



HERITAGE FEATURE ASSESSMENT

Date: May 1, 2025

To: City of Hamilton, Heritage Committee

From: Cynthia Zahoruk Architects

Project: Yeshiva of Hamilton

Address: 235 Bowman Street, Hamilton

Subject: **Assessment of Existing Historic Steel Sash Windows**

Building History

As described in the City of Hamilton By-Law 92-031, the Yeshiva of Hamilton school, originally West Hamilton School, was constructed in 1922 as a 1-storey brick and steel building with a second storey added in 1930. The building was renamed the Princess Elizabeth School in 1940 and then purchased by Hamilton Hebrew Academy in 1991. The original building and addition were designed by notable architects of the time, Warren & McDonnell and F.W. Warren. The original structure is an example of early twentieth century Collegiate Gothic style architecture and is particularly notable for its stone banding, carved stone detailing, Tudor-arched entrance doorway, second storey turreted frontispiece, and steel sash windows.

This application seeks to address the deterioration of the original steel sash windows.

Condition of Existing Windows

The windows have been assessed by Cynthia Zahoruk Architects and Lower City Joinery. Please refer to attached Appendix A "Condition Report" prepared by Lower City Joinery. Site review of the windows revealed that the existing wood window sills have contributed to significant water damage to the metal window frames. The frames are significantly rusted and corroded. Refer to Appendix B for photos of existing windows.

The existing windows have poor thermal performance due to the existing single pane glazing and the deteriorated solid metal frames which do not provide any thermal break between the exterior and interior of the building. The existing windows also cannot provide reliable security for the building due to their frail condition.

Consideration for Refurbishment

In considering the option of maintaining the existing steel frames and replacing the glazing with modern dual pane glazing it does not appear likely that the existing steel frames could survive or function with replaced modern glass. Many parts of the historic metal frames are corroded beyond repair, it is not known whether they could remain in-tact during removal of the existing glass or whether the existing thin metal frames could structurally support the dual pane glazing that is required for increased thermal performance of the building.

Furthermore, if the glass is replaced and the frames remain then the historic frames are expected to degrade further while they continue to collect condensation due to their lack of thermal break. Refurbishment of the existing non-thermally broken frames and installing thermal glazing would easily be more costly and less sustainable for the future operation of the school. The required effort to replace the glass and restore the frames in situ is not practically or financially feasible.

An alternate consideration for the possibility of maintaining the historic windows is to install new storm windows outside of the existing windows. Due to the size of the window openings (up to 1.2m W x 3.1m H in groupings of 5), the use of exterior storm windows will dramatically affect the look of the building as individual mullions would need to be added for strength. The result will block any views of the original windows on the exterior of the building and will not be beneficial to the historic aesthetic.

Consideration for Replacement Windows

Thoughtfully designed and selected replacement windows can replicate the appearance of original heritage windows, ensuring that the building's historical character is maintained through the use of slim profile frames and simulated divided lights. Ridley Windows has provided a design (see attached Appendix C) for combination wood and aluminum window frames which offer increased durability and building performance while very closely matching the original heritage windows style to respect and preserve the character of the building.

Carefully and intentionally designed replacement windows can maintain the overall character of the windows with a thermally broken modern aluminum and wood frame window conforming to current code standards for water control and thermal conductivity. This adds to overall building energy efficiency, security and comfort in the interior spaces.

Modern windows offer better insulation and can significantly reduce energy consumption for heating and cooling. The existing R-value (heat transfer resistance) of the windows, which comprise 23% of the exterior wall area, is approximately R1. Whereas new double pane and thermally broken windows will provide an R-value of minimum R3.125 helping to regulate



temperature, reduce drafts, improve the interior environment comfort, decrease energy consumption for the building, and provide a far more sustainable solution for the Owner.

Replacement windows also provide an opportunity to install proper functioning operators (opening windows) which will allow natural ventilation of classroom spaces. Replacement windows can also feature advanced locking mechanisms and stronger glass, improving the overall security of the building.

Conclusion

The existing windows have deteriorated significantly due to weather exposure since their original construction, inhibiting building performance and security. The metal frames in particular are heavily damaged and do not appear to be stable enough to survive replacement of glazing or to support the weight and depth of modern double pane glazing that would be required to improve the building's thermal and energy performance. It is our recommendation to remove the existing failing windows and to install new windows to match the original windows dimensions as closely as possible and maintain the historic presence of the building while also providing modern thermal and energy performance.

Sincerely,

Cynthia Zahoruk
O.A.A., MRAIC, LEED Ap
B.E.S., B. Arch, CPHD

Emily McMurchy
O.A.A., M.Arch, HonBAS, CPHD



APPENDIX A

Condition Statement

prepared by Lower City Joinery
April 17, 2025

ARCHITECTURE

INTERIOR DESIGN

PLANNING

3077 New Street, Suite 201
Burlington, ON L7N1M6

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17 April, 2025

Lower City Joinery
34 Biggar Avenue
Hamilton ON L8L 3Z4

Yeshiva of Hamilton
Attn: Rabbi Daniel Green
235 Bowman St
Hamilton, ON

Condition Statement; 235 Bowman St. Windows

The steel windows at 235 Bowman Street, Hamilton, ON show signs of extensive corrosion. Wood sills are degrading due to condensation from the primarily single-glazed windows. Previous attempts to exclude moisture with silicone and other caulking have made matters worse by retaining moisture that otherwise may have drained away, thereby exacerbating corrosion of the steel frames.

Although some of the original single-glazing has been replaced with double-glazed IGUs, the vast majority of the glazing is single and failing. Seals on the very slim IGUs are also failing.

Replacing existing windows with modern double-glazed windows in a style sympathetic to the existing windows would preserve the aesthetic value while minimizing energy loss.

Prepared by:

Mike Kennedy – Lower City Joinery

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APPENDIX B

Photos of Existing Windows

March 31, 2025

ARCHITECTURE

INTERIOR DESIGN

PLANNING

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Figure 1 – Existing corroded steel window frame



Figure 2 – *Existing rusted steel window frame*



Figure 3 – Existing corroded steel window frame patched with caulking, cracked glass, and water-damaged wood window sill.



Figure 4 – Existing corroded steel window frame patched with caulking, and water damaged wood window sill.



Figure 5 – Existing corroded steel window frame.



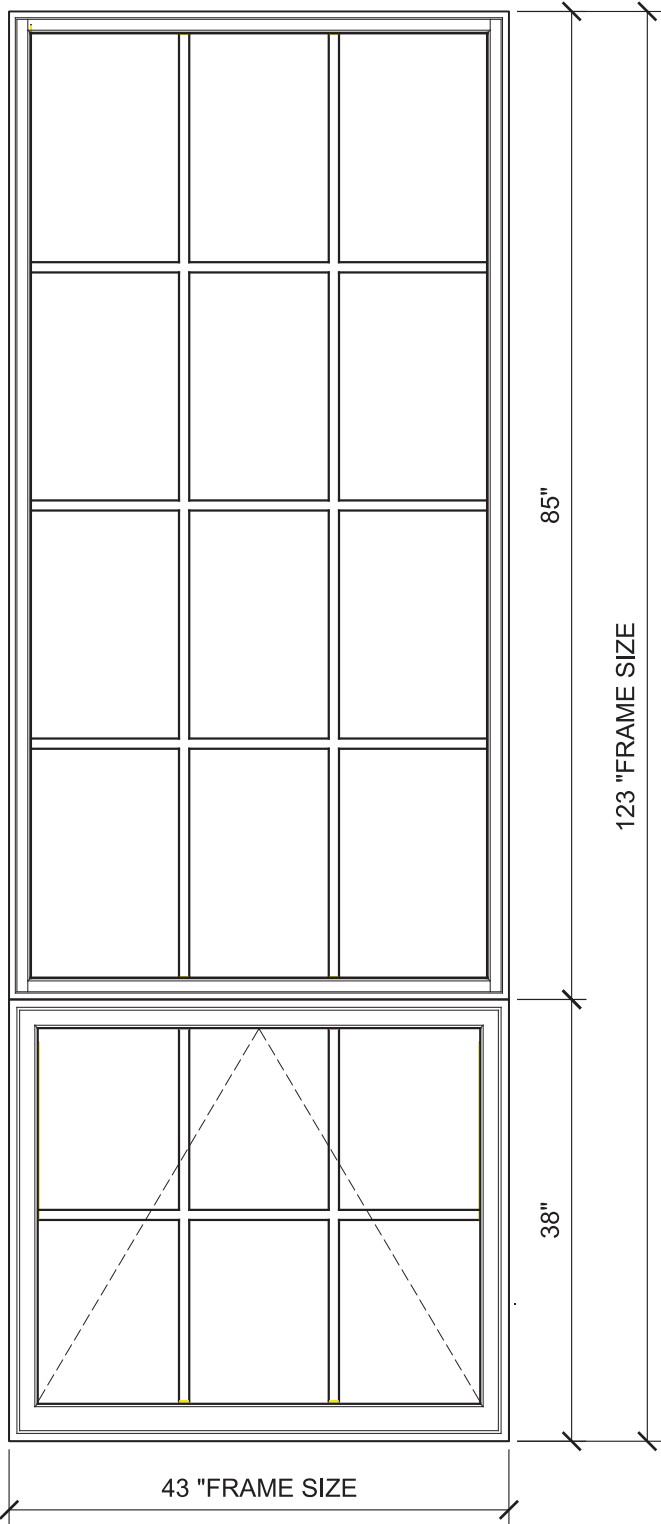
Figure 6 – Existing corroded steel window frame with cracked glass, and water damaged wood window sill.



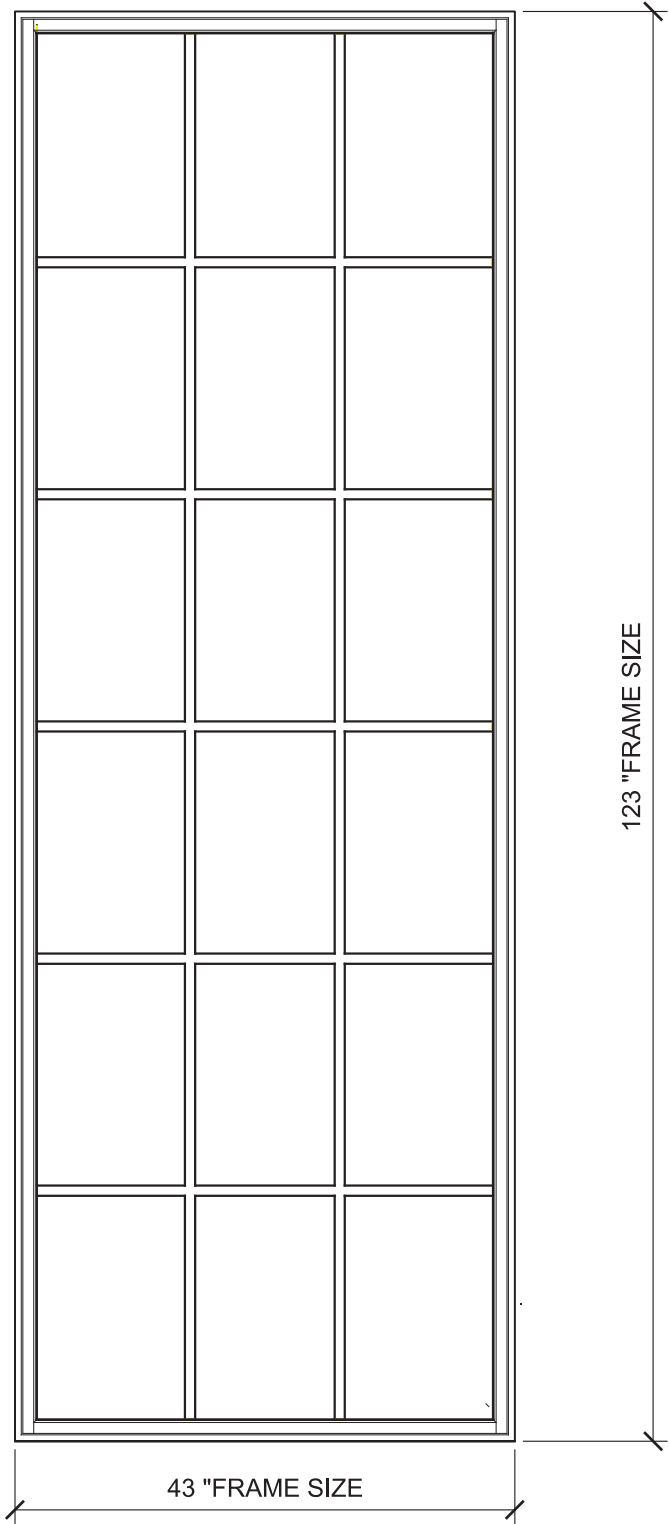
APPENDIX C

New Window Details

prepared by Ridley Windows and Doors
February 20, 2025

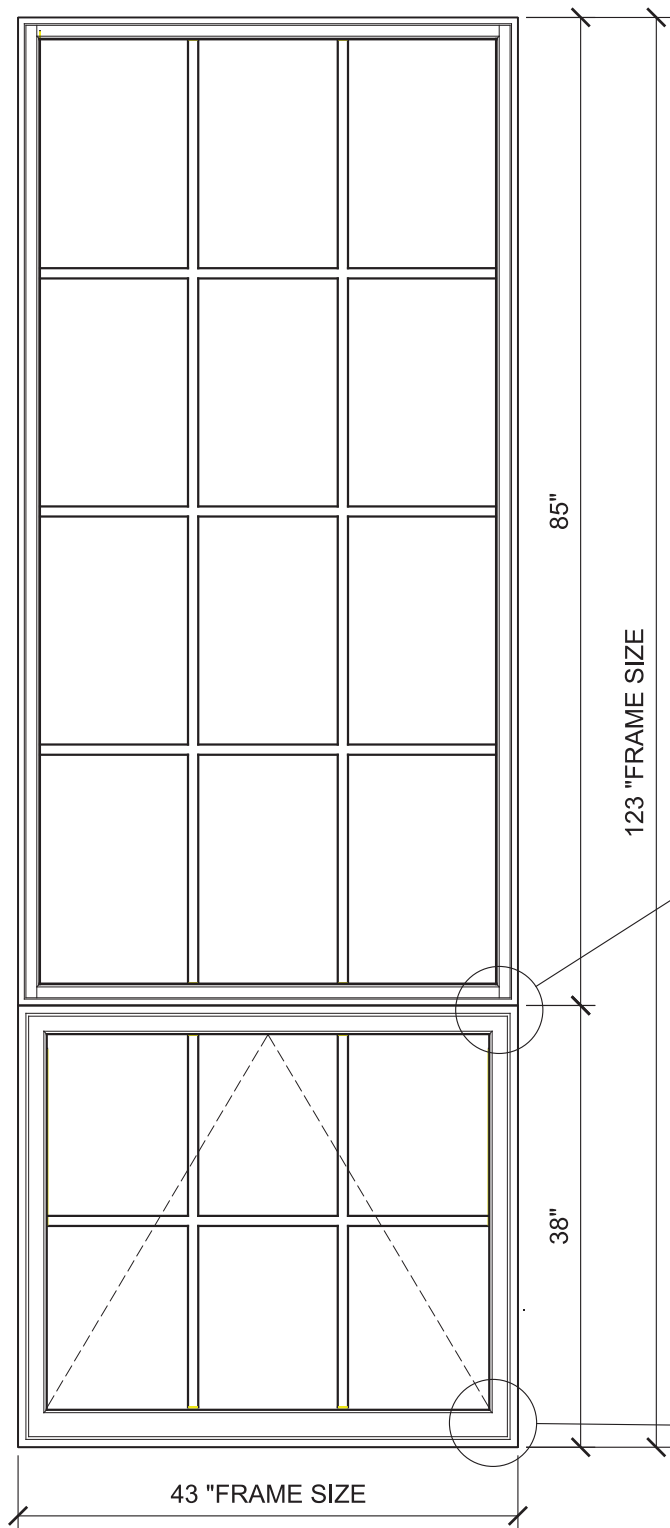


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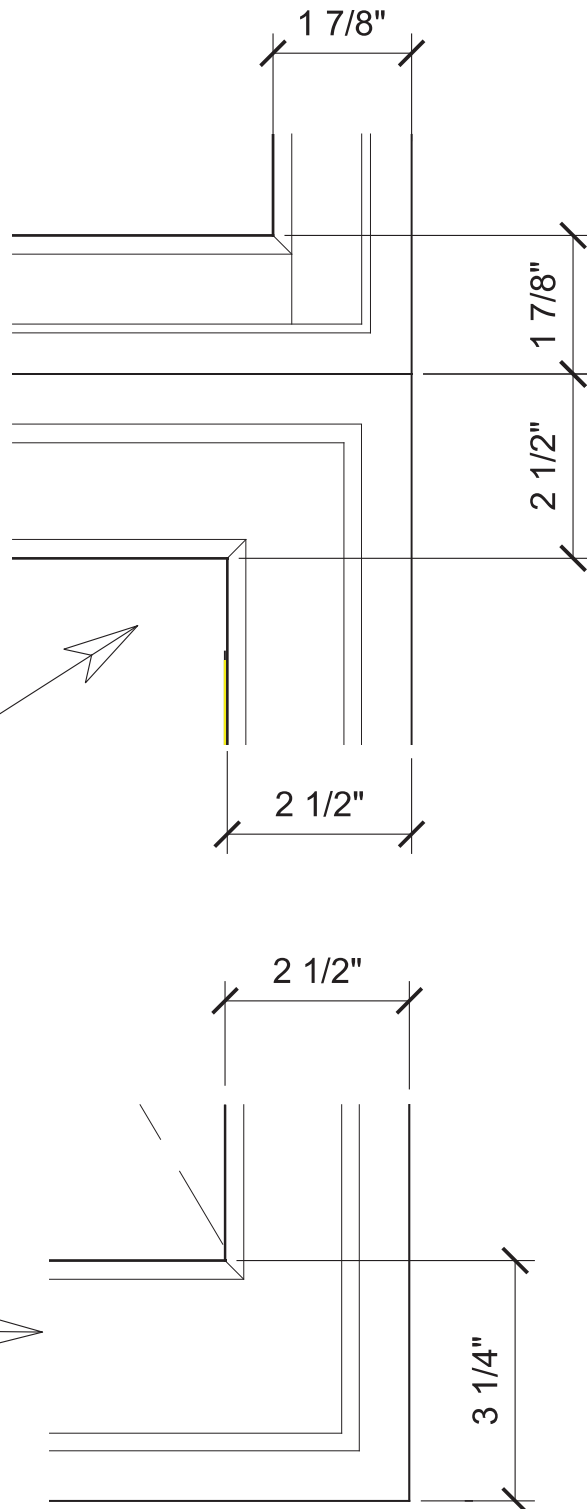


FIXED

REVISION DATE: MM/DD/YY		BY RM	REVISION DESCRIPTION: INITIAL RELEASE		REV A	
<div>RIDLEY</div> <div>WINDOWS & DOORS</div>			PROJECT: YESHIVA HERITAGE SCHOOL			
			DRAWING: WINDOW DETAILS			
			DWG DATE: 02/20/25	DRAWN BY: RM	SCALE:	PAGE: 1 OF 1
			FULL FILE NAME: Y:\2025 PROJECTS\YESHIVA HERITAGE SCHOOL			

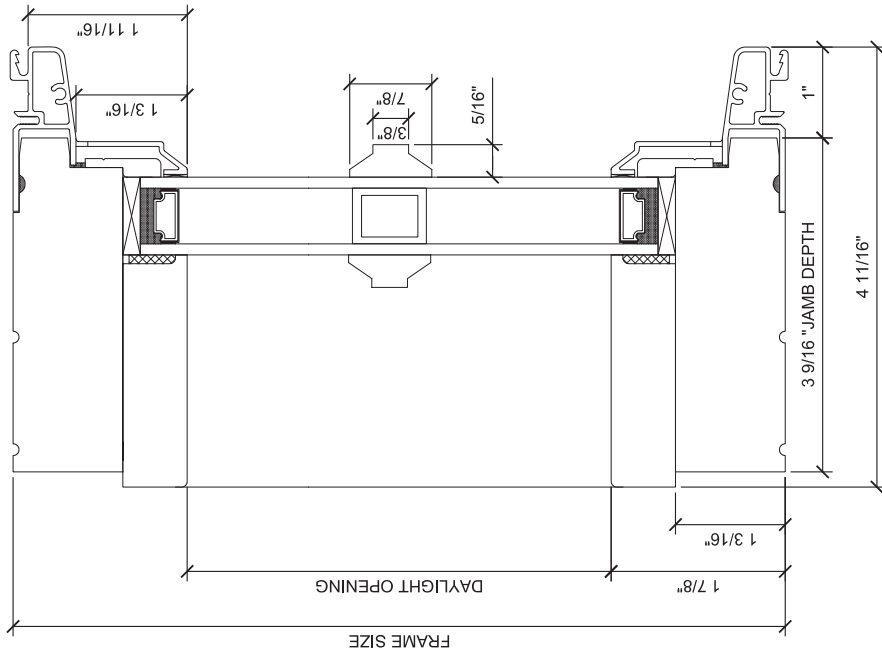


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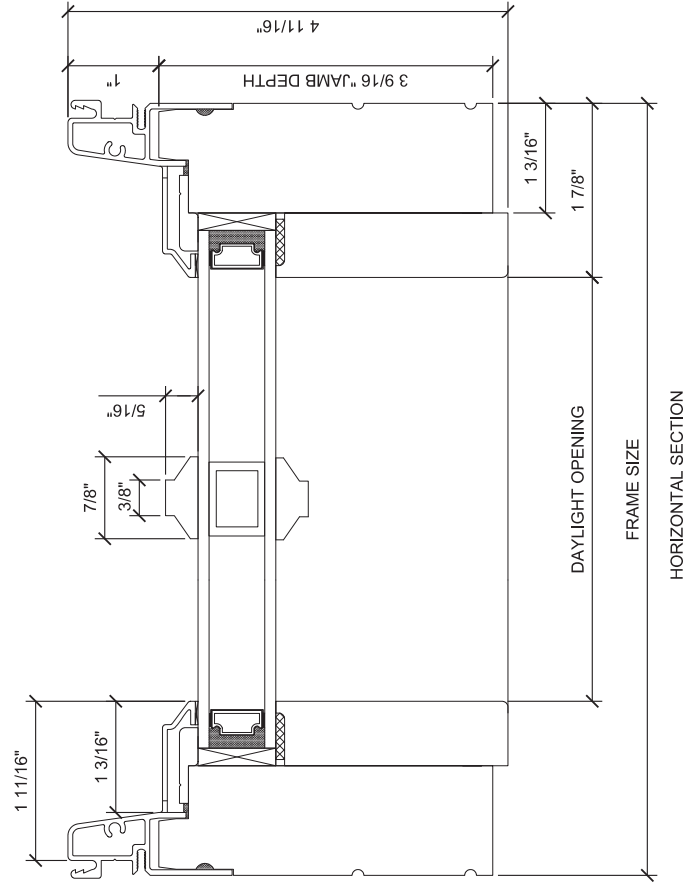


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PROJECT: YESHIVA HERITAGE SCHOOL		DRAWING: WINDOW DETAILS	
DWG DATE: 02/20/25	DRAWN BY: RM	SCALE:	PAGE: 1 OF 1
FULL FILE NAME: Y:\2025 PROJECTS\YESHIVA HERITAGE SCHOOL			

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WINDOWS & DOORS



VERTICAL SECTION



HORIZONTAL SECTION

REVISION DATE: MM/DD/YY	BY RM	REVISION DESCRIPTION: INITIAL RELEASE	REV A
PROJECT: NORCLAD WINDOW			
DRAWING: DIRECT SET WITH 7/8" PUTTY GRILLE BARS			
DWG DATE: 02/19/25	DRAWN BY: RM	SCALE:	PAGE: 1 OF 1
FULL FILE NAME: COMMON SUPLIERSNORWOODNORCLAD DETAILS			

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