Phoenix V Building Observations

Notes from onsite building observations performed on September 29-30, 2020.

Performed by Bryce Moore, Connor Harkey, and Matt Henderson – Building perimeter and all exterior common areas were observed from ground floor/lobby to the roof elevation. An interior observation of Unit 1017's sliding doors was performed by request.

Typical Notes:

1. What exterior coating is currently on the Exterior? It appeared to be an elastomeric. The exterior coatings have lost their sheen which is typically the initial sign of losing their capability to shed dust/dirt and then moisture.
   Note: The next stage/sign of a degrading elastomeric would be chalking which is a fine powder on the coatings surface caused by excessive weathering, fading and loss of elastomers. Splitting, tearing and delamination of the coating would be the final stage of deterioration and possibly could not be an acceptable substrate for recoating.
   Recommendation: Learn type of coating. Assess on an annual basis to determine life span. We'd be comfortable with a 3-5yr life on areas that aren't peeling or moisture damaged from our observations. Repair areas of blistering and peeling after determining the root moisture intrusion cause. If time and funding don't allow this approach, spot patch these areas as they are allowing rain water behind the adhered coating near the failed areas.

2. Common balcony deck coatings are thin and were noted as being stained. The lack of aggregate along with the color show staining very well. The floor cleaning machine and/or cleaner seems to leave its own tracks and stains on the coatings surface. Multiple low areas were noted that appear to stain where water ponds.
   Recommendation: Track pond areas. Ponding should be prevented but doing so as soon as possible will create an aesthetic patch. An area that is filled and does not dry on its own within 24hrs is considered a pond. This can delaminate coatings and weep into the abutment of wall to deck coatings. From an observation standpoint, the decks have minimal slip resistance and wear level mils. With this being said, slip resistance can only be determined with testing, not by the naked eye, but it is our opinion that the deck could not be recoated without back rolling additional aggregate into the finish.

3. Noted repainting of the handrails in the West stairwell.

4. Expansion joints have some type of damage. Whether the parapet joints are splitting open with cohesive failures or the metal covers at the floor elevations show gaps and voids along with retired sealants, there are numerous joint failures.
   Recommendation: Remove all expansion joint caps. Remove retired sealants. Prime concrete edges, install closed cell backer rod and reseal with a commercial grade low modulus sealant compatible to coating(s). Reinstall metal caps.

5. Unit and stairwell door and door frame corrosion. Ranged from tiny speckles to corroded holes.
   Recommendation: Remove and replace doors and door frames that are nearly or have corroded through the exterior door or frame skin. Perform quarterly scheduled assessments. Sand, primer and paint all assessment noted doors and door frames at early corrosion observation.

6. Ceiling blisters in coating. What is the ceiling coating product?
   Recommendation: Learn type of coating. If the coating is not an acrylic paint or the paint was applied to a non-compatible substrate these could be problem areas in application. Acrylic is breathable which means that moisture is allowed to escape and will not typically cause loss of adhesion or blistering. Acrylic paints are also resistant to fading and will be able to resist damaging UV rays longer than some of the oil based paints available.
   If this is an acrylic coating, the substrate may have been deficient at application such as smoothed or finished gypsum based grout or leveler.

7. Coating blisters vertical to and in abutment with the elevator penthouse. Appeared to grow more common from the 6th floor elevation and up.
   Recommendation: Repair the moisture intrusion areas at these vertical points along with their common walkway knee wall abutments. The elevator penthouse is taking in water. This water runs down the wall within the concrete substrate in an attempt to get out. It is assumed that the initial entry points are the multitude of penetrations made by antenna fastening on the interior face of these shaft walls. There are flashing voids at the South elevator penthouse roof atop a piece of lumber that terminates the wall coating. This is more than likely a leak point as well. The common balcony knee walls terminate/abut the elevator shafts with a low slope ledge that catches and holds moisture. It is also possible the curtain wall windows in the shafts allow moisture into the walls at the above described tie in points. Investigate/prove leak entry points. Properly repair. Remove damaged coatings, prepare substrate and reapply coating.

8. Sealant joints deteriorating throughout the ground floor skylights and at the lobby curtain walls/doors and lobby wall flashing to brick pavers. These items appeared to have had their original aluminum frame to glass pane gaskets replaced with field applied sealant. The sealants were adhesively failing in many areas. It appeared that the joints were not bond broken and are tearing themselves apart due to three sided adhesion.
   Recommendation: Perform sealant pull tests and destructive observation for bond breakers to confirm noted assumption. Remove and repair failing sealants if bond breakers appear to be present. Remove and replace all sealant if bond breaker evidence is not noted.

9. Clogged weep holes in the concrete knee walls throughout the first floor.
   Recommendation: Remove debris from all components. Investigate for any component damage and waterproofing voids.

Areas of Specific Note:

1. Skylight on the northeast corner ground floor had framing separation and a damaged glass pane – noted sealing joint failing as well (in typical notes)
   Recommendation: Brett Robinson to compare current condition to past condition. Was this racked by the storm?

2. Documented efflorescence on the first floor stairwell vent on the north side stairwell.
   Recommendation: Confirm moisture intrusion area causing the staining.

3. Counted 12 missing windows and damage to both sliding glass doors of the main lobby curtain wall ground floor – missing sealant on the curtain wall windows as well although some areas appeared to be recently patched – noted lack of seal between the curtain wall system and the concrete wall it abutted with evident daylighting on both sides.
   Recommendation: Obvious storm damage that is more than likely being handled. Frame may need to be removed? Prime concrete edges and reseal with a commercial grade low modulus sealant compatible to coating(s) and frame material at the door perimeter.

4. Noted moisture behind the coping metal above the North West dumpster housing area.
   Recommendation: Seal metal parapet cap lap with compatible sealant.

5. The flashing at the main floor lobby curtain wall where the concrete wall met the brick pavers was a surface mount and the sealant was splitting – east side was a sealant joint with failure points documented and the west side was a metal flashing system. Due to settling in the brick pavers there was also an area where water and trash could collect.
   Recommendation: This is a sealant dependent flashing (as are most on the building) so a tear in the sealant is a failure. Moisture can migrate to the open wall termination. Remove and replace failing sealants with a commercial grade low modulus sealant compatible to coating(s) and metal flashing.

6. Noted a lack of sealant in a conduit wall penetration on the east side of the parking deck stairwell structure – no sealant was present.
   Recommendation: Seal with a commercial grade low modulus sealant compatible to the wall coating(s).

7. In the same area above, noted a gutter with no outlet at either end between the parking deck stairwell structure and the main building.
   Recommendation: Clean debris from gutter and observe for clogged drainage point. Produce proper drainage and downspout dump point if no drainage exists.

8. Ground through 3rd floor. Red metal roof terminations at wall abutment were open with no flashings. One area had ridge cap impact damage that appeared to be storm damage.
   Recommendation: Raw lumber could be observed at these terminations. The wall is assumed to be bare concrete or open to the lobby beneath the roofing. These areas should be properly flashed and sealed at their terminations.

9. 306 documented damage to the doors exterior trim (bowing) – noted water streaks where the frame abuts to the metal cap covering the leaking expansion joint – noted that the tie in where the two met is in need of repair.
   Recommendation: Refer to typical expansion joint damage section above. Surface mount screws appeared to have bound the metal while building movement took place. Release from pressure and reattach.

10. 309 (closed area in interior common hall overlooking the lobby) noted dripping on the aluminum frame of the window (lobby roof ties in directly to the main building above this window) – noted discoloration on the walls – also documented that the sprinkler outside the unit was corroded and had been patched around at some point – also noted a penetration by the A/C vent.
    a. Exterior door within close proximity to this area – potential for condensation

    Recommendation: Investigate to find water source.

11. 312 Door frame separation from wall.
    Door and window frame to wall abutments looked to be in fair to good condition overall. This area was significantly separated. It was noted that some frames had a sealant joint at their perimeters and others did not according to how well they fit into the rough ins.
    Recommendation: Apply a closed cell backer rod and commercial grade low modulus sealant compatible to the wall coating and frame.

12. 501 – 503 noted multiple areas of efflorescence.
    Recommendation: Investigate to find water source.

13. 6th floor of the elevator common lobby documented corrosion at a ceiling cutoff cover.
    Recommendation: Sand, prime and paint.

14. 603 and 611, large areas of wall coating missing.
    Recommendation: Prepare substrate and recoat area.

15. Chipped coating on the horizontal plane of the concrete knee wall outside 611 – visible dripping on the North face of the wall.
    Recommendation: Any breech in the waterproofing coat could allow moisture into the concrete substrate and behind the coating. These vertical breeches should be repaired by prepping and coating.

16. 709 void at the ceiling wire opening for exit sign.
    Recommendation: Rotate sign and seal around base to ceiling.

17. Expansion joint cover between units 710 and 711 had visible detachment along the top and on the horizontal wall – horizontal cap cover had lost multiple fasteners and there was clear evidence of a failed seal – the exposed end of the metal cap along the ceiling was not properly sealed creating an area of potential water intrusion (similar issue on the 8th floor)
    Recommendation: Refer to typical expansion joint damage section above.

18. 709 improper sealing around the bottom of the handrails where they tie into the concrete deck – potential water intrusion issue due to holes in the metal handrails.
    Recommendation: Assumed bare concrete beneath handrail stanchions. Remove and repair sealant.

19. 811 noted missing coating on the concrete knee wall.
    Recommendation: Prepare substrate and recoat area.

20. 904 void in ceiling coating at rotated exit sign.
    Recommendation: Prepare substrate and recoat area.

21. 1006 and 1009 window efflorescence.
    Recommendation: Investigate to find water source.

22. 1010 corrosion at ceiling to exit sign abutment.
    Recommendation: Sand, prepare substrate, rust inhibit and recoat area.

23. 10th stairwell, East end. Large horizontal crack in concrete from fire line penetration over door frame.
    Recommendation: Have structural/concrete expert observe.

24. 1109 window efflorescence.
    Recommendation: Investigate to find water source.

25. 1210 disconnect at floor coating to knee wall coating. Note slab face staining.
    Recommendation: All areas where coating can allow water into the concrete and behind coatings can produce wrinkles, blisters and moisture damage. Prepare substrates and recoat area. Assure no gap at coatings. Assure coatings are compatible before repair work.

26. 1213 corrosion in ceiling.
    Recommendation: Sand, prepare substrate, rust inhibit and recoat area. This may be a deep repair where a rebar chair leg or rebar end will need to be cut and the repair area grouted.

27. 1215 disconnect at floor coating to knee wall coating. Note slab face staining.
    Recommendation: All areas where coating can allow water into the concrete and behind coatings can produce wrinkles, blisters and moisture damage. Prepare substrates and recoat area. Assure no gap at coatings. Assure coatings are compatible before repair work.

28. 1416 ceiling crack appearing to stem from or toward a core hole for light wiring.
    Recommendation: Remove light fixture, rout crack, bond break, seal rout and coat ceiling.

29. 1415 corrosion in ceiling.
    Recommendation: Sand, prepare substrate, rust inhibit and recoat area. This may be a deep repair where a rebar chair leg or rebar end will need to be cut and the repair area grouted.

30. 1409 disconnect at floor coating to knee wall coating. Note slab face staining.
    Recommendation: All areas where coating can allow water into the concrete and behind coatings can produce wrinkles, blisters and moisture damage. Prepare substrates and recoat area. Assure no gap at coatings. Assure coatings are compatible before repair work.

31. 1401 deep scarring in floor coating.
    Recommendation: Prepare substrate and recoat area.

32. 1509 parapet scupper leaks badly. Ruptured coating blister to the West of scupper.
    Disconnect at floor coating to knee wall coating. Note slab face staining.
    Recommendation: Parapet scupper should be removed, flashing verified in the parapet throat and scupper reinstalled with proper perimeter sealant. All areas where coating can allow water into the concrete and behind coatings can produce wrinkles, blisters and moisture damage. Prepare substrates and recoat area. Assure no gap at coatings. Assure coatings are compatible before repair work.

33. 1512 deck coating and possibly substrate damage at expansion joint.
    Disconnect at floor coating to knee wall coating. Note slab face staining.
    Recommendation: Remove expansion cover and chip all loose decking. Repair decking.
    All areas where coating can allow water into the concrete and behind coatings can produce wrinkles, blisters and moisture damage. Prepare substrates and recoat area. Assure no gap at coatings. Assure coatings are compatible before repair work.

34. South pool maintenance room. No control joints in the concrete structure. Structure has formed its own in the way of cracks.
    Recommendation: Rout cracks, bond break, seal rout and coat ceiling.

35. Documented damage around the exterior of the indoor pool area. South doorway was improperly cut into the stucco and cracking has occurred. Typical concerns observed on South skylights but not as bad as noted on North.
    Recommendation: Remove door frame and have the stucco rough in properly sized and terminated at the head with a drip edge flashing. Install door frame with a perimeter closed cell backer rod and commercial grade low modulus sealant compatible to the wall coating and frame.

36. 1017 sliding doors were observed for damage by request. The doors (both South and North) moved within their frames such as the door may pulsate inward and outward during a storm. This same movement was found on 2 other South sliding doors from the accessible ground floor. As Mr. Behel reported on 10/7/20, he's documented that the operable track or rail is produced from a low grade metal. I'd like to learn more on the history of the sliding doors movement within the frame before the storm.

South Balcony Spalling as observed from the ground – documented spalling in the concrete balcony decks working in stacks going from East to West – documented blistering and ruptured blisters throughout many balcony decks at the column to lid tie in.

1. Stack 1 – Floors 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15
2. Stack 2 – Floor 15 (recent repair)
3. Stack 3 – Floors 2, 5, 11, 15
4. Stack 4 – None
5. Stack 5 – Floors 7 (recent repair), 9, 10
6. Stack 6 – Floors 6, 7 (recent repair)
7. Stack 7 – Floors 8 (recent repair), 14 (recent repair)
8. Stack 8 – Floors 5 (large)
9. Stack 9 – Floors 7, 12, 14, 15
10. Stack 10 – Floors 7, 8, 10, 12
11. Stack 11 – Floors 3, 4, 8, 11, 13, 15 (recent repair)
12. Stack 12 – Floors 9, 11 (recent repair), 15
13. Stack 13 – Floors 7, 13
14. Stack 14 – Floors 9, 11
15. Stack 15 – Floors 4, 5, 7, 8, 11
16. Stack 16 – Floors 1, 4, 6 (recent repair), 14, 15 (recent repair)
17. Stack 17 – Floors 2 (some areas have been repaired), 4, 5, 6, 7, 8, 9 , 10, 13, 15 (repaired)

Recommendation: Investigate to find water source before making spall repairs. I'd like to learn more of Mr. Brecciaroli's background on the balcony tile.

Roof Observation as noted during site visit – flashing loose inside the parapet scupper throats was a typical observation.

Area of roof abutting and South of the elevator penthouse was noted as wet. The moisture was tracked just to the AC units South of the elevator penthouse. The readings recorded were an accelerated reading (30 relative points of 100) as compared to other roof areas. The weak reading could point to moisture on the deck more so that within the roofing components. This would match the results of the infrared which showed no conclusive thermal anomalies. The infrared reads surface temperature differential which wouldn't typically be seen if the moisture were on the deck.

The elevator penthouse wall is allowing water behind the surface mounted flashing and behind/under the roofing.

Coping cap damage was observed on the South East building corner and on both corner stairwell penthouses. The roofing membrane was noted to properly saddle the parapet walls beneath the coping cap. The cap metal was folded over a lower cap leg instead of being cleated or clipped as would typically be seen. This was the cause of failure during the storm.
It was also noted that windblown water can enter the top of the stairwell penthouses due to short flashing legs, lack of flashing leg laps and exposed wood nailers.

Assessment Results Prioritized List

As requested during the conclusion of the October 23, 2020 Phoenix V Board meeting for assessment discussions, below is the typical deficiencies observed and noted in a prioritized list of need in Thompson Engineering's opinion.

Please note that the areas assumed as culprits of moisture have been done so from an observation point only and have not been confirmed by any testing or investigations. Moving forward with repairs from an observation or assumption without evidence could be a misuse of effort and funds.
An example would be the new sealant application at all fasteners and joints at the roofing parapet caps. If an investigation were to have been performed prior to the decision it could've been noted that the waterproofing roofing material properly saddles the parapet walls and any moisture entering the parapet cap joints would run off the wall and out of the bottom leg(s) of the cap. Our recommendation would've been to only seal the parapet cap to dissimilar components (walls, curbs, vents….), not at every joint / fastener.

1. Remediate roof / top floor elevation moisture intrusion points. Water can wick and migrate but in general speaking, it runs down in elevation from its entry point. Any repairs made to coatings or components with current signs of corrosion, aluminum oxide or efflorescence that are resulting from higher elevation moisture intrusion points could be considered short term and will return.
   These repair items as observed in the assessment notes would be the elevator penthouse parapet to wall flashing(s), the numerous antenna penetrations in the interior parapet face and the exterior parapet face vertical expansion joints.

2. Expansion joints throughout the building should be repaired. These can allow moisture (liquid or vapor) to enter behind the building components and cause component corrosion, coating blisters and degradation of internal wall components. These joints provide a direct path for moisture into the vertical walls.

3. Control joints and sealant joints with a focus on the South balconies, especially at balcony / column / stucco abutments and terminations. The building moves and this movement is naturally accelerated during high wind events. Any joint between dissimilar components must be able to move its substrate is capable of movement. Without movement between, the components or their abutments will open / crack. These cracks allow salt laden moisture into the façade system or concrete substrates and causes corrosion. Corrosion of structural steel within concrete causes the steel to expand. This applies pressure from the interior of the concrete slab. That pressure locates the weakest area which is the minimal coverage of concrete over the steel. The concrete cracks and the result is a concrete spall. Patching the spall area with a non-shrink grout and surface coating will not stop the steel corrosion due to the leak entry point not being repaired.

4. Deck coatings, more importantly, deck coating to vertical wall face abutments. This #4 can be integrated into #3 when referring to the private balcony spall causes and the common balcony ceiling blisters. The current deck coating isn't fully deteriorated but it's not in great condition either. The best scenario for a 90* vertical to horizontal abutment of dissimilar waterproof coverings is to provide a joint to physically separate the two or lap the two with like material so that there is no open or dead edge. Breaking the two at a concrete floor slab face is not an option; we'd recommend that they lap. The current voids, albeit small in size, are open intrusion points to bare concrete and should be repaired before ceiling spall or coating blistering is addressed.

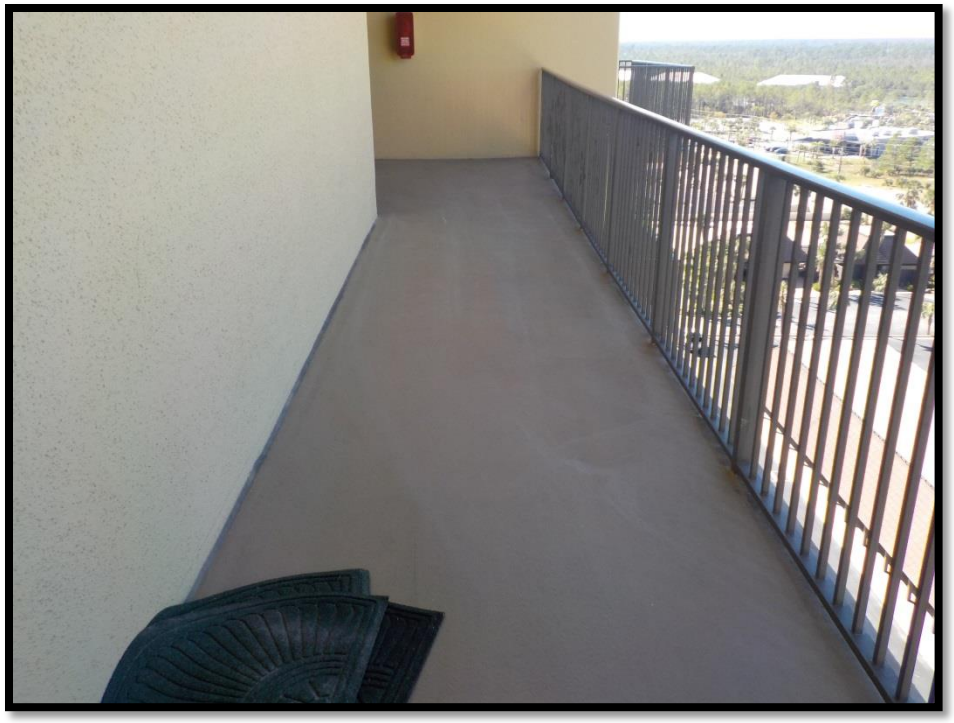
5. Sliding glass doors and exterior windows without coverage. The majority of sliding glass doors and windows on the South face are covered by the adjacent floor slab. This doesn't make them waterproof but this definitely helps and can allow time for reserve build ups as is the current plan of the Board. The sliding doors are the focus but the windows should not be disregarded. They appear to be sealant reliant with minimal to no flashing installations causing them to be a top of the list reoccurring maintenance item. From our observations, there appear to be some vertical coating blisters on the East and North walls that could've been produced by leaking windows.

6. Sealants and coatings throughout the building. Sealants are almost a part of all waterproofing components. As observed here and as noticed as being last on this list, although they are typically vital for successful waterproofing, mass applications of sealants or coatings are not the answer if there are underlying problems within the substrates themselves. It's seldom, if not ever, that covering the result succeeds in repairing the cause. These two are last on this list to denote this point but are also not one single step of prioritization. Both sealants and coatings will be utilized in the majority of the repair priorities listed above in some capacity.

Phoenix V Building Observation Photographs

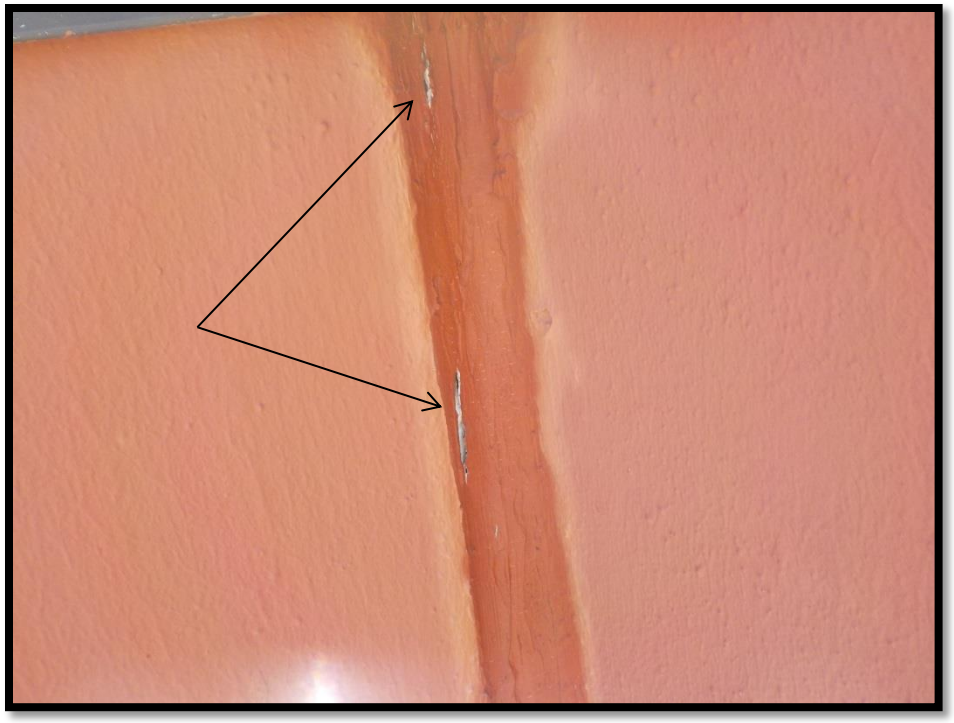
1 – Overview of building face. Lack of sheen and faded coloring.

2 – Deck puddle evidence. Typical against common walkway knee walls.



2 – Stain/tracks from floor cleaner.

4 – Parapet expansion joint overview.



4 – Close up of parapet expansion joint. Cohesive sealant failure.

4 – Void at the expansion cap termination.

5 – Door and frame in early stage of corrosion.

5 – Door skin corroded through.

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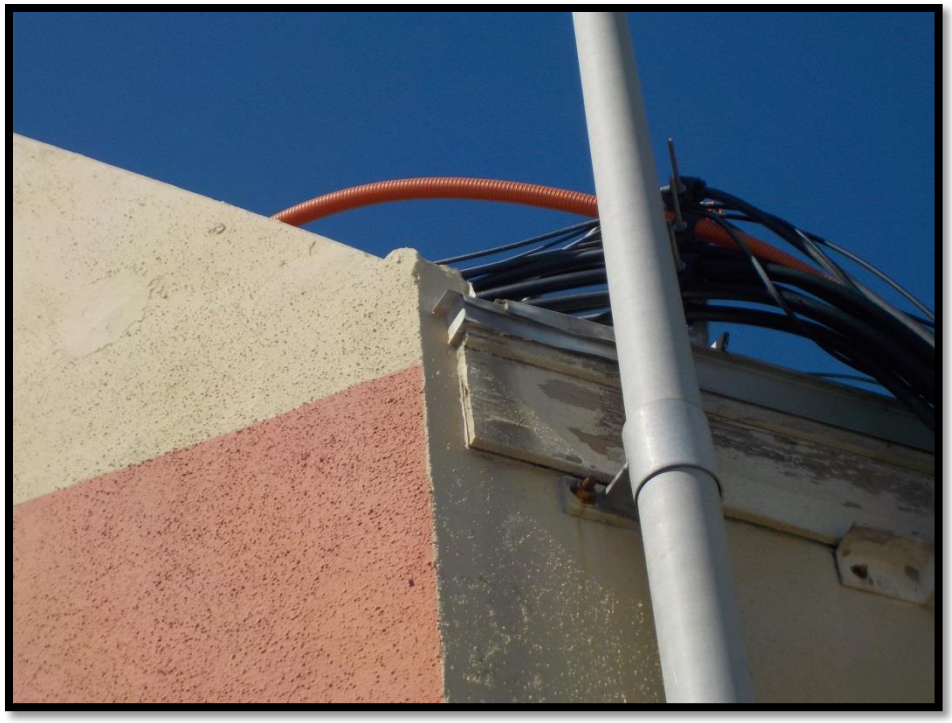
7 – Low slope edge that holds water at the elevator shaft.



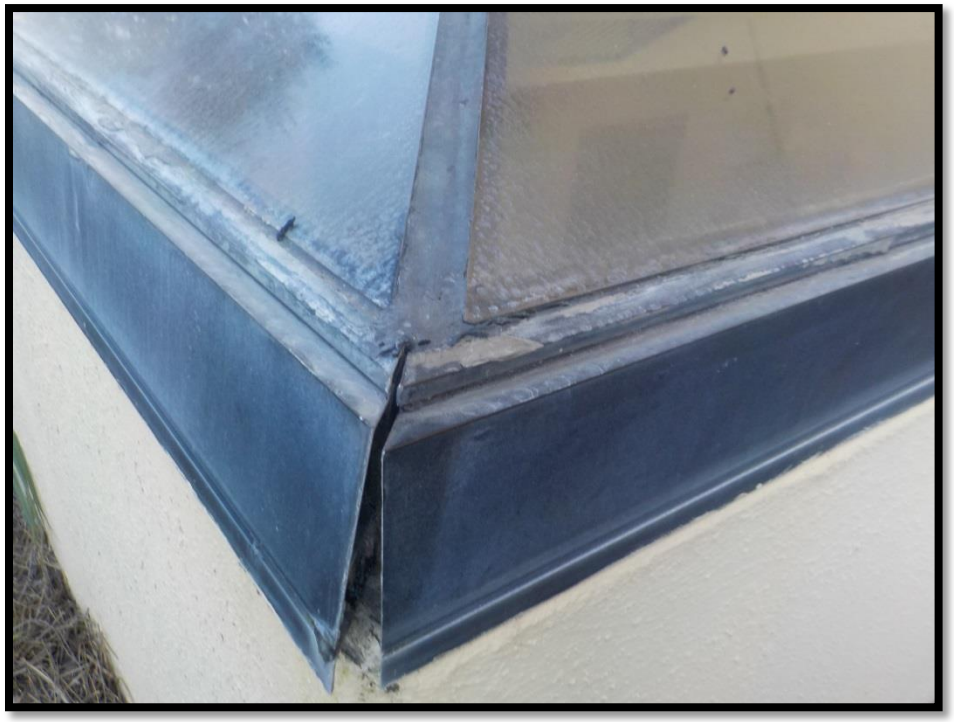
7 – Elevator penthouse roof to wall termination. Vertical coating blisters are just below this area.

7 – Vertical wall blister beneath an elevator penthouse window.

8 – Sealant failure at skylight.

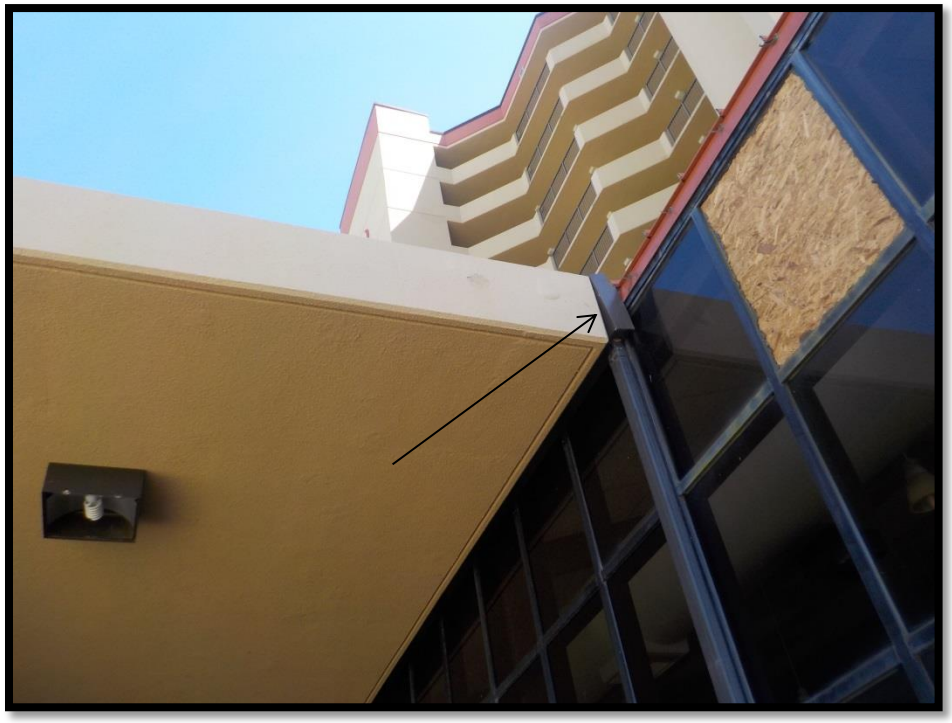
8 – Sealant failure at a South window.

9 – Clogged weep.

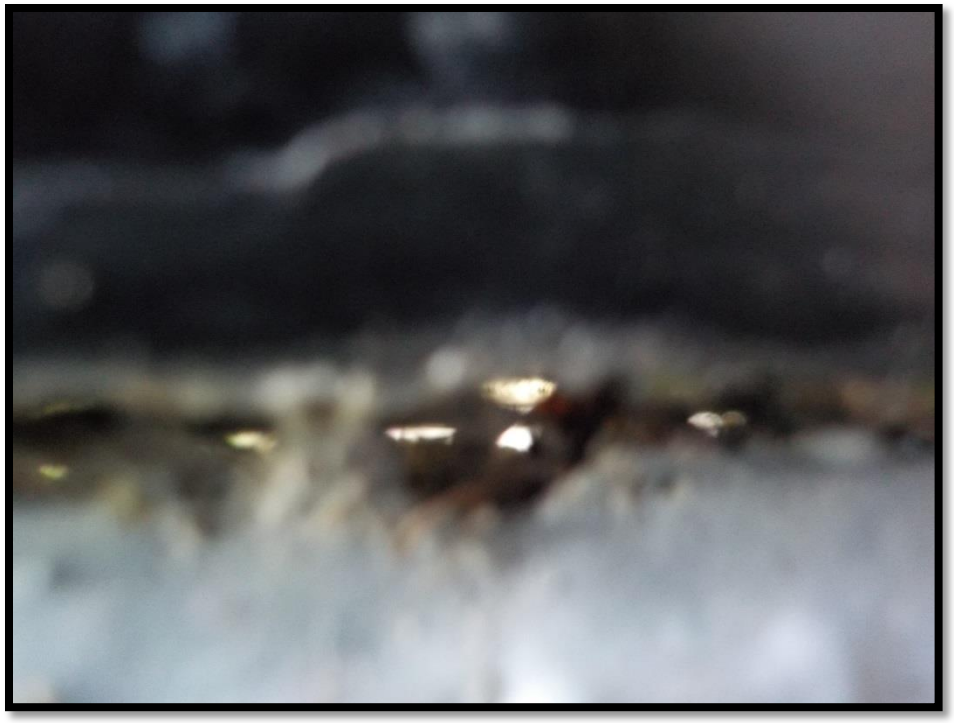


1 – Skylight framing separation.

2 – Efflorescence on wall coating below vent.



3 – Hurricane damaged window. Also note loose metal at window frame to roof.



3 – Daylight from interior to exterior at curtain wall perimeter.

4 – Moisture stain below coping cap joint.

5 – Failed flashing sealant.

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8 – Open roof termination to wall overview.

8 – Close up of exposed lumber beneath roof.

8 – Impact damaged ridge cap.

8 – Overview of roof to wall at higher elevation.

8 – Close up of open roof to wall termination.

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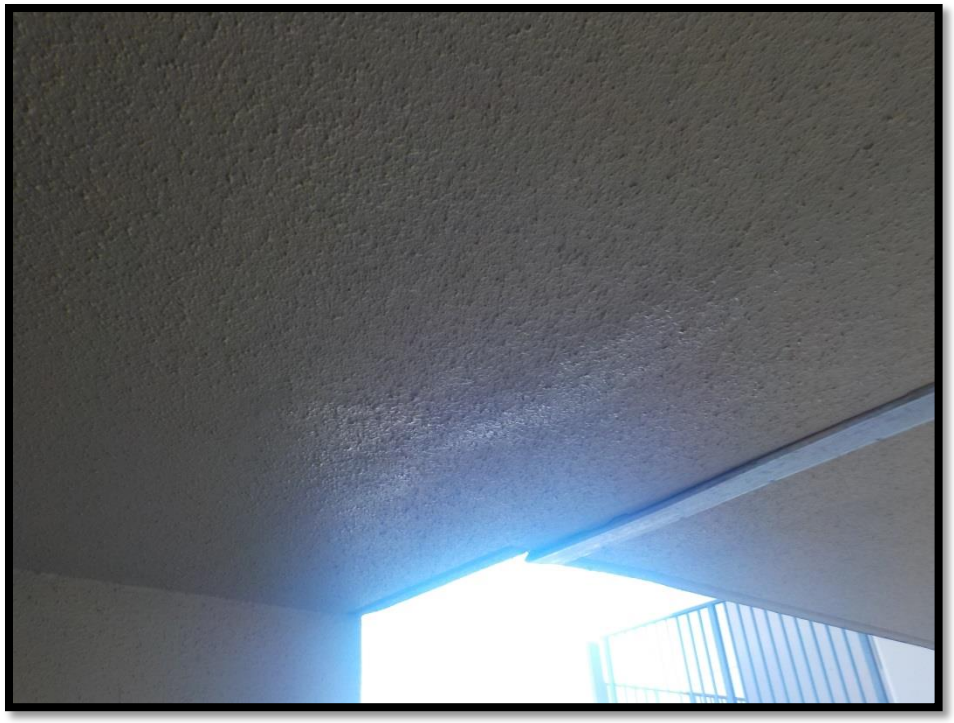
10 – Water dripping from a window rumination.



10 – Condensation on ceiling.

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17 – Note sealant split behind cover.

18 – Deck coating separation at handrail stanchion base.

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25 – Openings at coating abutments with wrinkling of slab face coating.

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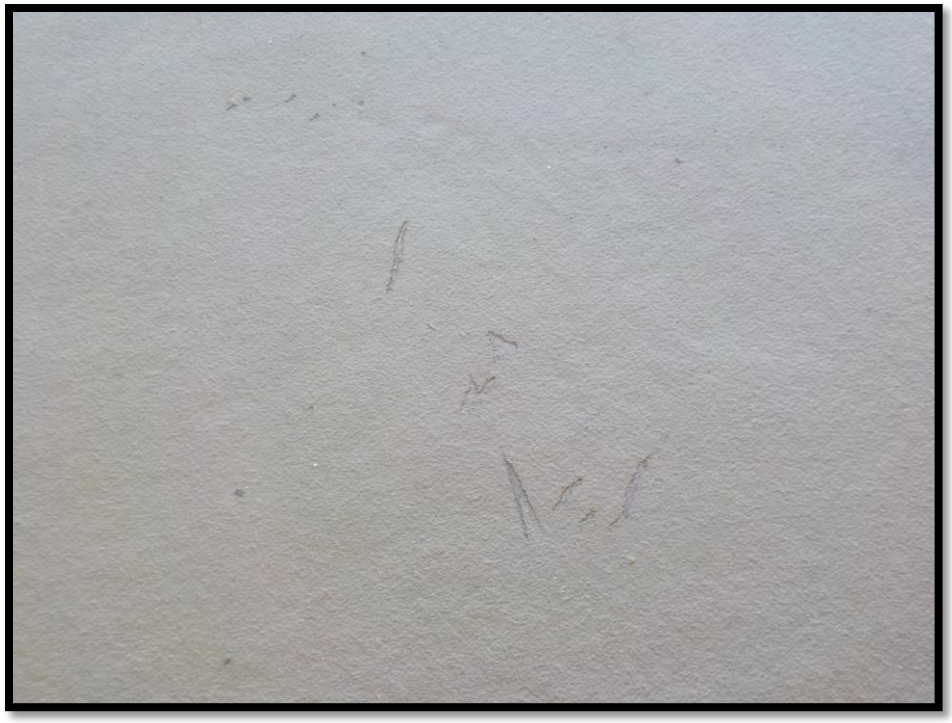
30 – Good visual of wrinkled coating on slab face.



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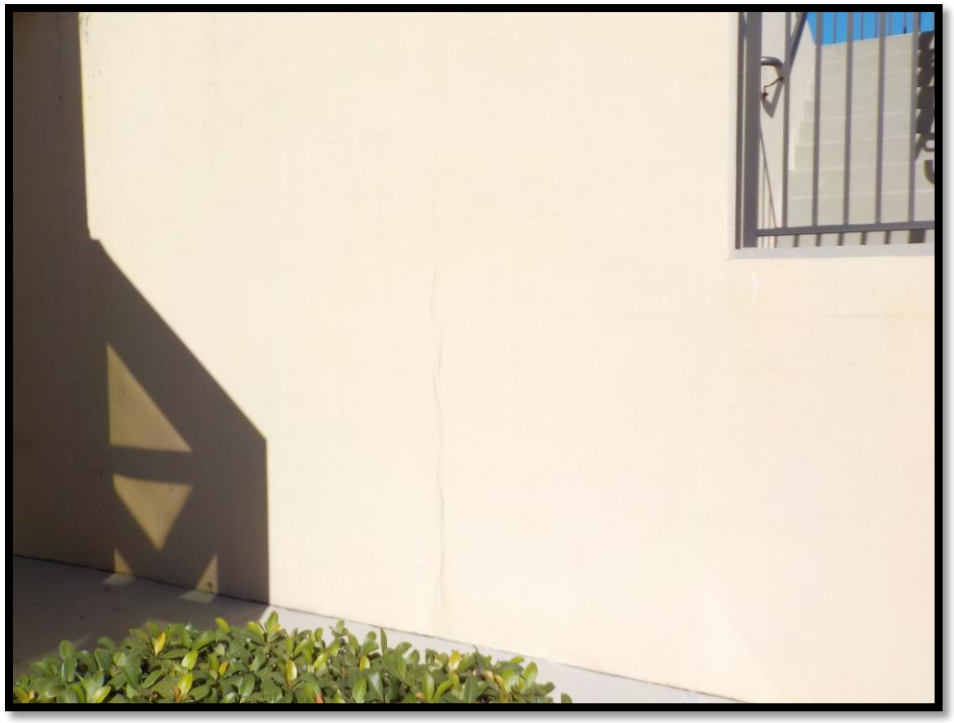

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35 – Improper door head.

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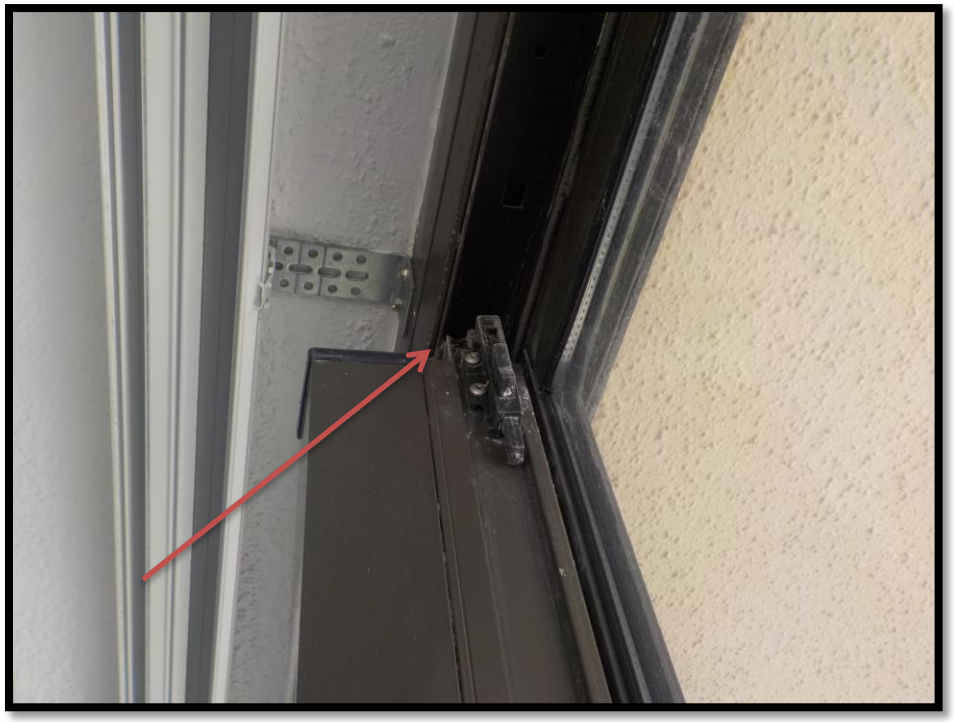


36 – Note door position in reference to interior frame.

36 - Note door position in reference to interior frame when pushed toward exterior.

Spall observation.

Spall Observation.

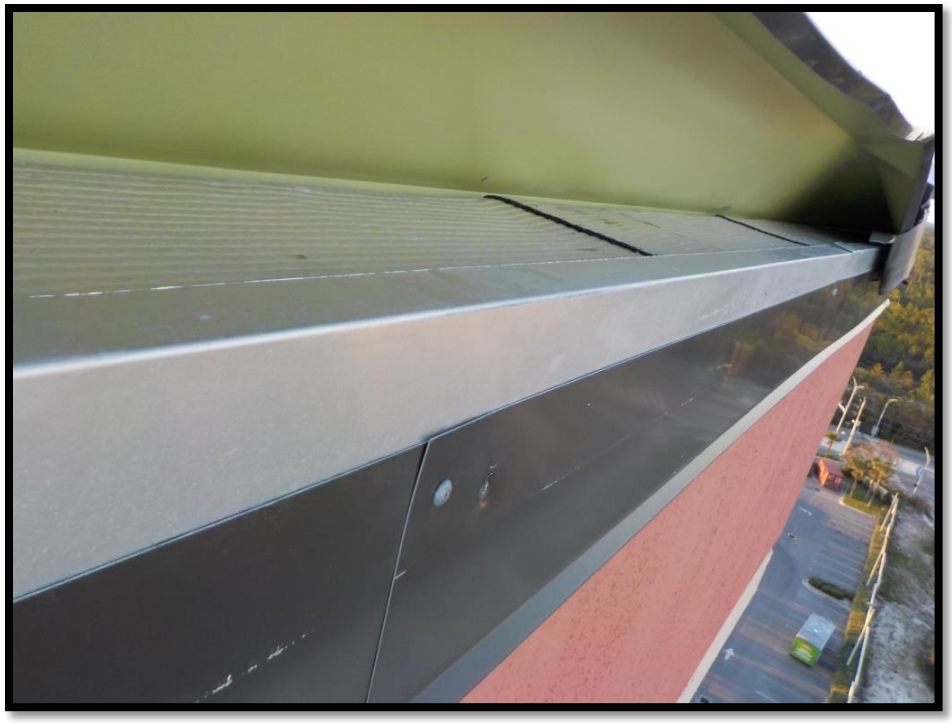
Example of roof overflow scupper.

Scupper throat flashing condition observed.

Elevator penthouse. Note coating blisters.

Elevator penthouse wall penetrations.

South East flashing damage.



No cleats or clips observed.

Stairwell penthouse flashing damage.

Note exposed lumber and lack of flashing lap.

Exposed penetrations just behind stairwell penthouse flashing.