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Mr. Donald Davis, Manager
4400 Gulf Shore Boulevard North
Naples, Florida 34103

September 30, 2021

RE: Ardissone Condominium Association, Inc.
Exterior Building Forensics Report Buildings 1 through 6

Dear Ms. Davis:

On July 30, 2021 and August 10, 2021, in accordance with your request, representatives from this office conducted limited visual observations and mechanical sounded at accessible locations on Building 1 through 6 within the lower garage level surfaces, the exterior building elevations and the balcony surfaces on Unit 201 and 204 located on building 4 at the Ardissone Condominium, located at 4400 Gulf Shore Blvd. North, Naples, Florida.

The purpose of our field work was to observe existing conditions of the concrete surfaces on the building structures and the existing coating applications to gather information that would enable us to render an opinion concerning noticeable concrete deterioration resulting from reinforcing steel corrosion and make recommendations for repairs in conjunction with exterior paint applications. Neither the inspection nor this report is intended to cover hidden defects, mechanical electrical or architectural features. The concrete surfaces were sounded using a hammer to strike the surface of the concrete or by dragging a chain. Unsound concrete was detected by a contrasting hollow echo and lack of positive rebound that are indicative of concrete spalling. Visual observations were conducted on non-accessible elevations of the building from the ground level surfaces and from the water line by use of a johnboat provided by the association.

Limited sets of existing building plans including structural plans were provided to TRC by the Association. The structural documents were designed and prepared by Gomez Consulting Engineers, Inc. The structural drawings indicate that the structural slabs consist of an 8” cast in place post tension reinforced slab.

Visual observations and mechanical sounding were performed on accessible areas where structural deficiencies were identified on the isolated Unit balconies mentioned above, lower garages and building exteriors. The following is a list of general concrete items found during our evaluations:

1. Several concrete spalls were identified on the balcony surfaces located on Unit 201.
    a. (2) concrete spalls were identified on the interior and exterior planter walls located on the North end of the balcony along the upper portion of the planter walls. (Refer to Photos 1-2)
    b. (3) concrete spalls were identified on the interior planter walls along the upper portions of the wall along the East end of the balcony deck. (Refer to Photos 3-4)

c. Delaminated areas of hollow stucco coatings were identified on the horizontal surfaces of the perimeter planter wall located between the 201 and 204 Unit balconies. (Refer to Photos 5-7)

2. In addition to the deteriorated concrete areas identified on Unit 201 the following was noted on the balcony surfaces of Unit 204:

    a. The planters on the East elevation balcony deck of Unit 204 have been removed, however areas of deteriorated concrete resulting from reinforcing steel corrosion were visually identified on the perimeter wall of the balcony deck. A concrete spall was observed from the interior of the balcony and along the exterior of the building on the perimeter wall cap. (Refer to Photos 8-9)

    b. A minor bulging area of concrete was also identified on the South elevation balcony wall cap adjacent to the railing post base. (Refer to Photos 10-11)

3. Several isolated areas of concern were also evaluated on the building structures previously identified by the association management; the following areas were noted during out evaluations:

    a. The CMU walls within the lower ground level storage room on Building No. 4 revealed several cracks on the vertical wall surfaces on the interior of the storage room. However, no apparent concrete spalls were identified on the masonry walls and column located with the wall structure. The random cracks are non-structural and are associated with thermal and typical movements between the CMU wall blocks and concrete columns. (Refer to Photos 12-13)

    b. A large area on the bottom side of the second-floor structural slab (ceiling) within the stairwell on Building No. 5 was observed. The stucco wall coatings and the exposed concrete substrates were mechanically sounded and no structural issues were identified at this location. A large area of delaminated stucco coatings approximately 8’-0” X 8’-0” will require removals and replacement. This issue appears to be associated with the lack of bonding agents applied to the concrete surfaces during initial construction applications of the decorative stucco finishes on the building. (Refer to Photos 14-15)

4. As part of forensic evaluations of Buildings 1 through 6, the exterior and interior concrete surfaces within the lower garages were visually reviewed and mechanically sounded. The following areas of concern were noted:

    a. A small isolated concrete spall was observed on the ceiling within the lower garage on Building No. 6. Visually observations of minor corrosion on the bottom layer of reinforcing steel within the slab were observed and will require remedial repairs. (Refer to Photos 16-17)

    b. Non-structural related voids and damages were noted throughout the garage ceilings on the majority of all the buildings visually observed. The small repairs are associated with damages incurred during removal and reinstallation of the plumbing line pipe hangers. (Refer to Photos 18-22)

c. A small crack was identified on the CMU walls adjacent to the North vehicular garage entrance on Building No. 4. The concrete surfaces were mechanically sounded and the crack is a non-structural issue and relates to typical movements in the structure at the CMU and Concrete column transitions. (Refer to Photo 23)

d. (5) small isolated concrete spalling areas were identified on the garage ceiling below the unit balcony on the South elevation of Building No. 4. Small bulging areas of concrete and areas of delaminated coatings were noted on the ceiling below the balcony transitions above. Concrete excavations and repairs will be required. (Refer to Photos 24-26)

e. two minor areas of rust deposits were also observed on the exterior slab edge surfaces just below the balcony transitions on the South elevation of building No. 4. The areas appear to be associated with typical rust mites and corrosion on existing fasteners located within the stucco coatings, that will require small excavations and patch repairs during coating replenishments on the exterior of the building. (Refer to Photos 27-28)

f. Paint failures and delaminated coatings were also identified below the built-out unit balcony with glass enclosure on the South elevation of Building No. 3. Visually voids and improperly installed flashing components at the installed glass enclosure have allowed moisture behind the wall coatings causing failures. Remedial sealant applications and/or minor flashing modifications will be required during coating replenishments on the exterior of the building. (Refer to Photo 29)

g. Several additional areas of delaminated bagging paint coatings were noted throughout all the buildings. These areas are generally identified on the slab edge surfaces and ceilings below the balcony transitions. This is a general indication of moisture that has penetrated through the perimeter walls along the slab transitions at the balcony edges and planter walls. Typically, due to a lack of a protective waterproof membrane on the slab surfaces and wall base transitions on the perimeter of the balconies and within the remaining planter locations on the exterior of the balconies. (Refer to Photos 31-36)

h. Water stains and a minor active area of water leak was identified along the plumbing line penetrating the slab in the lower garage ceiling on Building No. 2 The leaks appear to be associated with plumbing line remediations performed at the line transitions. (Refer to Photo 37)

i. A small heaved area on the ceiling within the lower garage adjacent to the North vehicular entrance on Building No. 1 was observed and mechanically sounded. The area is non-structural and related to a mortar skim coat applied to the ceiling that has de-bonded from the structural slab. (Refer to Photos 38-39)

5. All exterior elevations were visually reviewed including areas above the water line with the use a small vessel provided by the association management. The following areas were visually observed from the exterior of the building:

a. An isolated concrete spall was visually observed from the water line along the East elevation of the property just below the perimeter wall between Building No. 1 and Building No. 2. (Refer to Photo 40)

b. A large linear crack indicated a potential concrete spall or an area of delaminated/damaged stucco was identified on the bottom face of the structural slab on the East elevation of Building No. 4 above the water line just below the unit balcony transition. (Refer to Photo 41)

c. (6) deteriorated concrete sections from reinforcing steel corrosion were visually observed on the bottom face of the balcony slab located on Penthouse 605 on Building No. 6. (Refer to Photos 42-44)

6. During evaluations performed on the Unit balconies mentioned above a conditional review of the existing railing components was also conducted depicting the following conditions observed during the time of our evaluations:

   a. Extreme corrosion of the aluminum components was noted along the handrail base plates and fasteners attaching the guardrails to the upper portions of the perimeter balcony walls on Unit 201. (Refer to Photos 45-46)

   b. White deposits associate aluminum oxide or corrosion to the aluminum components were noted at the post bases and lower framing connections along the guardrail on Units 201. (Refer to Photos 47-49)

   c. Coating failures and delamination's were also noted on the protective finishes implemented on the rails on Unit 201. (Refer to Photos 50-51)

   d. The handrails located along the balcony of Unit 204 have been integrated with a screen enclosure framing. Extreme corrosion and section loss on the aluminum components was visually observed throughout the perimeter guardrails. (Refer to Photos 52-56)

   e. Several missing or damaged fastener locations were also observed on the enclosure frame attachments to the structure on Unit 202. (Refer to Photos 57-58)

   f. Areas of corrosion was also evident on the railing base plates and fasteners mounted on the vertical face of the perimeter walls on the south elevation balcony on Unit 202. (Refer to Photos 59-60)

   g. All existing fasteners on the railing components exhibited corrosion and section loss. (Refer to Photos 61-62)

   h. Delaminated failed coatings down to the bare metal surfaces on the rails were also noted throughout on Unit 202. (Refer to Photos 63-64)

7. During our reviews on the balcony surfaces mentioned above on Unit 201 and 202 several deficiencies were visually observed and noted concerning the planters.

a. The current planters remaining on the Unit balcony surfaces have been modified from original construction and have been vacated of all planting materials and have been covered with a stucco coating to match the adjacent finished on the building. (Refer to Photos 65-66)

b. The modifications performed have not completed sealed the planter locations from moisture and water intrusion. The existing scuppers within the planter that divert rain water from the open balcony deck, remain open to the entirety of the planter. All the locations observed have an open cavity within the scupper allowing water into the planter. (Refer to Photos 67-68)

c. Visually observations within the scupper revealed a lack of waterproof membrane system within the planter locations. (Refer to Photos 69-70)

d. Additional visually observations as previously mentioned on the exterior of the building revealed several areas of delaminated coatings just below the balcony slab transitions of the planters, indicating moisture intrusion within the structure. (Refer to Photo 71-72)

e. Voids were also noted at the scupper and tile transitions on Unit 202 where the interior planter walls were removed. (Refer to Photo 73-74)

The bubbling and/or peeling of paint as shown above and throughout the building below the open balcony decks is typically an indication of water migration into the hollow cells of the masonry block. Water tends to migrate through the joint between the concrete slab and masonry block at locations of failed waterproofing flashings or lack thereof a membrane.

RECOMMENDATIONS

We recommend that deteriorated concrete sections located on the property should be excavated by power tools back to sound material to allow abrasive blast cleaning of steel reinforcing bars to be free of rust and coating with an epoxy-cement bonding agent prior to forming and placing new low permeability micro-concrete mix with integral corrosion inhibiting admixture.

It has been recommended that corrosion mitigation anodes be utilized at the concrete repair locations due to the age, location of the structure and the chlorides in the atmosphere from the surrounding environment that have permeated the concrete over time. The condition of the steel reinforcing in the concrete at the spalled areas cannot be anticipated until excavation, therefore it is our professional opinion that corrosion mitigation anodes be considered to ensure the mitigation of the corrosion to reinforcing and provide sound repairs.

Given the acceleration of the current steel corrosion and exposure to the surrounding environmental conditions, performing the concrete repairs as soon as possible on the balcony and exterior surfaces of the building would reduce the future scope of work as less concrete excavation will be required to clean existing reinforcing steel and reduce further delamination.

Due to the current conditions associated with the planters on the Unit balcony decks concerning moisture and water intrusion and the lack of a waterproof membrane. TRC would recommend the removals of the interior planter walls at all balcony locations and the

implementation of a waterproof membrane on the structural slab surfaces to be flashed up the perimeter wall and within the perimeter wall scupper locations.

TRC would also recommend the incorporation of a waterproofing coatings on all the open balcony slab surfaces. However, due to the majority of the surfaces implemented with tile floor coverings, membrane replacements and applications would not be feasible and should be considered on a Unit-by-Unit basis when the tile coverings are to be renewed or replaced. Membrane replacements would ensure the future protection of the balcony slabs from moisture and chlorides from the environmental exposures, thus maintaining the service life of the concrete and floor coverings. Based upon the current tile installations on the remaining areas of the balcony deck outside the planter bodies. We recommend to remove all interior planter walls and perform new membrane applications on the structural slab surfaces up to the existing tile transitions. This will ensure coverage at theses critical locations and protect the adjacent perimeter walls and slab edge from moisture intrusion.

As noted during evaluations various areas on the existing concrete masonry surfaces revealed areas of delaminated coating failures. Paint stripping and removals shall be included in the project specifications as a add and deduct line item, including a set value for bidding purposes. These areas will be evaluated during the course of the project, mapped prior to removal by TRC during construction administration and quantified. Base quantities of delaminated stucco replacements will also be incorporated within the project specifications as a add and deduct line item for any areas deemed for removal during the construction administration process throughout the course of the project.

During the conditional survey of the balconies, it was noted that the railings are showing signs of the finish wearing, oxidation and corrosion to the aluminum components occurring. Including severe corrosion and section loss of the components noted above at the balcony locations observed. This corrosion would result in reduction in strength of connections that would not be readily apparent. The weakened connections may not be capable of resisting code required railing loads which would be required for the safety barrier. Hence, it is critical that the railings, finishes and connections be maintained. Based on the observations at the locations mentioned within this report. TRC would recommend the railings to be replaced in conjunction with the repair work and coating replenishments on the exterior of building in 2022.

We recommend the following to be incorporated within the current paint cycle on the exterior of the building:

1. Repair of deteriorated concrete sections from reinforcing steel corrosion (incorporating the utilization of corrosion mitigation anodes if deemed necessary based on steel reinforcing condition). This shall include the removal and reinstallation of current aluminum components to facilitate the repairs areas.

2. The removal of the remaining interior planter walls on the balcony decks and the incorporation of a new waterproof membrane on the structural slab surfaces up to the existing floor coverings and flashed waterproofing applications on the perimeter walls and scuppers.

3. The removal and replacement of the existing aluminum handrails located on all unit balcony locations.

We have prepared a preliminary opinion of probable costs of the repair scope based on our observations and recommendations in this report concerning concrete damages. The opinion of probable cost includes budget quantities of concrete repair and related work items corresponding to the repairs observed and documented on the unit balconies and the exterior of the building. In providing these opinions of probable construction costs, it should be understood that we have no control over costs or the price of labor, equipment or materials, or other methods of pricing used by Contractors, and that the opinion of probable construction cost provided herein was made on the basis of our qualifications and experience. We make no warranty, expressed or implied as to the accuracy of such opinion as compared to bid or actual costs. Please note that costs associated with the removal and replacement of the balcony rails and deletion of the remining planter walls are not included in cost summaries. Evaluations of each of the Unit balcony locations will be required to identify all railing component configurations and the current layout of the Unit balconies concerning planter walls.

LIMITATIONS

This correspondence is intended to communicate a summary of findings at the completion of the first phase of work in anticipation that TRC will continue to provide structural engineering services in relation to the concrete repairs. As a result, this report is not a final engineering document and should be considered as preliminary in the fact that additional structural analysis and design may be required to provide any final construction documents nor is this intended to serve as testimony to any perceived deficiencies. Due to the limited scope of our investigation, we cannot attest to the structure's compliance with obsolete building codes or previously accepted construction techniques. This report does not cover hidden defects, mechanical, electrical or architectural features.

Our opinions are based upon judgement to an extent normal for a review of this type. Our review was walk-through in nature and we did not use any special tools or instruments, nor did we perform any testing, remove any enclosures, finishes, etc. A review of that type would require considerably more time and cost and would be destructive in nature, likely disrupting normal occupancy.

We shall await further instruction before proceeding further with our work. If so directed, our next course of action would be to prepare remedial specifications for the purpose of soliciting bids from contractors and obtaining the required permits from the building department.

This report is prepared for the sole benefit of the Ardissone Condominium Association. Unauthorized use without our permission shall result in no liability or legal exposure to TRC Worldwide Engineering Restoration & Inspection, LLC.

Very truly yours, TRC Worldwide Engineering Restoration & Inspection, LLC.

Matthew Maltezos
Senior Project Manager

Paul S. Moerschel, P.E.
President, Florida Group
Registration No. 60487

TRC WORLDWIDE ENGINEERING RESTORATION & INSPECTION

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Ardissone Exterior Coating Replenishments, Concrete Repairs and Related Work
(FILE No. 21FTM644)
OPINION OF PROBABLE COST

CONCRETE REPAIRS & RELATED WORK

Surface Preparation and Painting of Structure (Includes Joint Sealant Replacement and Common Doors)	$ 650,000.00
Chemical Paint Stripping to Bare Stucco Finish (500 Square Feet @ $5.00/Sq. Ft.)	$ 2,500.00
Cracking and Delaminated Stucco Repair (200 Square Feet @ $22.00/Sq. Ft)	$ 4,400.00
Concrete Column/Edge Repairs (15 Cubic Feet @ $550.00/Cu. Ft.)	$ 8,250.00
Concrete Overhead Slab Repairs on Water Line (15 Cubic Feet @ $1000.00/SQFT)	$ 15,000.00
Corrosion Mitigation Anodes (45 Locations @ $85.00/ Each)	$ 3,825.00
SUBTOTAL	**$ 683,975.00**
General Conditions	$ 55,000.00
Construction Contingency @ Approximately 10%	$ 74,000.00
PROBABLE COST	**$ 812,975.00**

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Photo Exhibit – The Ardissone Condominium Association

Photo #01

Photo #02

Photo #03

Photo #04

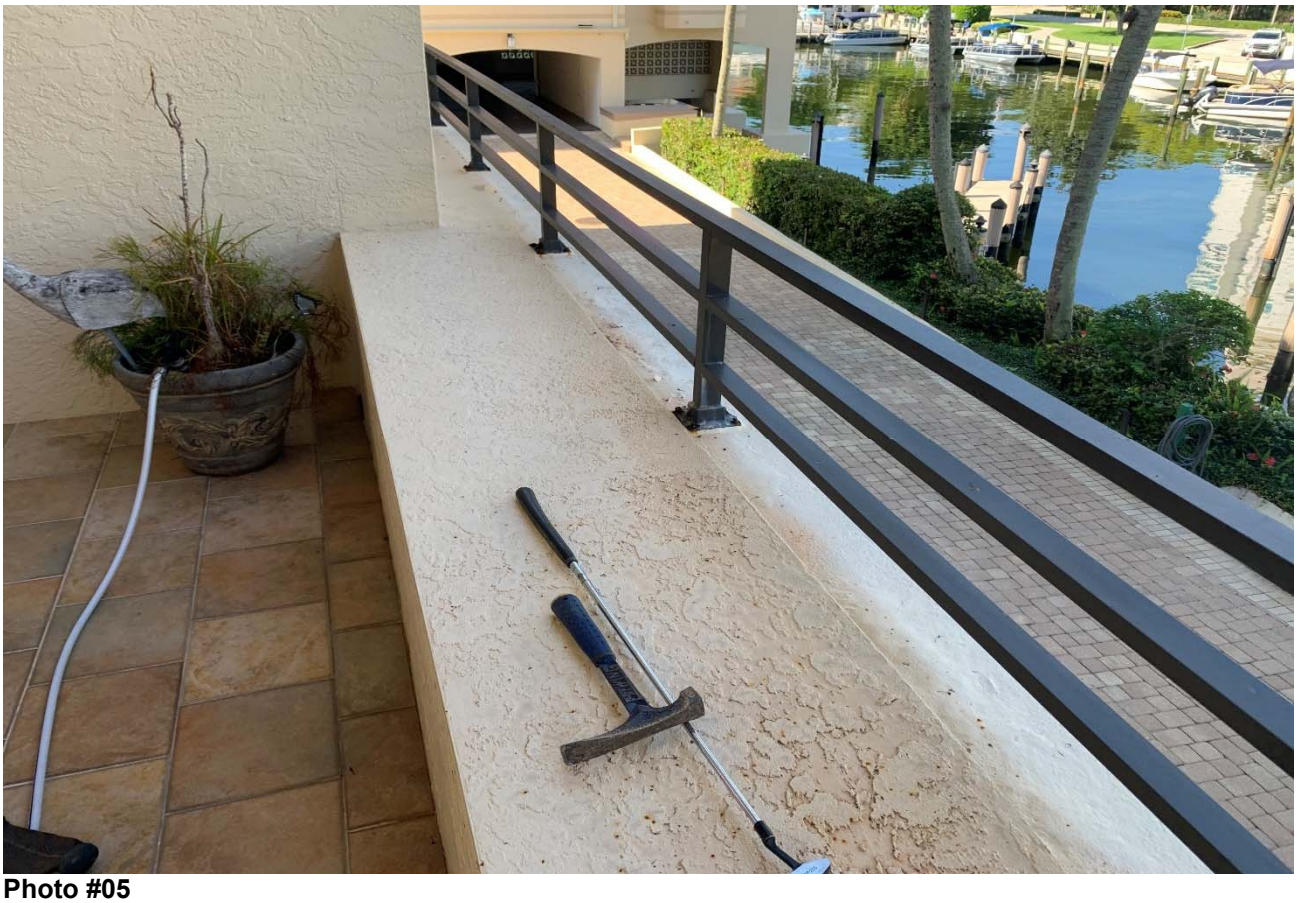

Photo #05

Photo #06

Photo #07

Photo #08

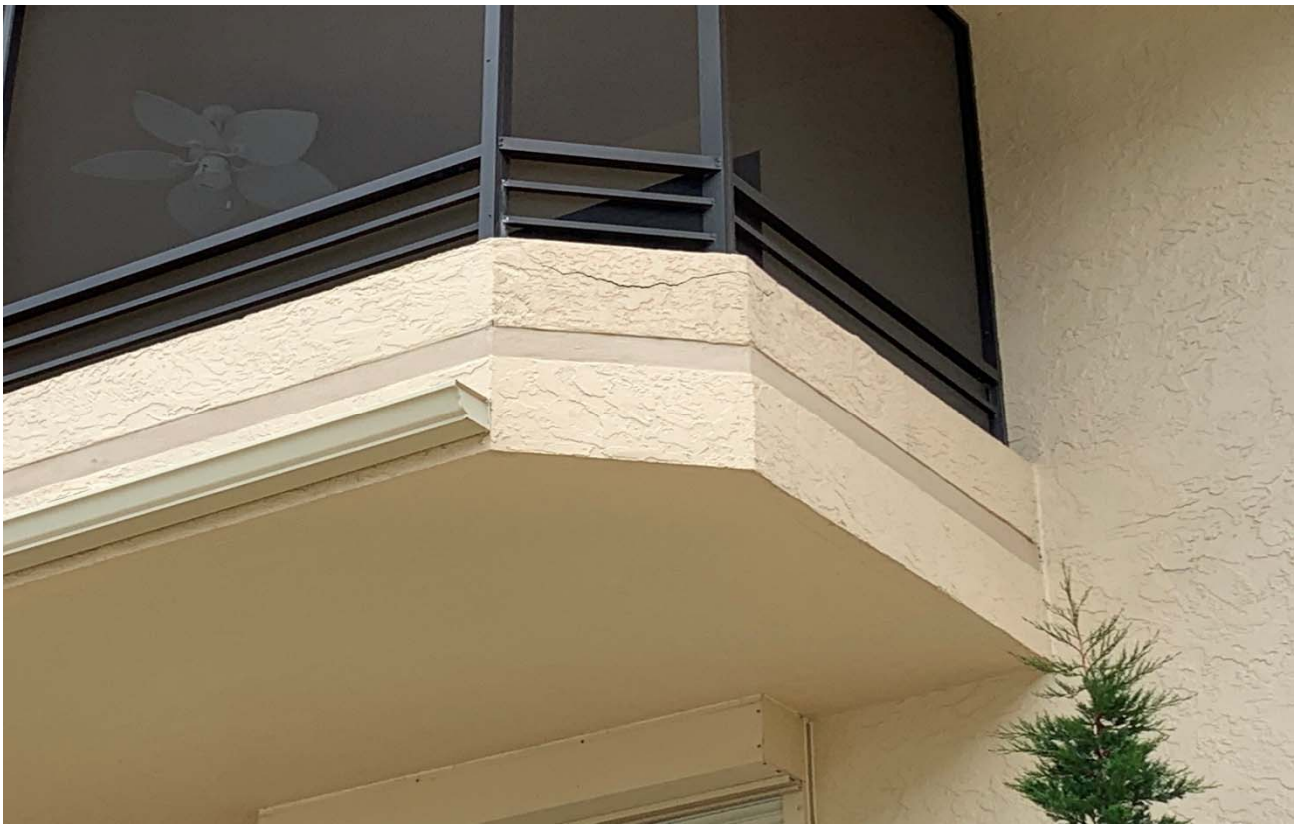

Photo #09

Photo #10

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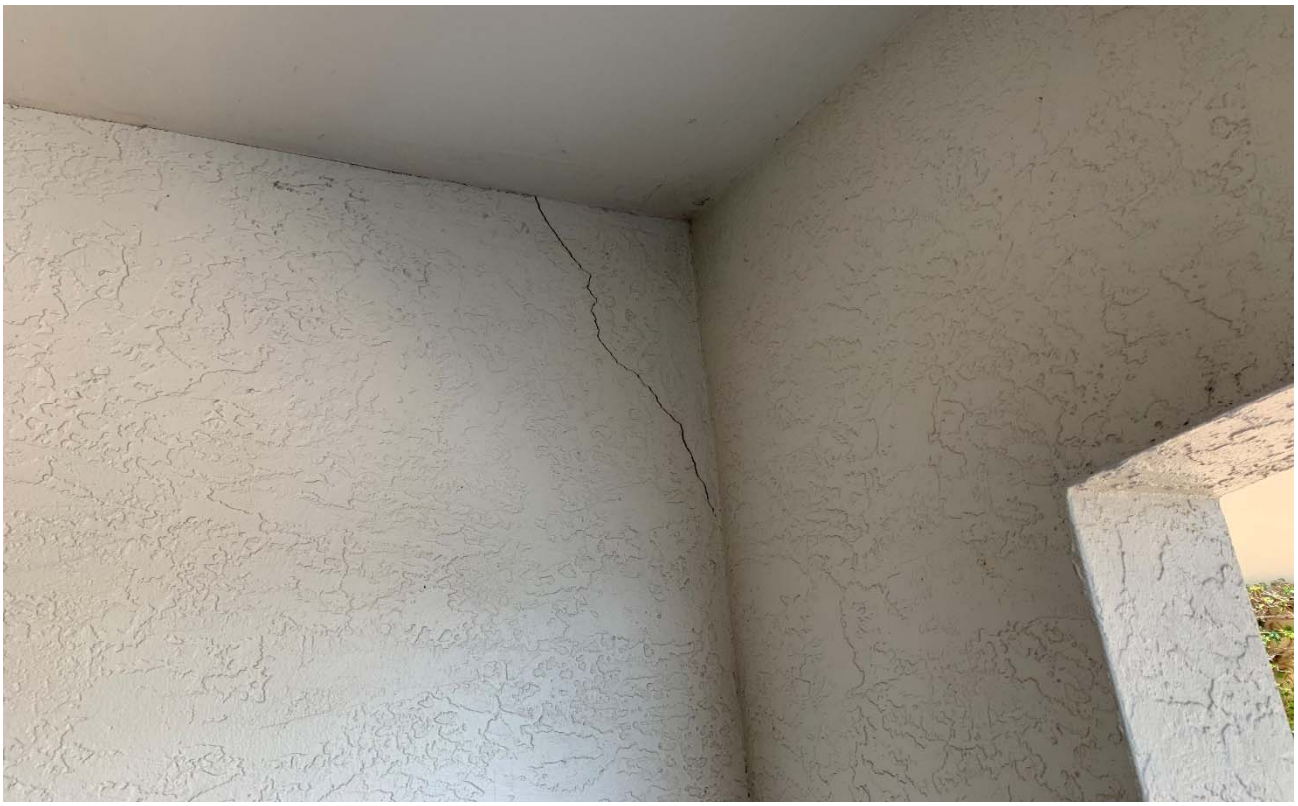
Photo #22



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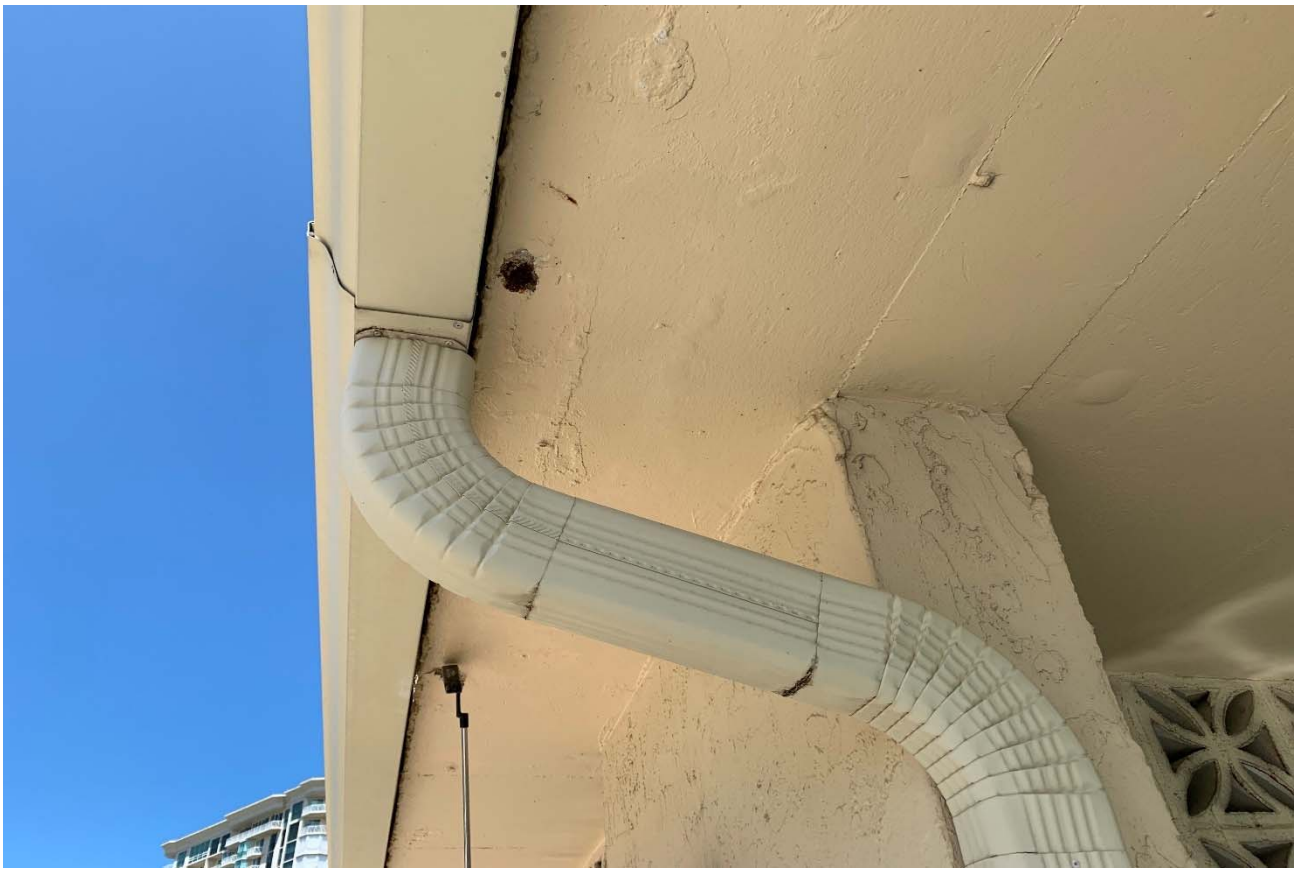

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Photo #25

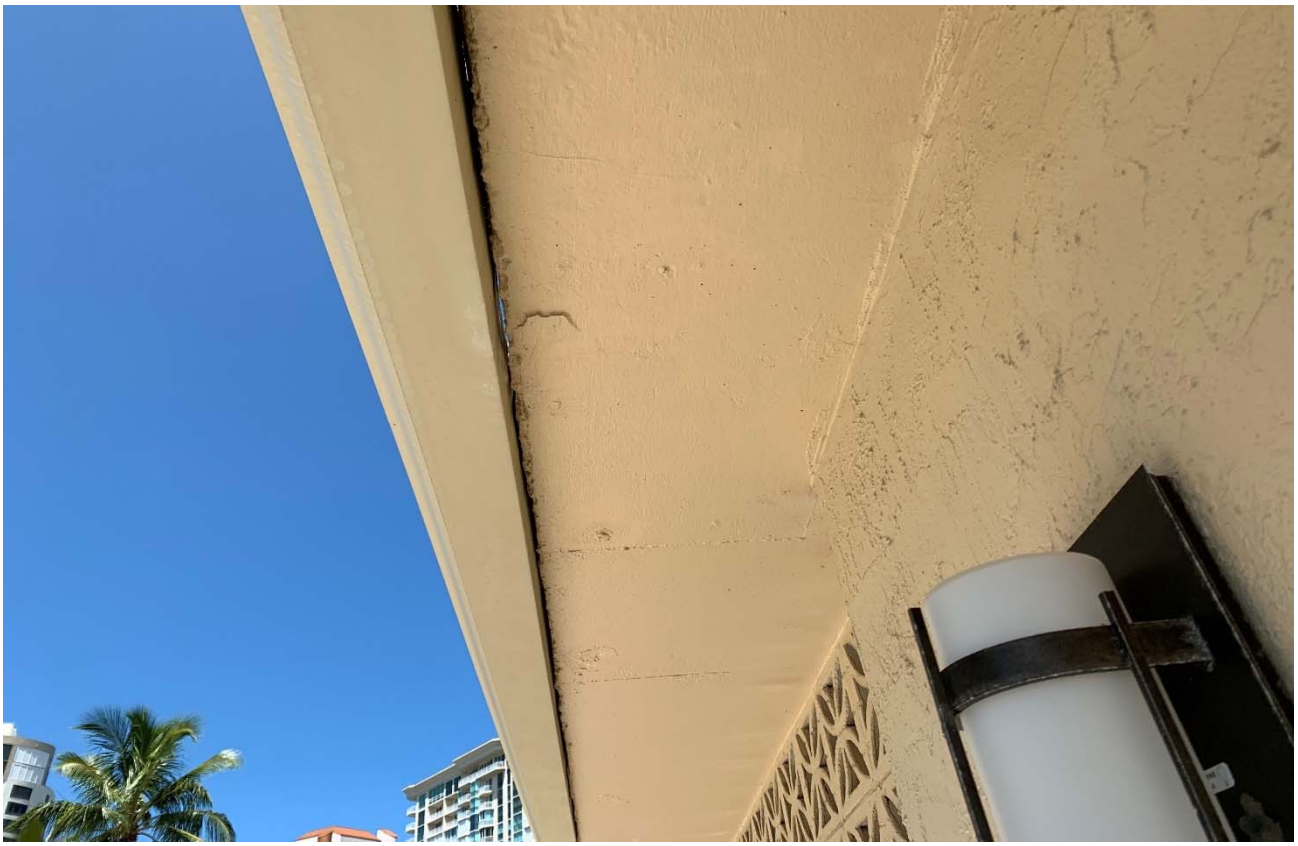

Photo #26

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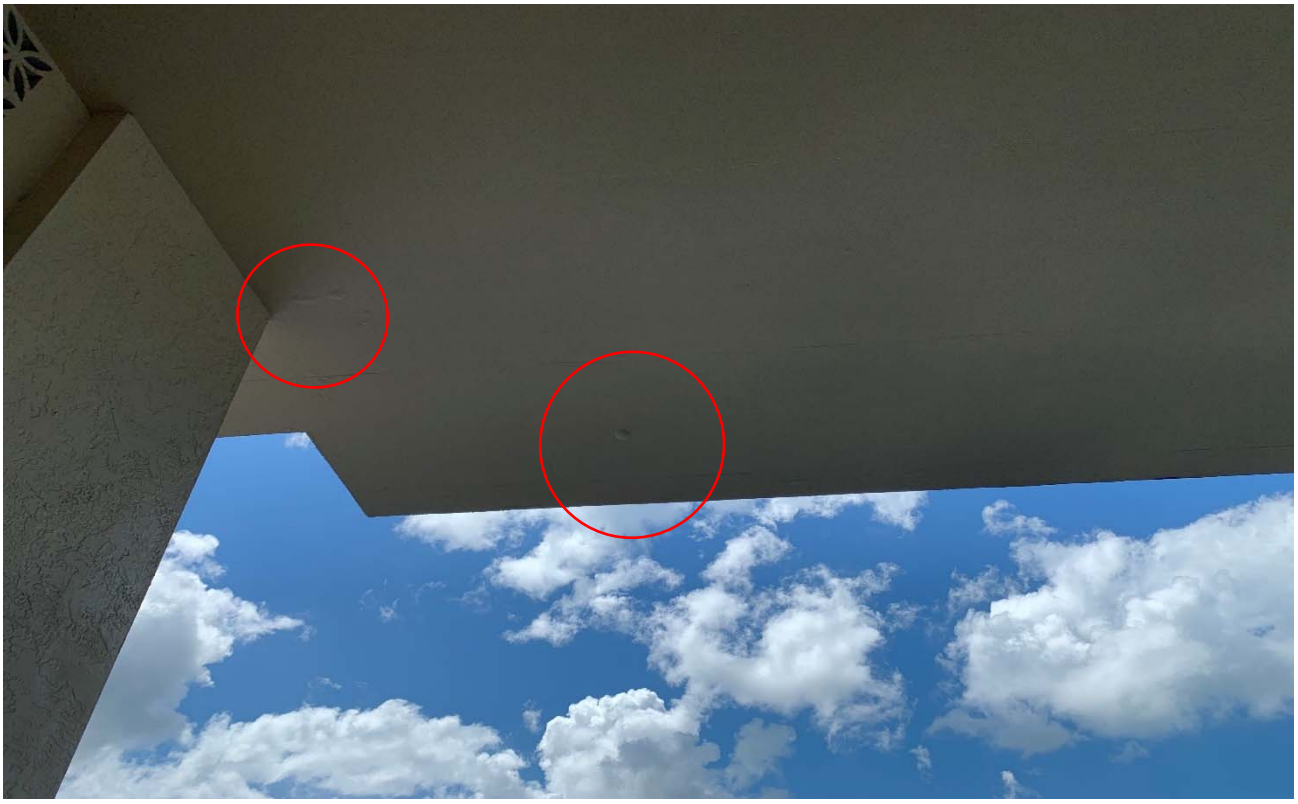

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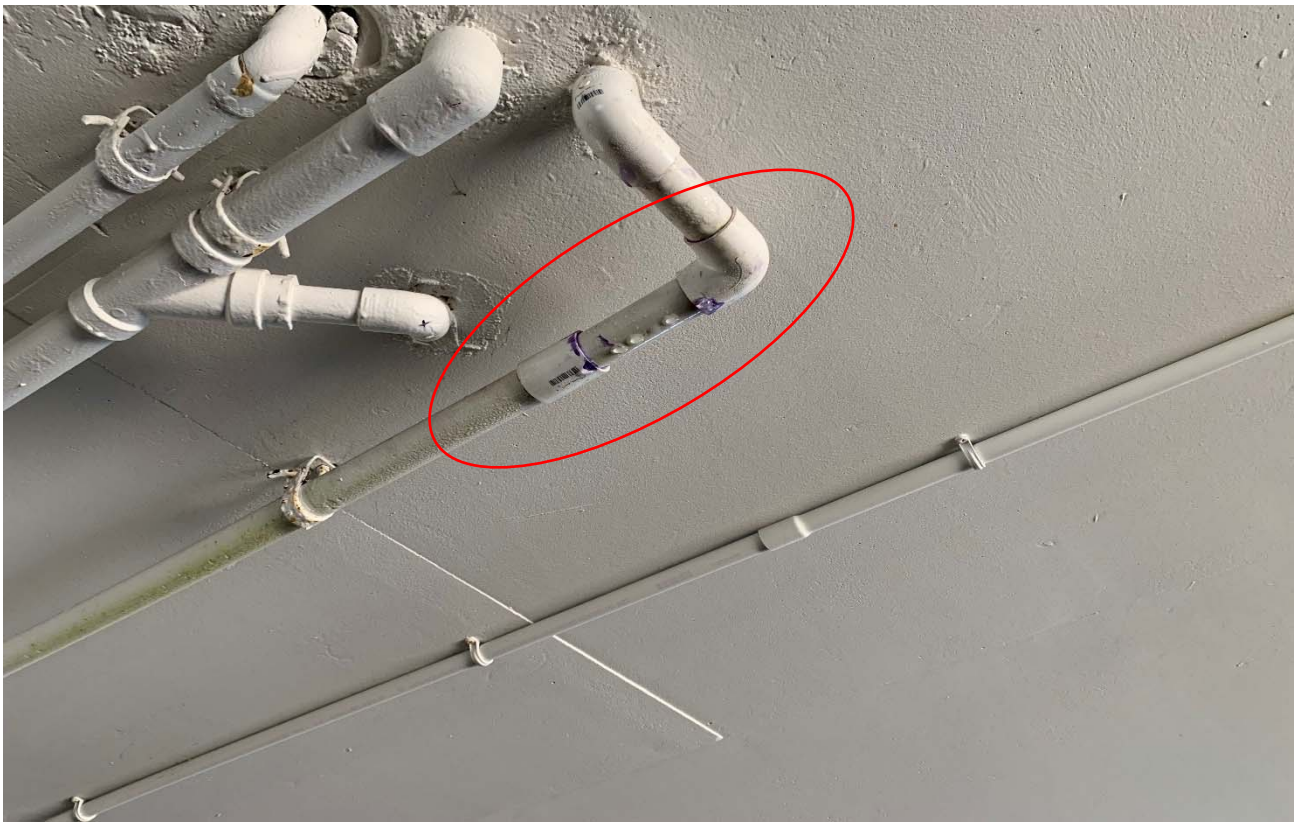

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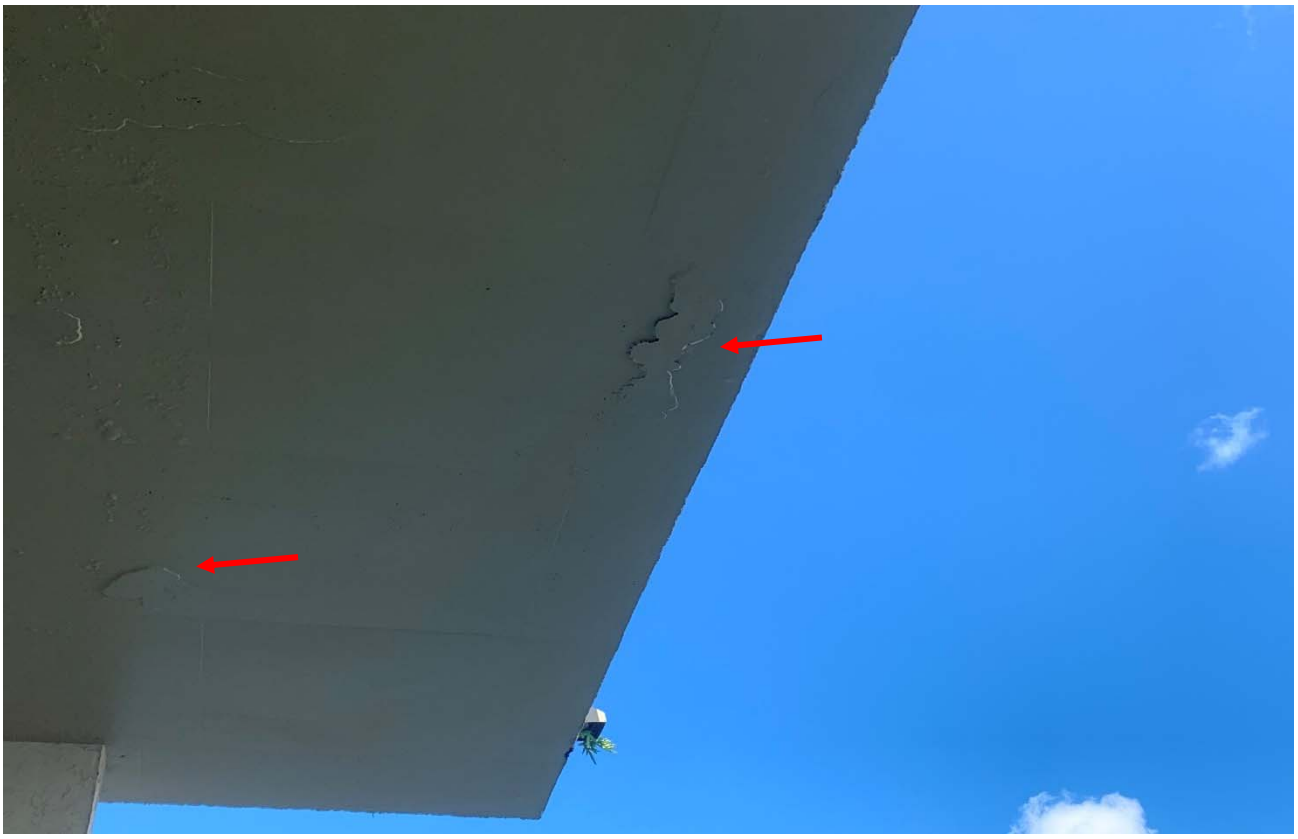

Photo #42

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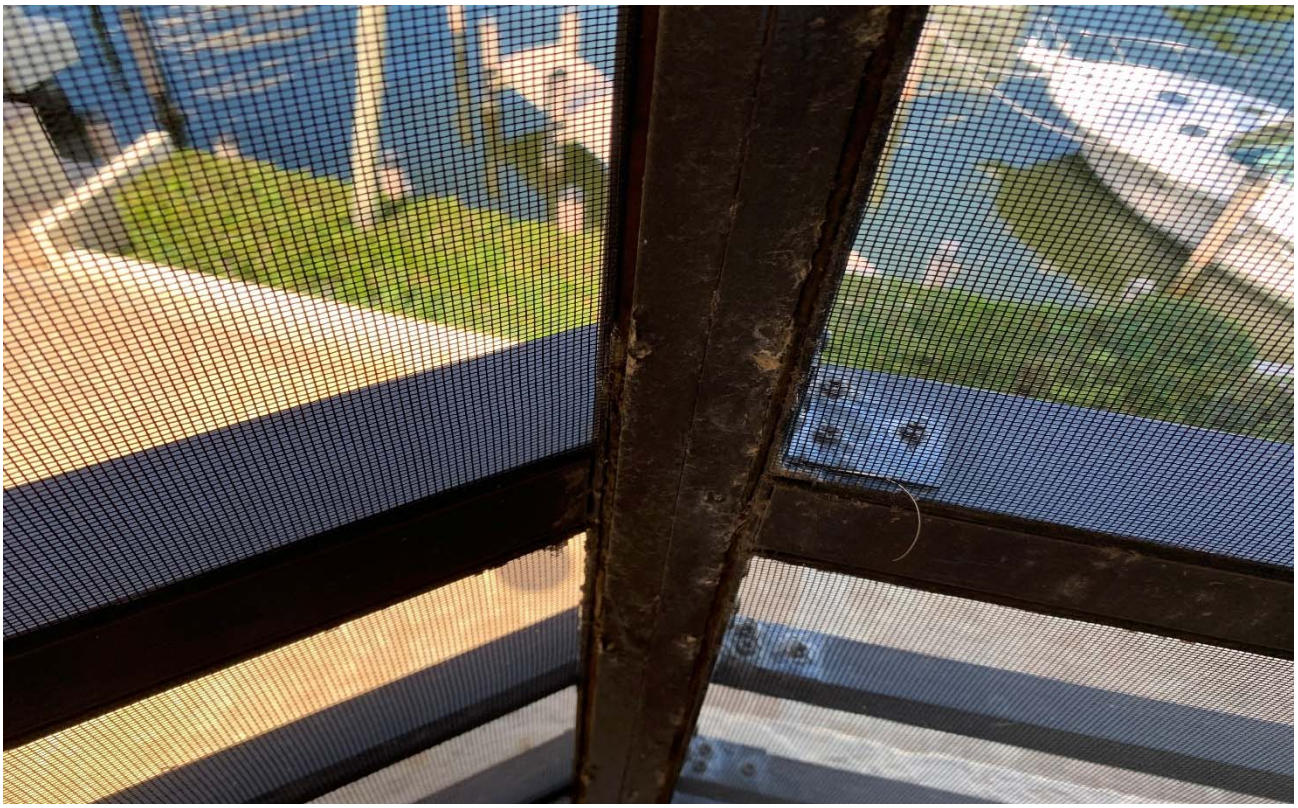

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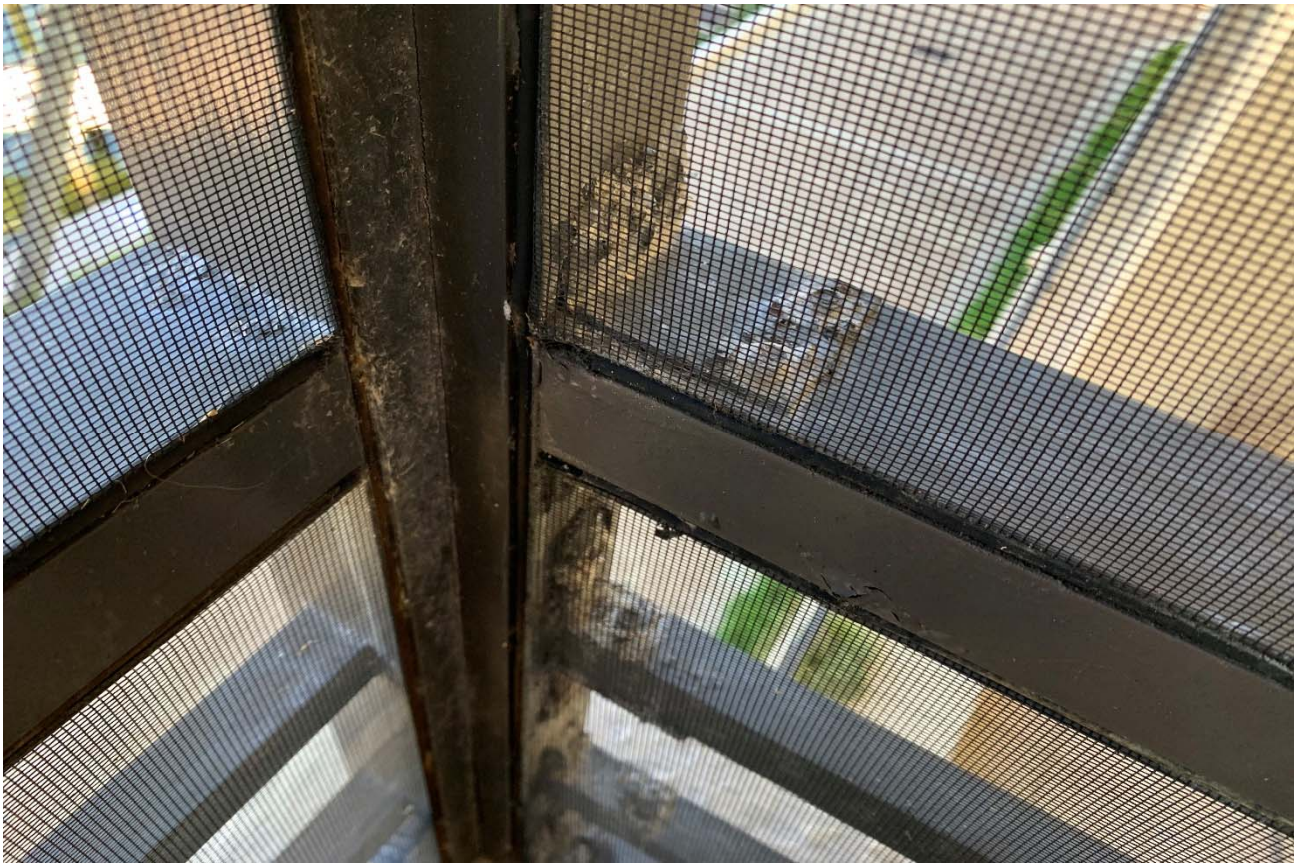

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Photo #61

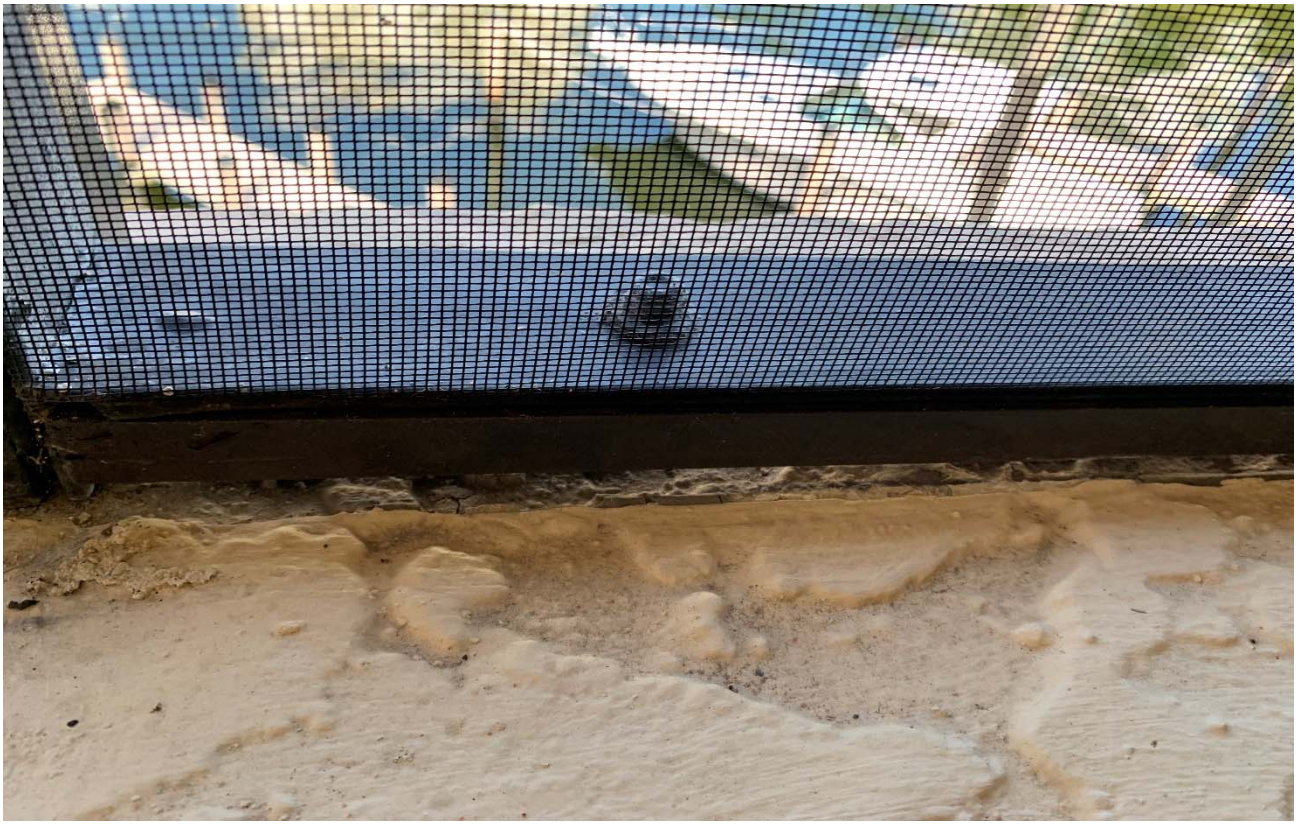

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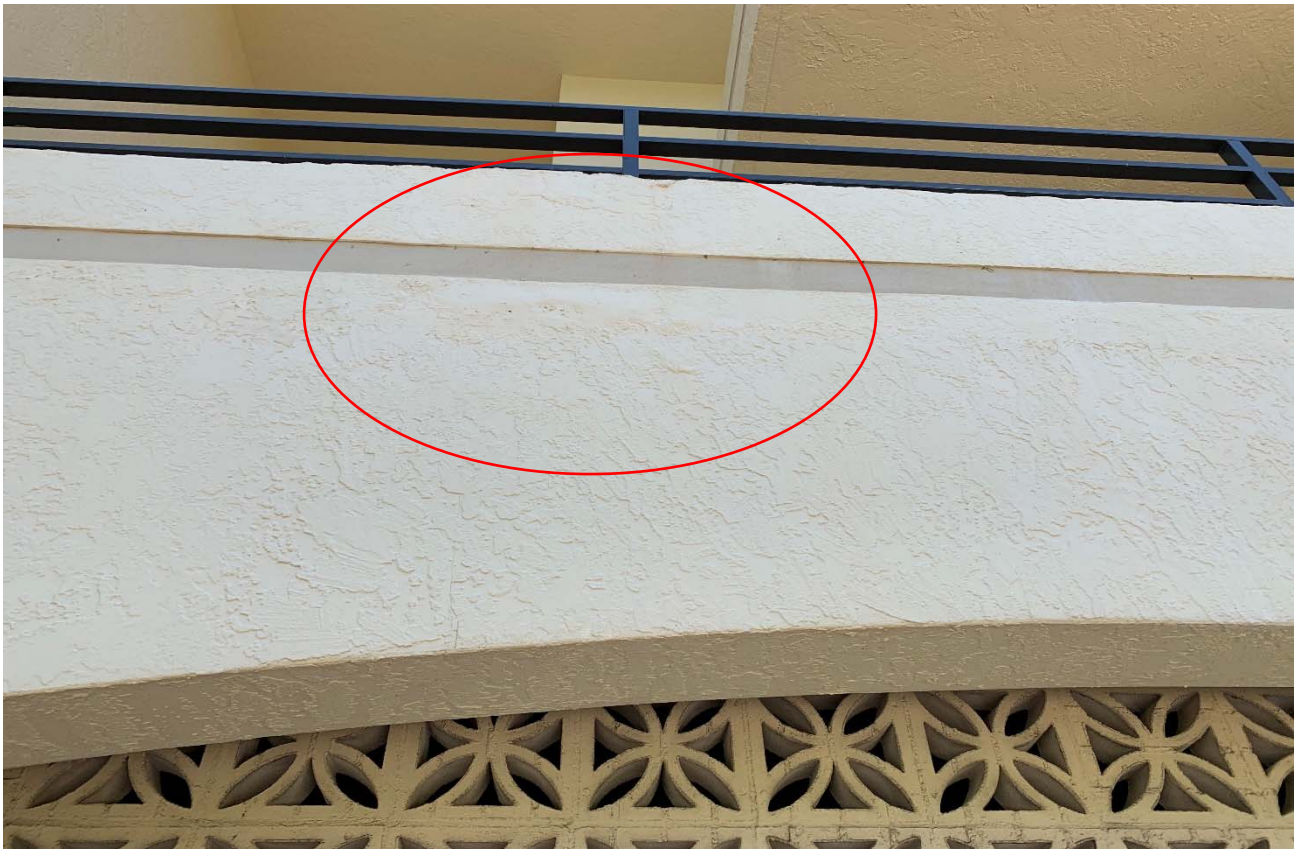
Photo #71



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