HUNTINGTON LAKES SECTION 4
BUILDING 32

BUILDINGS STRUCTURAL MILESTONE
INSPECTION REPORT

FEBRUARY 2024

Prepared by:

Austin Brennan, P.E
FL Reg. No. 96619
Hellas Engineering, Inc., CA# 30562

AUSTIN BRENNAN
LICENSE
No. 96619
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

Digitally signed by Austin Brennan
Date: 2024.02.15 07:05:31-05'00'

This document was digitally signed and sealed by Austin Brennan, PE on 2/15/2024. Printed copies of this document are not considered signed and sealed. Signatures must be verified on electronic copies.

2475 Mercer Ave | Ste 106 | West Palm Beach, FL 33401

(561) 469-1907 | info@hellaseng.com | www.hellasengineering.com

February 15, 2024

Mr. Doug Wise, Building Official
Palm Beach County Building Division
2300 N. Jog Road
West Palm Beach, FL 33411

Re: Milestone Inspections
Huntington Lakes Section Four
7340 Amberly Lane – Building 32
Delray Beach, Florida 33446

Folio No. 00-42-46-16-15-032

Dear Mr. Wise:

Phase One Milestone inspections were performed for structural safety at the above referenced condominium building. The inspections included the building envelope, unit interiors and balconies, catwalks, electrical rooms, staircases, roof, etc. Exposed or accessible columns, beams, slabs, and walls were examined for possible damage as well as acoustically tested where accessible, but exhaustive or destructive testing was not performed. Inspections also included windows and doors which were inspected for fit, form, and function. The inspections were performed between September 2023 and January 2024. All eight residential condominium buildings at Huntington Lakes Section four were inspected for structural safety. The structural findings and recommendations specific to Building 32 located at 7340 Amberly Lane are provided herein.

Building No. 32 was built in 1987 within the Villages of Oriole in suburban Unincorporated Palm Beach County. The building is a four (4) story structure with a total of forty (40) units. The building has ten (10) unit stacks with similar interior layouts and square footage. All units contain two bedrooms and two bathrooms. The building is rectangular with catwalks at every level in the front, and balconies in the rear. It is constructed of post tension concrete floor slabs, concrete masonry walls, and reinforced concrete framing per observation and Palm Beach County Property Appraiser records. No original construction plans could be referenced for building construction details. Property Appraiser records also indicate that the roofs are constructed of prestressed concrete, however that could not be visually confirmed. Property Appraiser records did not identify the roofing system. The roof contains a foam finish and various patches. The roof is primarily flat, with a parapet wall leading to a sloped shingle roof above the catwalks, elevator tower, and stair towers the front of the building. There are two (2) enclosed stair towers that extend from the catwalks, as well as an elevator tower at the center. The majority of units contain a single balcony with varying types of railing and enclosure systems.

Visual examinations of the building were conducted at nearly all unit interiors and balconies/patios, exterior walls and catwalks, electrical rooms, staircases, etc. Exposed or

2475 Mercer Ave | Ste 106 | West Palm Beach, FL 33401

(561) 469-1907 | info@hellaseng.com | www.hellasengineering.com

accessible columns, beams, slabs, and walls were examined for possible damage as well as acoustically tested where accessible.

During the phase one inspections, substantial structural deterioration was identified at many columns and slab edges at the catwalks. Structural deterioration was identified at the columns at the balconies. Some structural deterioration was identified in isolated areas at the slabs of the balconies. At this time, phase two milestone inspections are required to determine if the subsequent repair project can be done under normal occupancy and to determine the extent of deterioration, which will be shown in the detailed repair location drawings. The phase two milestone inspections can be done under normal occupancy.

The findings of our inspections are as follows:

Building Envelope, Catwalks, Stairs, and Roofs

1. The building envelope appears to consist of stucco'd concrete masonry block, post tension concrete floor slabs, and reinforced concrete framing.
2. The building has simply supported catwalk slabs with columns at the edges of the catwalks.
3. The building contains aluminum picket railings.
4. The railing system was generally in poor condition. The majority of the picket railings were loose and had unfilled rail post pocket holes that were holding water. Significant corrosion and missing bolts were observed at many locations at the surface mounted railing posts. Multiple locations of corroded railing attachment brackets were observed. Due to the post pocket issues, many of the picket railings on the catwalks are loose and could pose a threat to unit owner safety. The picket railings also do not appear to meet current codes due to their picket spacing, and it is unknown if the system meets appropriate force requirements even if it were properly secured. All railing systems appear to be original to the buildings.
5. The roof is primarily flat, with a parapet wall leading to a sloped shingle roof above the catwalks, elevator tower, and stair towers the front of the building. All sloped roof areas contain asphalt shingles. The building contains stair towers that go up to the roof level. All access points are located at the front right corner of the roof.
6. During the investigation it could not be confirmed that the actual roof structure was made up of prestressed concrete as stated by the property appraiser, however, all flat roof areas appeared to be concrete slabs.
7. The Property Appraiser did not identify the roofing system, however all roof areas and portions of parapet walls appear to be covered in a spray foam. This foam has delaminated in many areas and the roof appears to have extensive patch repairs. Large and small areas of ponding water and breaching were observed throughout the flat roof areas. The roof appears to be reaching the end of its useful live.
8. The catwalks were coated in a spray deck finish. It is unknown if there is a waterproofing system beneath the finishes. The ground floor contains individual sidewalks to each front door. The ground floor walkway is tiled.
9. Delaminated topping was found at several areas around railing post pockets on the catwalk.
10. Some areas of edge spalling was observed along the catwalks.
11. Some stress cracking was observed on the catwalks running perpendicular to the walls. Some of these cracks might have only been in the topping material.

2475 Mercer Ave | Ste 106 | West Palm Beach, FL 33401

(561) 469-1907 | info@hellaseng.com | www.hellasengineering.com

12. Many areas of stucco delamination and stucco cracking were observed on the masonry walls but were often found on the slab edges. Rust spots were also observed along some of the slab edges.
13. Many areas of column spalling were observed.
14. Paint bubbling and delamination was observed occasionally.
15. In general, the stair tower structures, and stair systems were in fair condition.
16. Abandoned fasteners were found throughout the building envelope as well as unsealed holes where fasteners were once installed.
17. Some areas of the vertical expansion joint were failing at the front and back of the building. Cover plates were installed at the expansion joints on the catwalks, inhibiting inspection of the horizontal expansion joints.
18. The trash room door was metal and corroded at the bottom of the steel door frame. Some door panels and louvered openings were corroded as well.

Balconies

1. All units contain recessed, simply supported balconies.
2. The recessed balconies contained a variety of enclosures. Almost all upper floors contained a screen enclosure with an incorporated railing system. Some unit owners have removed the screen enclosures and installed custom window enclosures. The existing railings do not appear to meet current code requirements. Many first floor balconies did not contain screen enclosures but had sliding window and swing door enclosures at the edge.
3. All existing screen enclosures or railings appeared to be original to the building and in fair condition, however some enclosure fasteners were occasionally missing.
4. All of the recessed balconies contained a tile finish floor. Some tiles were hollow sounding when tapped. Some balconies contained 100% hollow tile and/or uplifted tiles.
5. Many of the balconies were used as interior spaces and contained substantial amounts of furniture or stored personal items that inhibited a thorough investigation of the balcony structure.
6. Some column spalling was observed on the balconies.
7. Minimal structural damage was observed on the balconies with only a few areas of spalling observed on the slabs. Some edge spalling was visible from the exterior of the balconies but was not detected on the inside.
8. Areas of stucco cracking and delamination were observed on masonry walls and above doors.
9. Some isolated rust spots or abandoned fasteners were also found within the balconies, often from old decorations or plant hangers.
10. Corroded metal corner bead stucco accessories were observed at the walls adjacent to the sliding glass doors.
11. Sunshades were installed on the interior sides of the railings on most of the balconies. Often there was a screen enclosure, roll-up sunshade system, and a horizontal slider, all containing their own rails or tracks on the floors. Evidence of trapped water was often found in these areas which appeared to be causing corrosion of fasteners.
12. Several tile finishes were installed higher than the existing sliding glass door tracks, potentially causing water to flow into and become trapped in the sliding door tracks.

Windows and Doors

2475 Mercer Ave | Ste 106 | West Palm Beach, FL 33401

(561) 469-1907 | info@hellaseng.com | www.hellasengineering.com

1. All end units contain one front window, a front swing door, and three (3) side window openings. Intermediate units contain two (2) front windows and a front swing door. There is a single window opening in the rear of each unit.
2. Each unit contains two (2) sliding glass door entry points to the balconies. The original design had one sliding glass door in the living room and one in the master bedroom. A few unit owners have removed the sliding glass doors and made the balconies interior spaces.
3. The front windows at all units are horizontal sliding windows.
4. The rear windows at all units are awning windows.
5. The side windows varied between single hung windows, horizontal sliders, and awning windows, depending on the unit.
6. There are bedroom and bathroom window openings that were approximately 19 inches above the finished floor. These openings all appeared to be originally designed for awning windows, which allows for the window design to restrict the ability of a resident to easily fall through an open window.
7. All awning windows appeared to be original to the buildings and some were in poor condition.
8. Some units contain accordion shutters. A unit had accordion shutters at all window openings.
9. Occasionally accordion shutters were installed at the front which could have been for security reasons more than hurricane protection. No accordion shutters were tested for function and only obvious visible damage was noted.
10. Roll-up aluminum sunshades were commonly installed at balcony edges instead of hurricane shutters. Often unit owners believe these are hurricane rated shutters. The functionality of the sunshades was not tested either.
11. In addition to sunshades, many balcony edges contained horizontal sliding windows, either glass or plexiglass, or sliding glass doors. Some sliders were floor to ceiling, while others contained an opaque panel at the bottom of the enclosure.
12. Awning window enclosure walls were observed at the edges of some balconies as well.
13. In general, the windows were in varying conditions. Many windows were original to the building, but some unit owners had replaced their windows with new impact windows. Some the sliding windows could not be tested for function due to installed thumb locks that restricted their opening. There were also many windows and doors that could not be adequately inspected because they were obstructed by furniture or stored items on the balconies.
14. Some sliding glass doors were missing fasteners and functioned poorly.
15. Some units contained windows or doors that were missing fasteners or contained broken hardware.
16. In terms of egress, it appeared that the bedrooms could be exited in some way in the event of a potential fire, whether through a window or the sliding door leading to the balcony. However, thumb locks on the front or bedroom windows could prevent someone or slow someone down from exiting through the sliding windows at the front bedrooms.

<u>Our recommendations are as follows:</u>

1. Concrete spalling should be repaired according to engineering specifications at the balconies, building envelope, roof, and catwalk. Any shutters, sunshades, railings, windows, or doors impeding the proper repair of the concrete will need to be removed. When removing doors and windows, temporary weather walls will need to be constructed to

2475 Mercer Ave | Ste 106 | West Palm Beach, FL 33401

(561) 469-1907 | info@hellaseng.com | www.hellasengineering.com

protect the interior of the unit. Proof of installation permits will need to be provided by unit owners for the reinstallation of existing enclosures. Due to their age, screen enclosure reinstallation may not be possible, and railing replacement might be required.

2. All rust spots should be chipped out, the steel cut back, and concrete replaced in that location. If rust spots occurred due to rusted PT anchors, the anchors should be excavated, cleaned, and coated with corrosion inhibitor. Anchor replacement and cable splicing should be performed as needed.
3. Where hollow sounding, cracked, or tenting tile is found on balconies or catwalks, the tile should be removed in that location, at minimum, in order to fully examine the concrete slab and determine the extent of the concrete damage. It is recommended that the tile, carpet, and astroturf be removed from all balconies, and the balconies be waterproofed after repairs have been completed. At this time, the balconies can be properly sloped to eliminate areas of ponding water.
4. Spray deck coating should be reapplied to match the existing finish where it is compromised due to slab repairs or delamination. Preferably, all catwalks should be ground down and waterproofed to provide protection to the structural slabs, but existing coating repairs should be performed at minimum. Low spots in the catwalk slabs where water ponds should also be corrected to promote drainage.
5. Cover plates should be removed where installed over the catwalk expansion joints and the joints should be inspected. Any deteriorated or leaking expansion joint material should be removed, and new backer rod and sealant should be installed. Expansion joints should also be repaired on the building envelope at the back of the buildings. Spalled and cracked concrete should also be repaired around the expansion joints if it is discovered after covers and old materials have been removed.
6. Stress cracks in catwalk slabs and balcony slabs should be routed and sealed with structural epoxy through gravity feed applications and overhead injections.
7. Rail post pocket grout should be chipped out and replaced where it is damaged at the catwalks. The picket railing should be repaired and resecured at a minimum if full replacement is not required. Railing repairs might require mechanically fastened brackets or post sleeves to be installed where sections have detached or corroded. Dangerously loose railings should be temporarily secured if repairs are not immediately performed.
8. The Association should plan to replace the existing balcony enclosures and picket railings with new code-compliant railings.
9. Delaminated stucco should be removed from any concrete or masonry surfaces. New stucco should be applied to match existing. Cracks in the stucco on vertical and horizontal surfaces should be sealed. If cracks exceed 1/16” in width, the cracks should be routed in a “V” shape before sealing. Cracking between poured concrete elements and concrete blocks might require mesh reinforcement to prevent future cracking.
10. Abandoned fasteners or embedded elements should be removed and the fastener holes should be sealed.
11. Any rusted fasteners, brackets, junction boxes, conduit, or other elements throughout the buildings should be replaced with new corrosion resistant components of like size. The fastener penetrations should be sealed with caulking prior to fastener installation. Permits and engineering might be required to replace some elements.
12. Exterior wall coatings should continue to be maintained and painting projects should be performed every 8 to 10 years. The project should include the preparation, priming and painting of all slab edges, ceiling areas, and all vertical stucco surfaces. Additionally, all

2475 Mercer Ave | Ste 106 | West Palm Beach, FL 33401

(561) 469-1907 | info@hellaseng.com | www.hellasengineering.com

exterior window and door perimeter seals should be re-caulked or removed and replaced if deteriorated. Any exterior metal doors should also be painted to prolong their aesthetic life expectancy.

13. All flat roof systems should be fully replaced. The structural slabs should be inspected prior to the new roof systems being stalled. Stucco repairs will be required on parapet walls. A/C unit stands might require replacement to meet current roofing codes.
14. Egress windows and doors in bedrooms must be operational and unobstructed at minimum, and temporary screw locks at the egress windows should be removed. If needed, the doors and windows should be refurbished or replaced with new code compliant components. Fasteners should be installed where missing at door and window frames. Any window or door nearing the end of its useful life should also be replaced.

If you have any questions or require additional information, please let me know.

Respectfully submitted,
Hellas Engineering, Inc.

Austin Brennan, P.E
FL Reg. No. 96619

2475 Mercer Ave | Ste 106 | West Palm Beach, FL 33401

(561) 469-1907 | info@hellaseng.com | www.hellasengineering.com

Investigation Photographs

Figure 1: Typical front elevation of 4-Story building (Building 36, All Buildings similar)

Figure 2: Typical side and rear elevation of 4-Story building (Building 35, All Buildings similar)

2475 Mercer Ave | Ste 106 | West Palm Beach, FL 33401

(561) 469-1907 | info@hellaseng.com | www.hellasengineering.com

Figure 3: Typical ground floor front entries of all buildings

Figure 4: Typical cantilever catwalks on a 4-story building with picket railings (Similar to Buildings 29 through 32)

2475 Mercer Ave | Ste 106 | West Palm Beach, FL 33401

(561) 469-1907 | info@hellaseng.com | www.hellasengineering.com

Figure 5: Typical simply supported catwalks on a 4-story building with concrete columns and picket railings (Similar to Buildings 33 through 36)

Figure 6: Typical stair system

2475 Mercer Ave | Ste 106 | West Palm Beach, FL 33401

(561) 469-1907 | info@hellaseng.com | www.hellasengineering.com

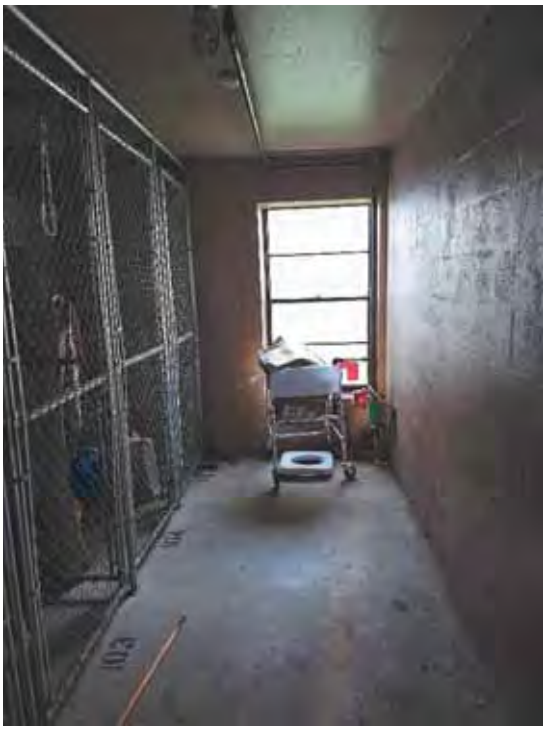

Figure 7: Typical unit-owner storage rooms at the ends of the catwalks

Figure 8: Typical elevator foyer at the middles of the buildings

2475 Mercer Ave | Ste 106 | West Palm Beach, FL 33401

(561) 469-1907 | info@hellaseng.com | www.hellasengineering.com

Figure 9: Typical trash room interior

Figure 10: Typical roof area with parapet walls, roof patching, and ponding water

2475 Mercer Ave | Ste 106 | West Palm Beach, FL 33401

(561) 469-1907 | info@hellaseng.com | www.hellasengineering.com

Figure 11: Typical roof area with parapet wall to sloped shingle roof, roof patching, and ponding water

Figure 12: Damaged roofing membrane

2475 Mercer Ave | Ste 106 | West Palm Beach, FL 33401

(561) 469-1907 | info@hellaseng.com | www.hellasengineering.com

Figure 13: Damaged roofing membrane

Figure 14: Corroded ties and fasteners at roof air conditioning units

2475 Mercer Ave | Ste 106 | West Palm Beach, FL 33401

(561) 469-1907 | info@hellaseng.com | www.hellasengineering.com

Figure 15: Breach in sealant at roof penetration

Figure 16: Corroded AC stand

2475 Mercer Ave | Ste 106 | West Palm Beach, FL 33401

(561) 469-1907 | info@hellaseng.com | www.hellasengineering.com

Figure 17: Missing shingle and exposed fasteners at sloped shingle roof

Figure 18: Typical interior layout of a unit containing a recessed balcony

2475 Mercer Ave | Ste 106 | West Palm Beach, FL 33401

(561) 469-1907 | info@hellaseng.com | www.hellasengineering.com

Figure 19: Typical recessed balcony interior; this balcony also contains horizontal sliders, sunshades, and a screen enclosure at the edge

Figure 20: Typical sliding glass doors leading to a recessed balcony; this balcony also contains accordion shutters and a screen enclosure at the edge

2475 Mercer Ave | Ste 106 | West Palm Beach, FL 33401

(561) 469-1907 | info@hellaseng.com | www.hellasengineering.com

Figure 21: Typical sliding glass doors leading to a recessed balcony; this balcony also contains horizontal sliders, sunshades, and a screen enclosure at the edge

Figure 22: Typical horizontal sliding window at catwalk

2475 Mercer Ave | Ste 106 | West Palm Beach, FL 33401

(561) 469-1907 | info@hellaseng.com | www.hellasengineering.com

Figure 23: Typical horizontal sliding window at kitchen and front bedroom

Figure 24: Typical single hung window at bedrooms

2475 Mercer Ave | Ste 106 | West Palm Beach, FL 33401

(561) 469-1907 | info@hellaseng.com | www.hellasengineering.com

Figure 25: Typical awning window approx. 19” from the finished floor

Figure 26: Typical single hung window at the rear elevation of some master bedrooms

2475 Mercer Ave | Ste 106 | West Palm Beach, FL 33401

(561) 469-1907 | info@hellaseng.com | www.hellasengineering.com

Figure 27: Typical awning window at the rear elevation of some master bedrooms

Figure 28: Typical single hung window in bathrooms at end units

2475 Mercer Ave | Ste 106 | West Palm Beach, FL 33401

(561) 469-1907 | info@hellaseng.com | www.hellasengineering.com

Figure 29: Typical thumb locks/screw locks at horizontal sliding windows

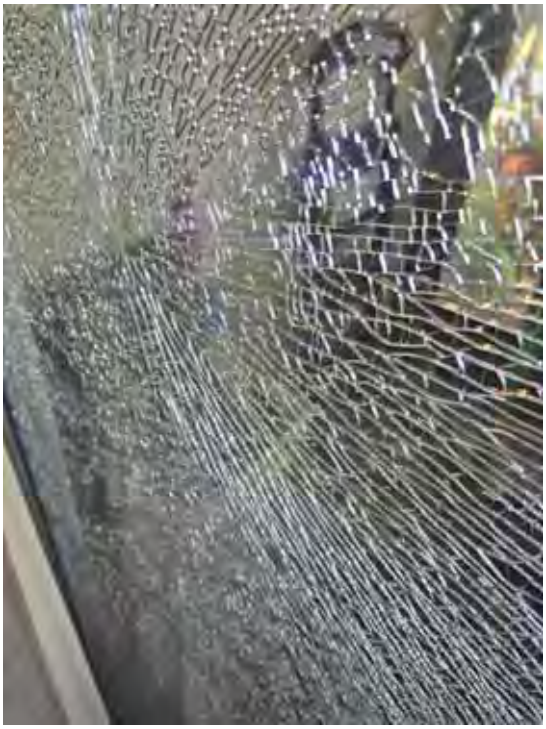

Figure 30: Damaged glazing

2475 Mercer Ave | Ste 106 | West Palm Beach, FL 33401

(561) 469-1907 | info@hellaseng.com | www.hellasengineering.com

Figure 31: Water damage in bedroom under awning window

Figure 32: Balcony tile elevation above the sliding glass door track

2475 Mercer Ave | Ste 106 | West Palm Beach, FL 33401

(561) 469-1907 | info@hellaseng.com | www.hellasengineering.com

Figure 33: Water and debris trapped between screen frame, sunshade frame, and horizontal sliding plexiglass frame

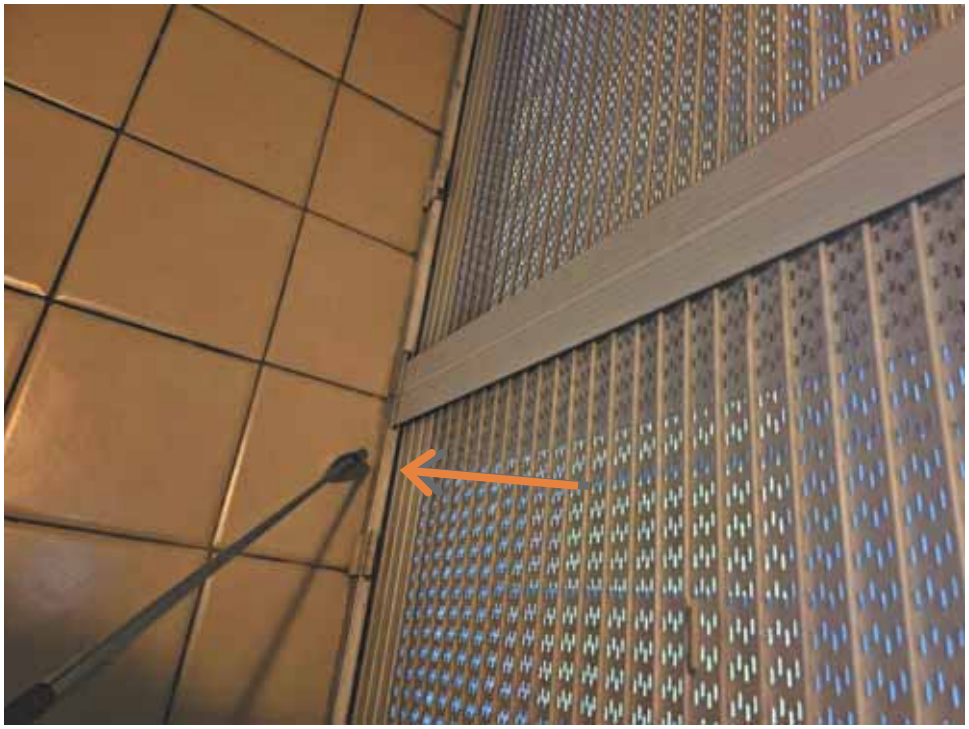

Figure 34: Hollow tile at balcony

2475 Mercer Ave | Ste 106 | West Palm Beach, FL 33401

(561) 469-1907 | info@hellaseng.com | www.hellasengineering.com

Figure 35: Corroded corner bead at stucco balcony wall

Figure 36: Unsealed fasteners and abandoned fastener holes

2475 Mercer Ave | Ste 106 | West Palm Beach, FL 33401

(561) 469-1907 | info@hellaseng.com | www.hellasengineering.com

Figure 37: Stucco crack at balcony wall

Figure 38: Exterior electrical outlet missing cover plate

2475 Mercer Ave | Ste 106 | West Palm Beach, FL 33401

(561) 469-1907 | info@hellaseng.com | www.hellasengineering.com

Figure 39: Concrete spall

Figure 40: Slab and column spall within room

2475 Mercer Ave | Ste 106 | West Palm Beach, FL 33401

(561) 469-1907 | info@hellaseng.com | www.hellasengineering.com

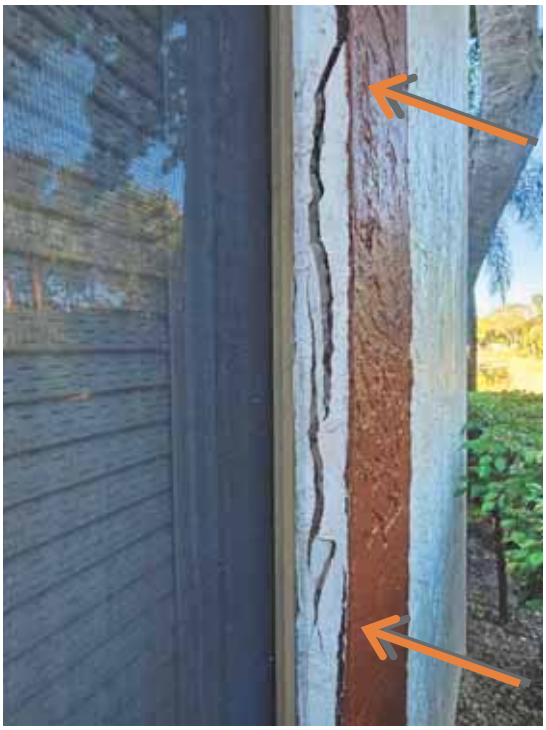

Figure 41: Column spall at building exterior

Figure 42: Catwalk column spall

2475 Mercer Ave | Ste 106 | West Palm Beach, FL 33401

(561) 469-1907 | info@hellaseng.com | www.hellasengineering.com

Figure 43: Failed post tension cable

Figure 44: Concrete spall at stairwell

2475 Mercer Ave | Ste 106 | West Palm Beach, FL 33401

(561) 469-1907 | info@hellaseng.com | www.hellasengineering.com

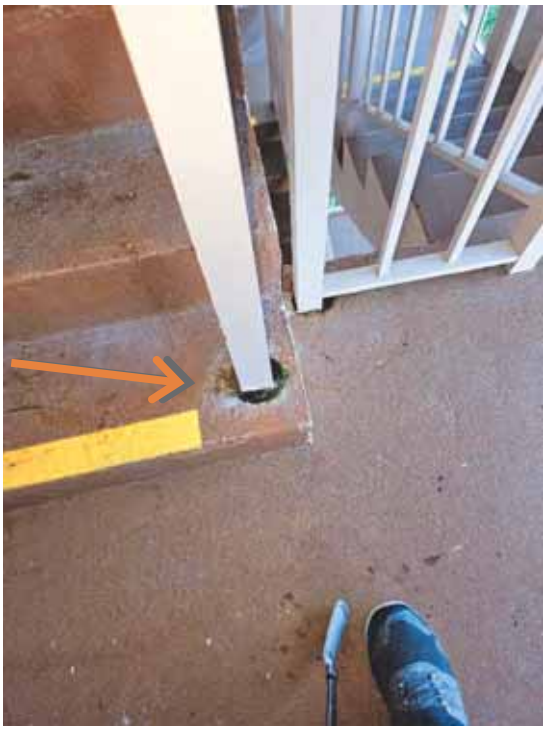

Figure 45: Recessed post pocket at stairwell railing

Figure 46: Typical deteriorated post pocket at catwalk railing

2475 Mercer Ave | Ste 106 | West Palm Beach, FL 33401

(561) 469-1907 | info@hellaseng.com | www.hellasengineering.com

Figure 47: Unsealed fasteners at catwalk railing bottom rail

Figure 48: Corroded bolts at surface mounted base plate for catwalk railing

2475 Mercer Ave | Ste 106 | West Palm Beach, FL 33401

(561) 469-1907 | info@hellaseng.com | www.hellasengineering.com

Figure 49: Bubbling paint at slab edge

Figure 50: Failing previous repair at exterior wall

2475 Mercer Ave | Ste 106 | West Palm Beach, FL 33401

(561) 469-1907 | info@hellaseng.com | www.hellasengineering.com

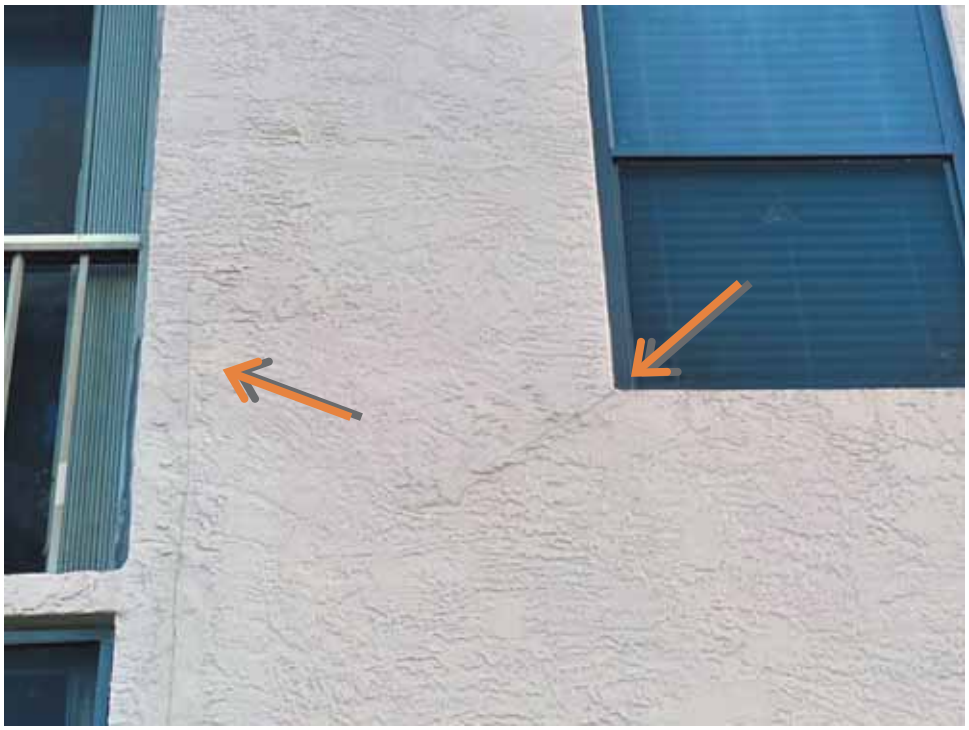

Figure 51: Stucco cracks

Figure 52: Stucco cracks

2475 Mercer Ave | Ste 106 | West Palm Beach, FL 33401

(561) 469-1907 | info@hellaseng.com | www.hellasengineering.com

Figure 53: Water infiltration at failing stucco

Figure 54: Typical metal catwalk expansion joint cover

2475 Mercer Ave | Ste 106 | West Palm Beach, FL 33401

(561) 469-1907 | info@hellaseng.com | www.hellasengineering.com