Glazing Inspection Report

XXXXXXXXXXXXXXXXXXXX
CONDOMINIUM ASSOCIATION.
1234 NE Testing Street
Anytown, USA
SAMPLE - Report date XXXXXXX

Services performed

At the request of XXXXXXXXXXXXXXXXXX., TSSA Storm Safe DAC Inc. performed a non-invasive visual structural glazing damage assessment of XXXXXXXXXXXXXXXXXX Condominium Association on the following dates:

Preliminary Evaluation Dates
Friday, October 25th, 2019

Inspection Dates
Wednesday, November 6th – Friday, November 8th, 2019
Wednesday, November 13th – Friday, November 15th, 2019

The purpose of this inspection was to evaluate the condition of the following glazed systems as they currently exist following the effects of Hurricane Irma (a powerful hurricane that passed through the area on September 10th – 11th 2017.)

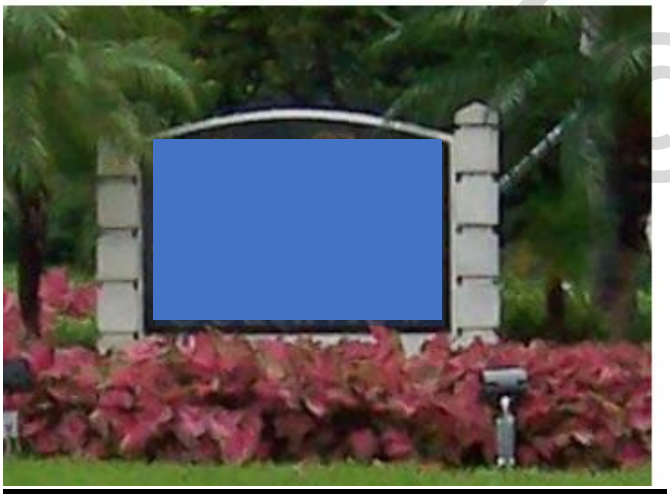
- Two Panel Sliding Glass Door
- Single Hung Window System
- Double Mulled Single Hung Window System
- Triple Mulled Single Hung Window System
- Quad Mulled Single Hung Window System

Present during the inspection were Ivan Browner (President), Steven Browner (Vice President), Mark Kovach (Team Leader), Gloria Montoya (Team Leader), Nicholas Tobolski (Team Leader), Vendula Hlubocka (Assistant), Richard Orahood (Assistant) from TSSA Storm Safe DAC Inc., a professional Glazing Investigation Service.

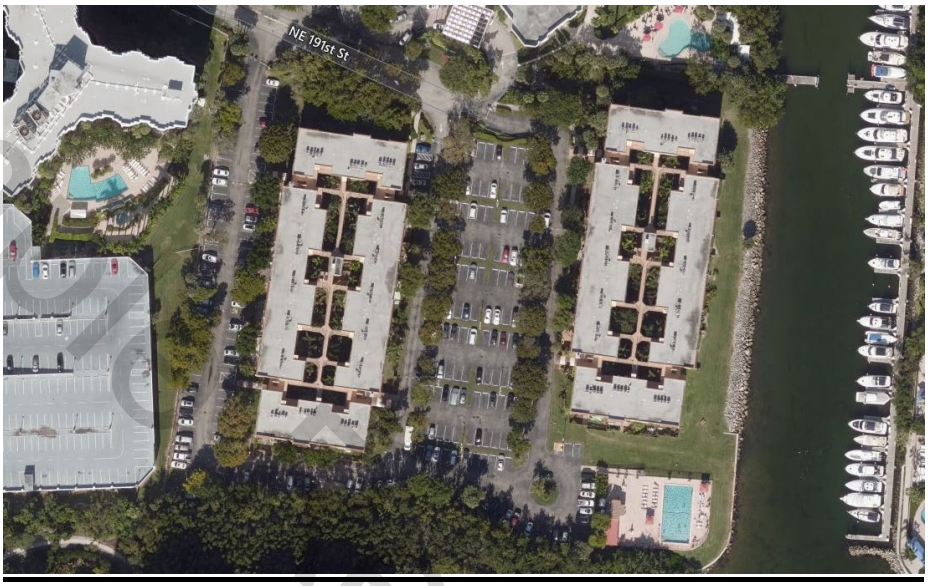
The Inspection Protocol employed to document and notate the physical damage profile seen on the glazed systems installed at the XXXXXXXXXXXXXXXXXX Condominium Association was created to document physical damages in an organized and systematic manner.

Also present during the inspection of XXXXXXXXXXXXXXXXXX Condominium Association were representatives from XXXXXXXXXX Consultants and members of XXXXXXXXXXXXXXXXXX Condominium Association management and maintenance staff.

TSSA Storm Safe Inc. employed the usage of The Ryobi Model # E49MM01 Moisture Meter Gauge during our evaluation of XXXXXXXXXXXXXXXXXX Condominium Association (see the Limitations section). Also, Measuring Tapes, Screw Drivers, and Flashlights were employed by our inspection teams to evaluate the glazed systems in question visually.



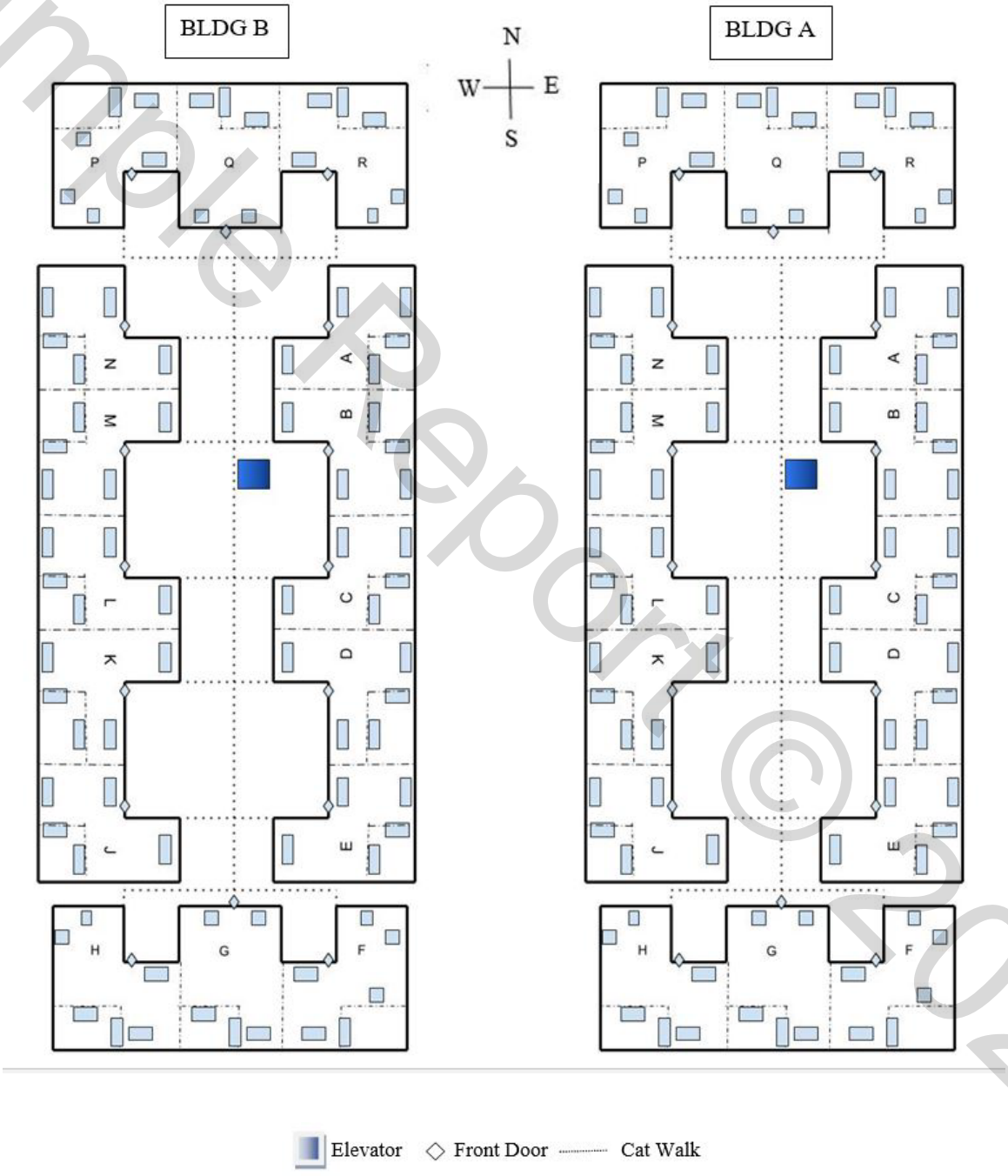
XXXXXXXXXXXXXXXXXXX Condominium Association



XXXXXXXXXXXXXXXXXX CONDOMINIUM ASSOCIATION

The XXXXXXXXXXXXXXXXXX Condominium Association was built in 1987. The campus includes two buildings comprising of 80 units each (160 total units.) Each of the two buildings is composed of 4 structures that are connected by an interior courtyard of catwalks. The construction method is a concrete block with a cementitious stucco finish. The glazed envelope was constructed utilizing a combination of single hung windows (single, double, triple, and quad mulled) with two panel sliding glass doors.

XXXXXXXXXXXXXXXXXXX Condominium Association Wall Map



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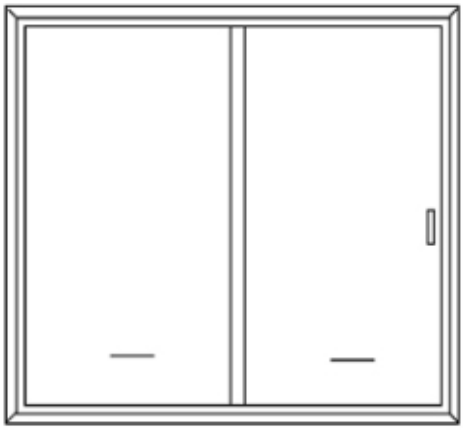
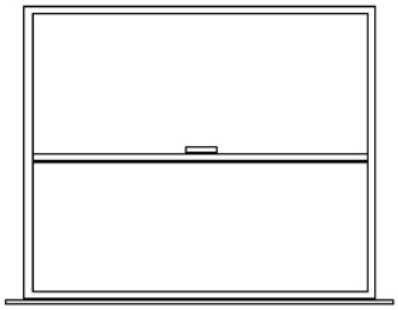
Glazed System Installed

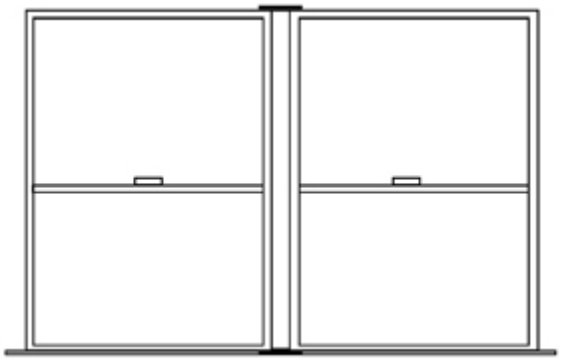
- **Two Panel Sliding Glass Door** (Mildoor Windows manufactured by Miller Industries Inc. - all-aluminum frame, glazed with 1/4" inch tempered glass anchored into wood buck through frame member and flange used to set primary seal during installation)



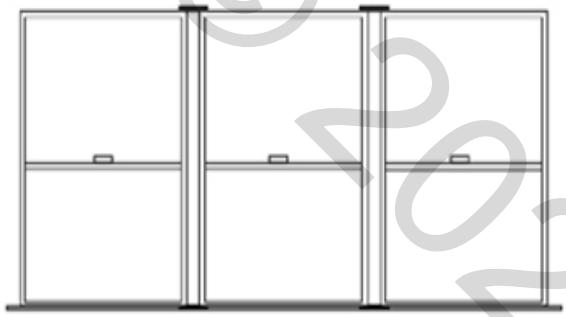
- **Single Hung Window System** (Mildoor Windows manufactured by Miller Industries Inc.- all-aluminum frame, glazed with 1/8” inch annealed glass anchored into wood buck through frame member and flange used to set primary seal during installation)



- **Double Mulled Single Hung Window System** (Mildoor Windows manufactured by Miller Industries Inc. - (all-aluminum frame, glazed with 1/8” inch annealed glass anchored into wood buck through frame member and flange used to set primary seal during installation)



- **Triple Mulled Single Hung Window System** (Mildoor Windows manufactured by Miller Industries Inc. - (all-aluminum frame, glazed with 1/8” inch annealed glass anchored into wood buck through frame member and flange used to set primary seal during installation)



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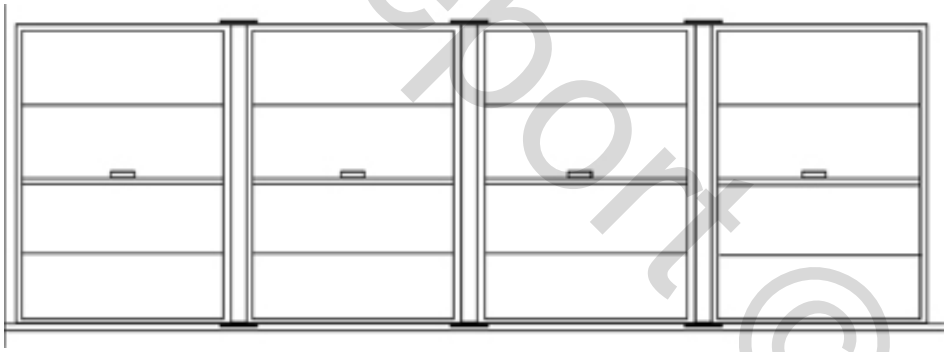
- **Quad Mulled Single Hung Window System** (Mildoor Windows manufactured by Miller Industries Inc. - (all-aluminum frame, glazed with 1/8” inch annealed glass anchored into wood buck through frame member and flange used to set primary seal during installation)

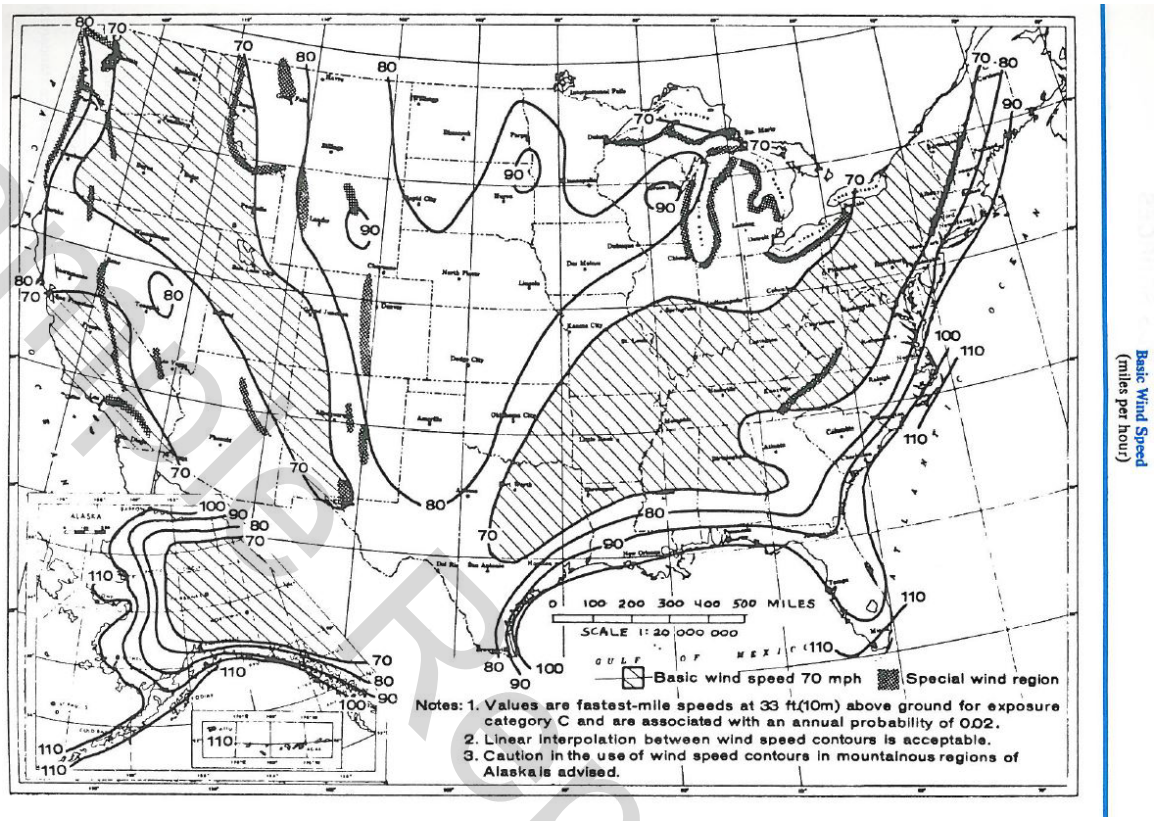


Installed System Design Pressure

Mildoor Executive Series Windows and Doors were manufactured and stipulate conformity to AAMA/ANSI 302.9-77. The window specification was a Commercial Rated Window Product listed as DH-A2-HP (Double Hung Window Type – A2 Designation – High-Performance Class.) The original testing specification of the A2 Designation is shown below:

New Grade Designation	Replaces: Old Designation	Minimum Test Size (Double Hung)	Minimum Design Pressure (psf)	Minimum Structural Test Pressure (psf)	Minimum Water Test Pressure (psf)
R	B1 and B2	3'8" X 5'0"	15	22.5	2.86
C	A2 and A2.5	4'6" X 7'6"	20	30	3.00
HC	A3 and A4	5'6" X 10'0"	40	60	6.00

The HP "High Performance" rating allowed the specifier to designate a window system that exceeded the AAMA specification due to the usage and function these windows would be called upon to perform. At the time construction, Miami Dade County was considered a 110-mph wind zone as specified by page 33 of ANSI/AAMA 101-85 Voluntary Specifications for Aluminum Prime Window & Sliding Glass Doors. (NOTE – in 1985, ANSI/AAMA 101-85 replaced the ANSI/AAMA 302.9-77 (Windows) and 402.0-77 (Sliding Glass Doors) specifications used by architects.)



The ANSI/AAMA 101-85 document allows for a manufacturer to test their products at higher than minimum allowable design pressure to meet a variety of installation demands. Miller Industries Inc., manufactured windows that gave architects/specifiers the ability to meet the design requirements at the time XXXXXXXXXXXXXXXXXX Condominium Association was being constructed.

A window system to be installed in Miami Dade County needed to conform with the minimum called upon design pressure of the construction period. Page 31 of ANSI/AAMA 101-85 Voluntary Specifications for Aluminum Prime Window & Sliding Glass Doors specifies a building sitting at 50 ft (15.2 m) above Grade in a 110 mph (117 Km/hr.) wind zone to be rated for:

DP (Design Pressure) - 38.5 lbs./ft^2
STP (Structural Test Pressure) - 57.8 lbs./ft^2
WTP (Water Resistance Pressure) - 5.78 lbs./ft^2

LOAD TABLES

Elevation above Grade in feet (m)	110 mph (177 Km/hr) VP	DP	STP	WTP
0-15 (0-4.6)	24.8 (1.19)	27.3 (1.31)	40.9 (1.96)	4.09 (.196)
20 (6.1)	27.0 (1.29)	29.7 (1.42)	44.6 (2.14)	4.46 (.214)
25 (7.6)	28.8 (1.38)	31.7 (1.52)	47.5 (2.27)	4.75 (.227)
30 (9.1)	30.4 (1.46)	33.4 (1.60)	50.2 (2.40)	5.02 (.240)
40 (12.2)	32.8 (1.57)	36.1 (1.73)	54.1 (2.59)	5.41 (.259)
50 (15.2)	35.0 (1.68)	38.5 (1.84)	57.8 (2.77)	5.78 (.277)
60 (18.3)	36.9 (1.77)	40.6 (1.94)	60.9 (2.92)	6.09 (.292)
70 (21.3)	38.4 (1.84)	42.2 (2.02)	63.4 (3.04)	6.34 (.304)
80 (24.4)	40.0 (1.92)	44.0 (2.11)	66.0 (3.16)	6.66 (.316)
90 (27.4)	41.5 (1.99)	45.7 (2.19)	68.5 (3.28)	6.85 (.328)
100 (30.5)	42.8 (2.05)	47.1 (2.26)	70.6 (3.38)	7.06 (.338)
120 (36.6)	44.9 (2.15)	49.4 (2.37)	74.1 (3.55)	7.41 (.355)
140 (42.7)	47.1 (2.26)	51.8 (2.48)	77.7 (3.72)	7.77 (.372)
160 (48.8)	48.9 (2.34)	53.8 (2.58)	80.7 (3.86)	8.07 (.386)
180 (54.9)	50.5 (2.42)	55.6 (2.66)	83.3 (3.99)	8.33 (.399)
200 (61.0)	52.0 (2.49)	57.2 (2.74)	85.8 (4.11)	8.58 (.411)
250 (76.2)	55.5 (2.66)	61.1 (2.93)	91.6 (4.39)	9.16 (.439)
300 (91.4)	58.2 (2.79)	64.0 (3.06)	96.0 (4.60)	9.60 (.460)
350 (106.7)	61.0 (2.92)	67.1 (3.21)	100.7 (4.82)	10.07 (.482)
400 (121.9)	63.5 (3.04)	69.9 (3.35)	104.8 (5.02)	10.48 (.502)
450 (137.2)	65.7 (3.15)	72.3 (3.46)	108.4 (5.19)	10.84 (.519)
500 (152.4)	67.5 (3.23)	74.3 (3.56)	111.4 (5.33)	11.14 (.533)

Water Resistance Test Pressure - It is important to note ANSI/AAMA 302.9-77 water leakage test pressure was 10% of the system design pressure upon the testing of these Mildoor Window Systems. The ANSI/AAMA 101-85 water leakage test pressure is 15% of the system design pressure, but since the specifying sticker found on these systems stated that they conformed to AAMA/ANSI 302.9-77, 10% of the design pressure was enforced at the time the architect specified these systems for installation.

These calculations are to be considered if further invasive/destructive testing is specified to corroborate the damage profile witnessed during our physical evaluation of the window systems installed at XXXXXXXXXXXXXXXXXX Condominium Association.

NOTE - A Florida Licensed Professional Engineer should be consulted to analyze the effects of wind pressure and force during Hurricane Irma. TSSA Storm Safe DAC, Inc is not a licensed engineering company, we understand the AAMA specification in our capacity as a glazing damage inspection consultant.

Inspection Data – Units Inspected By TSSA Storm Safe Inc.

XXXXXXXXXXXXXXXXXXX Condominium Association

3440 - Building A

	Floor 1	Floor 2	Floor 3	Floor 4	Floor 5	
A	X	X	X	X	X	
B	X	X	X	X	X	
C	X	X	X	X	X	
D		X	X	X	X	
E		X	X	X	X	
F	X	X	X	X	X	
G	X	X	X	X	X	
H	X	X	X	X	X	
J		X		X	X	
K	X	X	X	X		
L	X	X	X	X	X	
M	X	X	X	X	X	
N	X	X	X	X	X	
P	X	X	X	X	X	
Q	X	X	X	X	X	
R	X	X		X	X	
Total:	13	16	14	16	15	74

11/6/2019		22
11/7/2019		29
11/8/2019		10
11/13/2019		7
11/14/2019		4
11/15/2019		2
Total Units Inspected:		74

Comments: Number Values = Units Inspected

3350 - Building B

	Floor 1	Floor 2	Floor 3	Floor 4	Floor 5	
A	X	X	X	X		
B	X		X	X	X	
C	X	X		X	X	
D		X	X	X	X	
E	X	X	X	X	X	
F	X	X	X	X		
G		X	X	X	X	
H	X	X	X	X	X	
J	X	X	X	X	X	
K	X	X	X		X	
L	X	X		X	X	
M	X	X		X	X	
N		X	X	X	X	
P		X		X		
Q	X	X		X	X	
R				X	X	
Total:	11	14	10	15	13	63

11/6/2019		1
11/7/2019		1
11/8/2019		18
11/13/2019		26
11/14/2019		17
11/15/2019		63
Total Units Inspected:		

Comments: Number Values = Units Inspected

	Total Units	Total Inspected	Percentage
Building A	80	74	92.5%
Building B	80	63	78.8%
Total:	**160**	**137**	**85.6%**

The TSSA Storm Safe Inc. structural glazing assessment of XXXXXXXXXXXXXXXXXX Condominium Association was performed, taking into consideration the entire campus, and included all the major directional facings, elevations, and exposures.

TSSA Storm Safe Inc. inspected **137** out of the 160 (85.63%) units located in the two-building campus. Access was not granted to the remaining 23 units at the time of our inspection.

Findings – TSSA Storm Safe Inc. performed a detailed objective evaluation of the glazed systems installed at the XXXXXXXXXXXXXXXXXX Condominium Association. Our investigation took into account how typical age, condition, and usage would present and effect glazed systems such as these. Non-Operational Single Hung Window Balances, Sash Locks, Sliding Glass Door Rollers, and Locks are all examples of repairable age, condition and usage issues. However, after analyzing all the physical damages noted during our investigation, it is our professional opinion that the damages witnessed are consistent with Hurricane Irma created wind force, extensive buffeting, and stress and not common age, condition, or poor maintenance issues.

The glazed envelope installed at the South View Condominium Association was subjected to Hurricane Irma created wind force, extensive buffeting, and stress, leaving the glazed envelope of protection in a compromised state. The windows and sliding glass doors inspected during our site visit displays a definitive wind storm-related physical damage profile consistently and uniformly. The combination of System Movement, Assembly System Distress, Screw Spline Disruption, Frame Separation, Moisture Infiltration and Damage, Deglazing, Interior Finish/Drywall Distress, Exterior

Finish/Stucco Distress and Signs of Emergency Temporary Repairs together verifies the nature of damage the property sustained as the windows experienced Hurricane Irma created wind force, extensive buffeting, and stress.

Explanation of Major Damages Identified -

The purpose of the following section is to identify and explain the Major Repeated Damage types that were witnessed throughout the entire campus of the XXXXXXXXXXXXXXXXXX Condominium Association inspection. In our professional opinion, TSSA Storm Safe DAC Inc. defines Major Damage as damage identified on the glazed system, which jeopardizes the structural integrity of the building envelope. The following explanations of physical damage (Frame Rotation, Frame Separation, Deglazing, System Movement, and Gasket Disruption) were discovered repetitively on all the major directional facings, elevations, and exposures of the campus.

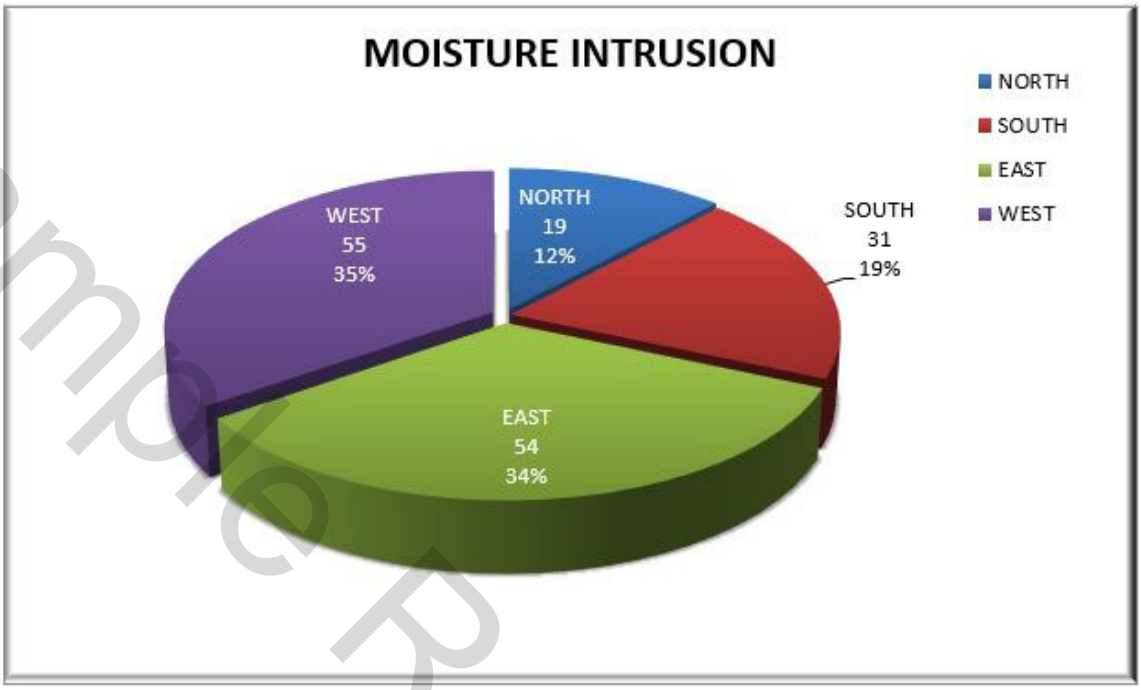
The glazed systems installed were stressed, buffeted, and exposed to the intense Hurricane Irma created wind force, and came to rest in a damaged state showing a diminishment of capacity to keep a congruent glazed envelope of protection and a weather-tight barrier. These physical damages were documented by the TSSA Storm Safe DAC inc. Inspection team as well as verified by Derek Cronin P.E., a state of Florida licensed professional engineer who was directing the inspection protocol on site.

These physical damages are an example of what occurs when windows that share the characteristics of assembly and installation, such as the systems installed in the XXXXXXXXXXXXXXXXXX Condominium Association, are overstressed and affected by intense wind force of a storm such as Hurricane Irma.

Moisture Intrusion:	**Visible Signs of Moisture**
Interior Finish Distress:	**Interior Seal Damage**
Loose Panels:	**Panels Loosened**
Jamb Movement:	**System Movement witnessed at the Jamb Frame**
Sill Movement:	**System Movement witnessed at the Header Frame**
Fastener Damage:	**Loosened Fasteners**

Moisture Intrusion

During our investigation of the XXXXXXXXXXXXXXXXXX Condominium Association, TSSA Storm Safe Inc. inspectors witnessed a great deal of moisture intrusion seen around the entire perimeter of the installed glazed systems. A combination of system buffeting with subsequent primary seal disruption allowed moisture to intrude between the installed systems and the weather barrier finding its way into the interior living space. This physical damage was noted on a large percentage of the units that we inspected.



The above chart represents the number of times this specific damage type was notated by the TSSA Storm Safe Inc. field inspection team with relation to the compass heading. The findings presented in this chart are populated from pure inspection data which was extrapolated by querying our server Database. The statistical analysis is performed after inputting the data collected onsite by following our inspection protocol.

N

W

E

S

CHART SECTION TITLE LEGEND

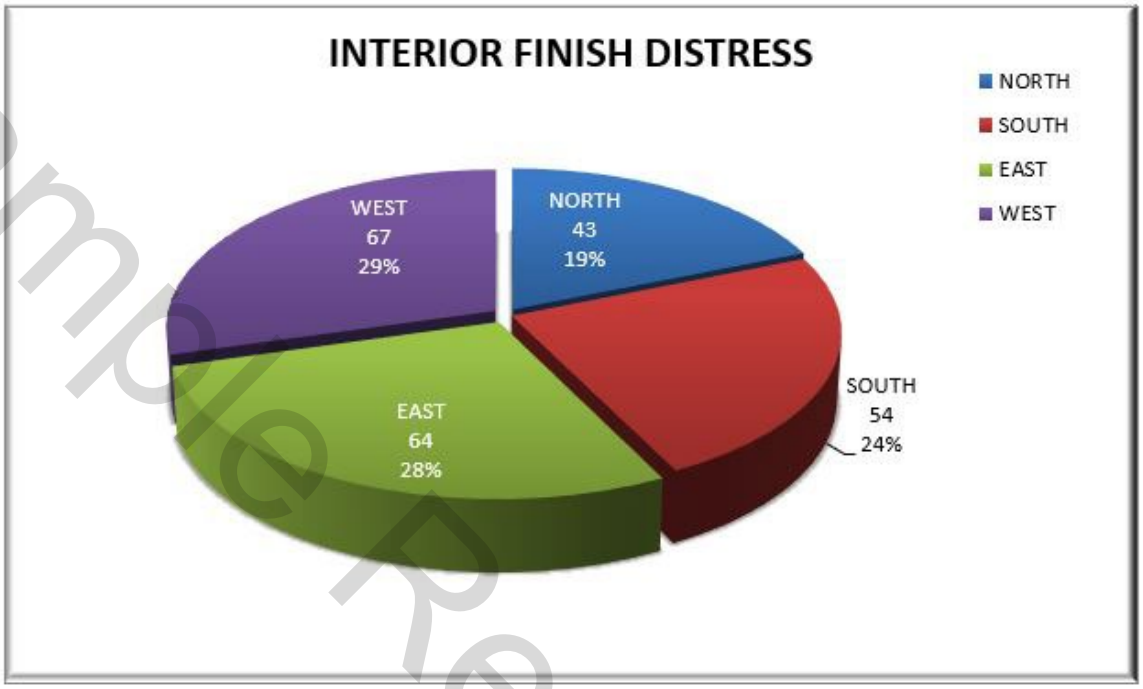
EXAMPLE:

(1) West
(2) 193
(3) 26%

(1) = Compass Heading
(2) = Number of times the physical damage was notated during our inspection based on compass heading
(3) = Percentage of times the physical damage is witnessed using compass heading as a means to perform statistical analysis.

Interior Finish Distress

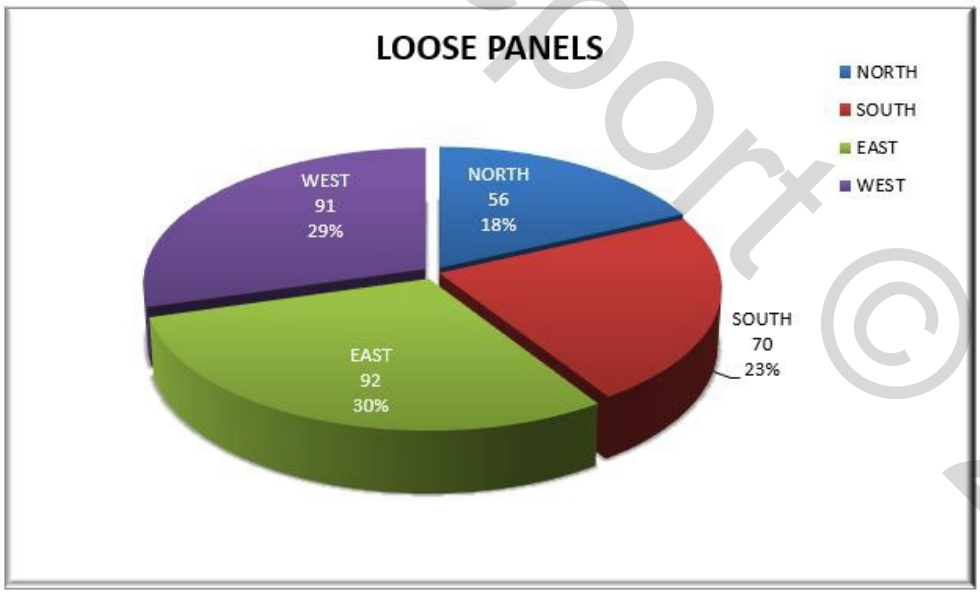
The following photos depict examples of the amount of system movement with corresponding interior finish distress that was witnessed during our investigation of the XXXXXXXXXXXXXXXXXX Condominium Association inspection. The buffeting of the systems during a high wind event allowed the glazed systems to vibrate and move within their installed position. This movement affected the installation fastening system and created system movement which disrupted the interior finish between the systems framing and its interior finish reveal.



The above chart represents the number of times this specific damage type was notated by the TSSA Storm Safe Inc. field inspection team with relation to the compass heading. The findings presented in this chart are populated from pure inspection data which was extrapolated by querying our server Database. The statistical analysis is performed after inputting the data collected onsite by following our inspection protocol.

Loose Panels

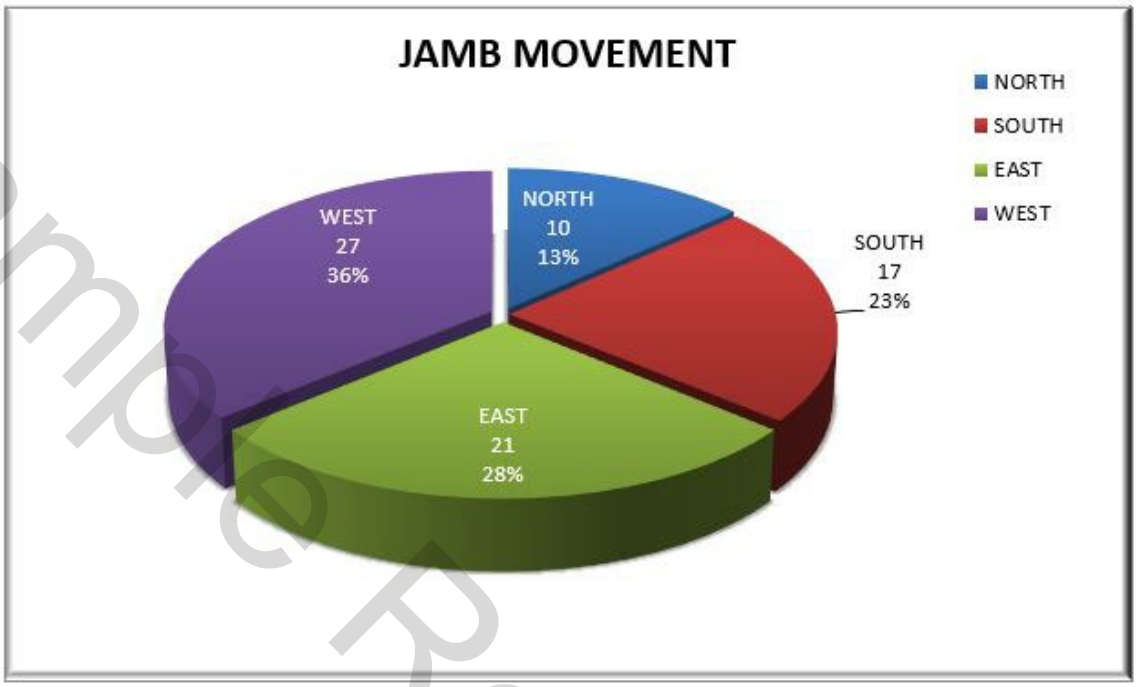
Throughout the TSSA Storm Safe Inc. Glazing Damage Assessment of the XXXXXXXXXXXXXXXXXX Condominium Association, our inspectors witnessed wide spread loose panels on a great deal of the installed window and sliding glass door systems. As the window systems react to wind buffeting and cyclic pressure, the load is transferred from the installation system to the assembly system which eventually force the panels to become loosened in their operational tracks leaving them in a diminished state. This specific damage is difficult to capture photographically, as the panel movement is a physical reaction to our inspection protocol.



The above chart represents the number of times this specific damage type was notated by the TSSA Storm Safe Inc. field inspection team with relation to the compass heading. The findings presented in this chart are populated from pure inspection data which was extrapolated by querying our server Database. The statistical analysis is performed after inputting the data collected onsite by following our inspection protocol.

Jamb Movement

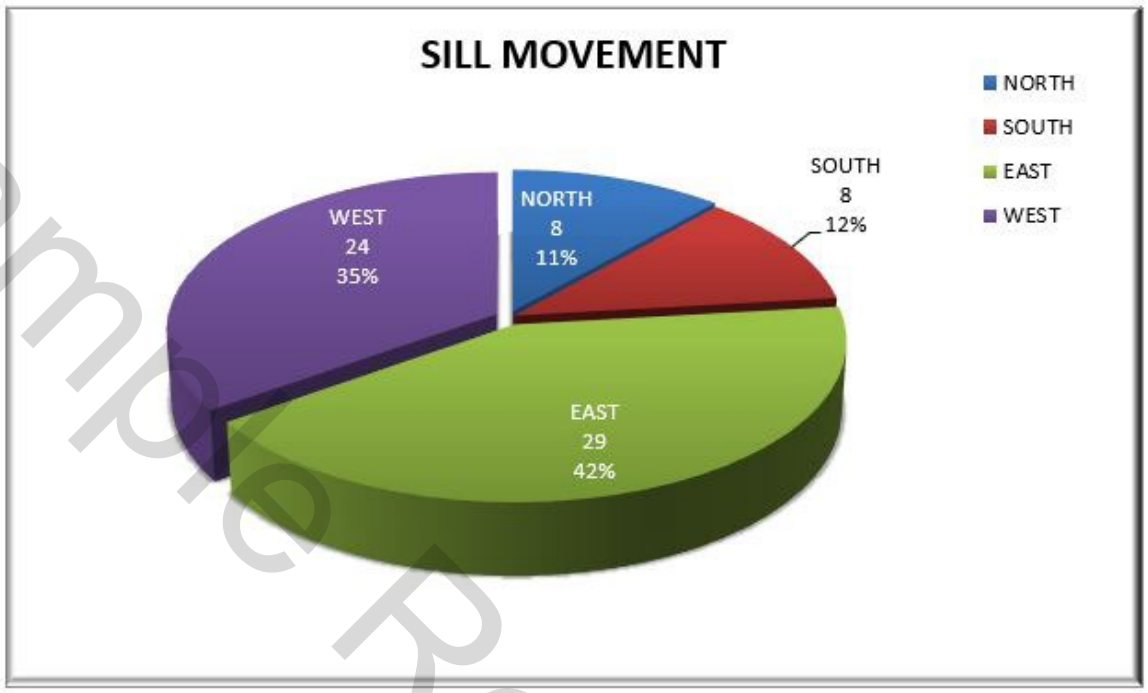
The following photos depict examples of the amount of system movement with corresponding interior finish distress that was witnessed during our investigation of the XXXXXXXXXXXXXXXXXX Condominium Association inspection. The buffeting of the systems during a high wind event allowed the glazed systems to vibrate and move within their installed position. This movement affected the installation fastening system and created system movement which disrupted the interior finish between the systems framing and its interior finish reveal. (Note – the photo of the inspector's hand touching the framing system is to demonstrate that it was moving freely upon inspection.)



The above chart represents the number of times this specific damage type was notated by the TSSA Storm Safe Inc. field inspection team with relation to the compass heading. The findings presented in this chart are populated from pure inspection data which was extrapolated by querying our server Database. The statistical analysis is performed after inputting the data collected onsite by following our inspection protocol.

SILL MOVEMENT

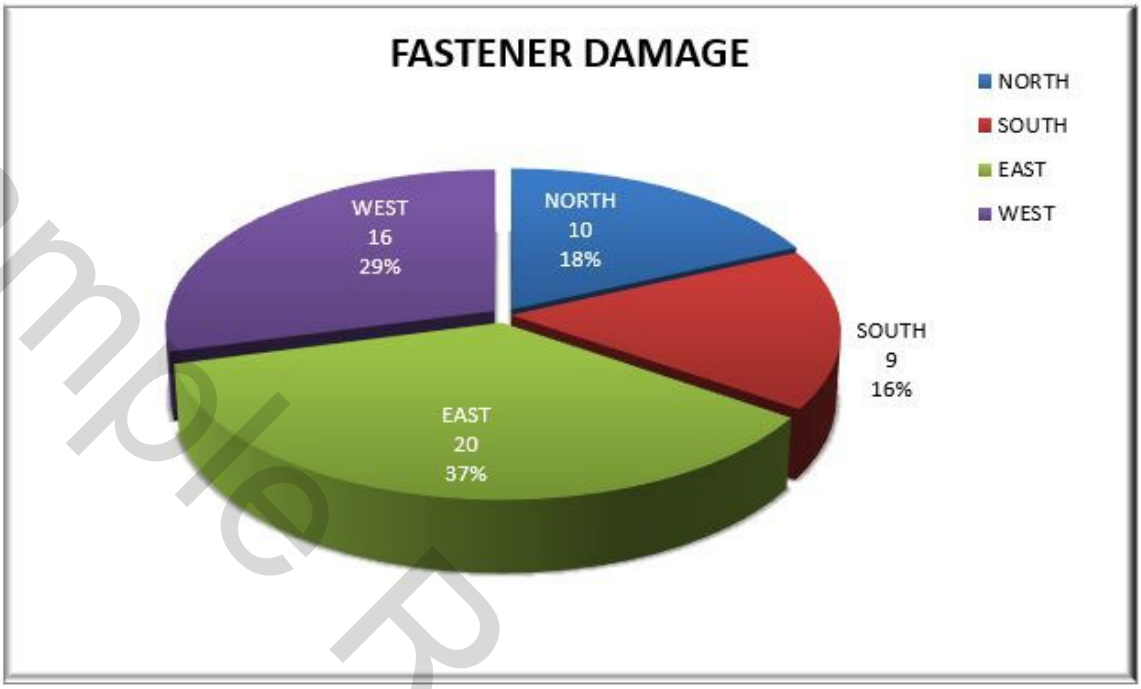
The following photos depict examples of the amount of system movement with corresponding interior finish distress that was witnessed during our investigation of the XXXXXXXXXXXXXXXXXX Condominium Association inspection. The buffeting of the systems during a high wind event allowed the glazed systems to vibrate and move within their installed position. This movement affected the installation fastening system and created system movement which disrupted the interior finish between the systems framing and its interior finish reveal. (Note – the photo of the inspector's hand touching the sill frame member is to demonstrate that it was moving freely upon inspection.)



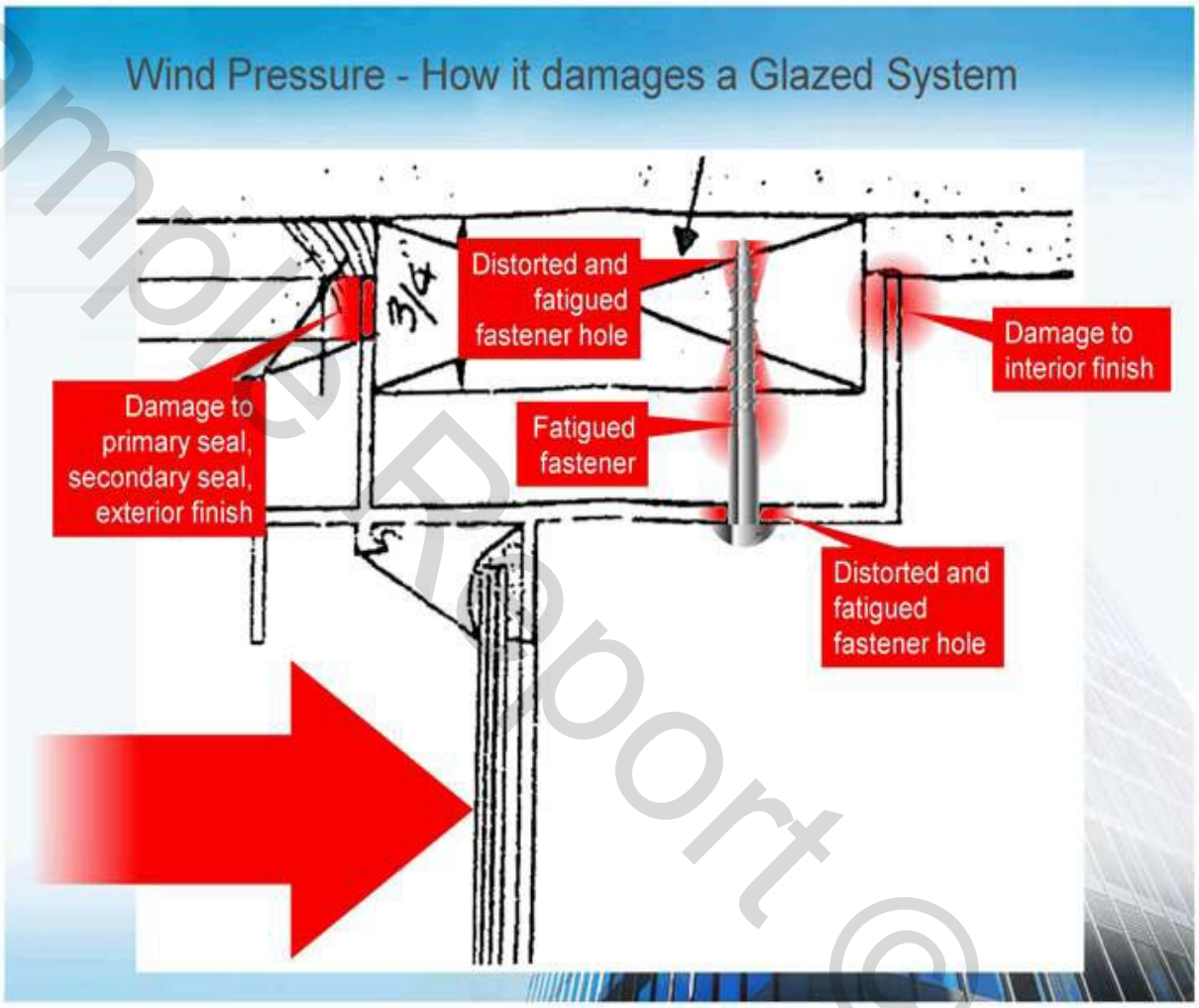
The above chart represents the number of times this specific damage type was notated by the TSSA Storm Safe Inc. field inspection team with relation to the compass heading. The findings presented in this chart are populated from pure inspection data which was extrapolated by querying our server Database. The statistical analysis is performed after inputting the data collected onsite by following our inspection protocol.

Damage Fasteners

The following photos depict evidence damage to the installation fasteners seen during our inspection. The intense buffeting of the window systems during Hurricane Irma allowed the attached window systems to vibrate and move within their installed positions. This movement affected and loosened the installation fasteners connection and attachment to the host structure leaving the window systems in a damaged and compromised state.



The above chart represents the number of times this specific damage type was notated by the TSSA Storm Safe Inc. field inspection team with relation to the compass heading. The findings presented in this chart are populated from pure inspection data which was extrapolated by querying our server Database. The statistical analysis is performed after inputting the data collected onsite by following our inspection protocol.



The above diagram illustrates how a window system is damaged during a high wind event, such as a hurricane. The graphic is a demonstrative representation depicting damage and fatigue to some of the major components found in a window system such as the ones found installed at the XXXXXXXXXXXXXXXXXX Condominium Association.

Statistical Analysis of Repetitive Damage -

This section of our TSSA Storm Safe Inc. Executive Summary presents an in-depth statistical analysis of the number of times the following major structural and system damages were identified on the glazed systems installed.

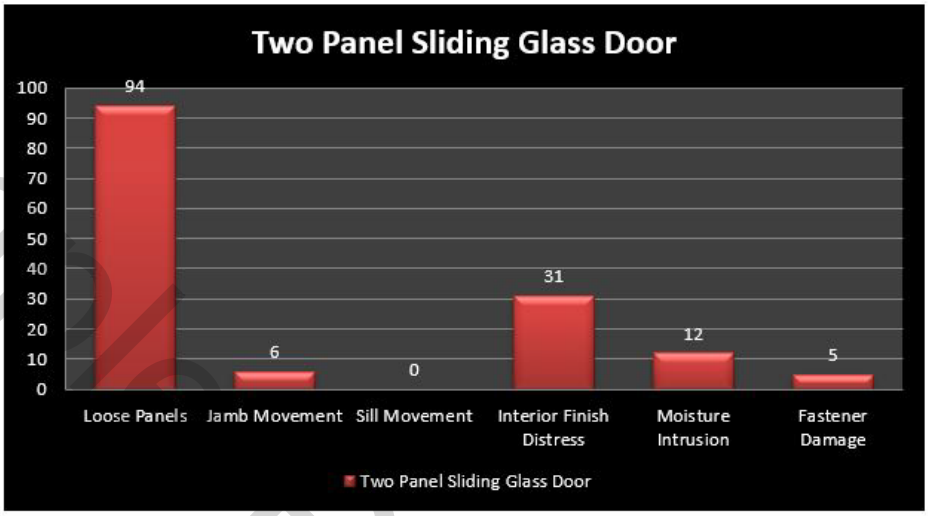
In our professional opinion, TSSA Storm Safe DAC Inc. defines Major Damage as damage identified on the glazed system, which jeopardizes the structural integrity of the building envelope. These damages identified are consistent with how the installed glazed systems inspected by TSSA Storm Safe Inc. present damage after being acted upon by a high wind event.

The following graphs are created to illustrate the major types of cascading damages affecting the glazed systems that TSSA Storm Safe Inc. inspected onsite. These graphs identify how many times the major physical damages have been identified during our field inspection as a system by system analysis. The findings presented in these graphs are populated from pure inspection data, which was extrapolated by querying our server Database. The statistical analysis is performed after inputting the data collected onsite by following our inspection protocol.

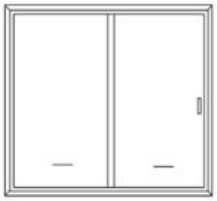
Our professional opinions and conclusions are created, fortified, and supported by relying upon the pure data obtained and analyzed during our TSSA Storm Safe Inc. field inspection.

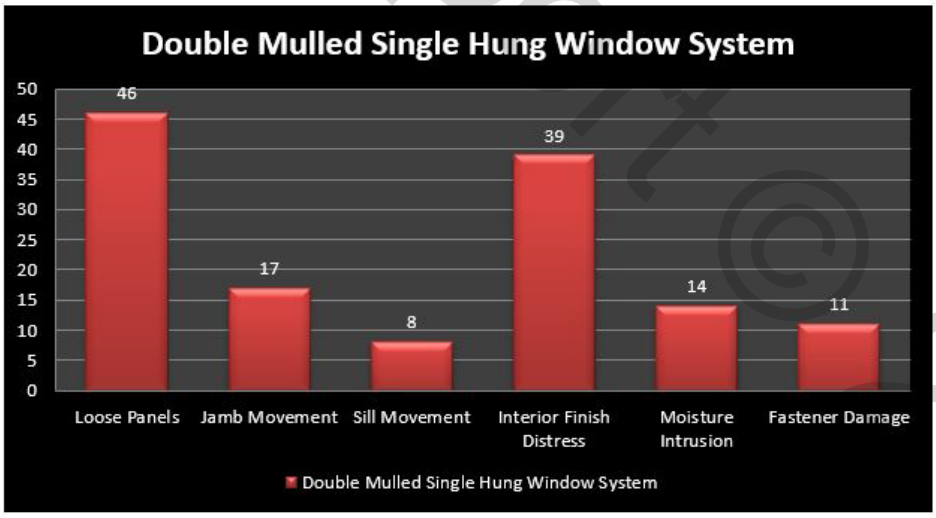
The categories for the graphs and charts are as follows:

Moisture Intrusion:	**Visible Signs of Moisture**
Interior Finish Distress:	**Interior Secondary Seal Damage**
Loose Panels:	**Panels Loosened**
Jamb Movement:	**System Movement witnessed at the Jamb Frame**
Sill Movement:	**System Movement witnessed at the Header Frame**
Fastener Damage:	**Loosened Fasteners**

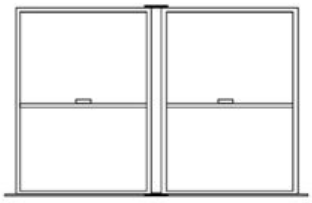


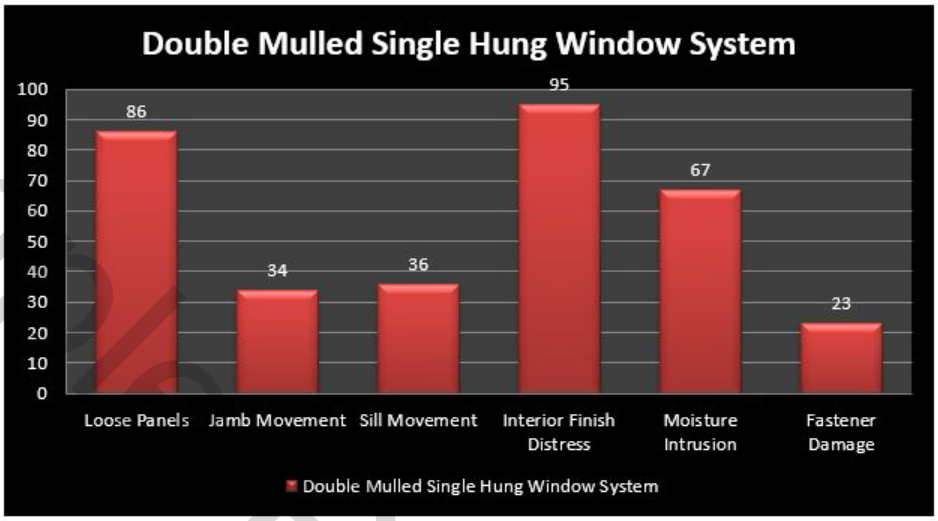
Two Panel Sliding Glass Door	
System Size:	**106" x 96"**
Total Systems Inspected	142
Total Number Of Windows	160
Windows Inspected (%)	88.75%



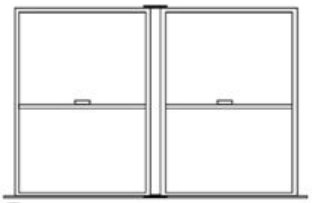


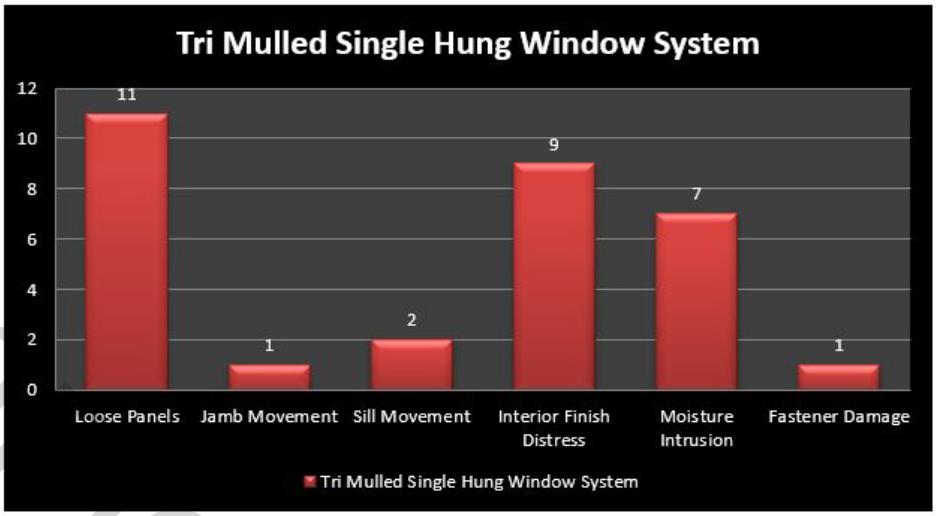
Double Mulled Single Hung Window System	
System Size:	**74" x 60"**
Total Systems Inspected	140
Total Number Of Windows	160
Windows Inspected (%)	87.50%



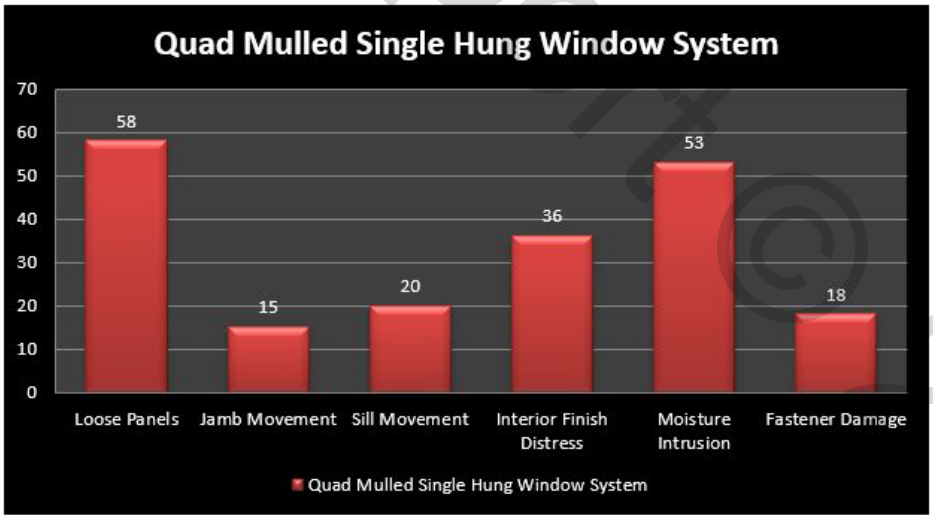


Double Mulled Single Hung Window System	
System Size:	**90" x 60"**
Total Systems Inspected	233
Total Number Of Windows	280
Windows Inspected (%)	83.21%

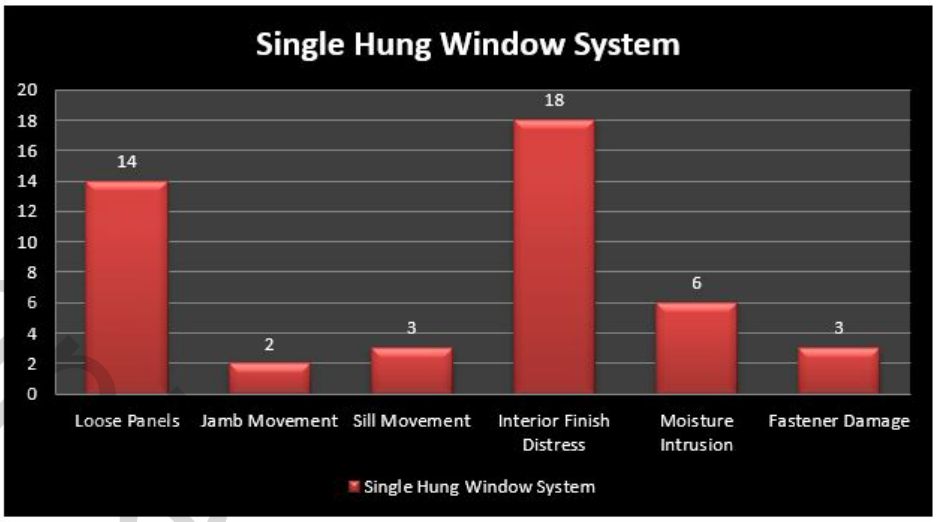




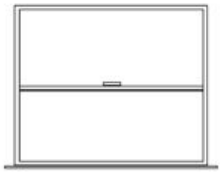
Tri Mulled Single Hung Window System	
System Size:	**110" x 60"**
Total Systems Inspected	20
Total Number Of Windows	20
Windows Inspected (%)	100.00%



Quad Mulled Single Hung Window System	
System Size:	**147" x 60"**
Total Systems Inspected	118
Total Number Of Windows	140
Windows Inspected (%)	84.29%



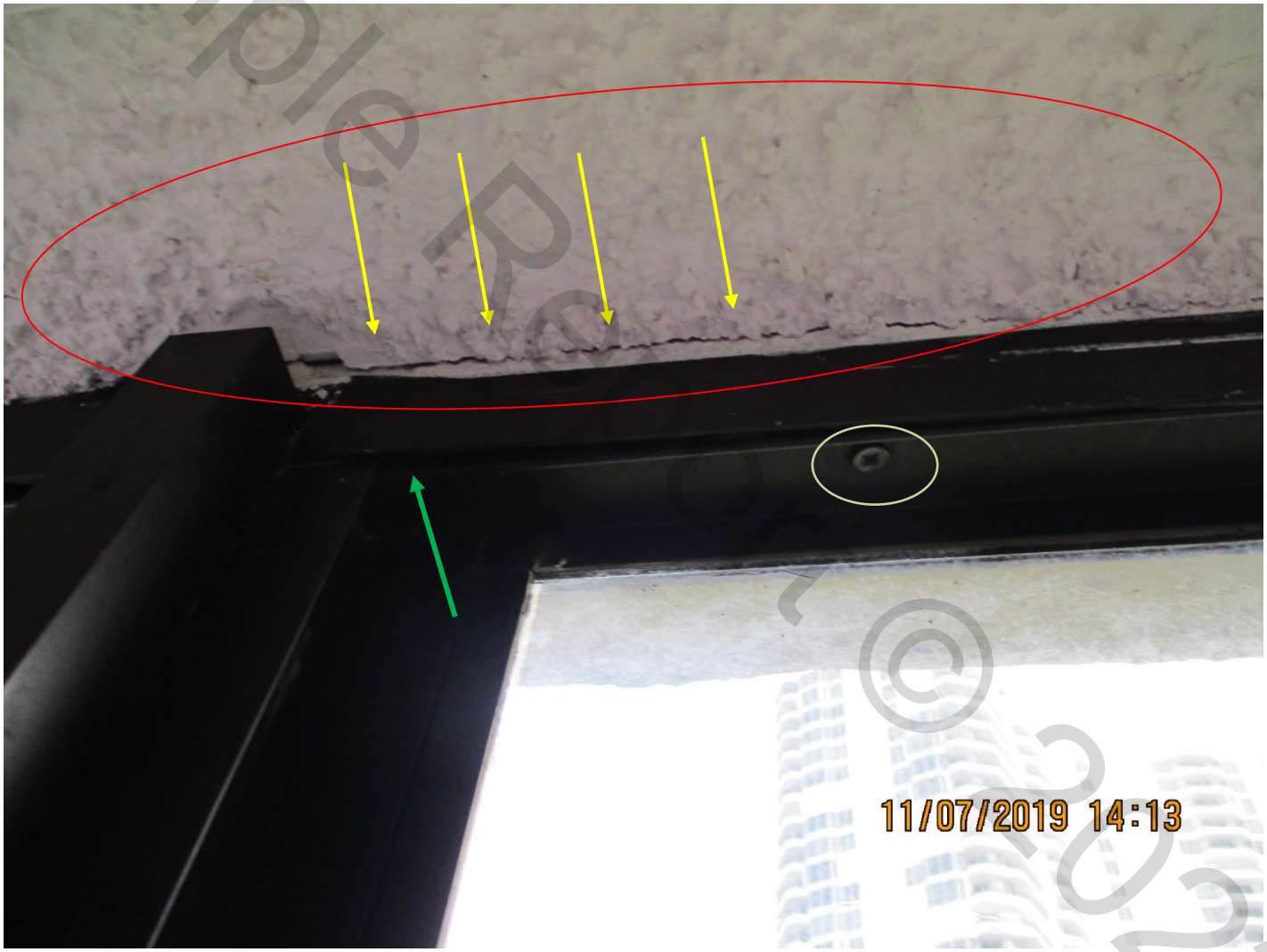
Single Hung Window System	
System Size:	**44" x 60"**
Total Systems Inspected	40
Total Number Of Windows	40
Windows Inspected (%)	100.00%



Damages Identified – The physical damages listed below include but are not limited to the major repeated cascading damage profiles that were witnessed during our investigation of the glazed systems installed on-site at XXXXXXXXXXXXXXXXXX Condominium Association. The 14 pictures listed in our executive summary represent damages that have been identified by TSSA Storm Safe Inc. and exist on every elevation, facing, and exposure in a repeatable manner. The remainder of our field inspection data consists of a systematic unit by unit investigation utilizing specially created field inspection data tick sheets. Corresponding photographs in conjunction with our tick sheets are also included documenting the Windstorm created physical damage profile found on each glazed system inspected by TSSA Storm Safe Inc.

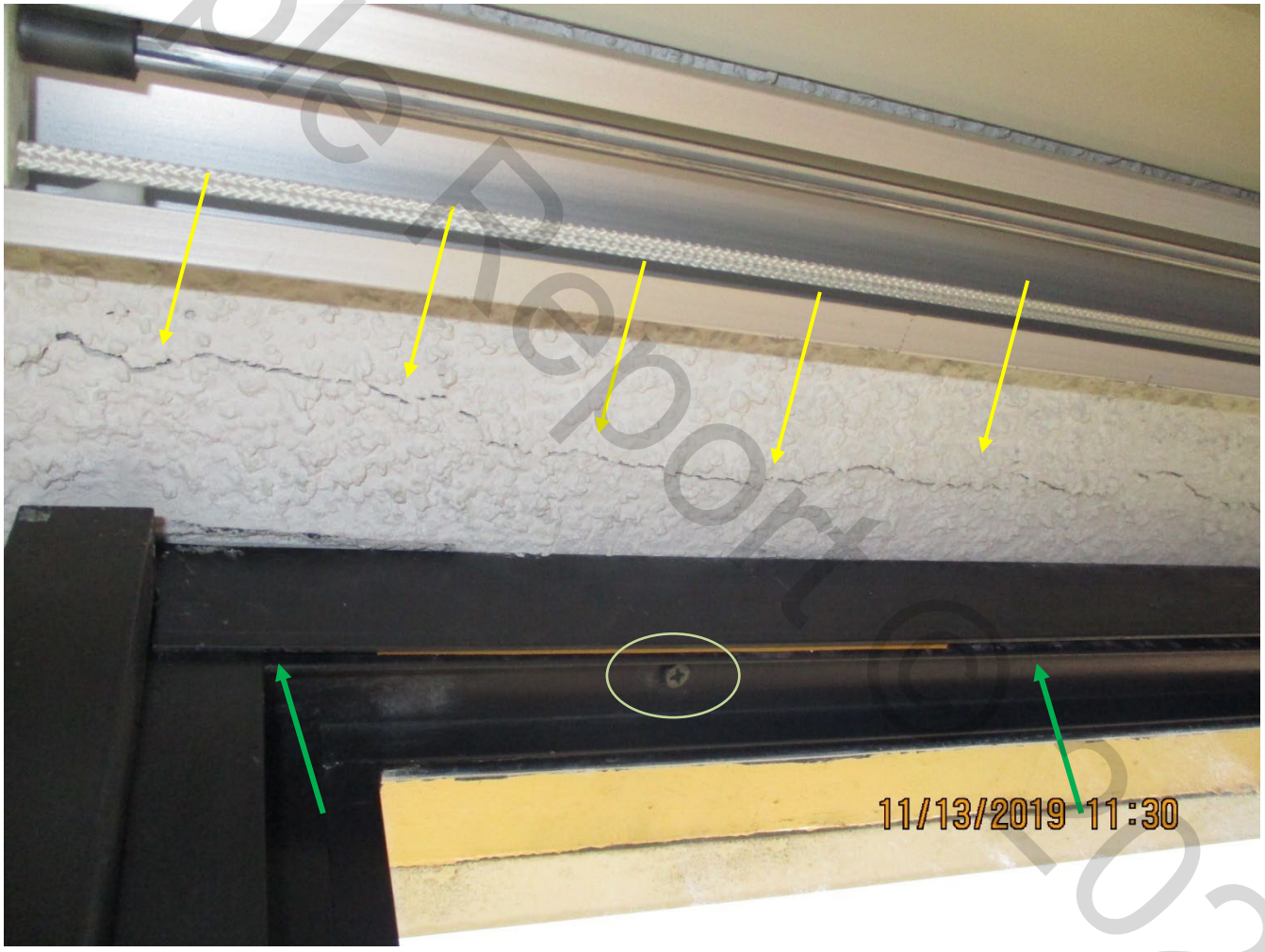
Picture #1

AN INTERIOR CASCADING DAMAGE PROFILE SHOWN AT THE HEADER TO MULL BAR CONNECTION POINT OF A QUAD MULLED SINGLE HUNG WINDOW SYSTEM DISPLAYING EVIDENCE OF HEADER MOVEMENT WITH SUBSEQUENT MOISTURE PENETRATION. ADDITIONAL PHYSICAL DAMAGES ALSO WITNESSED ON THIS SPECIMEN INCLUDES FASTENER DISTRESS, COVER PLATE DAMAGE, AND INTERIOR FINISH DISTRESS. – BLDG A – UNIT A-3C – LIVING ROOM



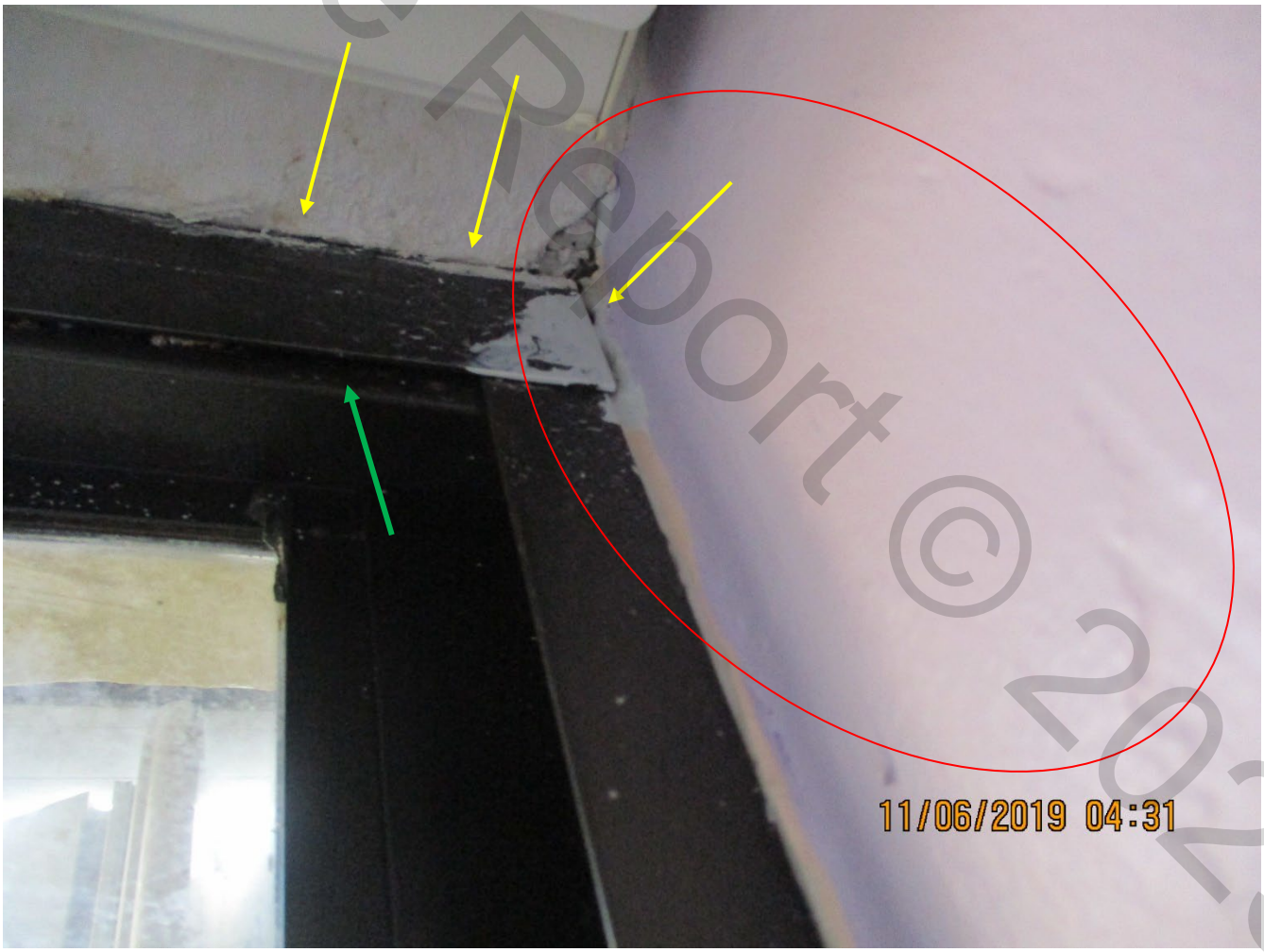
Picture #2

AN INTERIOR CASCADING DAMAGE PROFILE SHOWN AT THE HEADER TO MULL BAR CONNECTION POINT OF A QUAD MULLED SINGLE HUNG WINDOW SYSTEM DISPLAYING EVIDENCE OF HEADER MOVEMENT WITH SUBSEQUENT INTERIOR FINISH DISTRESS. ADDITIONAL PHYSICAL DAMAGES ALSO WITNESSED ON THIS SPECIMEN INCLUDES MOISTURE PENETRATION, COVER PLATE DAMAGE, AND FASTENER DISTRESS. – BLDG B – UNIT B-4E – LIVING ROOM



Picture #3

AN INTERIOR CASCADING DAMAGE PROFILE SHOWN AT THE HEADER TO RIGHT JAMB CONNECTION POINT OF A DOUBLE MULLED SINGLE HUNG WINDOW SYSTEM DISPLAYING EVIDENCE OF HEADER MOVEMENT WITH SUBSEQUENT INTERIOR FINISH DISTRESS. ADDITIONAL PHYSICAL DAMAGES ALSO WITNESSED ON THIS SPECIMEN INCLUDES COVER PLATE DAMAGE AND MOISTURE PENETRATION. – BLDG A – UNIT A-4Q – 2ND BEDROOM

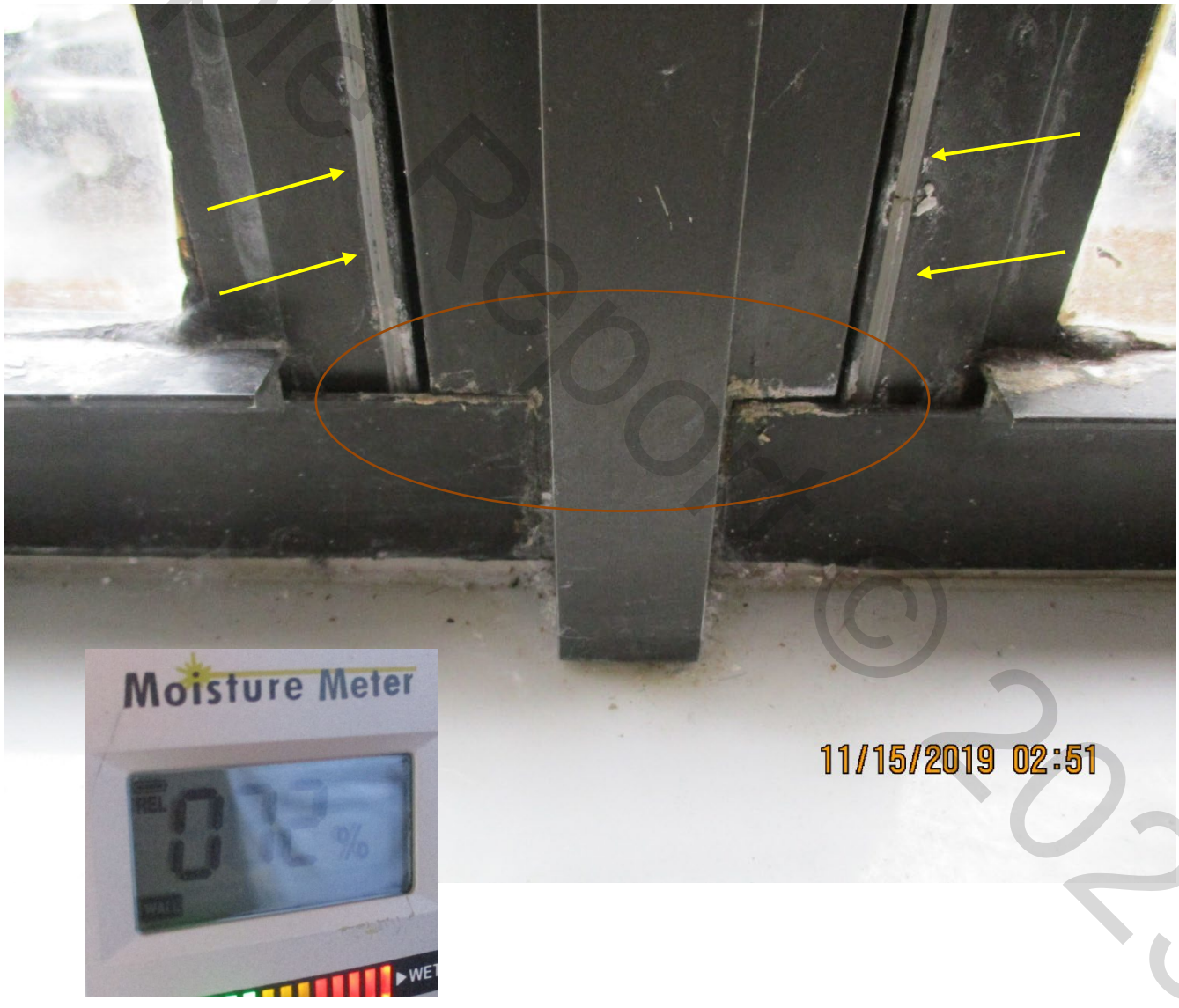


Picture #4

AN INTERIOR CASCADING DAMAGE PROFILE WITNESSED AT THE LEFT JAMB TO SILL CONNECTION POINT OF A QUAD MULLED SINGLE HUNG WINDOW SYSTEM DISPLAYING EVIDENCE OF FRAME SEPARATION WITH SUBSEQUENT INTERIOR FINISH DISTRESS. ADDITIONAL PHYSICAL DAMAGES ALSO WITNESSED ON THIS SPECIMEN INCLUDES MOISTURE PENETRATION AND SILL SEPARATION. – BLDG B – UNIT B-2D – LIVING ROOM (NOTE - PICTURES # 4, 5 AND 6 ARE A PHOTO SERIES FROM THE SAME SPECIMEN)

Picture #5

AN INTERIOR CASCADING DAMAGE PROFILE WITNESSED AT THE JAMB TO MULL BAR CONNECTION POINT OF A QUAD MULLED SINGLE HUNG WINDOW SYSTEM DISPLAYING EVIDENCE OF FRAME SEPARATION, LOOSE PANELS, AND MOISTURE DAMAGE. – BLDG B – UNIT B-2D – LIVING ROOM (NOTE - PICTURES # 4, 5 AND 6 ARE A PHOTO SERIES FROM THE SAME SPECIMEN)



Picture #6

AN INTERIOR CASCADING DAMAGE PROFILE WITNESSED AT THE HEADER TO MULL BAR CONNECTION POINT OF A QUAD MULLED SINGLE HUNG WINDOW SYSTEM DISPLAYING EVIDENCE OF HEADER MOVEMENT WITH SUBSEQUENT FRAME SEPARATION. ADDITIONAL PHYSICAL DAMAGES ALSO WITNESSED ON THIS SPECIMEN INCLUDES MOISTURE PENETRATION, COVER PLATE DAMAGE, AND INTERIOR FINISH DISTRESS. – BLDG B – UNIT B-2D – LIVING ROOM (NOTE - PICTURES # 4, 5 AND 6 ARE A PHOTO SERIES FROM THE SAME SPECIMEN)

Picture #7

AN INTERIOR CASCADING DAMAGE PROFILE WITNESSED AT THE HEADER FRAME MEMBER OF A DOUBLE MULLED SINGLE HUNG WINDOW SYSTEM DISPLAYING EVIDENCE OF COVER PLATE DAMAGE, MOISTURE PENETRATION AND VISUAL SIGNS OF DEGLAZING. – BLDG A – UNIT A-3M – DINING ROOM (NOTE- THE DEPTH GAUGE IN THIS PHOTOGRAPH IS ONLY BEING USED TO DEMONSTRATE THE AMOUNT OF DEGLAZING THE SYSTEM SUFFERED.)

Picture #8

AN INTERIOR CASCADING DAMAGE PROFILE SHOWN AT THE RIGHT JAMB TO SILL CONNECTION POINT OF A QUAD MULLED SINGLE HUNG WINDOW SYSTEM DISPLAYING EVIDENCE OF SYSTEM MOVEMENT WITH SUBSEQUENT INTERIOR FINISH DISTRESS. ADDITIONAL PHYSICAL DAMAGES ALSO WITNESSED ON THIS SPECIMEN INCLUDES SILL SEPARATION AND MOISTURE PENETRATION. – BLDG B – UNIT B-1C – LIVING ROOM

Picture #9

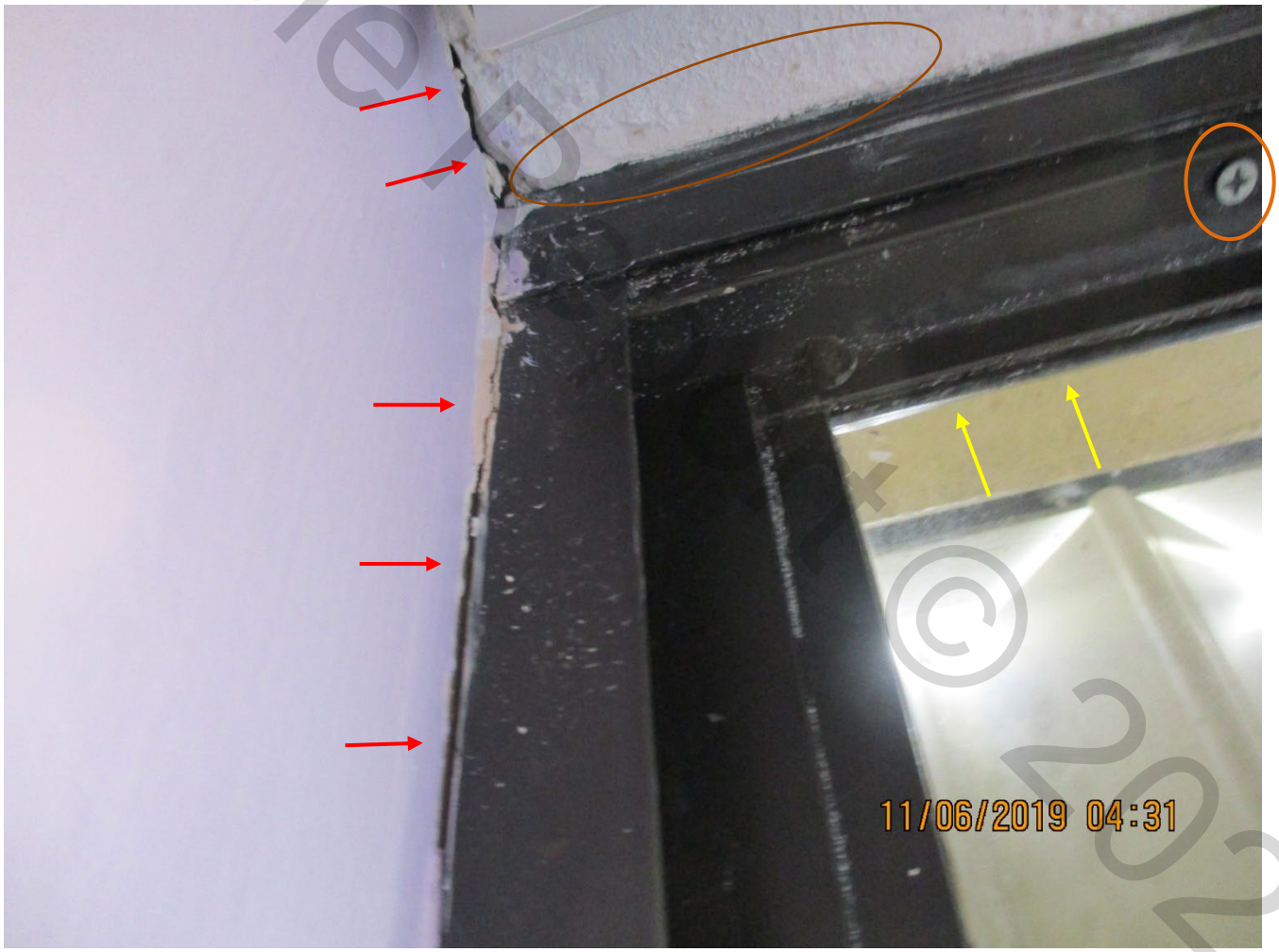
AN INTERIOR CASCADING DAMAGE PROFILE SHOWN AT THE HEADER FRAME MEMBER OF A DOUBLE MULLED SINGLE HUNG WINDOW SYSTEM DISPLAYING EVIDENCE OF HEADER MOVEMENT WITH SUBSEQUENT VISUAL SIGNS OF DEGLAZING. ADDITIONAL PHYSICAL DAMAGES ALSO WITNESSED ON THIS SPECIMEN INCLUDES MOISTURE PENETRATION AND COVER PLATE DAMAGE. – BLDG A – UNIT A-5H – DINING ROOM (NOTE- THE DEPTH GAUGE IN THIS PHOTOGRAPH IS ONLY BEING USED TO DEMONSTRATE THE AMOUNT OF DEGLAZING THE SYSTEM SUFFERED.)

Picture #10

AN INTERIOR CASCADING DAMAGE PROFILE SHOWN AT THE RIGHT JAMB TO SILL CONNECTION POINT OF A SINGLE HUNG WINDOW SYSTEM DISPLAYING EVIDENCE OF FRAME SEPARATION, MOISTURE DAMAGE, AND INTERIOR FINISH DISTRESS. BLDG A – UNIT A-5R – 3RD BEDROOM

Picture #11

AN INTERIOR CASCADING DAMAGE PROFILE SHOWN AT THE HEADER TO LEFT JAMB CONNECTION POINT OF A DOUBLE MULLED SINGLE HUNG WINDOW SYSTEM DISPLAYING EVIDENCE OF SYSTEM MOVEMENT WITH SUBSEQUENT INTERIOR FINISH DISTRESS. ADDITIONAL PHYSICAL DAMAGES ALSO WITNESSED ON THIS SPECIMEN INCLUDES FASTENER DISTRESS, VISUAL SIGNS OF DEGLAZING AND MOISTURE PENETRATION. BLDG A – UNIT A-4Q – 2ND BEDROOM

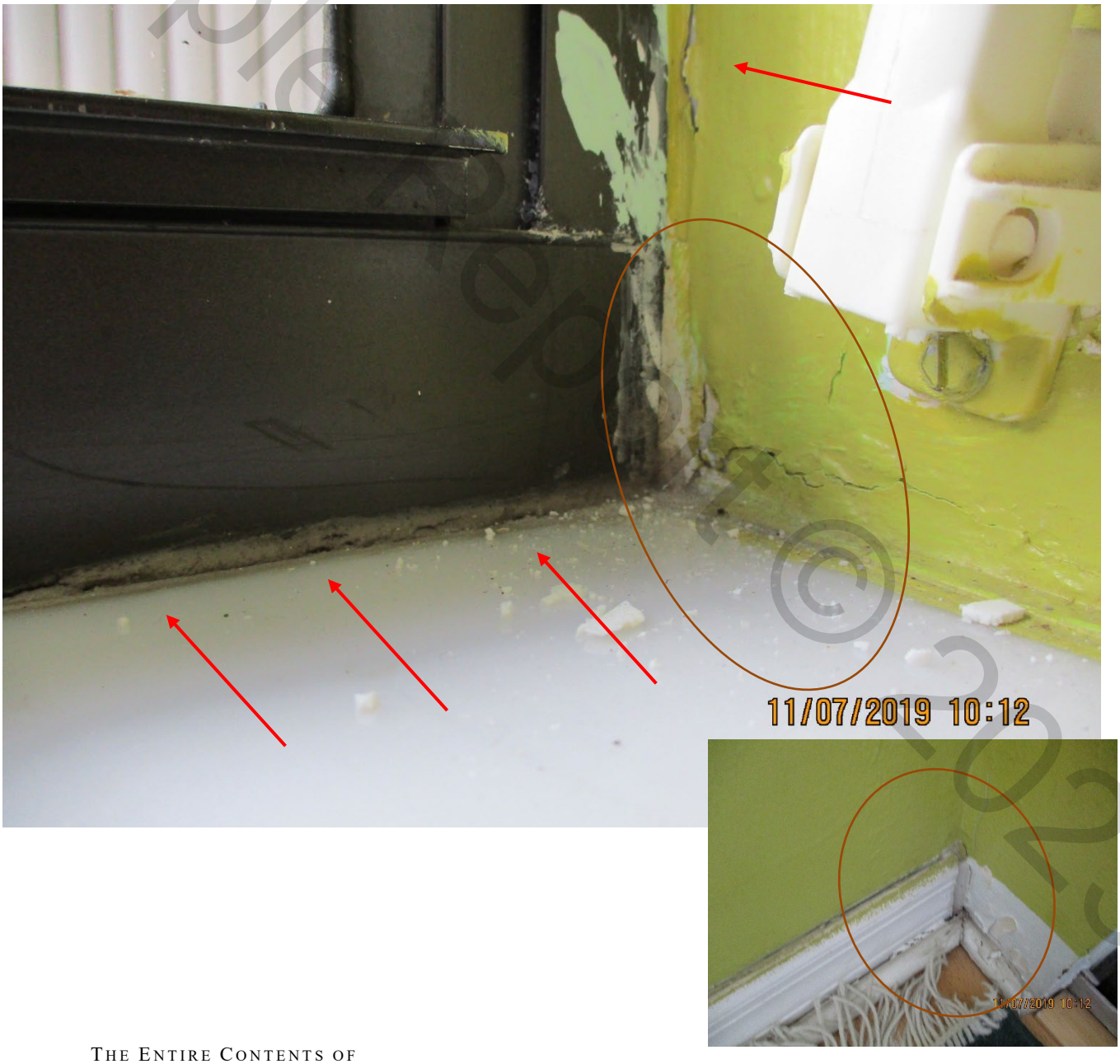


Picture #12

AN INTERIOR PHOTO SHOWN AT THE RIGHT JAMB OF A TWO PANEL SLIDING GLASS DOOR SYSTEM DISPLAYING EVIDENCE OF SYSTEM FRAME MOVEMENT WITH SUBSEQUENT MOISTURE DAMAGE. - BLDG B – UNIT B-2D – LIVING ROOM

Picture #13

AN INTERIOR CASCADING DAMAGE PROFILE SHOWN AT THE RIGHT JAMB TO SILL CONNECTION POINT OF A QUAD MULLED SINGLE HUNG WINDOW SYSTEM DISPLAYING EVIDENCE OF SYSTEM MOVEMENT WITH SUBSEQUENT INTERIOR FINISH DISTRESS. ADDITIONAL PHYSICAL DAMAGES ALSO WITNESSED ON THIS SPECIMEN INCLUDES SILL MOVEMENT AND MOISTURE PENETRATION. - BLDG A – UNIT A-2R – LIVING ROOM



Picture #14

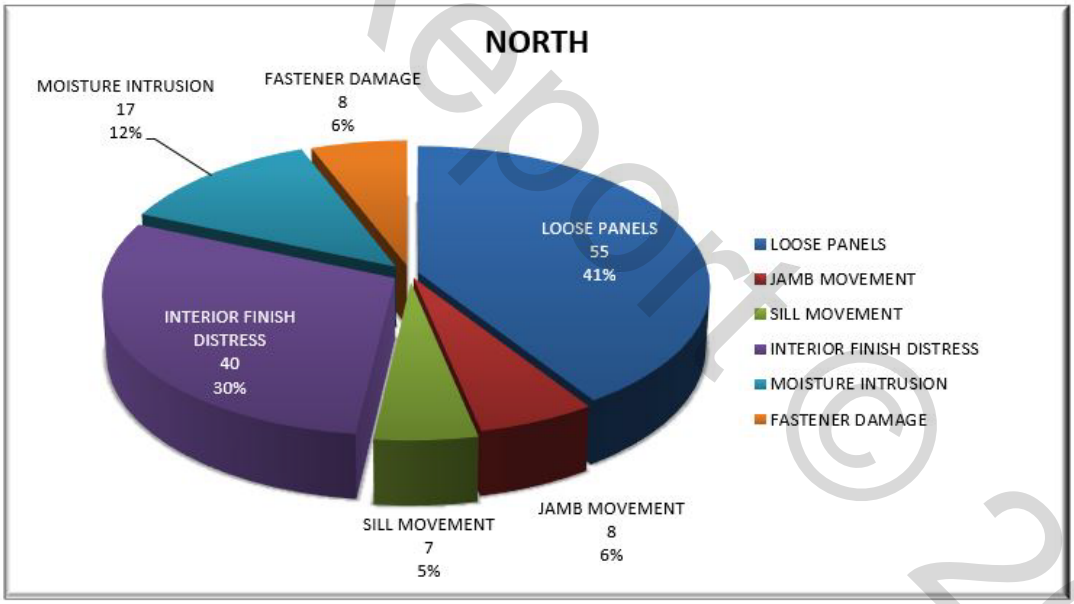
A CASCADING DAMAGE PROFILE SHOWN AT THE HEADER TO RIGHT JAMB CONNECTION POINT OF A QUAD MULLED SINGLE HUNG WINDOW SYSTEM DISPLAYING EVIDENCE OF SYSTEM MOVEMENT WITH SUBSEQUENT INTERIOR FINISH DISTRESS. ADDITIONAL PHYSICAL DAMAGES ALSO WITNESSED ON THIS SPECIMEN INCLUDES 1. MOISTURE PENETRATION AND FASTENER DISTRESS - BLDG A – UNIT A-3C – LIVING ROOM

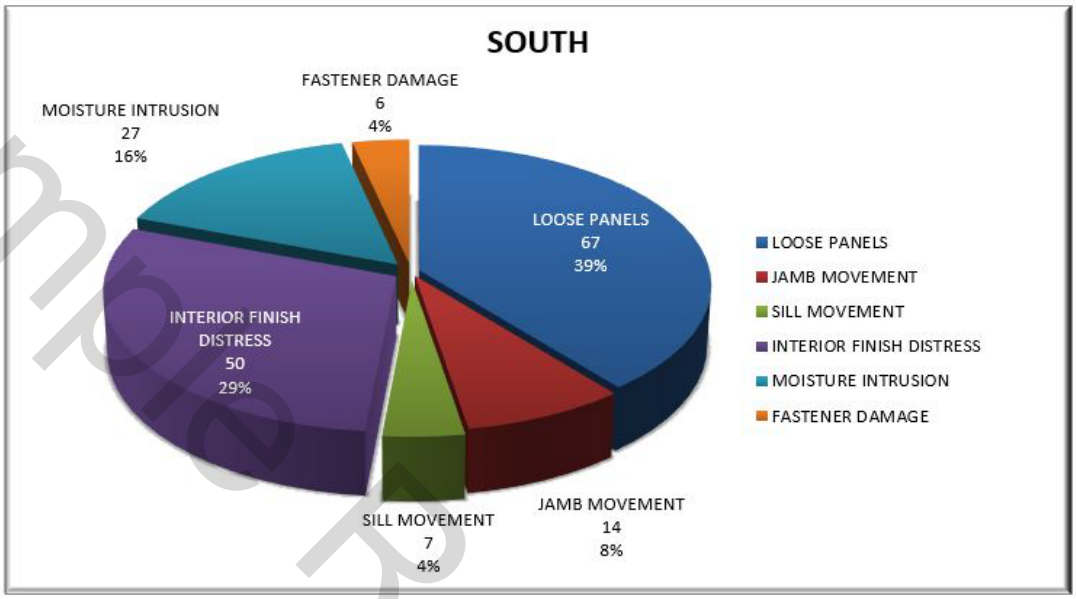
Conclusion and Recommendations – The multiple types of physical damages noted throughout the XXXXXXXXXXXXXXXXXX Condominium Association investigation are indicative of exposure to a prolonged windstorm event like Hurricane Irma, which passed through the area on September 10 – 11th, 2017. The hurricane created wind force, extensive buffeting, and stress has left the structural glazing and envelope of protection in a state which, if not adequately addressed, could potentially expose the multiple buildings located on the campus to catastrophic structural damages in the event of another windstorm. In our professional opinion, the damages identified during our on-site investigation requires the systems installed to be either repaired or replaced. The Sliding Glass Doors and Single Hung Window Systems installed at the XXXXXXXXXXXXXXXXX Condominium Association were manufactured by Mildoor Windows. This manufacturer is now defunct and is no longer producing original window systems or structural replacement parts such are frame member components or extrusions. Aftermarket repair parts such as SGD Rollers, SGD Handles, Single Hung Sash Balances, locks, and weather stripping are available for purchase. These parts, however, will not remediate the structural system damage or diminishment of capacity, which was witnessed during our evaluation of the glazed systems installed at the XXXXXXXXXXXXXXXXXX Condominium Association.

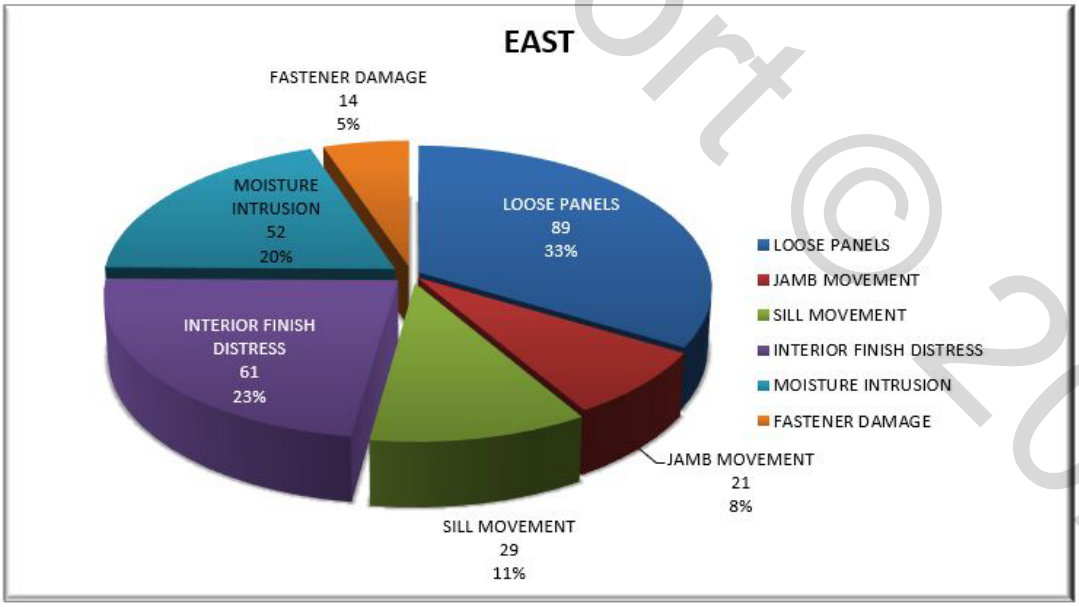
If repair is a viable option, an engineer approved protocol of repair would have to be developed taking into consideration frame removal, internal system evaluation, re-sealing frame corner coping, reinstallation of the frame system to recreate a proper weather-tight exterior primary seal and testing to certify the repairs have been completed and are successful. Replacement of the systems would be necessary if the systems were unable to be adequately repaired as per the engineer approved method or the systems framing components are no longer able to ensure a congruent exterior envelope of protection adequately. Due to this fact, TSSA Storm Safe Inc. concludes that a repair protocol would be difficult and exceedingly costly to perform.

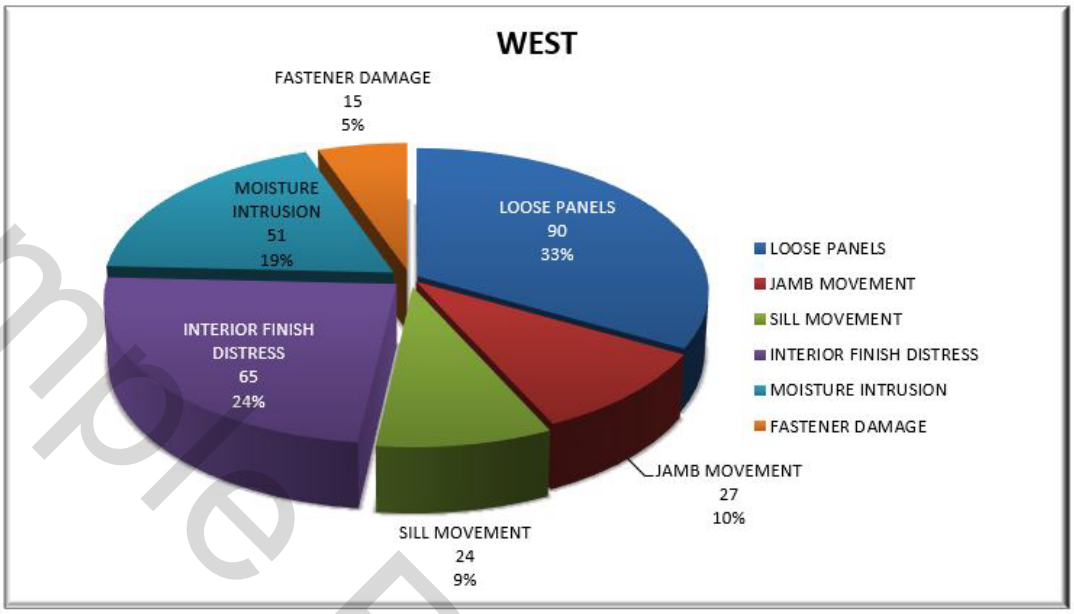
It is TSSA Storm Safe Inc, professional opinion that the glazed systems installed at the XXXXXXXXXXXXXXXXXX Condominium Association need to be replaced. This opinion is based on the fact that our investigation revealed excessive amounts of Primary Seal Damage, System Movement, Assembly system distress, screw spline disruption, and moisture damage.

The following charts represent the number of times the various major structural and system damages occurred in relation to compass heading and directional facing. The findings presented in this chart are populated from pure inspection data, which was extrapolated by querying our server Database. The statistical analysis is performed after inputting the data collected onsite by following our inspection protocol.









These are all structural issues that have to do with the internal assembly system of these windows and sliding glass door components. It is our opinion that a temporary sealant repair protocol would not sufficiently remediate these severe issues. The internal assembly systems within the framing components would remain in a compromised state under the sealant layer, and the systems would need to be replaced.

The Glazed Systems inspected throughout XXXXXXXXXXXXXXXXXX Condominium Association display a consistent and repetitive damage profile throughout the entire campus. The installed Glazed Systems exhibit a specific and recognizable damage profile when acted upon by intense windstorm created stress and pressure. The following list of consistent and wide-spread physical damage was found throughout our inspection and appeared continuously throughout the campus on all directional facings, elevations, and exposures:

- System Movement
- Assembly System Distress
- Screw Spline Disruption
- Frame Separation
- Moisture Infiltration and Damage
- Deglazing
- Interior Finish / Drywall Distress
- Exterior Finish/Stucco Distress
- Signs of Temporary Emergency Repairs

Limitations – The contents of this report are intended for the use of The XXXXXXXXXXXXXXXXXX Condominium Association and its representatives or clients. TSSA Storm Safe Inc. assumes no liability for the misuse of this information by others. The professional opinions and recommendations included within this report are based on the results and interpretations of the non-invasive testing and the data collection activities performed at the site. TSSA Storm Safe DAC Inc. reserves the right to update this report should additional information become available.

MOISTURE METER TECHNOLOGY – The Ryobi Model # E49MM01 Moisture Meter Gauge and General 4-in-1 Pin/Pad RH Moisture Meter Model # MMH800 were utilized for the sole purpose of the TSSA Storm Safe Inc. inspector to document the presence of moisture in and around the Glazed System Specimen to validate the remarks on Moisture Intrusion, Damage, and Penetration. No Microbial, Bacterial, Environmental, and or other scientific data was investigated, interpreted, or otherwise implied by the testing, data gathering, and investigation completed with the Ryobi Model # E49MM01 Moisture Gauge or General 4-in-1 Pin/Pad RH Moisture Meter Model # MMH800.

Closing Statement - The opinions authored in this report are a direct result of Ivan Browner (TSSA's President) and TSSA Storm Safe DAC Inc.'s background, training, and combined experience, which spans over 70 years in all facets of the glazing industry. TSSA Storm Safe Inc. has inspected over 500,000 windows, sliding glass doors, curtain walls, storefront systems, and architectural products in multiple states.

As the author of this findings report, the basis for the opinions expressed herein is to a reasonable degree of professional certainty. The TSSA Storm Safe DAC Inc., glazed damage assessment investigation of the XXXXXXXXXXXXXXXXXX Condominium Association, was performed by the TSSA Storm Safe Inc. Field Inspection Team under my direct supervision.

Attached to this Glazing Inspection Report are the following exhibits:

Exhibit A – Installed System Nomenclature
Exhibit B – TSSA Storm Safe Inc. Curriculum Vitae
Exhibit C – TSSA Storm Safe Inc. Expert Testimony/Witness Fee Schedule
Exhibit D - Percentage of Damage Spreadsheet

TSSA Storm Safe Inc. appreciates this opportunity to have assisted The XXXXXXXXXXXXXXXXXX Condominium Association with this investigation. Please call if you have any questions concerning this information.

Sincerely,

Ivan Browner
President
TSSA Storm Safe DAC Inc.