Pendleton + Bowman, Inc.
CONDOMINIUM RESTORATION SERVICES

29 November 2021

TO: Board of Directors
Aquavista of Panama City Beach Owners Association, Inc.

Subject: **Building Survey of the Property**

The objective of a building survey is to perform a visual non-invasive or destructive inspection of the primary components of the building. This includes the concrete structure; waterproofing and sealants of the exterior façade; the sliding glass doors and windows and the roof.

The roof was not included in this inspection since the roof was just installed. This report assumes that the roof is in good shape.

Parking Deck:
The above grade parking deck has multiple cracks running north and south about every 10 feet apart. This is allowing the salt laden water to penetrate through the deck.

As can be seen in the below photographs taken underneath the deck, the cracks seen previously extend through the entire thickness of the deck.

This writer was surprised that the reinforcing steel within the deck had not significantly begun to rust since there was little visual rust seen as part of the laitance (the white residue). It is only a matter of time until this starts occurring. These cracks need to be sealed as part of the waterproof deck coating installation on the deck above. The water coming through the slab is not insignificant as can be seen in the drip lines made in the sand below.

Parking Deck Supporting Structure:

While underneath the deck, the columns supporting the deck were inspected. A number of these columns had significant cracks. Some of these vertical cracks disappeared into the sand below. As part of the concrete restoration work these would be considered full depth major concrete repairs.

TOWERS AND POOL CONCRETE SLAB DECK

Columns & Girders:

The structure beneath the two towers and pool deck are poured-in-place concrete columns and large girders running north and south. Fortunately, the balcony deck at this level east and west of the pool has a waterproof coating applied several years ago which has aided in protecting the concrete deck.

As can be seen in the adjacent and following page photographs, the primary girders and columns have structural cracks that should be repaired. In some cases, one can see that the reinforcing steel is beginning to rust and bleeding through the surface.

These types of cracks are not uncommon. Sometimes they are the result of water penetrating the girder but most of these appear to be caused by structural movement of the towers above.

These are also considered to be full-depth repairs which will be specified in the restoration documents.

Major concerns are the large holes which penetrate through the girders as part of the piping system. As can be seen, the girders have significant cracks around the holes. Destructive testing will have to take place to determine if these holes must be reinforced with tubular steel.

Columns:

There are multiple cracks in a number of columns. As stated in the prior comments, these are also considered full-depth repairs which take a significant amount of concrete removal to adequately repair the damage.


11/23/2021 02:31

Deck Overhead:

There are multiple concrete spalls in the concrete overhead deck. These spalls are mostly under the pool slab between the two buildings.

In addition to the spalls there are number of locations where the concrete slab has linear cracks allowing water to penetrate through the deck, similar to what is happening below in the parking deck. These calthemite stalactites are the result of saltwater causing calcium to be leached from the concrete. Over time, this weakens the concrete and leads to the reinforcing steel rusting.

Unlike the cracks in the parking deck where one can see the cracks in the above surface, the pavers of the pool deck prevent seeing the cracks above on its surface.

The following photographs were taken in both the pool and fire control equipment rooms. As one can see there are significant cracks throughout the slab below the pool deck.

These deposits are occurring between the pool wall and the pool deck.

As in the parking decks, these cracks should be sealed to prevent rusting of the reinforcing steel in the slab.

To do so the pavers surrounding the pool on the surface will have to be removed. Once removed, a waterproof coating should be applied to the surface, like what has been applied on the balconies of the towers.

Perimeter Cantilevered Decorative Band around the Deck:

This band has numerous cracks in the stucco cladding. There have been numerous attempts to repair these cracks in the past. Further investigation is required to determine how the band is constructed to specify the best means and methods of repairing the cracks.

Slab Edge Cracks:

Both towers are experiencing slab edge cracks which is not unusual given the age of the building. The chlorides of our salt laden atmosphere have penetrated the slab edges rusting the steel, thus leading to the spalls.

These two photographs below show the early signs of concrete that is about to spall, similar to the photographs on the previous page.

The state of these spalls is such that they can be repaired without extensive demolition of large areas of the balconies. However, without appropriate repairs we have seen where balconies had to be reconstructed.

Unfortunately, these repairs will lead to the repair of the deck coating applied on the balconies several years ago.

There are signs of rust stains on some of the balcony slab edges. This could be rusted rebar coming to the surface of the slab or could be rust from metal porch furniture legs running down the slab edge.

Walkway Slab Edges:

The walkway slab edges are beginning to show cracks and the early signs of concrete spalls in the overheads.

Walkway Surface Spalls:

The walkways do not have a quality waterproofing applied to the surface. This is allowing water to penetrate the slab and rusting the reinforcing steel. The surface spalls can be repaired using standard ICRI (International Concrete Repair Institute) repair methods, which are included in all our project manuals for contractors to follow.

Please know that the length of the repair will be three to four times the length of the exposed rusted reinforcing bar.

Without proper waterproofing of the surface, these types of spalls will continue to increase throughout the walkways, becoming more numerous over time.

Sliding Glass Doors and Windows:

The sliding glass doors and windows throughout the buildings have exceeded their service life.

The aluminum thresholds and frames are deteriorated well beyond the ability to be repaired.

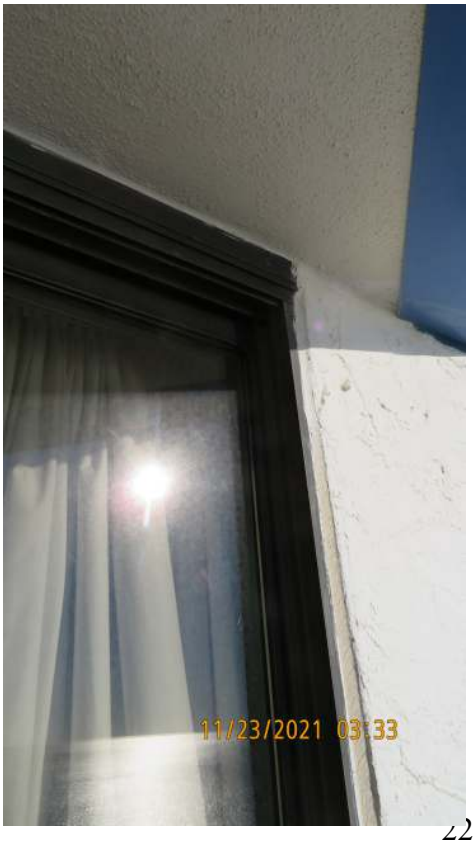
Gaskets between the glass in the aluminum frames have failed.

The anchoring hardware connecting the doors to the building has deteriorated and no longer functions as a structural connection.

This writer believes that if Hurricane Michael's winds had been from the Southeast, many of the doors and windows would have imploded.

The sealant joints between the aluminum frames and the stucco have deteriorated and broken down. The joints have ceased to operate as a true expansion joint to allow movement between the aluminum frames and the wall.

Lastly, the sliding glass doors and windows have single pane glass. The frames are not thermally broken. The glass does not have Low-E coating to reflect the infrared and ultraviolet light from entering through the glass into the unit. Both issues add a significant amount of heat gain in the summer and heat loss in the winter. It is estimated that the cost per unit with new insulated coated glass would reduce the cost of conditioning air by 20% to 30%.



Beach Walkover:

The beach walkover has also reached its service life and should be reconstructed.

As part of this reconstruction, the owners may wish to provide shorter runs and larger longer landings to stretch the walkover down to the edge of the sea oats.

Victor S. Bowman AIA NCARB
AR-OOIOI38 Registered Architect
CGC 042225 Certified General Contractor
CCC 057542 Certified Roofing Contractor
Infrared Thermographer

Pendleton + Bowman, Inc. • AA-0002907
Post Office Box 4877 • Santa Rosa Beach, Florida •32459-4877 • PenBow.com