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ARCHITECTURE, PLANNING AND HISTORIC PRESERVATION, INC.

## **ST. EDWARD'S UNIVERSITY- Main Building and Holy Cross Hall WINDOW SCOPE OF WORK**

3.10.16

### **Existing Window Conditions:**

An existing conditions analysis of the existing original windows at the St. Edward's University Main Building and Holy Cross Hall has not been undertaken. Window frames generally appear to be in good to fair condition with some components requiring replacement and restoration. Window sashes are in fair to poor condition with some areas exhibiting extreme weathering, deterioration, and rot. The window frames and sashes appear to be made of long leaf pine. The windows have a painted finish on the exterior and interior, and the exterior paint is typically in poor condition. Approximately 5-10% of the windows feature original wavy glass, while the remaining have clear plate glass. The basement and first floor windows, along with other miscellaneous windows in the upper floors of the building, are not original to the building. Typically the existing hardware has been removed and replaced, but some sash locks that are original exist on a few upper floor windows. The paint finish and glazing putty is generally in poor condition.

### **Wood Frame Restoration and Window Sash Replacement**

- Lead abatement or containment IS required for removal of sash components.
- Lead paint is to be 100% abated to expose original wood components.
- Repair existing frames.
- Replace deteriorated wood members are to match original, but construct out of Genuine Mahogany or Spanish Cedar.
- Repair minor areas of deterioration with wood patching compound by Abitron
- Replace wood parting stop throughout with Genuine Mahogany or Spanish cedar, match original size
- Replace brick mold as required with Genuine Mahogany or Spanish Cedar, match original size and profile
- Patch existing sills where there is damage or depressions, and sand to smooth inclined surface. Replace deteriorated sills.
- Remove and reinstall interior jamb stops to match historic
- Replace joint sealant 100% at window perimeter
- Provide new wood sash to match original exactly, except that the sash is to be modified to accept a low-e insulated glass, the exterior sloped glazing stop will be wood, and the sashes will be made of Genuine Mahogany or Spanish Cedar. Glass panes are to be full vertical panes on each sash with applied horizontal muntins and divided inner frames to align with muntins
- Fix the upper and lower sash; seal perimeter of sash
- Remove loose and delaminated paint, prime and repaint the interior and exterior of the windows unit, including the interior casing frame, interior jamb/head extension, and trim. Paint is to be Sherwin Williams "Duration" paint.
- Install cotton ropes on the interior lower sashes.
- Salvage original hardware and reinstall where it exists.



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## St. Edward's University – Main Building and Holy Cross Hall Guidelines & Methodology for Masonry Treatment

### **Description / Construction:**

#### **Exterior Walls**

The exterior walls of the building are load bearing masonry walls. The base of the building is faced with a rusticated limestone in a rough-cut finish. The upper portion of the walls, typically extending from the 2<sup>nd</sup> to the 3<sup>rd</sup> floors, is faced with a cream/tan colored modular brick in a running bond pattern. A smooth cut limestone sill course separates the limestone base from the upper brick walls. The only exception to this are the north entry porticos and the south Main Building tower, which are fully constructed with load bearing limestone blocks. Column capitals at the north porticos and the Main Building are adorned with limestone columns and decorative Corinthian capitals.

#### **Masonry treatment recommendations:**

The intent of the project is to preserve as much existing fabric as possible (minimize intervention), ensure that the building components are structurally sound and watertight, and improve aesthetics while responsibly using available funds. Masonry treatment recommendations proposed for use in this project include:

#### **Causes:**

Limestone elements of the St. Edward's Main Building have been damaged by four major causes, as cited below:

- 1) Exposure. Limestone elements that are positioned with two or more sides available for weathering or a horizontal top surface tend to evidence deterioration at a faster rate. Occurs at railing ledges, balusters, coping caps, capitals, column bases and parapets and produces spalling, cracking and chipping.
- 2) Improper bedding or inferior quality. Stone laid with bedding plane on the vertical causing delamination. Randomly occurs.
- 3) Water damage. Prolonged saturation of stone caused by improper drainage. Resulting in staining and erosion. Occurs at window sills, main entrance and building corners.

General treatments that apply to masonry materials

- 1) Stabilize  
Removal of loose and/or unsound material. This treatment will be used throughout unless conditions warrant otherwise. Remove loose and spalling stone and do minor tooling to surface to get back to sound material and retain general overall finish and texture of original stone.
- 2) Masonry cleaning
  - a) General masonry cleaning (limestone, and brick):  
Option 1: A low pressure water wash or water of slightly higher pressure or with mild non-ionic detergent additive will be specified based on results of field testing. Bristle brushes may be used to supplement water washing particularly at ornamental units where heavier soiling is evident. This treatment will be used to safely remove light to moderate atmospheric soiling.  
Option 2: If the above option does not provide satisfactory results, a proprietary cleaning product and procedures for its use will be specified based on results of field testing.
  - b) Removal of staining (Asphalt, metal): A variety of proprietary cleaning products and procedures for their use will be specified based on results of field testing. This treatment will be limited to those areas where the above listed staining is apparent.

### **Brick repair treatment:**

- 1) Damaged brick  
Remove damaged face brick and replace with new brick matching existing color, texture, size.
- 2) Displaced brick  
Remove displaced face brick, salvage and re-use existing brick if possible. If not replace with new brick matching existing color, texture, size, and coursing.
3. Cracked Brick: Patch with masonry patching compound, or replace if joint is wide and multiple adjacent brick are cracked..
4. Pinholes in Brick: Patch with masonry patching compound

### **Limestone repair treatment:**

Stabilize:	This treatment should be used except where conditions warrant otherwise. It involves simply maintaining the status quo. A rare or unique element, such as the column capitals on the first floor, should always be stabilized to preserve the original craftsmanship.
Retool:	Appropriate for slightly to moderately unsound or damaged stones that are either common or not readily visible. As long as the element maintains its physical integrity and the retooling does not impair its function, the craftsman can reshape the stone to the degree necessary to remove deteriorated material or improve its intended functionality, i.e. creating a drip edge where it did not exist.
Patch:	Used only when a part of the stone has been damaged by alteration or poor water drainage, the element serves a vital functional role and is not highly visible. Cementitious material can also be used to patch small areas that are highly exposed to weather and require increased performance, especially coping caps and the top face of a horizontal surface. Patching material is usually used to fill holes caused by attachments. A patch is not used when the entire exposed face requires treatment.
Veneer/Dutchmen:	A veneer is used when an element is moderately damaged throughout and cannot be retooled without damaging the function or aesthetic quality. A stone veneer or dutchmen is used rather than cementitious materials in for areas of moderate damage where the stone is readily visible, such as at building entries. A dutchmen is used in lieu of total replacement in-kind when the element cannot be feasibly removed. A limestone veneer or dutchmen is used when less than 50% of the stone is damaged and restoring the profile of the element is important to form a continuous visual feature.
Replacement in-kind:	Unless a unique element, replacement of an element should occur when it is severely damaged and/or wherever a vertically bedded element is eroding and the erosion is expected to continue. Also used where an element is highly visible, serves as a significant structural or functional role and is at least moderately damaged. Rarely used for slightly damaged stones due to cost and efforts to minimize intervention.
Crack repair:	Hairline cracks up to 3/16-inch width, stabilization followed by preparation of the stone to allow for injection of a custom color-matched grouting material. This treatment will be used throughout as required to maintain structural integrity of unit and a weather-tight envelope.

### **Repoint mortar joints:**

Remove and replace mortar 100% with mortar that matches the original in composition, color, and joint profile. Contractor will be required to perform petrographic analysis on three original unweathered mortar samples. At the limestone, original mortar joints have tooled projecting v-shape profile. Mortar joints vary in thickness from 3/8-1/2 inch, and were originally similar in color to the limestone. Match original V-shape mortar profile, strength, texture, color, etc. Brick typically has mortar joints with a uniform thickness of 3/8 inch. Mortar joints are to have a flush face. Repoint mortar joints at brick 100% and match original in texture, color, strength, and finish.

The following designations will be used during the stone survey to denote each stone's condition:

- P = Indicates stone to be patched
- D = Indicates stone to be dutchman veneered
- R = Indicates stone to be replaced
- E = Indicates existing patch to be replaced
- C = Crack to be repaired

The following low emissivity (low-E) coated glass products are grouped according to their construction make-ups for comparisons of optical and thermal performances. This table includes the most commonly used low-E coatings in the market place. If further performance information is required on these or other low-E glass products, please contact Cardinal Technology Center.

## Performance Comparison of Low-E Insulating Glass Products

Exterior Glass	Interior Glass	Visible Light		Center of Glass U-Value (BTU/hr/ft²°F)			Comfort		UV Trans	Tdw ISO/CIE				
		Trans	Reflectance	SHGC	LSG	Air Argon		Winter Summer						
						Out	In							
Clear Insulating Glass														
Clear	Clear	82%	15%	15%	0.78	1.05	0.48	0.46	45	90	58%	75%		
Solar Control Low-E Glass Coatings (Low SHGC)														
Cardinal LoE³-366® (#2)	Clear			65%	11%	12%	0.27	2.41	0.29	0.24	56	83	5%	43%
Cardinal LoE³-340™ (#2)	Clear			39%	13%	16%	0.18	2.17	0.29	0.25	56	83	2%	27%
PPG SolarBan® 70XL (#2)	Clear			64%	12%	13%	0.27	2.37	0.29	0.24	56	83	6%	43%
AGC Comfort Select 28 (#2)	Clear			63%	14%	16%	0.28	2.25	0.29	0.24	56	82	17%	48%
Viracon VNE 1-63 (#2) [6mm only]	Clear [6mm]			63%	10%	11%	0.28	2.25	0.29	0.25	56	85	5%	42%
Guard. ClimateGuard™ 62/27 (#2)	Clear			62%	13%	13%	0.27	2.30	0.29	0.24	56	82	5%	40%
Low-E Glass Coatings														
Cardinal LoE²-272® (#2)	Clear			72%	11%	12%	0.41	1.76	0.30	0.25	56	84	16%	55%
Cardinal LoE²-270® (#2)	Clear			70%	12%	13%	0.37	1.89	0.30	0.25	56	83	14%	53%
PPG SolarBan® 60 (#2)	Clear			72%	11%	13%	0.39	1.85	0.29	0.25	56	84	21%	56%
Viracon VE1-2M (#2) [6mm only]	Clear [6mm]			71%	11%	12%	0.38	1.87	0.29	0.25	56	86	10%	51%
Guard. ClimateGuard™ 71/38 (#2)	Clear			71%	10%	11%	0.39	1.82	0.29	0.25	56	84	24%	56%
Guard. ClimateGuard™ 70/36 (#2)	Clear			70%	11%	13%	0.36	1.94	0.30	0.25	56	83	30%	57%
AGC Comfort Select 40™ (#2)	Clear			73%	12%	13%	0.39	1.87	0.30	0.25	56	83	19%	56%
Passive Design Low-E Glass Coatings (High SHGC)														
Clear	Cardinal LoE-180® (#3)			79%	15%	15%	0.69	1.14	0.31	0.26	55	94	29%	63%
Clear	Cardinal LoE-189® (#3)			80%	15%	14%	0.75	1.07	0.33	0.29	54	98	55%	72%
Clear	AGC Comfort E² (#3)			76%	16%	14%	0.73	1.04	0.35	0.31	53	101	44%	64%
Clear	Pilkington Energy Adv.™ (#3)			77%	17%	17%	0.74	1.04	0.34	0.30	53	96	51%	68%
Clear	PPG Sungate® 500 (#3)			76%	18%	17%	0.72	1.06	0.35	0.31	52	99	48%	66%
Clear	Guard. ClimateGuard™ 80/70 (#3)			81%	13%	13%	0.70	1.16	0.32	0.27	55	93	41%	69%