DRAFT REPORT

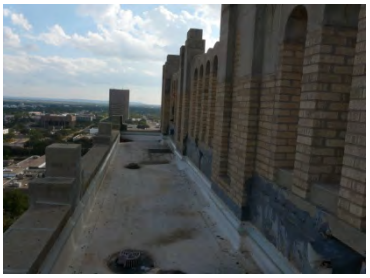
Building Enclosure Forensic Investigation

for the [redacted] building located at

Presented to:

[redacted]

Date [redacted]



[redacted]

[redacted]

Senior Remediation Project Manager , [redacted]

RE: **Document Type: Invest – Site Investigation**
Date of Loss: [redacted]
Claimant:
Insured:
Location: [redacted]
Adjuster's File #
Policy #
Claim #

Dear Mr. [redacted],

Building Enclosure Consulting, LLC. (BuEnCo) is pleased to provide this report documenting findings of our limited investigation of the fenestration of the [redacted] Building, located at [redacted]. Pursuant to the request from [redacted] on behalf of [redacted] to conduct an investigation of the above-captioned loss, we visited the building to visually assess the existing conditions of the fenestration, its associated flashings and accessories.

Scope

We were specifically requested to investigate the building's fenestration and to make determinations regarding the cause and origin of the observed conditions, the scope of damage caused by the hail, and to develop a scope of repairs or replacement appropriate for the type of assemblies and their environmental exposures. This investigation was prompted as a result of the hail storm that moved across [redacted] on [redacted]. The scope excluded all south elevations of the building.

This survey represents our *initial* findings without the benefit of a detailed evaluation of the design drawings, specifications, or shop drawings for the construction of the project, and without the research of the pertinent requirements of the authority having jurisdiction, such as building codes, municipal ordinances, requirements of state historic commission, and without research of the weather reports. This survey is not, at this time, intended to include an evaluation of health or environmental issues, nor does it include evaluations of architectural, mechanical, electrical, fire protection, life safety, plumbing, and/or code-compliance issues. The primary purposes of this initial survey are to report on existing conditions; and to provide an opinion regarding the causation for the damages.

Team

Karol Kazmierczak, RA of BuEnCo conducted a site investigation that began Tuesday, December 16, 2014, and continued through December 19, 2014. BuEnCo directly accessed all

fenestration on the exterior facades of the building, with the exception of the south facades, which were removed from our scope on [redacted]. The investigation was conducted simultaneously with [redacted]., Inc., acting on behalf of the owner of the building.

Access

During that visit we were granted general access to the building and aerial access by [redacted]., and by [redacted]., who accompanied us. Our interior access was limited to the fenestration adjacent to common areas.

Organization of this report

This report is organized into multiple sections; Introduction, General Overview, Observations, Findings, General Recommendations, and Conclusions. It is complemented by 7 appendices. Appendix "A" contains aerial views of the building prior to the event. Appendix "B" contains maps indicating the building location. Appendix "C" contains chosen photographs of the typical fenestration types. Appendix "D" contains photographs referenced in the Observation section. All photographs and videos (over 30 GB of data) taken during the investigation are available on request. Appendix "E" contains elevations marked with the observed damage. Appendix "F" contains the observation spreadsheet. Appendix "G" contains a glossary.

General Overview

Weather Event Overview

The National Weather Service indicated severe thunderstorms moved south across Jones county into [redacted] area, where they produced softball to even DVD sized hail on the northeast side of the city and continued southeast across [redacted] counties on [redacted].

[redacted] Building Overview

The building is a multi-story residential tower designed with a steel structural frame and a brick skin. The building has 19-stories, including two mechanical levels, plus a basement, with floor #13 unlisted. According to the plaque installed next to the building's main entrance, the tower was erected in [redacted] and became a historic landmark in [redacted]. The building is attached to the adjacent cinema building on the north side, and connected to the multilevel parking garage via a permanent aerial bridge on the west side. The south and east sides face the streets, and the western side faces a service alley. The building was expanded with subsequent superstructure on the east side, and its roof shape was modified on the north side. Appendix "A" contains aerial views of the building prior to the event, Appendix "B" contains maps indicating the building location.

Fenestration Overview

Fenestration is installed in the brick masonry openings. The building is glazed with a mix of wood and aluminum single-hung windows, dome skylights, glass block assemblies, projecting windows, storefronts, and windows whose mode of operation we could not identify without interior access. Appendix "C" contains selected photographs of the typical fenestration types, and the list below describes them in detail:

- Double Hung Wood Windows

Description: The most typical masonry opening is equipped with a conventional, high quality, double hung (H), single wood window.

Installation: These windows are rectangular in shape and vary in size, with the most typical size approximately 4 ft. wide by 6 ft. high. These windows are built and assembled individually, with resulting variations in dimensions. They consist of frames installed in masonry openings, including an integrated sill member with its associated trim and sash stops, two preassembled rectangular sashes built with approximately 2"x 2" rails, and stiles and wood muntins, and hardware.

Glass: The sashes are typically shop-glazed with each window having twelve panes of single, monolithic, clear, annealed, rolled glass installed in wood rabbets of respective muntins and sash rails and stiles. Glass panes are sealed with glazing compound.

Insect Screens: No insect screens were observed.

Paint: Sashes are coated with paint, which had not been originally applied to the windows.

Typical location: Throughout.

Variations: Some windows were observed to have sashes renewed, and windows of the north elevation on the 6th floor superstructure were observed to be newer and smaller than adjacent windows. Some bottom sashes of rectangular units are void of muntins.

Quantity: 200 units.

- Round Top Windows

Description: Conventional, high quality, double hung (H), single wood windows with or without integrated sidelights (SLT).

Installation: These windows have rectangular bottoms, with the upper half rounded, and come in two sizes: approximately 4 ft. wide by 4 ft. high and 6 ft. high. These windows are built and assembled individually, with resulting variations in dimensions. They consist of frames installed in masonry openings, including the integrated sill member, with their associated trim and sash stops, two preassembled sashes, and hardware. Some of these windows feature two vertical mullions separating the central double hung section from sidelights, two at each side. Muntins are installed only in upper sashes of single windows.

Glass: The sashes are shop-glazed and sidelights are field-glazed with single, monolithic, clear, annealed, rolled glass installed in wood rabbets. Glass panes are sealed with glazing compound.

Insect Screens: No insect screens were observed.

Paint: Opaque areas, such as sashes and frames are coated with paint.

Typical location: The top residential rows of windows on all elevations, and the bottom residential row at the east elevation.

Quantity: 11 units.

- Other Wood Windows

Description: Fixed (F) mulled multiple windows.

Installation: These windows are rectangular in shape, and vary in size. These windows are built and assembled individually, with resulting variations in dimensions. They consist of frames installed in masonry openings, including mullions. One of these windows features a hinged glass door. There are no muntins installed.

Glass: Field-glazed with insulated glass units (IGU).

Insect Screens: No insect screens were observed.

Paint: Opaque areas, such as sashes and frames are coated with paint.
Typical location: Terrace, north side.
Quantity: 2 units.

- Metal Windows

Description: We observed a variety of metal windows, whose variable mode of operation we could not identify without interior access.

Installation: Windows are invariably rectangular in shape and come in varied sizes depending on location. Those that we identified were either double hung, projecting, fixed, or combined fixed and projecting fields. Some of the steel windows located in the elevator machinery room were observed to have upper sashes replaced with aluminum.

Glass: These windows are glazed with either single, monolithic, clear, annealed, rolled glass, with some wired safety glazing, and some patterned clear or tinted privacy glazing. Glass is installed with a variety of methods, ranging from being clamped by metal bars to being adhered with glazing tape, and held by glass retainers. Sealing is by a variety of methods.

Insect Screens: Only one window in the building was observed to have an insect screen.

Paint: Opaque areas, such as sashes and frames are coated with paint, with the exception of anodized aluminum members.

Fire Rating: The steel windows installed on the lower north elevation appear to be intended to delay fire transfer.

Quantity: 23 units.

- Hinged Glass Doors

Description: Single-action, hinged glass doors (HGD).

Installation: These doors are rectangular in shape. They consist of frames and slabs installed in masonry openings..

Glass: Slabs are preglazed with a single lite of glass

Insect Screens: A curtain was observed in front of one window. Sets of hinge fastener holes were found on the frame of one door, indicating there was originally a secondary sash that might have included an insect screen.

Paint: Opaque areas such as slabs and frames are coated with paint.

Typical location: Terraces.

Quantity: 3 units.

- Skylights - Plastic Glazed

Description: Modern plastic-glazed skylights (SKP) consist of aluminum-framed domes.

Installation: Factory-assembled aluminum frames are fastened on top of curbs elevated above the roof level. These skylights are installed in two banks.

Glass: These units are shop-glazed with safety glass: UV-resistant polycarbonate sheets formed in shape of domes.

Fire Rating: These skylights do not offer any resistance. This location would normally require a fire rating. This need was apparently addressed in the original design, judging by the fire rated window installed above the original skylight level. A sprinkler installation was observed under each of the skylight banks.

Typical location: Terrace on the north side.

Paint: Not painted.
Quantity: 2 banks containing total 8 units.

- Skylights - Glass Glazed (Interior)

Description: Original glass-glazed skylights (SKG) consist of a horizontal matrix of wood beams with multiple square glazed sashes, concealing the interior bottom side of plastic skylights described below.

Installation: Field installed wood beams fastened at the ceiling level. Pre-assembled sashes with muntins are gravity- set in the frame. These skylights are installed in two banks.

Glass: These units are shop-glazed with patterned, tinted annealed glass panes as opposed to a safety glass, which might not had been code- required yet in [redacted].

Typical location: Terrace on the north side.
Paint: Varnish.
Quantity: 2 banks containing total 24 square units.

- Storefronts

There are four storefronts on the east elevation adjacent to Cypress Street, which typically feature either framed or frameless fixed glazing and swinging glazed doors.

- Glass Block Windows

Two openings filled with glass block masonry, 22 blocks wide and 5 blocks high are located above the storefronts.

Observations:

Ten elevations were visually surveyed; five eastern elevations, one northern elevation, and four western elevations. These ten elevations were found to contain 280 fenestration units, including 32 skylight units located below the north elevation. The fenestration units were closely surveyed for impact damage relative to the hail event. Appendix "D" contains photographs referenced in the Observation section.

Adjacent observation

During the course of our inspection we also saw multiple other areas that appeared to have been impacted by hail projectiles, including EIFS areas, mechanical exhaust hoods, and copings, consistent with our observations of fenestration. We also noted similar hail damage sustained by adjacent properties. These observations were consistent with our findings in this building.

Availability

Some glazing units were no longer available to us for inspection, due to the amount of time that had passed since the date of the Insured Event. Some units appeared to be recently reglazed. We inspected for hail damage all accessible units as if they were subjected to the Insured Event, unless we had proof of a later installation. According to [redacted], the building engineer, only the eight plastic skylights were replaced after the Insured Event.

Analysis of protection offered by adjacent components

We noted several items that could shield the fenestration from hail.

We noted the east and north elevations to be the worst affected and the west elevation to be the least affected by damage.

Generally, 66% of glass breakage was observed in the bottom parts of sashes, and indentation was sustained by sills, bottom rails, and meeting rails in a higher proportion than the remaining parts of the windows. Therefore, we believe the horizontally projecting components of masonry openings affected the pattern of damage, with the upper parts of the top and bottom sashes shielded by components located above.

The upper skylights cover the lower skylights; the lower were observed to be broken, while the upper were observed to have been recently replaced.

Additionally, some damage observed on the west and south facades appeared to be caused by hailstones ricocheting from adjacent assemblies (South elevation was not in our scope).

The Schedule of Damages

The schedule provided in Appendix "F" lists only the damage that can be attributable to the Insured Weather Event, with exception of the side notes that were not always relevant to the cause. Many observed deficiencies were found to be unrelated to the Insured Weather Event. They are only briefly described for the record in the section titled "*Description of other deficiencies*" below.

General Fenestration System Observations

- Damage

Description:

a. Glass breakage. We noted some windows glass to be cracked, and some glass fragments to be missing. There were glass shards remaining on the adjacent surfaces, which had originally been a part of glazing located above. Some affected panes were observed boarded with OSB sheets, and some cracks were taped with a duct tape, while others were not. We noted the pattern of temporary repairs was not always consistent with glass damage (some unbroken glass was observed to be taped, and some broken glass was observed to be not). We also noted breakage of several glass bricks. We generally divided glass breakage into stress and impact breakage, which is normally a baseline for causation assessment of an impact-generating peril. Majority of the glass exhibited impact signature. Several panes were observed to exhibit stress crack signature, inconsistent with hail impact; however, all except three of these cases were tracked to a hail impact sustained by adjacent opaque components, and the forces of impact indirectly transferred and stressed the broken glass edge. We refer the interested reader to photographs #1 and #3 in Appendix "D."
b. Wood and coating: We also noted multiple indentations on the surfaces of the wood and its coating, resembling golfball hits, with the typical dent's depth not exceeding 1/8". We refer the interested reader to photographs #1 through #5 in Appendix "D." The affected spots of wood exhibited brown shades as opposed to the grey weathered adjacent surfaces of the wood. The impact pattern was observed to disproportionately affect wood windowsills, bottom rails, meeting rails, muntins, and exterior trim of jamb sections, listed here in a descending order of occurrences. We noted the impact in

several cases ruffled wood fibers, typically at the upper east elevation. The damage on the west elevation generally concentrated on wood sills.

c. Metal sills and flashings made of bent metal sheets, were observed to be dented. Metal members' coatings were observed to be locally chipped away. Hail damage in metal windows glazed with wired glass was generally limited to a minute chipping of the paint coating of their upward facing surfaces.
d. Typical glazed doors did not exhibit any damage related to hail.
e. Polycarbonate skylights appeared to be already replaced, while the interior skylight layer was observed to be broken, with only 1 out of 24 sections unaffected . We also noted peeling of a wood veneer from the interior skylights

Causation: Recent hail damage

Recommendations: Repair or replace, as discussed below

- Other deficiencies:

Description: The average window was found to be inoperable as indicated by either paint coating, caulking bead, or both paint and caulking bridging cracks between frames and sashes. The thin layer of coating was observed to be typically peeling away, exhibiting almost exclusively the adhesive mode of failure to the wood substrate. Some window members exhibited moderate to severe level of deterioration, mainly the wood cracking and decay, often resulting in loss of structural wood capability and indicated by sagging meeting rails. Some glazing compound was observed to be cracked, some evacuated, and some hardware incomplete. Some wood rails and muntins were observed to have been remedially patched with wood fillers in the past. Several sashes were observed to be in a significantly better condition than adjacent fenestration, and built with a lower quality wood, apparently replaced after the original construction. These sometimes exhibited deterioration related to the poor choice of wood, for example cracks forming at knots bridging the width of a wood member. We noted stress breakage of two glass bricks and a stress crack of one glass pane unrelated to hail impact, as evidenced by a paint coating wicked by the crack and lack of traces of any impact. Sills of those windows that are located at roof levels exhibited preexisting dents and cuts, as indicated by traces of prior repairs including filling compound and paint coating covering some of them.

Mr. [redacted], who accompanied us during the inspection, indicated he and his company caulked and painted these windows as part of a refurbishment project intended to tame moisture damage and window leakage twelve years ago. At this time they also had to set up the aerial access, as the windows were generally inoperable. Based on information obtained earlier from [redacted], the building engineer, this period (twelve years) most likely represents the exterior maintenance span.

Causation: these deficiencies can be traced to wear and tear, faulty original installation, faulty repairs, deferred maintenance, and user-inflicted damage.

Recommendations: Refurbishment recommendations are outside our scope. However, several units will require partial refurbishment in order to perform a repair: i.e. replacement of those

damaged glass panes which are supported by rotten rails, would be impossible without replacing the rotten members first. We refer the interested reader to photograph #6 in Appendix "D."

Findings

In June of 2014, a hailstorm passed over the [redacted] area and subjected the building skin systems to the precipitation of hailstones combined with an associated NE wind. The subject building, was located in downtown [redacted] and therefore in the path of the hailstorm.

In [redacted], we had the opportunity to see 272 of the 280 items originally subjected to the Insured Event on the north, east, and west elevations of the building. As a result of our examination, we found 266 (95%) of the fenestration units sustained hail damage.

This damage was found to be either functional or cosmetic, with the two distributed unevenly, as follows:

1) The functional damage comprised chiefly glass breakage (494 broken glass lites) and was generally limited to the wood windows on the east and north elevations and the skylights.

2) The cosmetic damage generally consisted of indentations of opaque surfaces spread fairly evenly throughout different fenestration types and locations. This damage affected 231 fenestration units, with the strongest impact found on the upper east elevation.

General Remediation Recommendations

Alternative remediation methods

Based on our evaluation, all units can be either repaired with like-kind components on a part by part basis (option #1), replaced partially (option #3), or entirely (option #2), These options are presented below along with their respective advantages and disadvantages.

1) Repair with like-kind materials

Description: Repair of the damaged window components with like-kind materials, including reglazing of the glass panes broken by hail, repair of indented wood components by sanding, and replacement of those dented wood and metal members which cannot be sanded, stripping of the old paint, and application of the original impregnant, if any. Chipped coatings of metal windows can be filled and retouched.

Pros: Superior longevity (typically over 100 years), easy repair, low long-term maintenance, low material cost, preservation of the authentic historic substance (old growth lumber), limited ecological impact by reducing energy spent on production, transportation, and eventual disposal of new materials, conservation of embodied energy, sustainability by eliminating the need for removal and disposal of existing units, minor business interruption, local economy benefitting from local employment.

Cons: Average twice labor intensity vs. replacement, high craftsmanship and skill intensity required, lower performance in aspects such as heat resistance, solar heat gain, and air infiltration in comparison to new windows.

2) Replacement.
Description: Replacement of full window units matching the style of the historic landmark's windows.

Pros: Low labor intensity, low skill level necessary, initial low maintenance, higher initial performance, regained interior access lowers maintenance cost.
Cons: Inferior longevity (typically ranging from 10 to 20 years), lower quality, extensive ecological impact, elevated cost, additional costs associated with legalization (building permit), new typical components cannot be replaced and must be replaced as opposed to repaired.

3) Replacement of sashes and repair of frames
Description: Replacement of damaged sashes with matching sash kits and the repair of damaged frames that stay in place, offering a combination of advantages and disadvantages above, and in addition:

Pros: Lower cost, shorter schedule, and shorter business interruption than with full replacement, regained interior access lowers maintenance cost, lower labor and skill intensity in comparison to the repair.
Cons: Lower quality, shorter lifespan.

Matching Considerations:
The window styles are simple and therefore can be easily matched by new fenestration and new sash kits, as demonstrated by the relatively new window units installed in the north elevation of the superstructure on the 7th floor and newer sashes installed throughout. Unless observed up-close, it's impossible to tell these units apart.

The only item we observed that may present a matching challenge is the patterned tinted glass originally used in the interior skylights, of which most were broken by hail. The few panes that remained unbroken may therefore need to be replaced to match new panes, and the glazing may need to be upgraded to safety (laminated) glass type. Also, this existing type of sloped glass is unsafe to be used in this application, and currently prohibited by the average building code in new installations, unless the walking surface below the glazing material is permanently protected from the risk of falling glass. A building code official would need to opine whether these skylight units could be grandfathered to allow for like-kind replacement in this jurisdiction.

Conclusions:

Functional Glass Damage.

Approaching the building, the large number of broken glass panes comes to the viewer's attention, as these broken glass panes are typically flagged by tape, plastic sheets, and OSB sheets. The typical wooden fenestration unit located at the east and north facades was observed to have 2.6 broken glass panes on average (256%), as contrasted with the less prevalent breakage observed on west facade and in metal assemblies (total 0.05% and 16% respectively). We confirmed 264 breakages to be caused by the hail event.

Cosmetic Damage

The second thing that comes to the viewer's attention is the peeling paint, particularly on the west facade, and we found the defective window coating to be typically a pre-existing condition. We could hardly see the hail damage to the wooden members from the interior and from a distance. However, when we got close enough to fully evaluate it from the exterior, we found that almost all (91%) fenestration units had their opaque components, including their frames, sashes, and their coating, damaged by hail, regardless of type and location of the fenestration. This damage was observed to be very superficial and not affecting the structural strength of damaged members.

Executive Summary:

Based on our up-close observations and findings regarding 280 fenestration units, we formed the following conclusions with a reasonable degree of architectural certainty:

Damage: We found 462 broken glass lites, which we identified as a functional injury. We also found 256 units sustained superficial cosmetic injury to their opaque components, such as minor indentation of frames, sashes, and coating.

Causation: The damage listed above is a direct result of the hail peril occurrence on 6/12/2014, as opposed to preexisting conditions, which we separated.

Recommendations: Based on our evaluation, all units can be either repaired with like-kind components, replaced partially, or entirely, with the possible exception of the interior skylight, which may need to be upgraded with laminated glass for safety.

Final Remarks

This document has been prepared to assist you in assessing the probable causes of the damages found at the tower. The comments contained in this report are not to be viewed as being fully comprehensive in nature, but are representative of observed conditions. We have no other direct knowledge of (and offer no warranty regarding) any concealed conditions that may subsequently affect the performance of the various building structures, or support and anchorage systems beyond what was revealed during our site visit.

We reserve the right to alter or amend this report if new circumstances associated with the condition of the project site, building, or materials are brought to light by further investigations performed at a later date.

If you have any questions regarding these observations or our general conclusions, please contact me at your earliest convenience at (305) 600-0516.

We thank you for your continuing confidence in Building Enclosure Consulting LLC.

Karol Kazmierczak,
Senior Building Science Architect

Appendix A
Aerial Views Of The Building Prior To The Event.
(REMOVED)

Appendix B
Building Location.
(REMOVED)

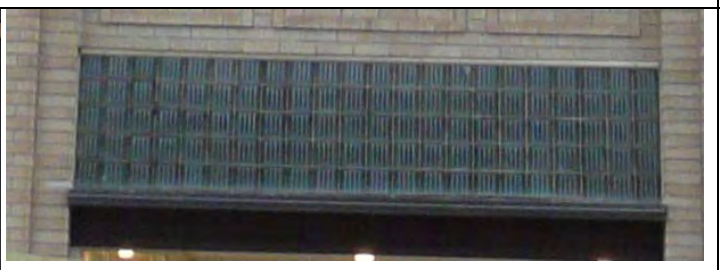
Appendix C
Chosen Photographs - Typical Fenestration Types

Double Hung Wood Window

Round Top Wood Window

Metal Window

Hinged Glass Door

	
Plastic glazed skylights and other wood window	Skylights - Glass Glazed (Interior)
	
Storefront	Glass Block Window

Appendix D
Chosen Photographs of Damage

1. An unusual impact signature at the meeting rail, with forces transferred via its glazing compound to the glass pane, resulting in its stress breakage. The peeling coating is a preexisting condition. Window #60, 12/17/2014

2. Typical impact signature to the bottom rail and glass, resulting in simultaneous direct impact breakage of glass pane and indentation of wood, which gives an idea of the size of the hailstone. Also, the indentation of the wooden sill and its coating is visible below. The peeling coating is a preexisting condition. Window #65, 12/17/2014

3. Close up of the photo reproduced above, focusing on the meeting rail damage. Window #60, 12/17/2014

4. Close up of the photo reproduced above, focusing on the bottom rail damage. Window #65, 12/17/2014

	
5. One of the deepest observed dents at the window sills, resulting from a hailstone impact . Window #99, 12/18/2014	6. Glass breakage of an upper sash, with glass panes deadloaded on a rotten meeting rail. Wood rot and loss of coating are preexisting conditions. However, this member may need to be restored in order to reglaze the window. Window #5, 12/17/2014

Appendix E
Elevations Marked With The Observed Damage.
(removed)

Notes: Levels marked irrespective of the floor numberation, which excludes #13.
Darkened components indicate damage.
Letter "C" denotes coating damage only.

Appendix F
Observation Spreadsheet

UNIT INFORMATION				DAMAGE TO OPAQUE ITEMS				OBSERVED GLASS DAMAGE AND ITS LOCATION WITHIN A GLAZING UNIT.															OTHER INFORMATION	
LEVEL	FACADE	SEQUENTIAL #	TYPE OF UNIT	FRAMEDAM	COATINGDA	UPERSASHDA	LOWERSASHDA	B1	B2	B3	M1	M2	M3	MT1	MT2	MT3	T1	T2	T3	MTT1	MTT2	MTT3	NODAMAGE	NOTES
1	E	1	STFRNT																				ND	
1	E	2	STFRNT																				ND	
1	E	7	STFRNT																				ND	
1	E	11	STFRNT	D																				
1	E	86		D																				copper FASCIA dented
1	E	87		D																				copper FASCIA dented
1	E	88	RD.TOP	D				1																
1	E	126	GL.BLOCK																				ND	copper FASCIA dented, 3 blocks cracked, stress
1	E	127	GL.BLOCK						1									1						2 blocks broken, dented copper
2	E	85	RD.TOP	D		D	D	1		1														
2	E	125	RD.TOP	D				1	1	1														T3 STRESS CRACK PAINTED OVER
2	E	128	RD.TOP	D				1	1	1							1	1						
3	E	3		D		D	D	1							1									
3	E	4		D			D	1																
3	E	83		D		D	D								1				1					
3	E	84		D		D	D											1						
3	E	123		D		D	D	1			1													
3	E	124		D		D	D																	
3	E	129		D		D	D									1								
3	E	130		D		D	D																	
4	E	81		D			D		1	1	1			1	1				1					
4	E	82		D			D			1		1		1										
4	E	93		D		D	D	1	1					1	1									
4	E	94		D		D	D																	
4	E	121		D		D	D					1			1		1	1						
4	E	122		D		D	D	1	1				1											
5	E	79		D		D	D		1		1			1										
5	E	80		D			D		1					1	1									
5	E	91		D		D	D		1															NEWER UNIT
5	E	92		D		D	D	1	1	1			1				1							
5	E	119		D		D	D	1																
5	E	120		D		D	D		1	1		1												
6	E	5		D		D	D							1	1									MTG RAIL ROTTEN, EIFS SILL DMG
6	E	6		D		D	D		1					1										HEAD FD, EIFS HEAD FLASHING FAILURE

6	E	89				D																EIFS SILL
6	E	90																			ND	ROTTEN MTG.RAIL
6	E	117				D	D				1											EIFS SILL
6	E	118				D	D								1	1						EIFS SILL
7	E	52		D		D	D					1	1	1				1				sill too low at roof
7	E	53		D					1	1				1	1							D(st)
7	E	54		D				1	1		1	1			1				1			
8	E	55		D		D			1	1	1	1	1			1			1			
8	E	56		D		D								1				1				
8	E	57		D			D		1	1	1											
9	E	58		D		D	D	1		1		1	1			1	1	1				
9	E	59		D		D	D	1	1			1										
9	E	60		D		D		1						1	1		1					
10	E	61		D		D	D	1	1													ON UPPER SASH coating, DMG ONLY
10	E	62		D			D		1					1								
10	E	63		D																		NEWER SASHES
11	E	64		D		D	D	1		1				1		1						
11	E	65		D		D	D	1		1					1							
11	E	66		D		D									1	1						
12	E	67		D		D	D		1	1		1										
12	E	68		D			D	1		1	1											
12	E	69		D			D	1			1					1						
13	E	70		D		D	D		1			1			1							
13	E	71		D		D	D			1					1							
13	E	72		D		D	D	1	1							1						
14	E	73		D		D		1											1			
14	E	74		D		D	D					1										
14	E	75		D			D		1	1			1									
15	E	76		D			D		1			1	1									
15	E	77		D			D															
15	E	78		D			D		1				1	1								
16	E	99	RD.TOP	D			D													1	1	
16	E	100	S.DOOR				D															
16	E	101	TERRACE	D		D	D															
17	E	95	STL.ALU.		D	D																GL.RETAINERS
17	E	96	STL.ALU.		D	D		1														GL.RETAINERS
17	E	97	STL.		D							1										ORIG. STEEL, NO ALU
17	E	98	STL.		D																	ORIG. STEEL, NO ALU

3	N	44	TERRACE	D																			IGU
4	N	45		D																			B2 recently reglazed
4	N	46	42	D		D	D		1		1	1						1	1					
4	N	47		D		D		1									1						B2 replaced, HEAD ROTTEN
4	N	48		D	D	D		1								1							coating chipped on upper sash
4	N	49		D		D					1				1	1							
4	N	50		D													1						
4	N	51		D		D												1					
4	N	102		D			D																THE BOTTOM ROW OF WINDOWS HAD A LOT OF PREEXISTING DAMAGE
4	N	103		D		D	D					1											
4	N	104		D			D			1				1	1				1				
4	N	105		D			D					1											
4	N	106		D		D	D	1					1										ROTTEN B. RAIL
4	N	141		D		D	D				1												
4	N	142	MTL.WRD.		D																		
4	N	143	MTL.WRD.		D																		
4	N	133	MTL.WRD.	D	D																		chipped paint
5	N	109		D		D	D								1								
5	N	110		D			D	1				1											
5	N	111		D		D	D		1				1										
5	N	114		D		D	D	1		1	1	1						1					
5	N	115		D			D	1		1			1		1								
5	N	116	MTL.WRD.		D																		
5	N	137		D		D	D							1									
5	N	138		D		D	D																
5	N	139		D		D	D		1						1	1							
5	N	140		D		D	D		1	1			1										
5	N	144		D		D	D		1	1				1									
5	N	145		D		D	D																
5	N	146		D		D	D																
5	N	147		D		D	D		1	1				1	1				1				
5	N	134		D		D	D	1	1		1	1		1	1			1					
5	N	135		D		D	D					1											
5	N	136		D		D	D			1		1		1									
6	N	107						1	1														NEWER WINDOW
6	N	108																				ND	
6	N	112					D	1															EIFS SILL

6	N	113					D																EIFS SILL
6	N	148		D			D		1				1			1							
6	N	149		D		D	D					1											
6	N	150		D			D		1			1											
6	N	151		D		D	D				1		1				1						
6	N	197		D		D	D		1		1	1											
6	N	198		D		D	D	1	1			1											
6	N	199		D		D	D		1				1			1	1						
6	N	200	MTL.WRD.		D																		
6	N	201		D		D	D					1											
7	N	152		D		D	D					1	1	1	1		1						
7	N	153		D		D	D										1						
7	N	154		D		D	D											1					
7	N	155		D		D	D					1											
7	N	202		D		D	D	1	1	1					1								
7	N	203	MTL.WRD.																			ND	
7	N	204		D		D	D		1	1						1	1						
7	N	205		D		D	D		1						1								
7	N	206		D		D	D	1		1								1					
8	N	156		D		D	D							1									
8	N	157		D		D	D																
8	N	158		D		D	D	1															B2 TAPED NOT BROKEN
8	N	159		D		D	D	1					1	1	1	1							
8	N	207		D		D	D		1	1					1	1	1	1	1				
8	N	208		D		D	D									1							
8	N	209		D		D	D	1	1		1					1	1	1	1				
8	N	210	MTL.WRD.		D																		chipped paint
8	N	211		D		D	D			1	1		1	1									
9	N	160		D		D	D		1	1					1				1				
9	N	161		D		D	D		1														
9	N	162		D		D	D			1		1							1				
9	N	163		D		D	D	1	1				1										
9	N	212		D		D	D						1										
9	N	213	MTL.WRD.		D																		chipped paint
9	N	214		D		D	D		1		1							1					
9	N	215		D		D	D		1	1													

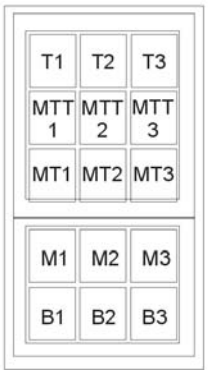
9	N	216		D		D	D							1								
10	N	164		D		D	D			1				1				1				
10	N	165		D		D	D									1						
10	N	166		D		D	D															
10	N	167		D		D	D			1				1	1	1		1				
10	N	217		D		D	D		1	1					1							
10	N	218		D		D	D	1									1					
10	N	219		D		D	D	1	1						1							
10	N	220	MTL.WRD.		D																	chipped paint
10	N	221		D		D	D	1														
11	N	168		D		D	D		1		1	1		1		1						
11	N	169		D		D	D							1		1	1					
11	N	170		D		D	D	1	1			1		1	1							
11	N	171		D		D	D		1													
11	N	222		D		D	D	1						1			1					
11	N	223	MTL.WRD.		D																	chipped paint
11	N	224		D		D	D						1		1			1				
11	N	225		D		D	D											1				
11	N	226		D		D	D	1	1			1	1	1								
12	N	172		D		D	D		1	1		1		1		1		1				
12	N	173		D		D	D								1							
12	N	174		D		D	D					1			1		1		1			
12	N	175		D		D	D		1							1	1	1				
12	N	227		D		D	D	1		1					1	1						
12	N	228		D		D	D		1		1				1	1						
12	N	229		D		D	D	1	1	1												
12	N	230	MTL.WRD.																		ND	
12	N	231		D		D	D	1						1								
13	N	176		D		D	D	1	1	1		1					1					
13	N	177		D		D	D			1				1								
13	N	178		D		D	D			1												
13	N	179		D		D	D	1	1								1					
13	N	232		D		D	D	1	1	1		1		1		1						
13	N	233	MTL.WRD.		D																	chipped paint
13	N	234		D		D	D		1				1									
13	N	235		D		D	D					1		1								
13	N	236		D		D	D	1	1	1		1		1				1				

14	N	180		D		D	D		1					1	1	1							
14	N	181		D		D	D					1		1									
14	N	182		D		D	D										1						
14	N	183		D		D	D		1	1		1			1			1					bottom rail will need repair for glass replacement
14	N	237		D		D	D	1							1								
14	N	238		D		D	D		1										1				
14	N	239		D		D	D	1		1				1		1	1	1					
14	N	240	MTL.WRD.		D																		chipped paint
14	N	241		D		D	D							1	1								
15	N	184		D		D	D	1	1									1					
15	N	185		D		D	D							1	1	1							
15	N	186		D		D	D																
15	N	187		D		D	D	1	1		1			1				1					
15	N	242		D		D	D	1	1														
15	N	243	MTL.WRD.		D																		chipped paint
15	N	244		D		D	D		1														
15	N	245		D		D	D	1	1	1					1	1							
15	N	246		D		D	D	1	1	1													
16	N	188	RD.TOP	D		D	D							1	1						1		
16	N	189	RD.TOP	D		D	D									1			1	1	1		glass WAS already replaced
16	N	247		D		D	D							1				1				1	
16	N	248		D		D								1		1							
17	N	190	STL.ALU.			D																	CRACKED GLASS RETAINERS
17	N	191	STL.ALU.		D				1														
17	N	192	STL.ALU.		D																		damaged insect screen
3	W	43	TERRACE																			ND	
3	W	135	ALU					1															
4	W	133		D		D																	
4	W	134		D																			
4	W	136		D		D	D																
5	W	131		D			D																SAGGING MTG. RAIL
5	W	132		D																			
6	W	12	S. DOOR																			ND	
7	W	8				D																	
7	W	9		D		D																	
7	W	10		D																			
8	W	13		D																			

8	W	14		D																			
8	W	15		D																			
9	W	16		D																			
9	W	17		D	D																		
9	W	18		D																			
10	W	19		D																			
10	W	20		D	D																		
10	W	21		D																			
11	W	22			D																		
11	W	23			D																		
11	W	24			D																		
12	W	25		D		D																	
12	W	26		D																			
12	W	27		D																			
13	W	28		D																			
13	W	29		D																			SASHES NEWER
13	W	30		D												1							
14	W	31		D																			
14	W	32		D																			
14	W	33		D																			
15	W	34		D																			
15	W	35		D																			
15	W	36		D																			bottom sash newER
16	W	37	RD.TOP	D																			
16	W	38	S.DOOR																			ND	
16	W	39	RD.TOP	D																			
17	W	40	STL.ALU.																			ND	
17	W	41	STL.ALU.																			ND	steel original, no alu
17	W	42	STL.ALU.																			ND	

Skylight Damage:

QUANTITY	TYPE		
8	POLYCARB DOME	BROKEN BY STATEMENT	
24	INT. SKYLIGHT PATTERNED TINT	23 BROKEN	



Notes:

1) The sequential inspection number refers to the fenestration numbers marked on photographs and field notes.
2) If the type of unit is left blank, it means it's a rectagular H window.
3) The key to the glass pane location markings is located to the right ->

Appendix G
Glossary

- **Fenestration**, *n* - Opening in a building's envelope, such as window, skylights, and glass door designed to permit the passage of air, light, or people.(the definition derived from combination of sources NFRC The National Fenestration Rating Council and ANSI/AAMA/NWWDA 101/I.S.2-97 "Standard Termninology of Building Constructions")
- **Frame**, *n* - the enclosing structure of a window, skylight, or glass door, which fits into the wall or roof opening and receives either glass, sash, or vents (source ANSI/AAMA/NWWDA 101/I.S.2-97)
- **Sash**, *n* - a single frame in a door or window that holds one or more lites (panes) of glass (soutce ASTM E 631 " Standard Termninology of Building Constructions")
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Anatomy Of A Wood Window
(source NPS National Park Service, U.S .Dept. of the Interior)