Windows, Exterior Doors and Decorative Metals

Introduction

The 1936 and 1938 original drawings indicate that the historic windows and several of the exterior doors in the Hall of Waters building were to be constructed of steel of various designs and operation. A majority of the original steel windows were removed and replaced in the 1980s with insulated glass aluminum frame units. In the 1990s, replacement of the windows and door sashes were completed in the Hall of Springs and the original steel were restored. Only a handful of original steel windows remain throughout the building in the tower and in the mechanical or support spaces.

Fig. 147 Existing Steel Window in the Second Floor Tower Restroom. This window has privacy glazing and is located in Preservation Zone1 and is therefore recommended for preservation. (SRJA 2012)

For the purposes of this report, windows and doors were observed from the exterior and interior of the building. They are noted by type and the overall assessment and recommendations are noted below. The lintels were observed during the masonry assessment and are discussed in that section of the report. Many of the existing window and door lintels are deteriorated and will require replacement, as they do not appear to have been treated or maintained since their original installation (Figure 147). Unfortunately, in order to access the lintels for repair or replacement, this work may affect several of the modern aluminum windows (Figure 148).

Steel Windows

In general, the existing steel windows are in fair overall condition. Several of these windows are addressed in more detail in the following sections.

Fig. 148 Existing Deteriorated Lintel at a Modern Aluminum Window Installation. (SRJA 2012)

The remaining steel windows are considered to be significant historic fabric, integral to the original building design. They should be maintained and preserved, as appropriate.

A majority of the original steel windows throughout the office and spa portions of the building had fixed upper transoms, pairs of operable casements and a lower operable hopper unit. The original steel windows that were located in more utilitarian or support areas, were often divided lite windows, with smaller panes of textured glass and no transom or bottom hopper. Some were installed as pairs of casements, while others were designed to be center pivoting. Many of these windows are still in place.

For the existing steel windows which are to remain, care shall be taken to ensure their proper maintenance. Refer to National Park Service *Preservation Brief No. 13: The Repair and Thermal Upgrading of Historic Steel Windows* as a guide for their preservation.

Fig. 149 Existing Steel Windows in Elevator Penthouse. These require rehabilitation, as there is missing glazing. (SRJA 2012)

It is recommended to have a comprehensive steel window rehabilitation plan which would address not only the immediate needs for the windows, but also outline a future maintenance plan for the preservation of the historically significant windows. Each steel window should be carefully inspected. The scope of window restoration work should include the window sash, the steel frame, glazing, possible weatherstripping and testing and repairs to the associated hardware. It is important to note that even frames and sash that indicate beginning stages or even advanced stages of corrosion through rust can be successfully repaired.

Fig. 150 Existing Steel Windows in Mechanical Penthouse. These appear to be in good overall condition. (SRJA 2012)

The historic steel windows contain a variety of glass glazing, including several varieties of textures privacy glazing, decorative textured glazing and wire safety glazing. If glazing is broken, replacement glazing should match the historic glazing opacity, texture, coloring, thickness and overall design intent. Replacement glazing may be found through architectural salvage and historic restoration specialists.

It is unknown if hazardous materials exist with regards to the historic steel windows. Paint, glazing compound and sealants may be tested as part of the Phase I Environmental Assessment Grant work which was completed in 2012. The Hazardous Materials Assessment is included within this report in Appendix C. If hazardous materials are found, they should be abated by a certified abatement contractor familiar with the restoration and rehabilitation of historic steel windows. Most steel window restoration contractors are also licensed in hazardous materials abatement associated with this type of window work.

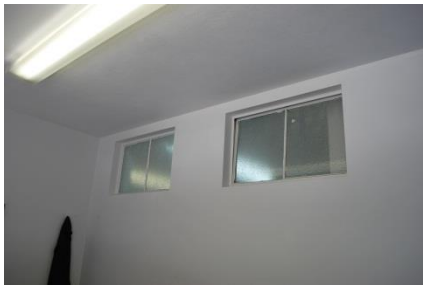

Fig. 151 Steel Awning Windows in the Ground Floor Mezzanine Hall. These windows once shed light from the sun porches into the changing rooms for the spa. (SRJA 2012)

Those steel windows located in the primary Preservation Zone 1 should be maintained and preserved during future rehabilitation. Those steel windows located in Rehabilitation Zones 2-4 should be carefully considered for restoration and individually reviewed prior to making a replacement recommendation. Replacements should be done with an in-kind window, created by a steel window manufacturer who can match the existing steel window profiles, operation, overall site lines and installation.

Hall of Springs Steel Windows and Doors

The Hall of Springs on the first floor of the Hall of Waters building is quite possibly the most photographed room in all of Excelsior Springs. This magnificent space boasts thirteen enormous two-story glazed openings that lead to the surrounding exterior raised terrace. These openings contain a combination of operable windows, doors and fixed glazing. In the 1990s, the original steel window sash and doors were severely deteriorated and were removed. The original steel frames were restored in situ and new insulated steel window and door units were installed.

Fig. 153 Steel Windows and Doors at the Hall of Springs. (SRJA 2012)

The existing steel window sash and doors are in good overall condition. The original steel frames and decorative elements are in fair to poor condition and require immediate attention. Many of the cast steel decorative elements are missing. Holes resulting from the missing elements may be allowing water into the steel frames. The windows require new sealant installation in select locations, most specifically at the door thresholds. Frames need rust removal and touch-up painting.

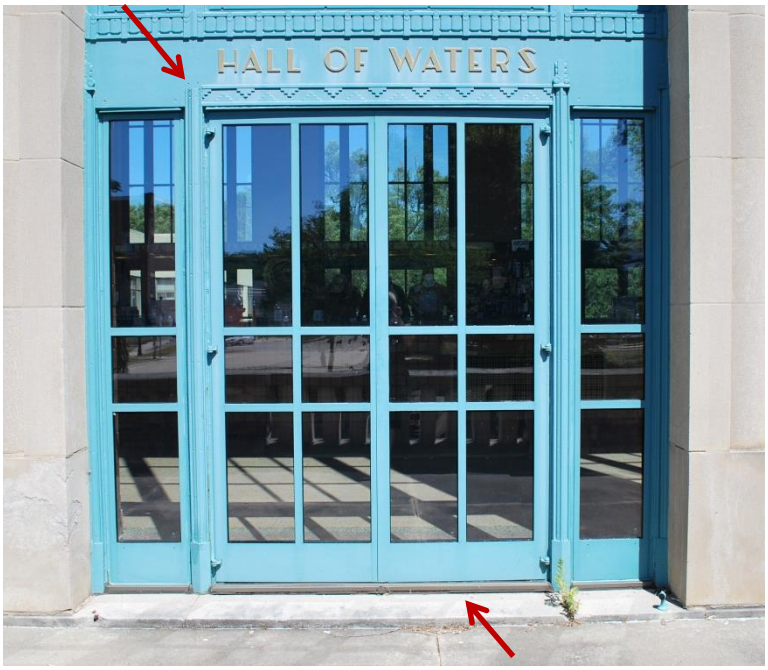

Fig. 152 Steel Window at the Hall of Springs. The top red arrow points to a missing cast steel detail, typical throughout the exterior. The bottom points to deteriorated sealant at the threshold. (SRJA 2012)

Fig. 154 Steel Windows and Doors at the Hall of Springs. (SRJA 2012)

North and West Entrance Systems

The north and south entries are the original primary entrances. They are highly decorative and retain a majority of their original materials. These are among the most significant features of the building and should be carefully maintained and protected. The metal entrance systems are composed of multiple layers of materials: splayed carved stone jambs featuring Mayan-inspired panels and metal frames/decorative screen. The two-story decorative metal screen is designed to fill the opening and is painted black and turquoise. Modern bronze doors are currently installed for access in order to comply with contemporary ADA requirements.

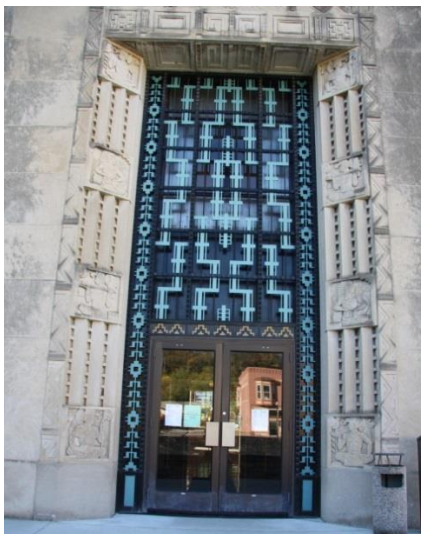

Fig. 155 North Entrance. (SRJA 2012)

The decorative metal screen covers large second story steel windows (Figures 155 and 156) which can only be seen from the interior of the building. The steel windows are original and are composed of a series of rectangular openings, with reeded and textured glass, set around a pair of casement windows. The interior window jambs are surrounded with terra cotta tiles on the north window. These windows swing into the building and are operated with large brass handles. The window opening in the Courtroom is slightly different that the north opening located at the stair landing, in that the two outside units also operate. The window frames are both beginning to bow and show signs of distress. Several of the glass units are cracked. The terrazzo sill at the north window is also cracked (Figures 157 and 159). It appears that the overall steel window unit was installed tight to the structure with no allowance for expansion and contraction of the overall window system. Steel windows experience quite a bit of thermal movement and tend to creep over time.

Fig. 156 North Entrance Deteriorated Steel Surround Detail. (SRJA 2012)

These entrance systems are in fair overall condition. The exterior metal surround is beginning to rust and has several cracks and broken pieces throughout that require repair. This repair and paint work needs to occur immediately so that the frames will be water tight and will not continue to rust and deteriorate. During rainstorms water is forced under the entry doors (especially at the west doors) and pools on the terrazzo flooring. The doors need a better sweep and/or threshold to keep water out of the building. The steel windows are significant historic fabric and should be preserved. They are in fair to poor condition. A thorough restoration plan should be compiled for these two locations, taking into account that the windows will likely need to be restored in situ.

Fig. 157 North Entrance Steel Window as Seen from the Second Floor. (SRJA 2012)

The north entrance also has a transom above the doors, which is obscured by the metal screen and only visible on the interior. The transom contains a series of square mirrors. Two of the mirrors are cracked and require

replacement. The north and west vestibule also contain original brass doors set in steel frames. These doors should be carefully maintained and preserved (Figures 167 and 168). The interior north doors are set in a decorative painted steel frame with a transom window. The transom glass are squares of reeded and textured glass. This decorative surround and door system should be carefully maintained and preserved.

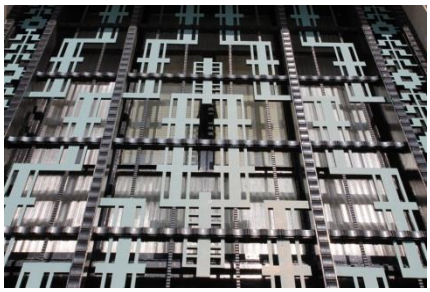

Fig. 163 North Entrance Screen Detail. (SRJA 2012)

Fig. 160 North Entrance Steel Window – Open. (SRJA 2012)

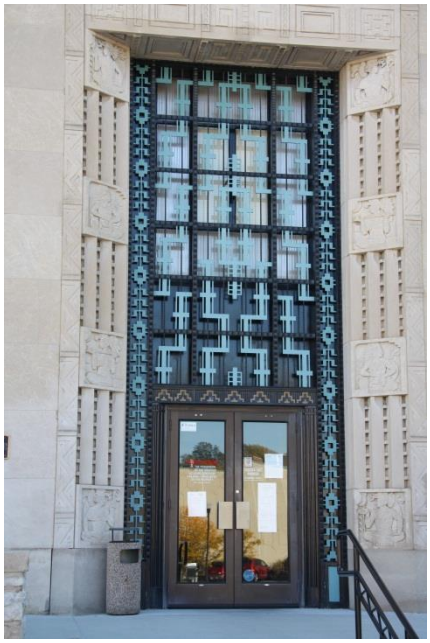

Fig. 162 West Entrance. (SRJA 2012)

Fig. 159 North Entrance Steel Window Cracked Terrazzo Sill. (SRJA 2012)

Fig. 161 West Entrance Deteriorated Steel Surround Detail. (SRJA 2012)

Fig. 158 North Entrance Steel Window Brass Handles. (SRJA 2012)

Fig. 166 West Entrance Original Steel Window as Seen from the Second Floor. (SRJA 2012)

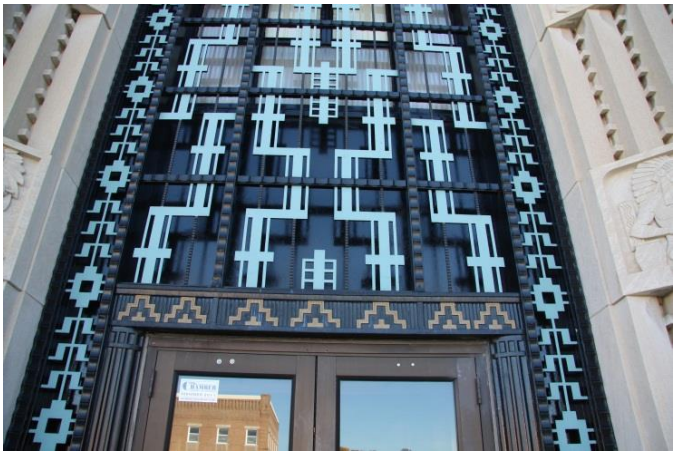

Fig. 165 West Entrance Original Steel Screen Detail. (SRJA 2012)

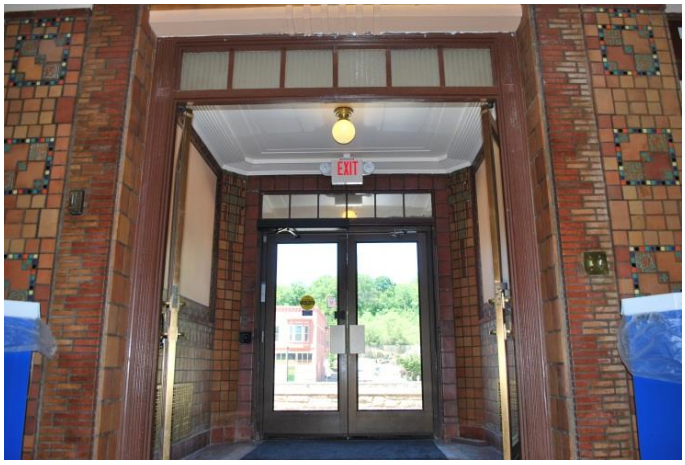

Fig. 164 North Entrance Vestibule Decorative Steel Jamb and Transom Detail. (SRJA 2012)

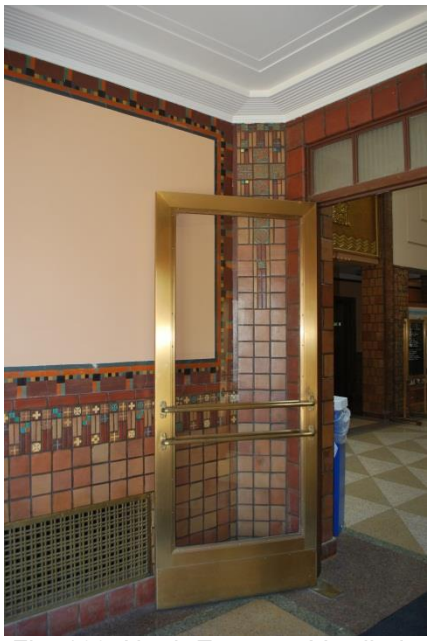

Fig. 168 North Entrance Vestibule Original Brass Door. (SRJA 2012)

Fig. 167 West Entrance Vestibule Original Brass Door. (SRJA 2012)

Aluminum Replacement Windows

In general, the aluminum replacement windows are in fair to poor condition. Many of them leak and are difficult operate. Several have missing or damaged screens and others have been modified to fit window air conditioners with plywood filler panels (Figure 172). Many of the lower level windows have glazing that has turned opaque due to failed insulating seals and deterioration.

Fig. 169 Typical Existing Aluminum Replacement Windows. (SRJA 2012)

Overall, the aluminum windows currently installed in the office and spa spaces are similar in design to the fenestration patterns of the original steel windows (Figures 169 and 170). The aluminum replacement windows have fixed transoms. The new aluminum windows have sliding units, whereas the original steel windows had operable casements of a similar proportion. The bottom sections of the original steel windows that were operable hoppers are now fixed units or have been in-filled with window air conditioning units (Figure 171). The aluminum windows are a light bronze or brown color.

Fig. 170 Typical Existing Aluminum Replacement Windows - Without the Lower Hopper Section and are Located in the Pool Mezzanine. (SRJA 2012)

The window air conditioning units are creating extensive of damage to the stone building sills and stone walls. The condensate water that drips from them saturates the stone below and allows for significant moisture build-up which slowly destroys the mortar. The result is dirty and damaged stone. The air conditioning units do not fit into the windows properly and therefore plywood filler panels are required to fit around the air conditioner units. These filler panels are not well-sealed to the frame or the air conditioner units, allowing conditioned air to seep through and bugs and condensate to enter into the building. Several window sills on the interior of the building show signs of this deterioration.

Fig. 171 Typical Window Air Conditioning Unit. Note In Lower Section of Aluminum Replacement Windows. (SRJA 2012)

Aluminum replacement windows installed in the pool area are significantly different than those installed elsewhere and are in poor condition. These window and door openings are very large.

It is unlikely that these windows can be repaired cost effectively and therefore, it would be recommended to implement a replacement plan for the window work as a phased approach. This work must occur as part of an overall larger plan which would incorporate new air conditioning so that the existing window air conditioning units would no longer be required.

Fig. 172 Typical Plywood Infill at Window Air Conditioning Units. (SRJA 2012)

For future replacement windows, it is recommended to utilize the appropriate historic preservation guidelines during the product selection. First, review historic photographs to determine the as-built condition of the original steel window that is now being replaced, in many cases, for the second time. The historic drawings are also good to review, but they are not 100% accurate as far as reflecting the final as-built conditions of the building. Also, it is unknown at the time of this study what the original window frame color was. It is recommended to determine the original window frame color(s) through paint sample analysis of the historic windows and to match the earliest top coat color if at all possible. Refer to the National Park Service Technical Preservation Services Preservation Tech Notes, *Windows, Number 20 – Aluminum Replacement Windows for Steel Projecting Units with True Divided Lights and Matching Profiles.*

Fig. 173 Typical Office Windows with Window Air Conditioning Unit. (SRJA 2012)

Fig. 174 Windows in Ground Floor Mezzanine at Pool. (SRJA 2012)

Care shall be taken to specify an aluminum replacement window that closely replicates the original historic steel windows in overall design and manufacturing as closely as possible. This includes matching the visible glass (sightlines) of the original windows to the replacement windows as closely as possible and to provide custom extrusions to mimic a steel window (muntins, simulated glazing putty, rails and stiles). There are several manufacturers who have a proven track record in manufacturing historically appropriate aluminum replacement windows for buildings with original steel windows.

Fig. 175 Modern Aluminum Door in Hall of Springs. (SRJA 2012)

Hall of Waters Exit Doors (Aluminum Replacement)
Many of the exterior doors have been replaced or new doors installed to be bronze aluminum. These doors are in fair condition and require only routine maintenance to maintain their operation. Yearly inspections should be conducted to ensure that sealants, weatherstripping, sweeps and door hardware and exiting hardware are operating properly.

Miscellaneous Doors and Louvers
There are a variety of miscellaneous exterior doors installed throughout the Hall of Waters. These include overhead doors, steel doors and wood doors. These require yearly inspection to ensure they are properly sealed, weatherstripped, painted and that the door hardware is operating properly. As each door is inspected, it is important to note that certain exterior doors require

Fig. 176 Modern Residential Door Installed in Council Chambers. (SRJA 2012)

consultation with the Preservation Treatment Zones and most notably the original historic drawings should be done before making decisions for materials and hardware which are sensitive to the historic character of the building.

For instance, the door to the roof in the Council Chamber is a residential grade door, frame and screened door (Figures 176 and 177). Recommendations for this door opening would include removal and installation of a commercial grade insulated steel door and frame and painted to be consistent with other exterior doors found throughout the building. Many other steel doors throughout the building require immediate maintenance, including the installation of new perimeter sealants and prepping, priming and painting of the doors and frames.

There are several mechanical louvers installed throughout the building. They should be individually inspected and maintained. All louvers should have the perimeter sealants maintained. Many of the louvers require interior screens. One louver on the south elevation currently is installed in a plywood board that needs to be painted. There is also one opening in the south wall that is currently boarded over. This opening needs to be addressed and an appropriate in-fill material should be installed.

Overhead doors are installed on the south, east and north elevations. These doors are all in varying ages and require varied maintenance. The east door requires painting. Each door needs to be individually inspected and maintained to prevent deterioration, water and weather infiltration.

Fig. 177 Council Chambers Residential Screen Door. (SRJA 2012)

Fig. 178 North Terrace Steel Door Frame Deterioration Detail. (SRJA 2012)

Fig. 179 Basement Steel Door at North Exterior Stair. (SRJA 2012)

Fig. 180 South Elevation. Note new overhead door on the left, a smaller louver installed in plywood and a lower opening in-filled with plywood. (SRJA 2012)

Fig. 181 East Overhead Door. (SRJA 2012)

Fig. 182 East Louver Head Jamb Detail. (SRJA 2012)

Fig. 183 Typical Mechanical Louvers in South Penthouse Wall. (SRJA 2012)

Fig. 184 Typical Copper Mechanical Louver. (SRJA 2012)

Fig. 185 Typical Roof Access Steel Door. (SRJA 2012)