, as part of the planning submission to the City of Ottawa.

Heritage Grade has prepared this report in collaboration with a team of specialists including:

Tim Hyde - Heritage Grade Senior Project Manager
Darrell Neudorf - Heritage Grade Senior Wood Conservator
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Emily B. Leonoff - Heritage Grade Conservator and Coordinator
David Edgar - David Edgar Conservation Ltd. (DECL) - Senior Stone and Masonry Conservator

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1.0 INTRODUCTION

1.1 BACKGROUND:

This Conservation Plan is a requirement by the City of Ottawa and is part of the planning submission for 254 Argyle Avenue. The Conservation Plan and the previously prepared Heritage Impact Assessment (HIA) are companion documents and should be read together.

The following documents were referenced in the preparation of this report:

1. The Heritage Impact Assessment (HIA) prepared by John Stewart (*Commonwealth Historic Resource Management*) and Barry Padolsky (*Barry Padolsky Associates Inc.*), revised August 2024;
2. Standards and Guidelines for the Conservation of Historic Places in Canada, 2010;
3. As-found recording and supporting photographic records, September 2024;
4. 254 Argyle Design Brief prepared by CSV Architects and SPICE Design, August 2024;
5. 254 Argyle Avenue Church Relocation Scenarios Analysis prepared by Remisz Consulting Engineers, August 23, 2024;
6. 254 Argyle Site Plans Issued for SPC and Rezoning prepared by CSV and SPICE Design, August 29, 2024;
7. 254 Argyle - Église Christ-Roi, Ottawa prepared by David Edgar Conservation Ltd. (DECL), September 23, 2024;
8. Saint John Heritage - Practical Conservation Guideline: Masonry by the Heritage Staff, Planning and Development Department, Saint John, New Brunswick; 2023;

Current Building Owner and Contact Information:

Owner: Azure Urban Development, PO Box 67023 Ottawa, ON K2A 4E4
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2.0 SUMMARY

A summary of several of the main points within this report are as follows:

- The relocation of the Meaningful Portion of the brick façade laid out in Scenario 3 is possible and it is likely that a sufficient quantity of original bricks could be salvaged in order to reconstruct in the proposed new configuration.
- Approximately 60-75% of all bricks should prove to be salvageable.
- A brick by brick numbering system to return bricks to their exact locations is not necessary and instead only need to be returned roughly to the same area.
- Laser brick cleaning technology such as Brique-Recyc should be looked into for expedited brick cleaning and reclamation.
- All heritage elements appear to be in fairly good condition and are amenable to restoration efforts. Original elements of the building appear to include the brick veneer, the metal flashings/copings and roof details, the main door and transom assembly, the exterior vestibule lanterns (x2), and the metal spire.

3.0 SITE DETAILS

3.1 SITE DESCRIPTION:

L'Église Christ-Roi (Christ the King) chapel is located within the boundary of the Centretown Heritage Conservation District (HCD) and was noted in the Centretown Heritage Inventory, completed in 2020 (*see Fig. 2*). The Heritage Conservation District Plan was adopted under by-law 2022-278.

The property is located at 254 Argyle Ave on the south side of the street, between Bank Street to the west and O'Connor to the east.

Fig. 1: A ca. 2021 view of the 254 Argyle building site from the street (the 'public realm').

Lot Size: The lot size is approximately 1,400 square meters, with a width of approximately 21 meters and a depth of approximately 70 meters.

Building Context: On the east (left) of the heritage structure is the original two-storey rectory of the chapel, now a converted home and office. On the west (right) is a ca. 1990's seven-storey apartment building. Directly behind the building to the south is a 23-storey modern apartment building.

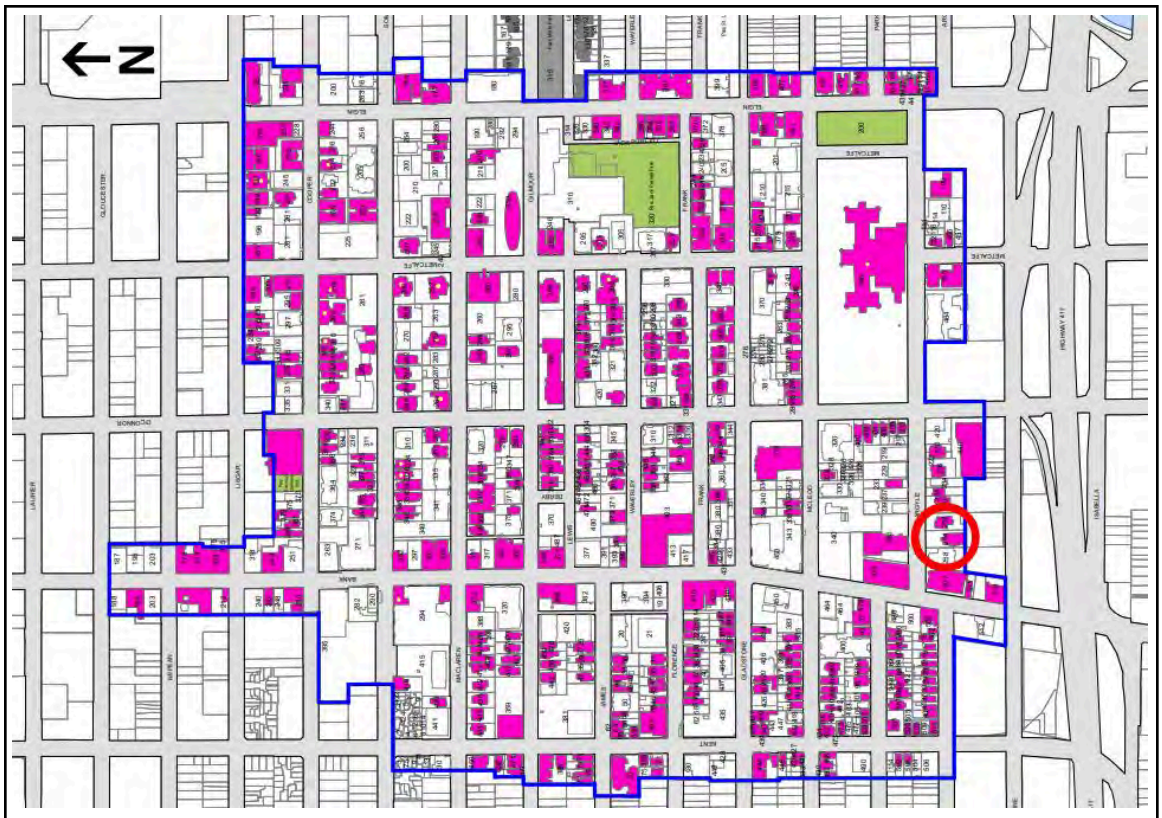
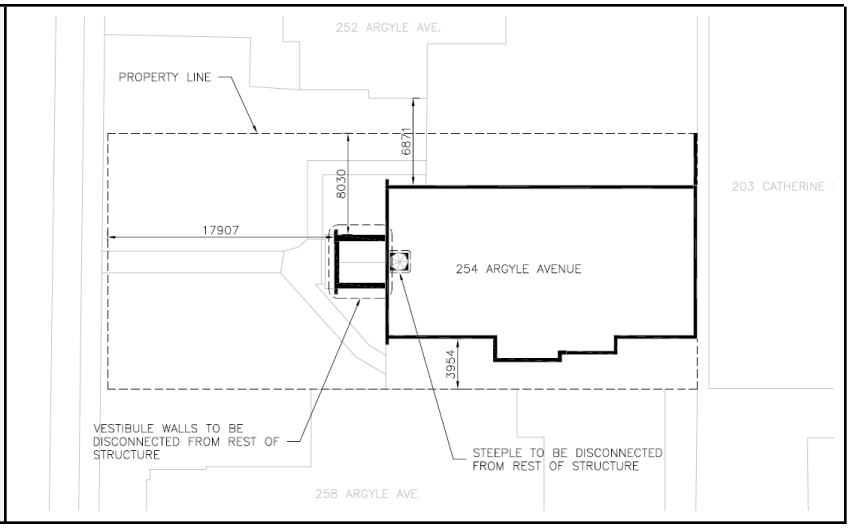


Fig. 2: 254 Argyle Ave highlighted within a red circle towards the lower right of the image, within the Centretown Heritage Conservation District (HCD) shown within the blue boundary. All pink shaded structures are heritage properties within the district.

Fig. 3: A view of the lot showing the current location of the structure within the property boundaries (dashed line).



Original Architect: Designed by notable and influential Ottawa architect, Werner E. Noffke (1878-1964), in a vernacular Tudor Gothic style, the building was completed in 1930 as a Catholic chapel and school.

Today 254 Argyle is categorized as a 'contributing' property with character defining elements such as its predominant use of red clay brick as a veneer, its light trim details in stone, wood, and pressed metal, its slim metal spire set front and centre on the main roof, and leaded glass transom above the main doors.

The building does not currently have a heritage designation but is recognized as contributing to the neighbourhood's heritage character.

3.2 THE MEANINGFUL PORTION:

The Meaningful Portion of the existing chapel (a Character Defining Resource [CDR] in the HCD) is defined as the retained portion of the exterior envelope that allows its form to be fully appreciated when viewed from Argyle Avenue.

The Meaningful Portion is limited to the north elevation of the building and its vestibule, the east elevation, and a portion of the west elevation of the building (*see Fig. 4*).

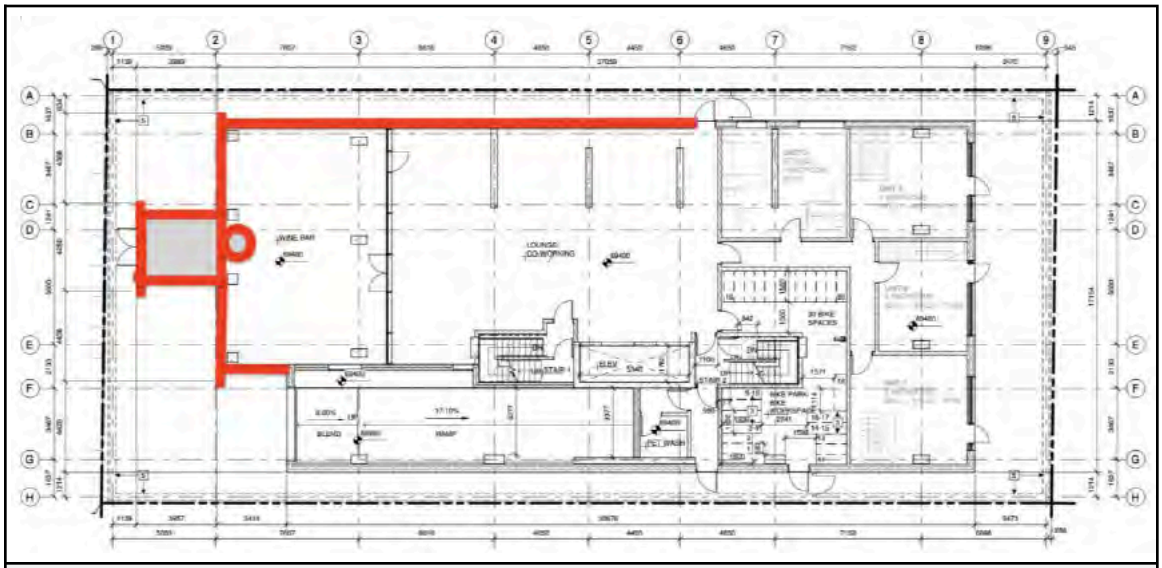


Fig. 4: The red line denotes the Meaningful Portion of the brick veneer of the former chapel which will be retained and restored.

The proposed development contemplates moving the Meaningful Portion of the former chapel from its original location closer to the front property line to increase its visible presence and reinforce the low scale heritage character of the Argyle Avenue streetscape.[1]

[1] *Heritage Impact Assessment (HIA)*; John Stewart Commonwealth Historic Resource Management and Barry Padolsky Associates Inc.; revised August 2024; pg. 8

The proposed scope of conservation work for the Meaningful Portion includes:

1. Complete rehabilitation of the east and north façades.
2. 25%- 30% rehabilitation of the west façade.
3. Retention and rehabilitation of the gable roof entrance vestibule.
4. Retention and rehabilitation of the main entrance wood double doors (non-original).
5. Retention and rehabilitation of the metal steeple and its various elements.

3.3 ASSETS OF SIGNIFICANCE WITHIN THE MEANINGFUL PORTION:

Salvage Materials: The remaining portions of the brick veneer that will not be retained are to be used as salvage material, to replace and match any damaged fabric as needed.

Metal Flashing/Copings and Roof Details: Previous reports have suggested new replacement metal copings that will be modeled after the 1930 Noffke architectural drawings; however, the current flashings are in good condition and amenable to conservation efforts.

Textured and Stained Glass Windows: The current window sections within the chapel's main door transom are textured and stained leaded glass with Georgian patterned lead caming - almost identical to the glass panes visible within the ca. 1929 Noffke architectural drawings, and within a historical photograph titled, "*1929-1930 Church Under Construction*."

Following a site investigation it was determined that the transom glass sections are likely original. It is Heritage Grade's thought that an investigation into the construction details of the assembly (currently obscured by constraints and paint layers) could provide an answer.

Main Doors and Transom: It was initially thought that the current main doors and its transom were not original to the structure; however, after review of the ca. 1929 Noffke architectural drawings, they appear to be almost identical to those viewed within the drawings, suggesting that they are either heritage original or well designed replicas.

A historical photograph titled, "*1929-1930 Church Under Construction*," also shows an almost identical set of doors, though unpainted at that time. It is Heritage Grade's thought that an investigation into the construction details of the assembly (currently obscured by constraints and paint layers) could provide an answer.

Exterior Vestibule Lanterns: There are two cast iron lanterns affixed to either side of the main entrance double doors, clearly worn from time. After examination of a historical photograph titled, "*1929-1930 Church Under Construction*," it appears as though the current lanterns are identical to those in the image and are therefore likely original assets.

Metal Spire: The main body of the spire appears to be painted and riveted sheets of metal (type currently unknown), while the octagonal base of the spire appears to be painted wood with louvered openings. The base's mouldings also appear to be riveted and pressed sheet metal.

Windows: The current windows are vinyl replacements with no heritage value and will not be retained. New replacement windows and their masonry sills will be designed and modeled after the 1930 Noffke architectural drawings.

4.0 CONSERVATION APPROACH AND PROCEDURES

4.1 AS-FOUND CONDITIONS OF THE BRICKS: Please also see Appendix A for the full report on the chapel masonry from DECL.

Description of Masonry Components: The exterior brick intended to be salvaged is an extruded clay brick with a 'combed finish'. The brick colours range from orange to dark brown. The colour variation of the brick is due to the varied firing of the brick in the kiln.

The brick mortar is largely intact, with evidence that it was once pigmented black or very dark grey; the pigment at the surface has been mostly washed away.

Given the age of construction, the mortar would have had a cementitious component, but based on tactile inspection, it is not especially dense or hard, which suggests a lime-cement hybrid mortar. The aggregate in the mortar is buff-grey coloured and of finer appearance than a modern ASTM or CSA would permit.

The wall core comprises structural hollow tile terracotta of a T-shape configuration, with the exterior brick headers tying into the terracotta at intervals. The exterior brick is parged on the interior (except where headers extend into the terracotta construction). The wall construction is a hybrid approach to mass-masonry typical of the era, and the exterior brickwork is set in a variation on Common Bond, with some similarities to Monk Bond.

Some architectural detailing such as window sills and cap stones are executed with artificial / 'cast' stone with an appearance similar to Indiana limestone. There is a marble plaque indicating the date of construction to the left of the main entrance. The joint finish appears to be a "weathered" or "struck" joint. Joints finished in this fashion are cut back at an angle from the upper brick down to the arris (edge) of the lower brick, with the perpendicular or heads joints typically finished in a similar fashion but with a uniform orientation (i.e.: left to right).

Condition of Masonry Components: The majority of the bricks appear to be in good condition. The lighter-coloured orange bricks have deteriorated more quickly than the darker brown bricks. This is because the darker bricks were exposed to higher temperatures when fired in the kiln, giving them a more durable fire-skin. There will be a higher proportion of salvaged darker bricks than lighter bricks and this should be a consideration for the heritage consultant.

The mortar is largely intact, but does not appear to be tenaciously-bonded to the brick.

The cast stone and marble elements are in generally good condition and should be salvaged for re-use.

Fig. 5: Three views showing typical brick damages observed. Those situated adjacent to window and door openings show greater damages due to additional surface area exposed to the elements, as well as bricks closer to the base of the building which would have been exposed to snowdrifts held against the clay surface (also considering freeze / thaw cycles). Bricks that are closer to orange than brown show greater damages due to the lower temperature of the kiln used in their creation (brown coloured bricks were subject to higher firing temperatures and are therefore more durable).

4.2 'THE PLAN':

The Plan lays out the procedure to successfully disassemble and move the Meaningful Portion of the building façade.

Three Relocation Scenarios were presented in the Church Relocation Scenarios Analysis prepared by Azure Urban Developments Inc. and SPICE Design (revised August 23, 2024)[2]:

1. Scenario 1 - Move the chapel in one piece on/off-site and return the Meaningful Portion to incorporate into the new building.
2. Scenario 2 - Cut the walls into smaller sections (i.e. "panels") to disassemble, store off-site, and return to incorporate into the new building.
3. Scenario 3 - Dismantle all wall veneer brick by brick and reconstruct into a wall assembly that meets current building code.

Scenario 3: This scenario was determined to be the only viable option as it presented the least amount of risk to the heritage fabrics compared to the other relocation options, which would have put great stresses upon the supporting terracotta brick walls behind the clay brick veneers.

[2] *254 Argyle Avenue Church Relocation Scenarios Analysis*; Remisz Consulting Engineers; August 23, 2024; pg. 13

Further reasoning includes:

- Greater preservation of individual bricks during a controlled dismantling.
- Ease of handling (dismantled bricks are small, light, and easy to transport and store).
- There is greater flexibility during reassembly and allows for greater customization and adaptation to the new design.
- Allows for greater adherence to current building codes by ensuring long-term integrity of the structure (including adherence to seismic codes which the building currently does not do).

Feasibility of The Plan: Although the 1930-vintage mortar will have some Portland cement content, the mortar can be cut relatively easily with a steel tool so it is likely that a high proportion of bricks can be salvaged intact. Based on investigations, the exterior brick is parged on the interior and separate from the terracotta back-up, except for some header bricks (every seventh course) that do not appear to hinder the process of dismantling.

It is recommended that only skilled tradespeople who are familiar with the methods typically used in the conservation and restoration of masonry buildings be relied upon to complete this work.

Given that the proposal is only to retain a 'meaningful portion' of the brick veneer, it is likely that a sufficient quantity of original bricks could be salvaged in order to reconstruct in the proposed new configuration. DECL believes that approximately 60-75% of all bricks should prove to be salvageable.

4.3 POTENTIAL RISKS AND MITIGATION MEASURES:

RISK	MITIGATION
Due to the kiln firing process, lighter coloured or 'orange' bricks will incur more damages during removals.	Use of skilled workers using appropriate and measured removal techniques.
Due to the possibility of having a larger number of darker bricks retained during the dismantling process, the final brick elevations will be darker than the originals.	Ensure all lighter coloured bricks are used in the reassembly and procure more new light-coloured bricks as needed.
Use of incompatible 'new' brick as part of the new structure.	Sample and analyze the original materials intended for reuse so that compatible modern materials can be sourced.
Removal and cleaning of the mortar affixed to each brick face after disassembly can cause possible damages if completed incorrectly.	Use of a laser-enabled cleaning machine could aid in the controlled, and therefore safer, cleaning and preparation of the bricks.
The possible presence of designated substances.	Complete a full hazardous substances survey, including brick mortar, and interior parging.

4.4 BRICK DISMANTLING METHODOLOGY:

After a September 23, 2024 site inspection, it was determined that Scenario 3, consisting of a brick-by-brick disassembly, was the ideal and safest solution for the relocation of the heritage brick façade.

Numbering System, Grid Lines and Key Plan: It is not typical to attempt to reinstate individual masonry units of mass-production origin back into their exact original location following a major dismantling exercise; however, bricks on different elevations have been exposed to varying weathering conditions over the last almost-100 years, and in order to retain the present appearance of the heritage façades it is recommended to return individual bricks to roughly the same area of the wall from where they were salvaged.

An elevation key-plan should be created with gridlines, indicating the locations of bricks. Bricks must be identified with the identification code of the corresponding grid and noted on the elevation key-plan. Grids could be as large or as small as required (even whole elevations), according to cost and time factors - and according to the heritage significance placed on this aspect of the work by the consultant.

Unique identification codes should be provided for cast stones, for the marble identification plaque to the left of the main entrance, and for any other unique details such as the recessed cruciform design above the main entrance. Submit these numbers on an elevation key-plan showing the locations of all masonry units. Key plans should be submitted prior to erecting scaffolding.

Tagging and Stacking: For stone tagging, stainless steel tags with engraved numbers should be used. Tags can be attached with stainless steel fasteners with plastic sleeving to the top beds of the stones wherever possible (tags should never be affixed to the 'seen' faces of stones).

Number each brick with the corresponding grid identification code. Use permanent marker and number on the top of the brick, parallel to the face.

Provide identification tags for pallets as well as masonry units and submit a record of all stones, bricks, and pallets removed from site as work progresses.

Bricks should be stacked on their corresponding grid pallet so that backs of bricks are facing each other and faces are oriented towards each other, with a paper/cardboard layer to prevent possible damages from abrasion.

Temporary Engineered Shoring: A written sequence of work should be submitted with areas that will require temporary shoring during dismantling identified after further detailed investigations. Engineered shoring plans should be provided as a submittal, as required, and shore as necessary to ensure safe working procedures during disassembly.

Tools and Machinery: The following tools and machinery may provide assistance during the dismantling process:

1. Pneumatic carving hammers fitted with sharp Tungsten-tipped chisels
2. Small variable-speed angle grinders (Arbortech)
3. Chisels and mauls (mostly used in traditional mortar removals)
4. Pallet knives

Dismantling Methodology:

- When using power tools, avoid the arrises (edges) of the brick and instead make relief cuts in the centre of the joint.
- It is not permitted to cut perpendicular (vertical) joints in brickwork with an angle grinder.
    a. The use of grinders should only be considered when starting work on wide horizontal joints. Next, cut out only the middle 1/3 of the deteriorated mortar. Remove the remainder with hand tools. Any attempt to remove a greater portion of the mortar with grinders will damage the edges of the masonry.[3]
- If cast stones cannot be easily released from the assembly by raking joints, proceed to drill holes deeper into mortar joints until the stone can be loosened.
- Where access is available, work from above to remove mortar connecting stones to back-up material (terracotta T-blocks).
- Relieve all joints around cast stones to a minimum 40mm depth before attempting to loosen stones.
- Loosen masonry only when temperatures are above 0°C.
- Use hand tools for raking mortar joints and for cleaning residual mortar from masonry units wherever possible - unless appropriately skilled and experienced heritage tradespeople can demonstrate proficiency with a power tool designed for this purpose, such as an Arbortech.
- Face bricks should be cleaned of all mortar in a manner that causes no damage to the brick face.
- Protect adjacent materials and projecting elements below before beginning dismantling work.
- Maintain ‘discard pallets’ during dismantling, as well as ‘salvage pallets’. Where the brick condition does not appear to be suitable for reuse, place the brick on the discard pallet.
    a. Guidelines for discard vs. salvage <u>should be provided by the consultant</u> in the specification and could include loss of brick face, missing corners, broken bricks, etc.
    b. Pallets must be new or sound, with no rotting or broken members.
- Remove all mortar remaining on all masonry unit surfaces (including unsightly ‘over-pointing’) before storing on pallets.

(*con’t on next page*)

[3] *Saint John Heritage - Practical Conservation Guideline: Masonry*; Heritage Staff, Planning and Development, Saint John, New Brunswick; 2023; pg. 5

- While bricks are in storage, keep pallets in a dry, covered location with airflow to prevent biological growth.
- Cast stones must be protected on pallets, with adequate softening material. Secure stones with strapping.
- Keep the corners of stones away from the edges of pallets. Where stones extend beyond pallets, protect exposed corners.
- Store reclaimed brick at a secure warehousing and maintain a record of deliveries and inventory until the completion of the project.

Masonry Surveys: Carry out a measured survey and record dimensions on elevation drawings, to be submitted prior to commencing dismantling.

Record overall lengths and heights, as well as measurements of key unique features. Record typical widths of mortar joints. At openings, record spans, rises and springing points of arches. Record depths of projecting elements and relationships between the wall-line and projections.

Create 'storey poles' for recording brick coursing heights at each corner, and store them for the reinstallation phase. Critical heights such as sill heights, top of window, and string courses should also be recorded on these poles. Extruded aluminum is an ideal material for the poles.

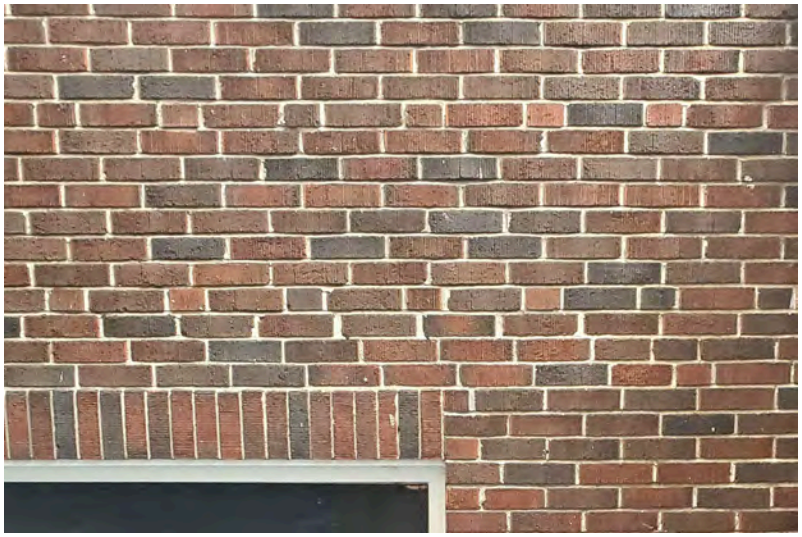
As dismantling of the exterior brickwork is taking place, the frequency of brick tie courses should also be recorded. On the survey, a note should be made indicating the lateral occurrence of the ties as well for replication during the rebuild.

Brick Colouring: The bricks can be said to present in one of three colourways:

- Primarily orange
- Primarily brown
- Mixed orange and brown

		
Primarily orange	Primarily brown	Mixed orange and brown

The bricks are laid in such a way that the overall 'pattern' is simply randomized placements of the three colourways, without grouping too many of one colour in one area/course. The aesthetics of the chapel will not drastically change if the bricks are further randomized during reassembly.

Fig. 6: An overall view of the randomized brick pattern on the east elevation of the building.	
Fig. 7: A view of a section of the brick pattern on the north elevation. The bricks are an extruded clay brick with a textured, 'combed' finish.	

Laser Brick Cleaning Technology - BRIQUE-RECYC: Brique-Recyc technology developed in Montreal by Gratton Maçonnerie could offer cost and time savings for a project of this nature.

https://briquerecyc.com/

Summary: The BR-V3000 is a machine that utilizes lasers to quickly remove mortar from each face of a brick simultaneously after insertion into the machine. Three to eight bricks per minute (~500 bricks per hour) can be safely and quickly cleaned, helping to mitigate loss of material.

Machines can be leased from the company and brought directly to site. The machine can be hoisted to the top of a scaffolding platform or used at ground level as needed.

See Appendix B for full information and technical data.

Fig 8: A brick with mortar affixed to its faces is lined up and placed into a hopper. After the operator presses a button, the hopper pulls the brick into the interior of the machine where precision lasers remove only the top layer of the brick in seconds, along with its mortar.

Source: Brique-Recyc - https://www.youtube.com/watch?v=bILOCs-BZ3s&t=99s

4.5 METAL FLASHINGS/COPINGS AND ROOF DETAILS:
The painted white flashing that follows the symmetrical pediments and crenellations on the front face of the building are riveted and pressed metal (metal type currently unknown).

The existing paint layers are failing but the flashing seems in overall good condition despite a small number of lifting sections.

Fig 9: A partial view of the painted metal flashing that follows the perimeter of the front face roofline. The metal is folded and riveted in place.

Fig 10: A view of the metal sheeting on the gabled roof over the front, main entrance vestibule. The metal shows soiling and some lifted sections but is overall in good condition.

Conservation Issues: A preliminary investigation from the ground level showed minimal issues such as paint layers failing and lifting sections.

Conservation Work: Microabrasion to remove existing paint layers, surface repairs if necessary, recoating and repainting, fastener replacement if necessary.

4.6 MAIN DOORS AND TRANSOM:
The main doors to the building are on the north elevation. The doors are double doors with a gothic pointed arch transom. The assembly is in overall good condition.

The doors can be described as two over two, glazed over blind panels with bolection moulding. Each door leaf has a black metal kick plate affixed to its bottom exterior edge. The doors are held within the frame with three unevenly spaced ball finial hinges on each leaf (for six in total). The top hinges are solitary, while the bottom two are part of a decorative metal strap hinge assembly. There is a plan to replace the current exterior steps to enable a barrier free entrance into the building.

The transom is split into three equal sections with two large mullions, with Georgian style lead caming within each section of glass. The individual panes of glass are stained pale yellow with a textured 'hammered' pattern (*see also Figs. 20-22*). The glass texture is fairly common and was well established at the time of the chapel's construction - one suggestion that the glass may be original to the assembly.

Conservation Issues: A preliminary investigation showed issues with paint layers failing, loose joinery, loose mouldings, small areas of rot at the base of the door frame jambs, mismatched glazed panels, inappropriate contemporary lockset hardware, split panels, obsolete fastener holes, and some breakages/missing elements on the decorative metal hinges.

Conservation Work: Though looking weathered, the door and transom assembly are in fairly good condition and should likely not require any major interventions. Conservation work should include paint stripping, joinery repair, Dutchman repairs, possible reglazing, and new hardware.

One of the four decorative metal hinges has a missing section and will require repairs or replacement (*see Fig. 13*).

A full inspection of the lead caming on the transom should be completed before conservation suggestions are given.

Fig. 11: A view of the main double doors on the north face of the building.

The door and transom assembly is currently thought to be non-original; however, there is some evidence to suggest that it may be part of the original construction - the historical photograph titled, "*1929-30 Church Under Construction*" shows doors of identical construction to those currently in place (including the decorative hinges).

The heritage patterned textured glass within the transom also suggests the possibility that these elements are original.

A full examination of the assembly and its obscured construction details should provide an answer.

Fig. 12: The bottom of the left door leaf showing existing heavy paint layers failing and corrosion around the metal decorative hinges.

Fig. 13: The bottom of the right door leaf showing a missing section of the metal decorative door hinge, and panel cracks.

Fig. 14: A detail from a photograph titled, "*1929-30 Church Under Construction*" showing the main doors and transom. Though it is currently thought that the assembly is non-original, historical evidence shows nearly identical doors, hardware included, implying otherwise. *Source: Bibliothèque et Archives nationales du Québec.*

Fig. 15: A September 2024 image of the main doors of the church which strongly resemble those seen in historical images and the building's original blueprints (*see Fig. 16*). The main difference between this image and the historical image appears to be the transom which is showing wider and more robust mullions and surrounding frame. It is possible that the transom frame has been modified at some point.

Fig. 16: A detail from Noffke's original blueprints showing the main doors of the chapel on the north elevation.

The doors and metal banding are very similar to the doors that are currently in place, suggesting that the doors are either original or are well made replicas.

A full examination of the doors and frame and its construction details should provide an answer.

Acc. 77803/7 Drawing 1.
Front Elevation.
Cross-Section
NMC 1431142

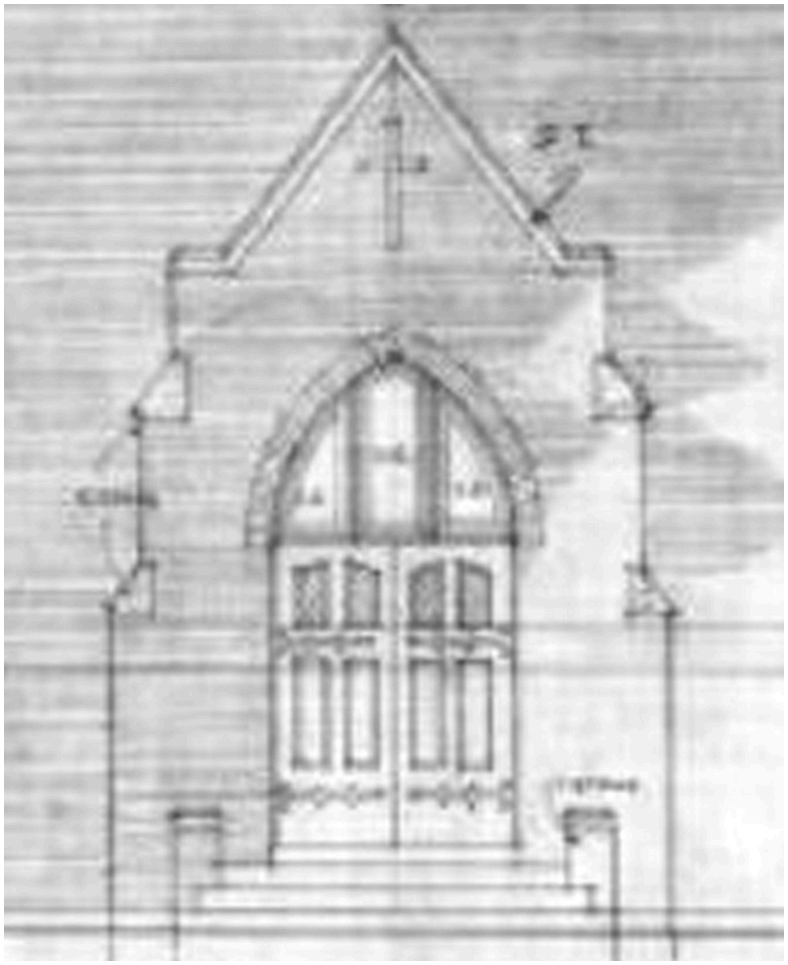


Fig. 17: A 1947 photograph titled, "*Interior of Christ the King Church, Ottawa*." The two doors at the front of the sanctuary, to the left and right of the altar, are reminiscent of the main doors. *Source: Gatineau National Archives, Champlain Marcil Fond, ID 736361*

Fig. 18: A detail view of the 1947 photograph of the interior of the chapel showing one of two doors, reminiscent of the building's main doors. *Source: Gatineau National Archives, Champlain Marcil Fond, ID 736361*

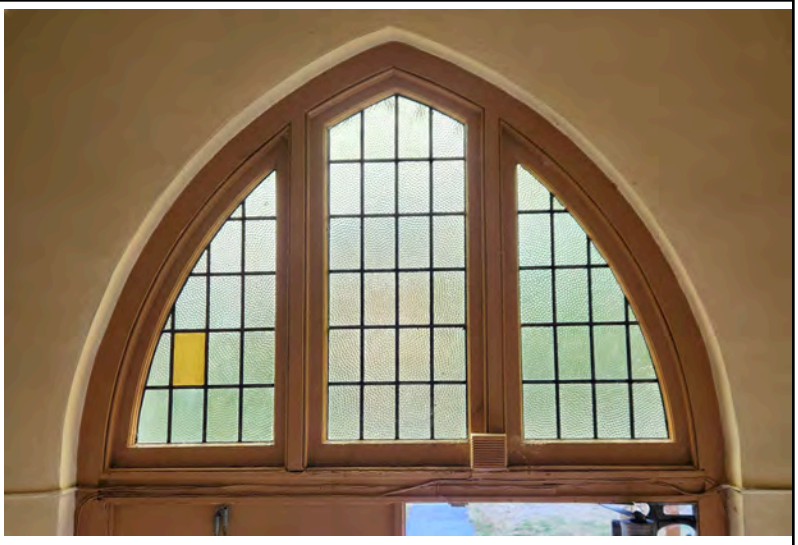
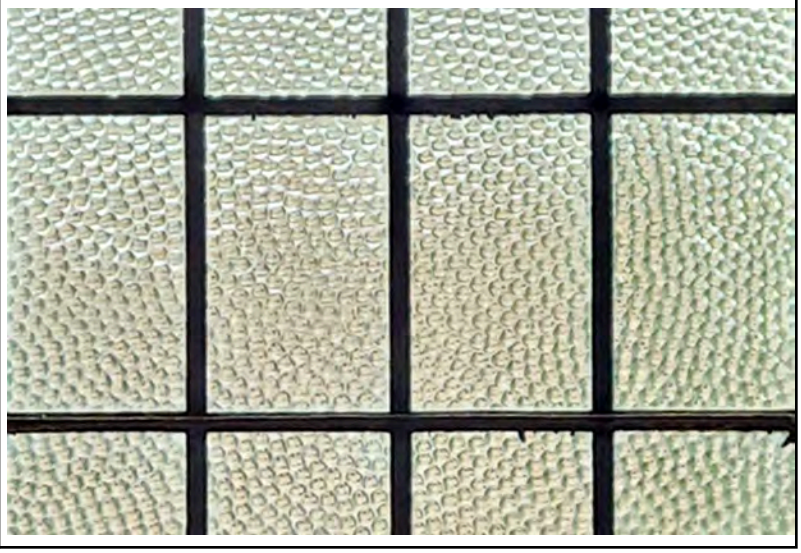
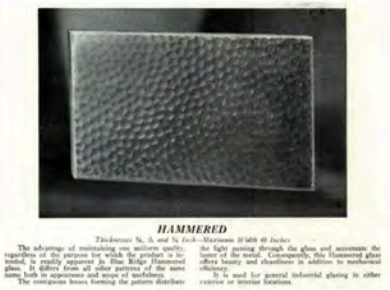
Fig. 19: The exterior face of the Georgian patterned stained and leaded glass transom above the main doors.	
Fig. 20: The interior face of the Georgian patterned stained and leaded glass transom above the main doors. Note the one yellow replacement pane in the lower left of the image.	
Fig. 21: A detail view of the 'hammered' textured glass within the transom (*see also Fig. 22*).	

Fig. 22: A 1932 catalogue from the Libbey Owens Ford Glass Co. and Blue Ridge Glass Corp. showing an entry for 'hammered' textured glass.

This texture would have been available in 1929-1930 at the time of the chapel's construction.



Door and Door Frame Removal Procedure:

1. Before the start of removals, complete a site inspection to determine the order of disassembly.
    a. Determine how the assets will be dismantled and if they should be transported as separate components, or if they should be reassembled back into larger components for transportation and storage.
2. Complete site measurements in order to build crates for the removed assets:
    a. Main door leaves (x2)
    b. Main door frame
    c. Transom
3. Complete all as-found documentation of the door and door frame, including photographs and continued measurements as further details are revealed.
    a. If possible at this time, determine the construction details of the assembly to determine if the doors are original to the building (should show ca. 1930 details such as mortise and tenon joinery).
    b. Label components with all pertinent information (elevation, asset section, directionality, etc.) for eventual reinstallation.
4. Remove the door leaves from the frame and label them.
    a. Door hardware can be left in place if not intrusive, or if ensured to not make contact with other heritage fabric within the crate(s).
    b. If door hardware requires removal, label and place them within a clear labeled bag to be placed within the crate(s).
5. It is uncertain at this time if the transom and door frame are one unit, or if they can be removed in two section (TBD):
    a. One unit: Find and sever all fasteners keeping the frame affixed in place within the masonry opening and gently pull it from its place. Lay the frame down for further documentation as needed, tag the elements, wrap, and crate.

b. Two units: Find and sever all fasteners keeping the transom frame affixed in place within the masonry opening and gently pull it from its place. Lay the transom down for further documentation as needed, tag the elements, wrap, and crate. Repeat this sequence for the separate door frame.

6. Clean the removed components as needed with a HEPA enabled vacuum.
7. Complete post removal photographic documentation and capture any further measurements necessary.
8. Complete the final cleaning of the work area.

4.7 CHAPEL SPIRE

A close-up investigation of the chapel's spire has not yet been able to be completed. An inspection from the ground level revealed that the main body of the spire appears to be painted and riveted sheets of metal (type currently unknown), while the octagonal base of the spire appears to be painted wood with louvered openings. The base's mouldings also appear to be riveted sheet metal.

Conservation Issues: Only a best guess description of conservation issues can be given until a detailed investigation can take place. There is likely a degraded wood core beneath the sheet metal that will require repairs. The existing paint layers have failed. Possible corrosion issues.

Conservation Work: Conservation work will likely require disassembly, paint stripping, structural and sheet metal repairs, repainting, and reassembly. Care will have to be taken in the hoisting of the conserved spire back into place during the reinstallation phase.

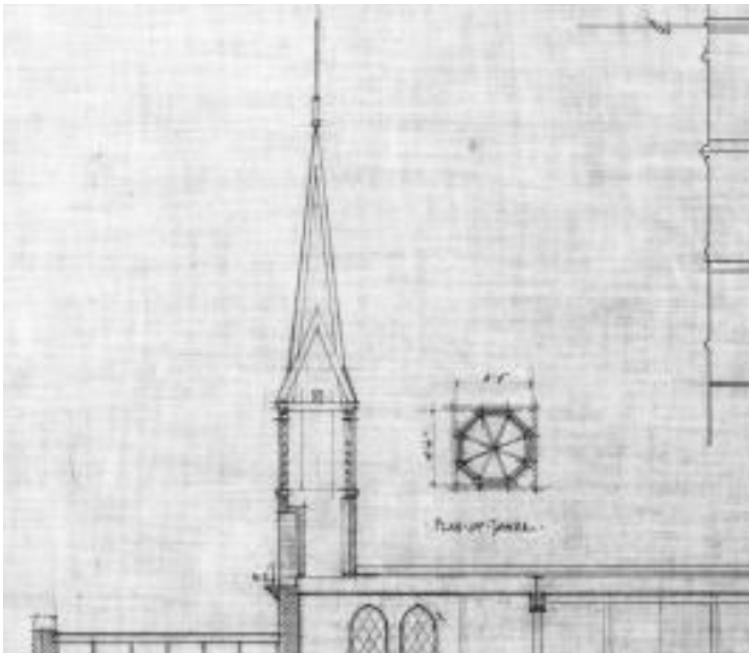
Fig. 23: An overall view of the painted metal spire. Its exact construction details are currently unknown.

Fig. 24: A view of the spire's painted octagonal base. Its construction details are currently unknown.

Fig. 25: A detail view from the ca. 1930 Noffke architectural plans of the chapel showing a longitudinal and cross sectional view of the spire and its octagonal base.

It is currently unknown if the interior of the spire and base matches the construction details in the sketch.

Acc77803/7 Drawing 6. Half Plan of Beamed Ceiling. Longitudinal section NMC 143147



Spire Removal Procedure:

1. Set up an appropriate scaffolding/hoisting/rigging system to allow for access to the spire, as well as a method of lowering the asset sections to the ground.
2. Before removals begin, complete a site inspection to determine the order of disassembly.
    a. Determine how the assets will be dismantled and if they should be transported as separate components or reassembled back into larger components for transportation and storage.
3. Complete site measurements to build crates for the removed assets. A preliminary investigation from the ground level presumes:
    a. Pinnacle cross
    b. Spire main body
    c. Octagonal spire base
    d. Spire base mouldings
4. Complete all as-found documentation of the spire, including photographs and continued measurements as further details are revealed.
5. Label any removed components with all pertinent information (elevation, asset section, directionality, etc.).
6. Disassemble according to best practices - keep sections in as large units as possible for transportation and storage.
7. Lower disassembled sections/units to the ground level via a hoisting or rigging system, or via a scaffolding platform (TBD).
8. Clean the removed components as needed with a HEPA enabled vacuum.
9. Complete post removal photographic documentation and capture any further measurements as necessary.
10. Complete the final cleaning of the work area.

4.8 LANTERNS

All components of the two lanterns currently flanking the main door are cast iron (brackets, wall plates, main body). They are designed with strips of metal arranged into a grid, with decorative rivets placed at the intersecting points. Within the grid are individual panes of yellow-tinted glass. The lanterns are clearly worn from time. After examination of a historical photograph titled, "*1929-1930 Church Under Construction*," it appears as though the existing lanterns are identical to those in the image, and are likely part of the original construction.

The top arm of the bracket is hollow to allow for wiring to run through it. The lamps should be rewired for LED's for a lesser amount of generated heat within the interior (and be ESA certified).

Note on Conservation Work: Missing component replacements can be completed by:

1. Steel braised into the body of the lantern - a more cost effective option.
2. Completing repairs using the same method the lantern was created by casting new parts - a higher cost option. This would require pattern making, mould making, and casting.

Conservation Issues: The brackets are pulling away from the wall plates and will need to be affixed into place. The paint layers on the assemblies have failed. Heavy corrosion is present, as well as corrosion jacking (also known as rust burst).

Conservation Work: The lanterns will require complete disassembly and paint stripping. Missing components will require fabrication. All fasteners will require replacements. New stainless steel threaded connections will need to be made. Assume all new glazing will be necessary as the individual yellow glass panes will likely not survive the disassembly phase.

Fig. 26: One of the two lanterns that flank the main doors to the chapel.

Fig. 27: One of the two lanterns that flank the main doors to the chapel.

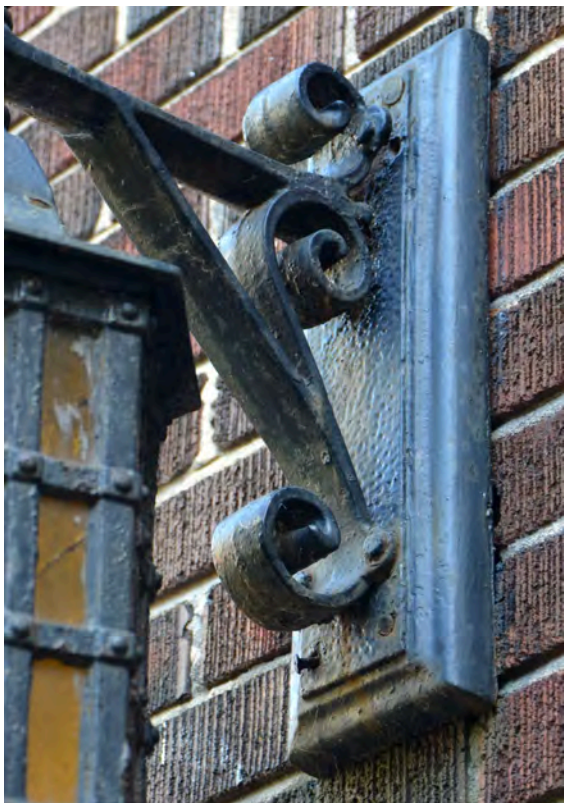


Fig. 28: A view of the cast iron face plate affixed to the brick.

Fig. 29: A view looking up into the interior of one of the two lanterns.

5.0 TIMELINES

5.1 BRICK WORK TIMELINES:

The following are current best guess timelines for the work needed to document, remove, and reinstall the brick within the Meaningful Portion of the chapel.

Task	Timeline
Documentation, cataloguing, photogrammetry, removals	5 weeks
Brick cleaning	TBD (depends on equipment and methodology chosen)
Reassembly / reinstallation	10 weeks

5.2 METAL FLASHING:
The following are current best guess timelines for the work needed to document, remove, restore, and reinstall the metal flashing within the Meaningful Portion of the chapel.

Task	Timeline
Documentation, cataloguing, disassembly, removals	2 weeks
Conservation work	2 weeks
Reassembly / reinstallation	4 weeks

5.3 DOORS, DOOR FRAME AND TRANSOM:
The following are current best guess timelines for the work needed to document, remove, restore, and reinstall the main doors, door frame, and glazed transom within the Meaningful Portion of the chapel.

Task	Timeline
Documentation, cataloguing, disassembly, removals	1 week
Conservation work	8 weeks
Reassembly / reinstallation	1 week

5.4 SPIRE:
The following are current best guess timelines for the work needed to document, remove, restore, and reinstall the spire within the Meaningful Portion of the chapel.

Task	Timeline
Scaffolding set-up, documentation, cataloguing, disassembly, removals	2 weeks
Conservation work	8 weeks
Scaffolding set-up, reassembly / reinstallation	2 weeks

5.5 LANTERNS:
The following are current best guess timelines for the work needed to document, remove, restore, and reinstall the spire within the Meaningful Portion of the chapel.

Task	Timeline
Documentation, cataloguing, disassembly, removals	2 days
Conservation work and rewiring	2 weeks
Reassembly / reinstallation	2 days

APPENDIX A - DECL - 254 Argyle Ave Site Visit

254 Argyle

Église Christ-Roi, Ottawa

Client: Heritage Grade
Report: Site Visit Report
Author: David Edgar, David Edgar Conservation Ltd. (DECL)
Date of Site Visit: 23rd September 2024
Date of Report: September 25, 2024

DECL
David Edgar Conservation Ltd.
Heritage Consultant

DAVID EDGAR CONSERVATION LTD.
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254 Argyle

For: Heritage Grade

Reason for Report

At the request of Heritage Grade, David Edgar and Matthew McCartney of DECL visited site to make a visual and tactile assessment of the exterior brick and mortar of the Église Christ-Roi, Ottawa. Heritage Grade requested that DECL provide commentary and recommendations regarding the proposed plan to dismantle and salvage the exterior envelope brick, in order to relocate and rebuild a portion of the church as part of a new-build residential project.

Photos on pages 5 & 6.

Background

Prior to attending site, DECL reviewed existing documentation and reference material provided by Heritage Grade, with particular attention being paid to the "Church Relocation Scenarios Analysis" and the "Conservation Plan", provided by Azure Urban Developments Inc.

Description of Building Components

The exterior brick intended to be salvaged is an extruded clay brick with a "combed finish". The brick colours range from orange to light brown. The colour variation of the brick is due to the varied firing of the brick in the kiln. The brick mortar is largely intact, with evidence that is was once pigmented black or very dark grey; the pigment at the surface has been mostly washed away. Given the age of construction, the mortar would have had a cementitious component, but based on tactile inspection, it is not especially dense or hard, which suggests a lime-cement hybrid mortar. The aggregate in the mortar is buff-grey coloured and of finer appearance than a modern ASTM or CSA would permit. The wall core comprises structural hollow tile terracotta of a T-shape configuration, with the exterior brick headers tying into the terracotta at intervals. The exterior brick is parged on the interior (except where headers extend into the terracotta construction). The wall construction is a hybrid approach to mass-masonry typical of the era, and the exterior brickwork is set in a variation on Common Bond, with some similarities to Monk Bond. Some architectural detailing such as window sills and cap stones are executed with artificial / "cast" stone with an appearance similar to Indiana limestone. There is a marble plaque indicating the date of construction, to the left of the main entrance. The joint finish appears to be a "weathered" or "struck" joint. Joints finished in this fashion are cut back at an angle from the upper brick down to the arris of the lower brick, with the perpendicular or heads joints typically finished in a similar fashion but with a uniform orientation - ie left to right.

Condition of Building Components

The majority of the bricks appear to be in Good condition. The lighter-coloured orange bricks have deteriorated more quickly than the darker brown bricks. This is because the darker bricks were exposed to higher temperatures when fired in the kiln, giving them a more durable fire-skin. There will be a higher proportion of salvaged darker bricks than lighter bricks and this should be a consideration for the heritage consultant; see note in the Conclusion regarding procurement of modern matching brick. The mortar is largely intact, but does not appear to be tenaciously-bonded to the brick. The cast stone and marble elements are in generally Good condition and should be salvaged for re-use.

Feasibility of Dismantle, Salvage, Reclamation and Reuse

Although the 1930-vintage mortar will have some Portland cement content, the mortar can be cut relatively easily with a steel tool, so it is likely that a high proportion of bricks can be salvaged intact. The success of the dismantling process will nonetheless rely on the skill and experience of the people doing the work. It is highly recommended that the tradespeople be familiar with methods typically used in the conservation and restoration of masonry buildings. In the right hands, the walls could be dismantled with power tools such as an "Arbortech" which would greatly speed up the process.

There is evidence of small-scale localized repointing with dense cement mortars, however, and in these areas salvage might be more difficult. Given that the proposal is only to retain the "meaningful portion of the church", it is likely that a sufficient quantity of original bricks could be salvaged in order to reconstruct in the proposed new configuration. Based on investigations already carried out at the church, the exterior brick is parged on the interior and separate from the terracotta back-up, except for some header bricks that do not appear to hinder the process of dismantling.

Recommended Approach to Dismantle, Reclamation and Reuse

- A full hazardous substances survey report should be undertaken, including brick mortar and interior brick parging.
- Photograph all elevations prior to erecting scaffolding. Photographs must be high definition and will be submitted as a record of As-Found Conditions. Digital files for submission must have unique filenames indicating elevation code and cardinal directions. Ensure that photographs contain all relevant information to permit re-installation per, As-Found Conditions.
- Provide unique identification codes for cast stones, for the marble plaque, and for any other unique details such as the recessed cruciform design above the main entrance, and submit an elevation key-plan showing the locations of all masonry units - prior to erecting scaffolding.
- Submit an elevation key-plan with gridlines, indicating locations of bricks. Bricks must be identified with the identification code of the corresponding grid, per the elevation Key-Plan. It is not typical to attempt to reinstate individual masonry units of mass-production origin in their exact original location following a major dismantling exercise. However, bricks on different elevations have been exposed to varying weathering conditions over the last almost-100 years, and in order to retain the present appearance of the heritage facades, it is recommended to return individual bricks to roughly the same area of the wall from where they were salvaged - hence the recording, documentation and tagging according to a gridded key-plan. Grids could be as large or as small as required (even whole elevations), according to cost and time factors - and according to the heritage significance placed on this aspect of the work by the consultant
- Carry out a measured survey and record dimensions on elevation drawings, to be submitted prior to commencing dismantling. Record overall lengths and heights, as well as measurements key unique features. Record typical widths of mortar joints. At openings, record spans, rises and springing points of arches. Record depths of projecting elements and relationships between the wall-line and projections. Create storey poles for recording brick coursing heights at each corner. Store poles for use when rebuilding commences. Critical heights such as cill heights, top of window and string courses should also be recorded on these poles. As dismantling of the exterior brickwork is taking place, the frequency of brick tie courses should also be recorded. On the survey, a note should be made indicating the lateral occurrence of the ties as well for replication during the rebuild. Extruded aluminium would be an excellent material for the poles.
- Submit a written sequence of work and identify areas that will require temporary shoring during dismantling. Provide engineered shoring plans as submittals, as required, and shore as necessary to ensure safe working procedures during dismantling.

254 Argyle

For: Heritage Grade

- Supply engraved stainless steel "dog tags', engraved with unique Identification Codes for every cast stone unit and the marble plaque. Attach tags with stainless steel fasteners and plastic sleeves to the top beds of stones wherever possible; never attach to seen faces. Number each brick with the corresponding grid identification code. Use permanent marker and number on the top of the brick, parallel to the face. Provide identification tags for pallets as well as masonry units and submit a record of all stones, bricks and pallets removed from site as work progresses. Face bricks should be cleaned of all mortar in a manner that causes no damage to the brick face. They should then be stacked on their corresponding Grid pallet so that backs of bricks are facing each other and faces are oriented towards each other, with a paper/cardboard layer to prevent damage
- Photo-document wall core conditions as work progresses and provide dimensioned sketches for wall assemblies (sections). Record on Key-Plan Elevation drawings all masonry fixings encountered during dismantling (cramps, pins, etc.). In the case of 254 Argyle, this best-practice approach to documentation would be for historic recording purposes only - the consultant will decide if this step is required in this instance.
- Use hand tools for raking mortar joints and for cleaning residual mortar from masonry units wherever possible - unless appropriately skilled and experienced heritage tradespeople can demonstrate proficiency with a power tool designed for this purpose, such as an Arbortech.
- Power tools can offer a more conservative approach (such as where dense modern Portland cement mortar has been used for repointing). In addition to the Arbortech, the use of appropriate tools such as pneumatic carving hammers fitted with small, sharp Tungsten-tipped chisels, or small variable-speed angle grinders may be recommended by the contractor. When using power tools, stay away from the arrises of the brick and make relief cuts in the centre of the joint. It is not permitted to cut perpendicular joints in brickwork with an angle grinder. If cast stones cannot be easily released from the assembly by raking joints, proceed to drill holes deeper into mortar joints until the stone can be loosened. Where access is available, work from above to remove mortar connecting stones to back up material. Relieve all joints around cast stones to a minimum 40mm depth before attempting to loosen stones.
- Loosen masonry only when temperatures are above zero degrees C.
- Protect adjacent materials and projecting elements below, before beginning dismantling work.
- Maintain "discard pallets" during dismantling, as well as "salvage pallets". Where the brick condition does not appear to be suitable for reuse, place the brick on the discard pallet. Guidelines for Discard vs. Salvage should be provided by the consultant in the specification and could include loss of brick face; missing corners, broken bricks, etc
- Remove all mortar remaining on all masonry unit surfaces (including unsightly "over-pointing") before storing on pallets.
- Supplied pallets must be new or sound, with no rotting or broken members.
- While bricks are in storage, keep pallets in a dry, covered location with airflow (to prevent biological growth)
- Cast stones must be protected on pallets, with adequate softening material. Secure stones with strapping. Keep corner of stones away from edges of pallets. Where stones extend beyond pallets, protect exposed corners.
- Store reclaimed brick at secure warehousing and maintain a record of deliveries and inventory until the completion of the project.

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254 Argyle

For: Heritage Grade

Conclusion

DECL believes that salvage and reuse of historic bricks at 254 Argyle is feasible and that approximately 60-75% of all bricks should prove to be salvageable, if required.

If new, matching bricks are required, "Tweedtex Mingled Shade" by Shaw Brick could provide a reasonable visual match. Note that it is best practice in material conservation to sample and analysis original materials intended for reuse: so that compatible modern materials can be sourced, without fear of negative impact on the performance of the original material in the finished assembly

DECL recommends that an investigation be carried out to before finalizing contract documents. This would allow the Client and Consultant to determine the feasibility of the proposed approach. Most importantly, it would provide an indication of the % likelihood of successfully salvaging bricks, as well as some idea of cost and time

The Brique-Recyc technology developed in Montreal by Gratton Maçonnerie could offer cost and time savings for a project of this nature. *https://briquerecyc.com/*

It is recommended to include this machine in any pre-construction investigation / feasibility study. This would also permit accurate cost estimating and construction planning. If the Brique-Recyc technology is appropriate for this project, it is important to note that operation of the machine at the building site gives the highest chance of success, since bricks are carefully handled and managed by the skilled workers who removed them from the wall.

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254 Argyle

For: Heritage Grade

Photos

Main Entrance at North Elevation

Credit: https://originis.ca/paroisses/p_ext/ontario/paroisse_on_ottawa_christ_roi/

Marble plaque with date of finished construction and recessed cruciform design above entrance.

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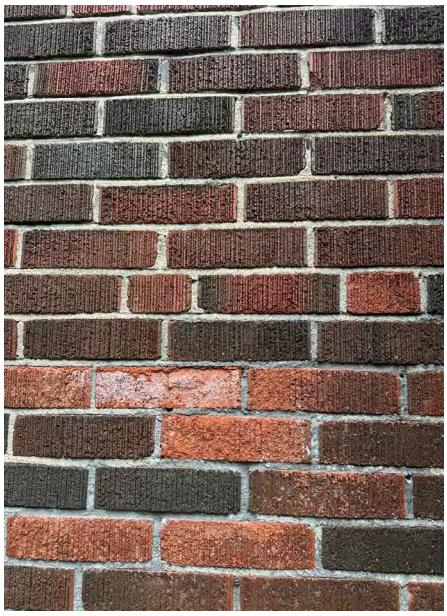
254 Argyle

For: Heritage Grade

Photos



Typical brick condition, with lighter-coloured bricks proving less durable.

Brick mortar scraped back with steel tool to reveal grey pigmented original mortar.

Example of brick not suitable for salvage.

Exploratory opening on the interior, showing wall composition.

SERIES 2

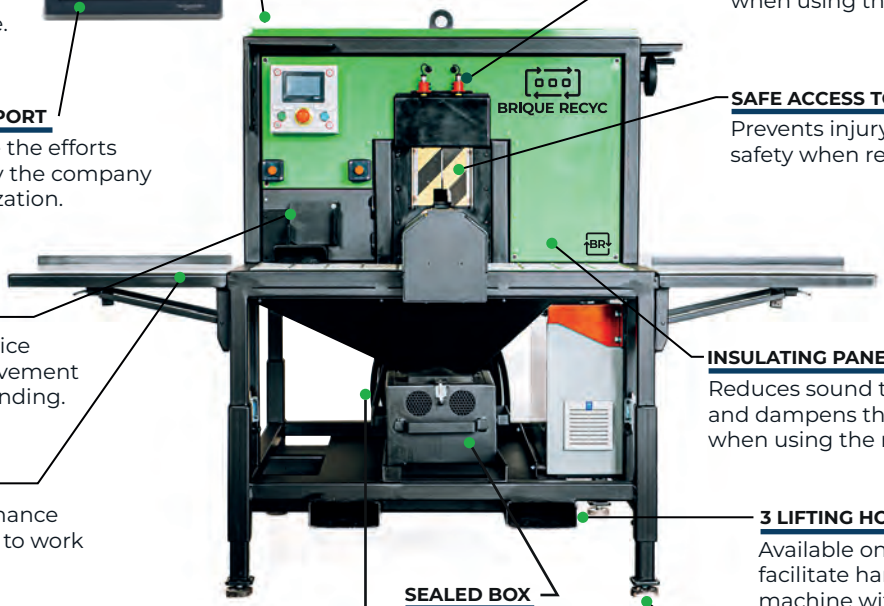
BRICK RECYC

INTUITIVE INTERFACE
Allows the user to have a quick understanding of the simple operation of the operator interface.

SMART WEIGHT CALCULATOR
Automatically calculates the maximum safe weight authorized on the type of scaffolding or on the work site.

LASER BRIGHTNESS
Optical power of the lasers increased to ensure precision when using the machine.

DECARBONIZATION REPORT
Allows you to evaluate the efforts and progress made by the company in terms of decarbonization.



SAFE ACCESS TO BLADES
Prevents injury and ensures safety when replacing blades.

WHEEL PROTECTION
Mechanical safety device actuated with the movement of the brick during grinding.

INSULATING PANEL
Reduces sound transmission and dampens the noise level when using the machine.

SHELF EXPANSION
Optimizes performance and allows 2 users to work simultaneously.

3 LIFTING HOLDS
Available on 3 sides, they facilitate handling of the machine with the forklift or pallet truck.

SEALED BOX
Allows the recovery of mortar to prevent the dispersion of residues in the work environment.

ADJUSTABLE BASE
Allows height adjustment for a comfortable and ergonomic working position, promoting comfort and productivity.

POWER CONSUMPTION
Automatic regulation of electricity consumption according to the hardness of the mortar.

COMPACT
ERGONOMIC
ENVIRONMENTALLY FRIENDLY

NEWS

ENVIRONMENT
- DECARBONIZATION REPORT
- INSULATING PANEL
- POWER CONSUMPTION
- SEALED BOX

SECURITY
- SMART WEIGHT CALCULATOR
- ADJUSTABLE BASE
- SAFE ACCESS TO BLADES
- WHEEL PROTECTION

TECHNICAL
- INTUITIVE INTERFACE
- LASER BRIGHTNESS
- 3 LIFTING HOLDS
- SHELF EXPANSION

BR-V3000 BRICK RECYC - SERIES 3

TECHNICAL SHEET

DESCRIPTION

Discover the unique patented technology of the **BR-V3000**, which enables quick, easy, and efficient removal of mortar from bricks without generating harmful dust. The **BR-V3000** offers the capability to clean 3 to 8 bricks per minute, allowing for reuse whether on the ground or at the desired floor level.

ADVANTAGES

- Capacity of 3 to 8 bricks/minute
- Flexibility of use, whether on the ground or on the desired floor
- Loss mitigation
- No liquid needed
- Surpass the requirements of various international safety standards
- Safe recovery of harmful dust
- Accessibility to eco-subsidies according to territory
- Interface allowing tracking
- Multifunctional touch interface

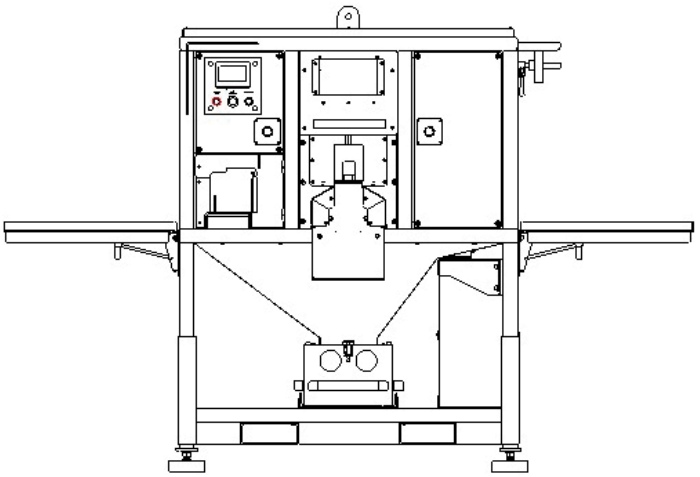
DIMENSIONS BR-V3000

OVERALL DIMENSIONS
Length 51'' / 129,54 cm
Depth 48'' / 121,92 cm
Height 61'' / 154,94 cm

MINIMAL BRICK FORMAT
Length 4'' / 10,16 cm
Depth 1,8'' / 4,57 cm
Height 3'' / 7,62 cm

MAXIMAL BRICK FORMAT
Length 12'' / 30,48 cm
Depth 5'' / 12,70 cm
Height 5'' / 12,70 cm

MACHINE WEIGHT
1507 **Lbs** / 684 **Kg**



ELECTRICAL SPECIFICATIONS

230V-240V / 50Hz-60Hz / 50 Amp / Single-phase

SAVING THE PLANET
ONE BRICK AT A TIME

BRICK RECYC introduce

the BRICK RECYC TECHNOLOGY!

This new process allows to reuse the original brick!

Why would we do that?

To offer customers an eco-responsible and economical masonry option.

So, how does it work?

This process cleans the brick without mechanical percussion, which makes it easier to reuse.

For employees, it's safer than the traditional cleaning process, which increases repetitive actions and the risk of injury.

The cleaned brick is ready to be used again. No need to buy new ones!

Tadaah! Like New!

Reusing a brick taken from a 1000 square foot facade will save on:

Manufacturing

Transportation

Building

Wastage

And saves 6 tons of carbon emission!!

6 TONS OF CO_2!

By reusing bricks on 500 sites, it's like removing 750 cars from the road every year!

Wow! All that and preserving our cultural heritage.

Exactly! Nothing but advantages!