

# THE REHABILITATION APPROACH

## CHOOSING REHABILITATION AS A TREATMENT

"In Rehabilitation, historic building materials and character-defining features are protected and maintained as they are in the treatment Preservation; however, an assumption is made prior to work that existing historic fabric has become damaged or deteriorated over time and, as a result, more repair and replacement will be required. Thus, latitude is given in the Standards for Rehabilitation and Guidelines for Rehabilitation to replace extensively deteriorated, damaged, or missing features using either traditional or substitute materials. Of the four treatments, only Rehabilitation includes an opportunity to make possible an efficient contemporary use through alterations and additions."

"Therefore, guidance on identifying, retaining, and preserving character defining features is always given first. The character of a building may be defined by the form and detailing of exterior materials . . ."

The rehabilitation of the Edgewater will be undertaken according to the Secretary of the Interior Standards and Guidelines for Rehabilitating Historic Buildings. The specific recommendations which are being applied in this restoration are described as they relate to the sections into which the Standards are divided.

## MASONRY: BRICK AND TERRA COTTA AT THE EDGEWATER

### PROTECTING AND MAINTAINING

Secretary of the Interior Standards recommend protection and maintenance of historic materials and features.

"Protection includes the maintenance of historic materials through treatments such as rust removal, caulking, . . . and re-application of historic coatings.

The Standards also recommend

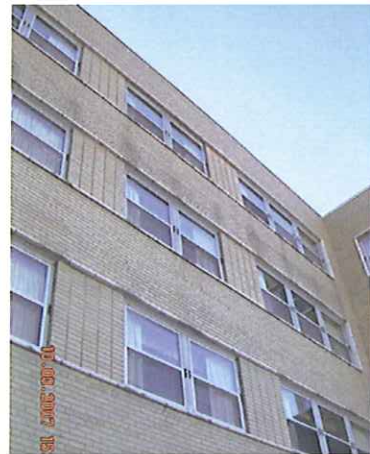
1. "carrying out masonry cleaning tests after it has been determined that such cleaning is appropriate. Tests should be observed over a period of time so that both the immediate and long range effects are known to enable selection of the gentlest method possible."
2. "cleaning masonry surfaces with the gentlest method possible, such as low pressure water and detergents, using natural bristle brushes."
3. "evaluating the overall condition of the masonry to determine whether more than protection and maintenance are required, that is, repairs to the masonry features will be necessary."

### EXCERPTS FROM SPECIFICATIONS SECTION 04 01 10.52 MASONRY CLEANING

Intent: It is the specific intent of this Section to provide for removal of stains from masonry surfaces in order to produce uniformly clean surfaces without blotches, streaks, runs, overly cleaned areas, or any other kind of spotty or uneven appearance and without damaging or deteriorating underlying materials.

1. Cleaning of 100% brick and terra cotta masonry.
  - a. Remove general soiling, efflorescence, biological growth, and staining from masonry using approved chemical stain removers and pressurized water rinsing.
  - b. Remove rust stains from masonry using approved chemical stain removers and pressurized water rinsing. Poulticing with approved chemical stain removers may be necessary to remove heavy staining.
  - c. Remove dripped mortar, sealant drips, and paint from previous repointing and repairs using mechanical scraping or chemical strippers and water rinsing.
2. All masonry cleaning shall be completed prior to repointing the building and masonry restoration.

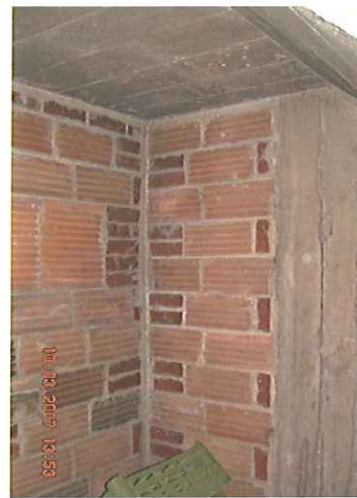
#### Detail area showing required cleaning



#### Overall east elevation with consistent masonry staining



### Existing masonry walls without interior finishes



### Existing masonry walls with damaged interior finishes



### Existing masonry walls damaged by moisture penetration and compromised by mechanical installation



### PROTECTING AND MAINTAINING: WATER PENETRATION

One of the most important aspects of the rehabilitation at the Edgewater will address the existing wall construction and how it allows for direct water migration through the exterior masonry and into the interior finishes.

The existing wall is constructed with one wythe of finish brick bonded directly to a second wythe of clay tile masonry units as back-up. This double wythe wall construction, unlike contemporary cavity wall construction, does not provide for simple means of allowing moisture that enters the brick wall to be diverted to the exterior. This would typically occur at window heads and at any continuous brick relieving angles. In both applications metal flashing would be used. Floor lines create the significant condition where diverting water to the exterior cannot be achieved by an introduction of a through wall flashing.

Photographs indicate how areas of the wall with interior finishes have trapped migrating moisture and have created both rot and mold conditions. Once that all existing interior finishes have been removed, the masonry substrate will be cleaned and prepared for a new insulation barrier that creates a seamless, monolithic protection against water and air infiltration. New interior metal stud framing will help control the continuous depth of insulation and will provide the support for all new interior wall finishes.

Historic photograph of the Edgewater Hotel



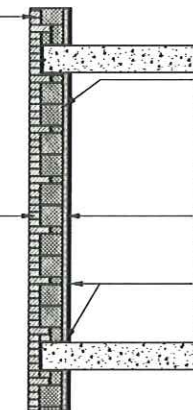
Contemporary photograph of the Edgewater Hotel



## WALL SECTION STUDY

EXTERIOR FACE BRICK TO BE CLEANED PRIOR TO MASONRY RESTORATION, WHICH WILL INCLUDE CRACK REPAIR, BRICK REPLACEMENT, AND REPOINTING AS REQUIRED, WHOLE BUILDING REPOINTING MAY BE REQUIRED AFTER REVIEW OF REQUIRED BRICK REPLACEMENTS

EXTERIOR FACE BRICK BONDED TO SECOND WYTHE OF CLAY TILE MASONRY UNITS, NOTE THAT WYTHES ARE INTERLOCKED WITH HEADER COURSES AT EVERY SEVENTH BRICK COURSE



EXISTING INTERIOR FINISHES TO BE REMOVED, E.G. WALL FINISHES, CEILINGS, FLOORING, ETC.; INTERIOR FACE OF WALL TO BE CLEANED AND PREPARED FOR INSULATION. NOTE THAT INTERIOR WYTHE MASONRY IS IRREGULARLY COURSED AND MAY REQUIRE ADDITIONAL PREPARATION OF THE EXPOSED SURFACE

SPRAY POLYURETHANE FOAM INSULATION SPRAYED TO REAR FACE OF MASONRY WALL AND TRIMMED TO FACE OF INTERIOR STUDS

20 GA STUDS AND TRACKS PROVIDE FOR EDGE OF INSULATION AND SUPPORT FOR GYPSUM DRYWALL AND INTERIOR FINISHES

### Product data for water/air barrier spray foam insulation: Dow Brand Spray Polyurethane (SPF) Insulation - RS

STYROFOAM™ Brand Spray Polyurethane Foam (SPF) Insulation - RS is a two-component spray-applied foam insulation that creates a seamless, monolithic barrier for protection against water and air infiltration.

Offered in three formulas, extends the spray season or ambient/substrate temperatures from 30°F to 120°F. It can be used for both new and retrofit applications. STYROFOAM™ Brand SPF Insulation expands during installation to fill cavities, cracks and crevices, sealing against uncontrolled air leakage and helping maintain consistent, comfortable indoor temperatures. The closed-cell, 2-pd foam serves as both an insulation and air sealant for a wide range of applications throughout the building envelope.

PROPERTY AND TEST METHOD	VALUE		
	RS2030	RS2045	RS2090
Ambient (Substrate) Temperature Range, °F	30-73 (33-63)	45-93 (45-100)	60-100 (50-120)
Core Density, ASTM D1622, lb/ft³	2.5	2.5	2.2
Thermal Resistance, ASTM C518, 75°F mean temp., R-value per inch, Aged Value (90 days @40°F)	6.2	6.4	6.1
Water Vapor Permeability, ASTM E99, perm-inch	2.2	2.2	2.2

Sold in 55 gal drums (one ISO, one polyol). STYROFOAM™ Brand SPF Insulation should be applied by a trained SPF applicator.

#### Building Code Compliance

- Conforms to IRC requirements for foam plastic insulation
- ASTM E84, Class A at 4 inch nominal thickness
- IUPPA 288, 12 inch maximum foam thickness with code approved thermal barrier for walls and ceilings
- AIAA standards for air leakage
- Per AC308 Appendix X - 10" max foam thickness, uncovered, without ignition or intumescent coating, in unoccupied attic and vented crawl spaces. (This meets the latest fire testing protocol per ICC-ES)



# THE REHABILITATION APPROACH

## MASONRY REPAIRS

The Secretary of the Interior Standards recommendations include the following that apply to the Edgewater Hotel.

1. "repairing masonry walls and other masonry features by repointing the mortar joints where there is evidence of deterioration such as disintegrating mortar, cracks in mortar joints, loose bricks, damp walls, or damaged plasterwork."
2. "repairing masonry features by patching, piecing-in, or consolidating the masonry using recognized preservation methods. Repair may also include the limited replacement in kind--or with compatible substitute material"
3. "applying new or non-historic surface treatments such as water-repellent coatings to masonry only after repointing and only if masonry repairs have failed to arrest water penetration problems."
4. "Removing deteriorated mortar by carefully hand-raking the joints to avoid damaging the masonry. Duplicating old mortar in strength, composition, color, and texture. Duplicating old mortar joints in width and in joint profile."

## EXCERPTS FROM SPECIFICATIONS SECTION 04 01 20.91 EXTERIOR BRICK RESTORATION

### Work Included

1. Repair brick masonry with continuous cracks running through three (3) or fewer courses by routing out cracks and filling cracks with custom-colored composite patching mortar to match adjacent surface.
2. Repair brick masonry with continuous cracks running through four (4) or more courses by removing cracked brick and replacing them with new brick to match adjacent original bricks.
3. Replacement of eroded, spalled, previously patched, broken, mismatched and missing bricks with a mix of salvaged and new bricks to match original bricks in color, texture, and profile.

### Shop Drawings

1. Drawings shall show field measurements of work before dismantling. Contractor shall be responsible for all field measurements and for preparation of setting drawings fully defining conditions for reinstallation of all brickwork.
2. Brick Disassembly and Rebuilding: Complete shop drawings that, when viewed together, show all details of bedding, bonding, jointing, anchoring, and other essential aspects of removal and rebuilding work.

### Quality Control Panels Required.

1. Disassembling and Rebuilding Brick Masonry: One (1) location, minimum two (2) sq. ft. panel will be evaluated for surface finish, continuity of plane and profile, anchors, joints, and impact on adjacent area.
2. Routing and Filling Cracks in Brick Masonry: One (1) location.
3. Spot Brick Replacement: Two (2) locations.

Replacement bricks shall match the color and character of the existing brick masonry. The existing brick is a blend of cream colors with very light to medium ironspot characteristics. Watstown Brick from northern Pennsylvania produces two shades of such brick which will be used in the rehabilitation.

## EXCERPTS FROM SPECIFICATIONS SECTION 04 01 30.91 TERRA COTTA RESTORATION

### Work Included

1. Injecting epoxy adhesive into cracks in terra cotta units.
2. Routing and grouting cracks in terra cotta units to match adjacent surface.
3. Patching terra cotta spalls with composite patching material and coating patches with breathable acrylic coating to match adjacent cleaned surface.
4. Coating glaze spalls with breathable acrylic coating to match adjacent cleaned surface.
5. Cleaning terra cotta masonry surface in accordance with the provisions in Section 04 01 30.91.
6. Pointing open joints in terra cotta.

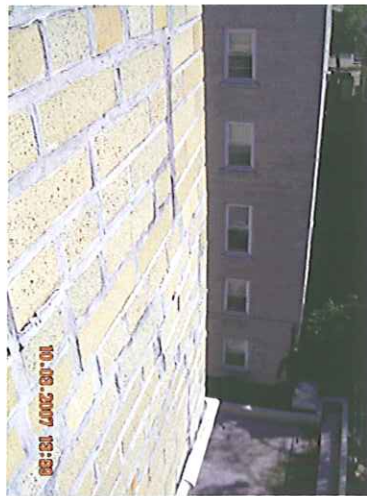
### Example of spalled terra cotta at window sill trim



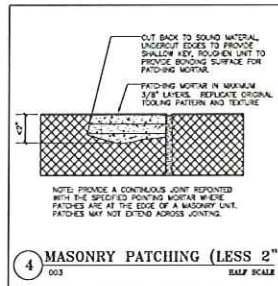
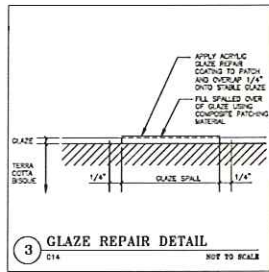
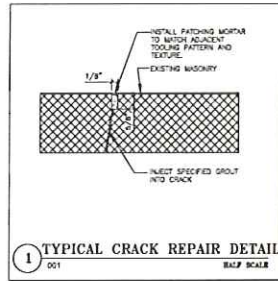
Example of cracking masonry caused by wall compromising existing mechanical installations



Example of brick crack repairs using sealants, now hardened over time



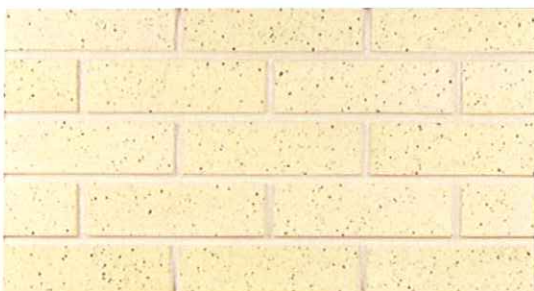
## Sample Details for Masonry Repair



Sample Bricks for Replacement: Watstown Brick - Ironspot series - Color: Cornwall



Sample Bricks for Replacement: Watstown Brick - Ironspot series - Color: Monterey



## MASONRY REPLACEMENT

Secretary of the Interior Standards recommend replacing an entire masonry feature that is too deteriorated to repair. "Examples can include large sections of a wall, a cornice, . . . or stairway. If using the same kind of material is not technically or economically feasible, then a compatible substitute material may be considered."

This approach will be significant where the building parapets are concerned. The existing parapets have continued to be source of water penetration into the entire exterior masonry system.

Significant continuous cracking in the facade immediately below roof parapets may require parapet replacement. Additionally, we should be able to improve the matching of the original brick masonry.

### Example of parapet areas requiring masonry replacement

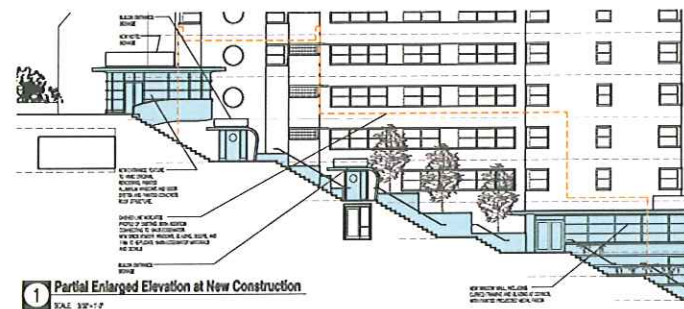


## DESIGN FOR MISSING HISTORIC FEATURES

Secretary of the Interior Standards recommend "replacing in kind extensively deteriorated or missing parts of masonry features when there are surviving prototypes . . . . The new work should match the old in material, design, color, and texture; and be unobtrusively dated to guide future research and treatment."

This approach is significant where the existing structure was both obscured and scarred by modifications by the building addition of the 1970's Building. The orange line represents the area of intervention of the 1970's addition. The window features of typical floors are replicated at the new exposed level. This includes the "porthole" windows, corner windows at the stair with glass masonry units, and new windows at lower level three and lower level four. The stacked bond brick infill panels and the terra cotta trim will also be replicated.

### Excerpt from architectural drawings at lower levels of east elevation



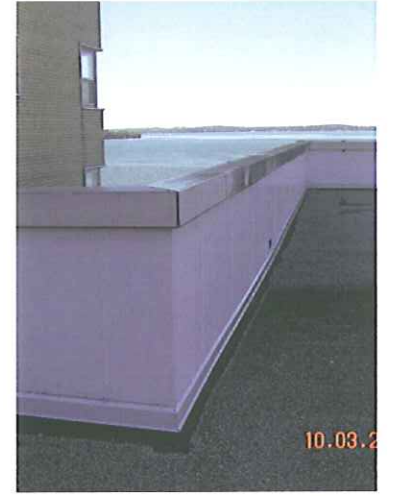
### Example glass masonry unit corner window system to be replicated



Example of parapet where masonry and roofing installation allow water penetration



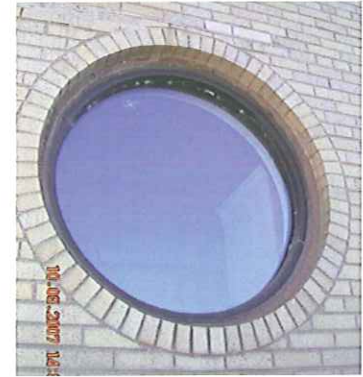
Example of improved parapet treatment used in the 1970's addition



Reference photograph for replacement of exterior wall components



Example of "porthole" window and surround to be replicated



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## WINDOWS AT THE EDGEWATER

### SECRETARY OF THE INTERIOR STANDARDS

The Standards recommend "identifying, retaining, and preserving windows--and their functional and decorative features--that are important in defining the overall historic character of the building. Such features can include frames, sash, muntins, glazing..." and "conducting an in depth survey of the condition of existing windows early in preservation planning so that repair and upgrading methods and possible replacement options can be fully explored."

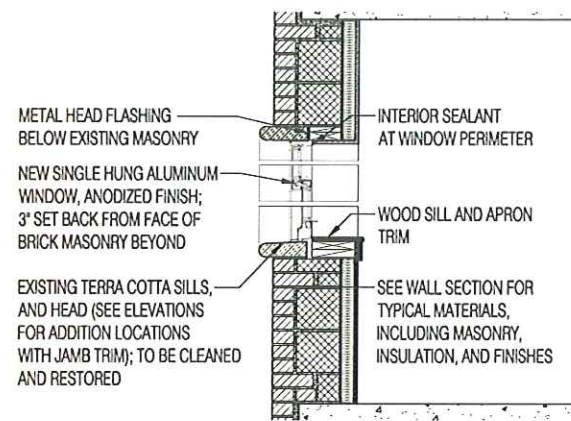
A survey of the window systems at the Edgewater reveal that the windows and the glazing at the Edgewater cannot be successfully be repaired and that *Replacement in Kind* is required.

The Standards recommend "replacing in kind extensively deteriorated or missing parts of windows when there are surviving prototypes such as frames, sash, sills, glazing, and hoodmolds. The new work should match the old in material, design, color, and texture; and be unobtrusively dated to guide future research and treatment."

The existing aluminum window systems date from the earliest years of larger scale production of commercial aluminum windows in America. Unfortunately the early era anodized finish to the aluminum has eroded, giving up its protective surface for the base material. Anodized surfaces cannot be easily repaired and can neither be repaired nor recoated in site to achieve the original surface appearance, nor to achieve the required level of base material protection.

The single glazing and the non-thermally separated framing no longer meet standards for energy efficiency. As new windows can be provided with the dimensional and finish characteristics of the original windows, this approach has been chosen over other preservation options. This is additionally true as options such as interior storm windows do not address water infiltration problems that affect the masonry building envelope.

## WINDOW SECTION STUDY



Photograph with original door and hood to be replicated



## ROOFS AT THE EDGEWATER

### SECRETARY OF THE INTERIOR STANDARDS

The Standards recommend "identifying, retaining, and preserving roofs--and their functional and decorative features--that are important in defining the overall historic character of the building."

The Standards essentially do not apply to the roofs at the Edgewater as they are not a visible feature which define the historic character of the building.

The Standards that do apply relate to the Protection and Maintenance of Exterior Masonry. This is particularly true at building parapets where the exposed masonry face does not protect water from entering the entire exterior masonry wall system.

New roofing systems will be installed to meet current energy efficiency standards. New rigid insulation will be provided per code requirements and the roof surface will have a high light reflectance value to meet environmental standards.

## STRUCTURAL SYSTEMS AT THE EDGEWATER

### SECRETARY OF THE INTERIOR STANDARDS

The Standards recommend "identifying, retaining, and preserving structural systems--and individual features of systems--that are important in defining the overall historic character of the building..."

As the cast-in-place concrete frame structure is not visible, it essentially is not a character defining aspect of the historic structure.

The most significant structural impacts will not be visible as they relate to the creating and reinforcing the new floor slab openings for the new elevator systems. Additional underpinning of some foundations will be required to provide accessible restrooms for public accommodation at both the dock level and the Rigadoon Room level.

## HEALTH AND SAFETY AT THE EDGEWATER

### SECRETARY OF THE INTERIOR STANDARDS

The Standards state that "although the work in the following sections is quite often an important aspect of preservation projects, it is usually not part of the overall process of preserving character-defining features (maintenance, repair, and limited replacement); rather, such work is assessed for its potential negative impact on the building's historic character. For this reason, particular care must be taken not to obscure, alter, or damage character-defining features in the process of preservation work."

Additional recommendations that will be applied in the project:

1. "Removing toxic building materials only after thorough testing has been conducted and only after less invasive abatement methods have been shown to be inadequate."

Note that Phase I and Phase II environmental impact reports have been produced that address hazardous materials to be abated.

2. "Installing sensitively designed fire suppression systems, such as sprinkler systems that result in retention of historic features and finishes."

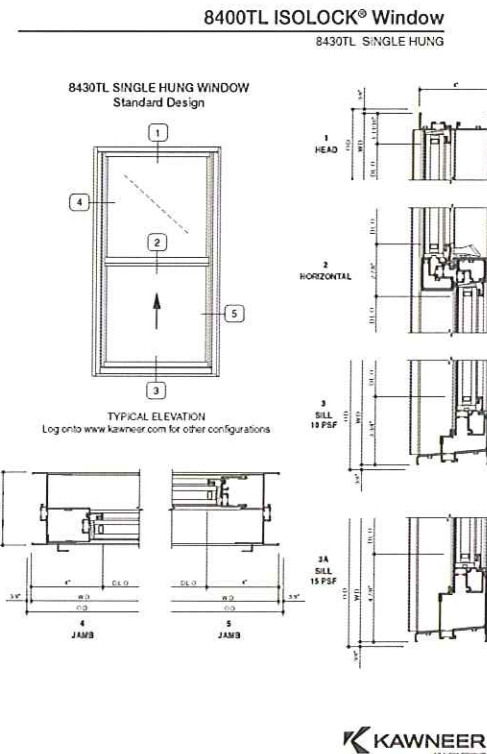
Existing exterior profile with pane divisions to be replicated in window systems replacement



Existing interior window profile with typical adjacent jamb and sill deterioration



Window system proposed for Edgewater Hotel



Existing roofing termination which promotes water infiltration into the exterior masonry system



Existing damage at interior sills due to water migration through window frames



Existing damage at interior jambs due to water migration through window frames



Existing roofing termination which promotes water infiltration into the exterior masonry system

