Harrison Towers East

VISUAL BUILDING ENCLOSURE CONDITION ASSESSMENT

PREPARED FOR:

Harrison East Condominium Owners Association
c/o Seth Schade
BPM Management

PROJECT NUMBER:

21-110

REPORT DATE:

August 23rd, 2021

REVISION DATE:

PREPARED BY:

FORENSIC
BUILDING CONSULTANTS

WWW.FORENSICBUILDING.COM
National Headquarters
15 82ND DRIVE, STE. 10
GLADSTONE, OR 97027
(P) 503.772.1114
(F) 503.772.4039
Oregon – Utah - Washington

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EXECUTIVE SUMMARY

Client Name:	Harrison East Condominium Owners Association c/o Seth Schade BPM Management	**Property Name:**	Harrison Towers East (Property)
Client Address:	111 SW Harrison St Portland, OR 97201	**Property Address:**	111 SW Harrison St Portland, OR 97201
Report Type:	Visual Building Enclosure Condition Assessment (BECA)	**Report Date:**	August 23rd, 2021

Dear Harrison East Condominium Owners Association and Mr. Schade

On July 21st and 23rd, Forensic Building Consultants (Forensic) performed a VBECA at the Property in general conformance with ASTM E2128 "Standard Guide for Evaluating Water Leakage of Building Walls," and ASTM E2118 Standard Guide for Property Condition Assessments" The intent of Forensic's VBECA was to evaluate the Property's accessible building enclosure assemblies at limited locations, noting evidence of "nonconforming" construction conditions (i.e., construction "defects"), water leakage-facilitating conditions and evident water leakage pathways, and resultant property damage (if any).

The following report has been prepared to provide representative photographic documentation, discussion, and a summary of Forensic's VBECA observations, and to specify preliminary remediation recommendations.

VBECA SCOPE

Forensic's VBECA was limited to observation and evaluation of the as-built construction assemblies or building locations listed below, as they existed at the time of our presence on site at the Property. All other construction assemblies or building locations not specifically identified below were beyond the scope of our VBECA. Note that Forensic's VBECA was limited to the following:

- Visual review of exterior wall coverings and fenestration (window and door) assemblies via UAs drone.
- Visual review of surface waterproofing and drainage provisions and the below grade parking garage.
- Visual review of the roof assembly.
- Visual review of accessible balconies at Eleven (11) units.

VBECA FINDINGS

The conditions observed at the time of our presence on site at the Property are summarized and analyzed on the following pages. Please refer to the "Summary of Observations" section and appropriate

"Observations and Discussion" photo section of this report for detailed information regarding a given condition.

- The 156-unit 22 floor high-rise tower was originally constructed in the 1950 and named the Portland Center Apartments. The building underwent the most recent renovation and Condominium conversion in 2006-2008. The tower is a concrete structure with subterranean parking. During the conversion new windows and doors were installed and the balconies coated with a fluid applied waterproofing coating.
- The exterior of the concrete tower is generally in good condition with some isolated areas of spalling concrete related to drainage from the balconies. Spalling of the concrete was also observed at the rooftop where vertical walls are exposed. The penthouse tower on the roof has historic cracking along the mechanical room floor line but does not appear to be recent. The exterior paint is beginning to fade particularly at the upper floors and overall surface grime. Sealant joints at the windows and doors are in good condition.
- The private balconies are in fair condition but have exceeded the expected service life before needing a recoating. A balcony on the North elevation 4th floor was observed to be in poor condition with extensive deterioration and signs of sealant work at the windows and doors.

  Many units have a floating floor covering or carpet and could not be viewed. The balconies have signs that water frequently ponds or is slow to drain. Drains through the concrete have common leaks at the pipe extensions and discharge onto the outer ledge of the balconies below causing some areas of spalling concrete to occur. Areas of spalling at the drains was noted on the undersides of several balconies. The steel guardrails have minor paint delamination and rusting of the mounting bolts.
- The surface plaza has extensive signs of leaks due to the failures in the waterproofing coating and at control joints in the concrete. Sealants are systemic failed at the building wall junction and throughout the field. Extensive moisture staining and several active water areas were observed at the first parking level. Lower-level leaks look infrequent and are likely due to water dripping from vehicles during rainy weather. Water is also attributable to the flushing of the fire suppression drains that flood the parking level. Water that emanates from the leaks is likely very caustic and can damage the internal rebar as well as vehicles below. Extensive gutter systems have been deployed to capture water from many of the leak areas and appear to be functioning although unsightly. Some minor spalling of the concrete wall was noted at the PG-2 along the south and west walls. Pg-3 has cracks in a column along the west elevation that appear to have been patched and reoccurring.

  The backflow for the fire suppression system is leaking at PG-03 and causing pooling water on the garage floor that could pose a slip and fall hazard.
- The Upper roof is a single-ply thermoplastic polyolefin (TPO) membrane. Overall, the membrane is in fair condition but has widespread patches and is nearing the end of its service life. Ponding appears to be significant around the tower.

RECOMMENDED NEXT STEPS

Forensic believes that the conditions identified in this report need to be remediated in order to help ensure that the longevity and weather-resistance of the Property are not compromised. As such, we recommend pursuing the following course of action in a timely manner:

- The podium level plaza needs recoating and replacement of the sealant joints to avoid further damage to the concrete and any vehicles below. Areas of spalled concrete should be removed and

zinc rich primer coating to any visible rebar prior to repairs. The column at the west elevation of PG-3 should be monitored and reviewed by a licensed structural engineer if the condition worsens. The backflow for the fire suppression system should be serviced and the leak corrected.

- The balconies should be planned for recoating in the near future. The unit on the north 4th level should be repaired immediately. During the recoating of the balconies the railings should be cleaned and painted with any areas of corrosion cleaned to bare metal and repainted. Spalled concrete should be removed and patched and the drain extensions resealed. A vertical downspout should be considered to manage the dripping water and prevent additional problems.
- The upper TPO roof should be budgeted for replacement and the tops of the exposed concrete walls covered with a metal cap or a fluid applied waterproofing.
- Cleaning and painting of the building is needed in the near future and should be budgeted for.
- **Follow-Up Meeting –** Meet with Forensic at your earliest convenience to further discuss our investigation findings and recommended next steps, and to begin to develop a plan for further action. The action plan will outline the following:
  - Establish Project remediation goals
  - Prioritize nonconforming conditions according to risk
  - Identify available repair options and strategies
  - Formulate a final repair strategy using established budgets in relation to remediation goals

We appreciate your confidence in Forensic and we look forward to addressing any questions or concerns that you may have regarding the contents of this report. Please do not hesitate to contact Forensic at (503) 772-1114 or info@forensicbuilding.com if we can be of further assistance. Thank you.

Respectfully submitted,

FORENSIC BUILDING CONSULTANTS

Director of Investigative and Litigation Services
Senior Building Science Consultant

Toby C. White,
Vice President and Director of Technical Services

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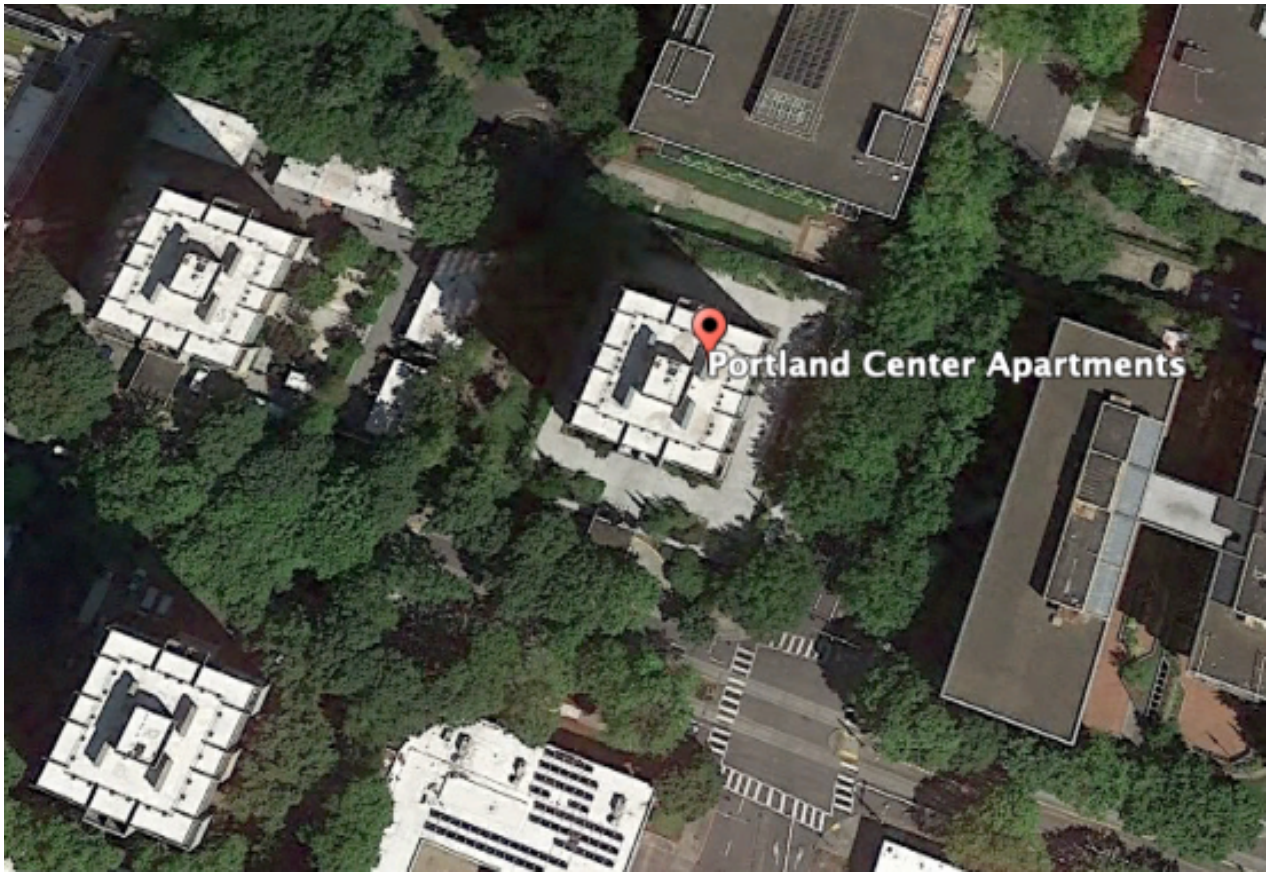
BACKGROUND INFORMATION

Building Occupancy Type:	High-Rise Residential Condominiums	**# of Buildings:**	1
		# of Stories:	22
		# of Units:	156
Reported Construction Date:	1950's 2006-2008 Condominium conversion	**Building Permit Issue Date[1]:**	TBD
Description of Exterior Wall Assemblies:	■ Cast Concrete	**Description of Roof Assemblies:**	■ Single-ply TPO membrane
Description of Fenestration Assemblies:	■ Vinyl window and sliding glass door (SGD) units	**Description of Balcony Assemblies:**	■ Steel guardrail assemblies ■ Fluid applied waterproofing membrane

PROPERTY SITE

The aerial image below, obtained from Google Maps, illustrates the overall site conditions at the Property. Note that this image is oriented so that "North" corresponds with the top of the page.



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PROPERTY ELEVATIONS

The photos below illustrate the building elevations at the Property. Note that elevations may be referred to as “Front, Left, Rear, & Right,” throughout this report, rather than “North, West, South, & East.”

Overview: Front Elevation

Overview: Right Elevation

Overview: Rear Elevation

Overview: Left Elevation

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Observations & Discussion

1. *VISUAL REVIEW*

1.1. EXTERIOR WALL ASSEMBLIES

Explanatory Notes:
The exposed ledges are experiencing spalling of the paint and coatings.

Explanatory Notes:
Close-up of the spalling and failed coating.

Explanatory Notes:
Water sitting on the horizontal ledge and water dripping from the balconies above.

1. *VISUAL REVIEW*

1.1. EXTERIOR WALL ASSEMBLIES

Explanatory Notes:

Exposed walls at the upper roof are also experiencing decay.

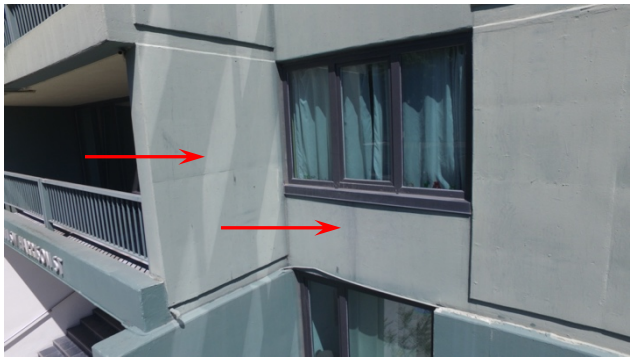
Explanatory Notes:

A large previous crack was noted in the penthouse mechanical tower but appears to be stable.

1. *VISUAL REVIEW*

1.1. EXTERIOR WALL ASSEMBLIES

Explanatory Notes:
Dirt and debris on the concrete are typical and more concentrated at the upper levels.



Explanatory Notes:
The exterior paint is generally faded and marred from window washing practices.

Explanatory Notes:
Staining and dirt typical at the balcony ledges.

1.2. BALCONY ASSEMBLIES

Explanatory Notes:

Private balconies are topped with a fluid applied waterproofing that typical require recoating every 7-10 years. The current coating is believed to be from 2006-2008 with some isolated units receiving repairs.

Explanatory Notes:

A majority of the balconies are covered by a floating floor or carpet and the coating is not visible.

Explanatory Notes:

Balconies typically have signs of ponding or poor drainage.

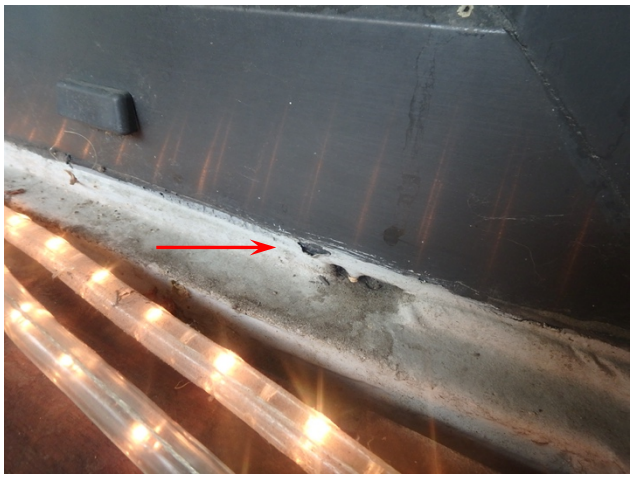
1.2. BALCONY ASSEMBLIES

Explanatory Notes:

North elevation 4th-floor unit has extensive spalling of the coating.

Explanatory Notes:

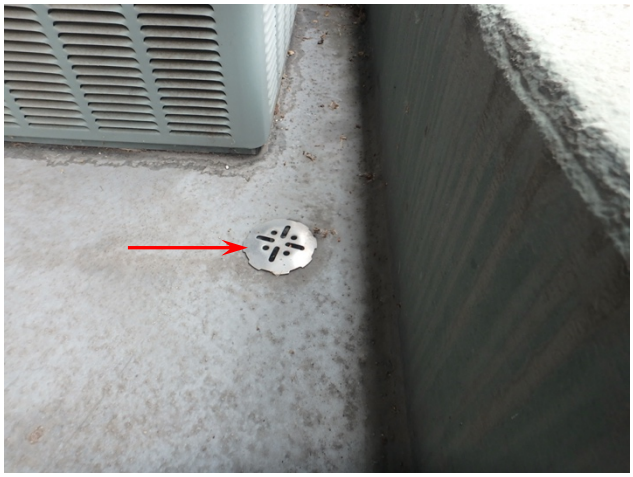
The balconies reviewed have the top aggregate exposed or worn away as the coating system ages.



Explanatory Notes:

The waterproofing is beginning to delaminate in areas along the windows and doors of the units reviewed.

1.2. BALCONY ASSEMBLIES



Explanatory Notes:

Most balconies have two drains at the outer face.

Explanatory Notes:

Pipe extensions have been placed to direct water away from the balcony below but still discharge water onto the exposed ledge causing the water staining and some localized spalling of the concrete.

Explanatory Notes:

Many of the extension are showing signs of leakage that may be at the coating to leader in the concrete or at the pipe extension into the concrete.

1.2. BALCONY ASSEMBLIES

Explanatory Notes:

Several balconies have spalling at the underside leader termination due to water exposure.

Explanatory Notes:

Guardrails are showing signs of deteriorating paint and corrosion at weld joints.

Explanatory Notes:

Minor corrosion at the weld between posts.

1.2. BALCONY ASSEMBLIES

Harrison Tower East				
2021.07.23				
East Elevation	Downspout Leak	Missing Downspout	Spalled Concrete	Deteriorated Balcony Coating
South balconies	10, 11, 17, 18, 20			
Center balconies	4, 17	4		
North balconies	13	5, 6, 10		
North Elevation	7			4
West Elevation				
South balconies	6, 7, 10		9	
Center balconies	8	3		
North balconies			2, 4, 17	
South Elevation	3, 8, 12			

1.3. PODIUM PLAZA AND PARKING GARAGE

Explanatory Notes:
The waterproofing and sealants are systemically failing causing leaks below.

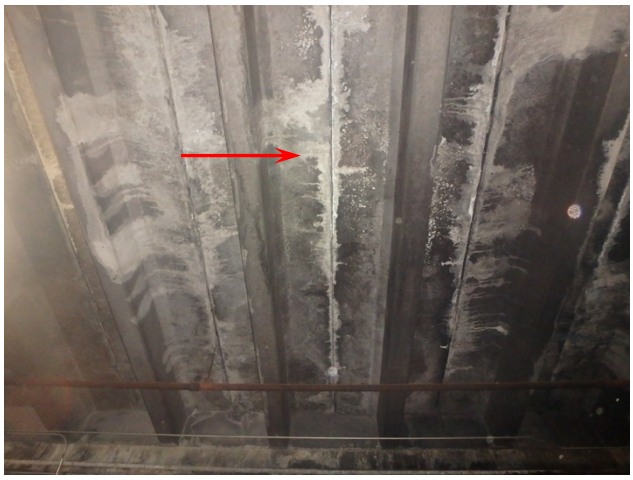
Explanatory Notes:
Typical sealant failure at the base of the wall.

Explanatory Notes:
Expansion joints in the plaza deck are systemically failing causing leaks below.

1.3. PODIUM PLAZA AND PARKING GARAGE

Explanatory Notes:
Close-up of a failed joint.

Explanatory Notes:
Leaks in the parking garage are widespread.



Explanatory Notes:
Leaks align with the precast concrete panel joints.

1.3. PODIUM PLAZA AND PARKING GARAGE

Explanatory Notes:
Additional example of leaks at the joints.

Explanatory Notes:
Various gutters and catches have been used to mitigate water dripping on vehicles.

Explanatory Notes:
Most gutters are metal with a few being plastic.

1.3. PODIUM PLAZA AND PARKING GARAGE

Explanatory Notes:

Leaks and damaged concrete were observed at several locations in the parking garage areas.

Explanatory Notes:

Moisture exposed rebar can cause rust jacking and spalling of the concrete.

Explanatory Notes:

Additional area of spalled concrete where the flushing of the fire suppression system floods the floor.

1.3. PODIUM PLAZA AND PARKING GARAGE

Explanatory Notes:

Continued corrosion can compromise the steel components over time.

Explanatory Notes:

Cracks were observed in a concrete column at level 3 along the west elevation.

Explanatory Notes:

The column has been patched and the cracks have telegraphed through. If the cracks continue or worsen further analysis should be performed.

1.3. PODIUM PLAZA AND PARKING GARAGE

Explanatory Notes:

The backflow valves for the fire suppression system is leaking and flooding the lower parking level.

Explanatory Notes:

Water on the concrete poses a potential slip and fall hazard.

1.4. ROOF ASSEMBLY

Explanatory Notes:
The TPO roof is in fair condition but has numerous patches.

Explanatory Notes:
At some point patching will no longer be feasible and the roof should be replaced.

1.4. ROOF ASSEMBLY

Explanatory Notes:

Signs of ponding are present surrounding the mechanical tower as the roof has poor slope and limited drainage.

Explanatory Notes:

Signs of ponding are present surrounding the mechanical tower as the roof has poor slope and limited drainage.

1.4. ROOF ASSEMBLY

Explanatory Notes:

Single drains are located on the roof without an overflow drain and can flood the roof if clogged.

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Appendix A: Important Information

APPENDIX A1: DISCLOSURES AND LIMITATIONS

1. **Nonconforming Conditions:** Forensic defines "nonconforming conditions" as construction conditions that fail to conform with the Property's applicable building code requirements, "project documents" available for Forensic's review, referenced standards and other industry association standards, as well as sound construction and weatherproofing principles.

2. **Project Documents:** Within the scope of Forensic's services at the Property, "project documents" include (but are not necessarily limited to) the following: construction document drawings, project manual or written specifications, submittals or test reports, and building product manufacturer information.

3. **Review of Project Documents:** To assist Forensic's evaluation of the design intent or product manufacturers' requirements for the installed construction assemblies at the Property, the following Project documents were made available for Forensic's review at the time of our presence on site at the Property or prior to the time that this report was generated:

    a. Project documents were not made available for Forensic's review at the time of our presence on site at the Property or prior to the time that this report was generated.

4. **Service History Information:** Within the scope of Forensic's services at the Property, "service history information" includes (but is not necessarily limited to) the following: accounts of previous water leakage or symptoms of leaks reported by building owners or occupants, maintenance or repair records, or previous investigation reports by others.

5. **Review of Service History Information:** To assist Forensic's evaluation of the previous occurrence of water leakage through the Property's building enclosure assemblies, the following service history information was made available for Forensic's review at the time of our presence on site at the Property or prior to the time that this report was generated:

    a. Service history information was not made available for Forensic's review at the time of our presence on site at the Property or prior to the time that this report was generated.

6. **Investigation Methodology:** Forensic's investigation techniques consisted of examining select building components and/or systems throughout the Property's building enclosure assemblies at locations where our experience has shown us that nonconforming construction conditions, water leakage, and/or property damage have a high likelihood of existing or developing. However, because Forensic's investigation did not include the complete removal of the Property's exterior wall coverings, roof coverings, fenestration (door & window) assemblies, and any other building components or systems overlaying the Property's underlying structure, water-resistive barrier (WRB), and other concealed building enclosure assemblies, there remains the possibility of the existence of concealed property damage, water leakage, and/or nonconforming construction conditions that Forensic could neither detect, document, nor report on.

7. **Visual Review:** In general conformance with the investigation methods described by ASTM E 2128 "Standard Guide for Evaluating Water Leakage of Building Walls," and/or ASTM D 7053 "Standard Guide for Determining and Evaluating Causes of Water Leakage of Low-Sloped Roofs," Forensic performed a visual review of the unconcealed and accessible surfaces of the building components, systems, and locations included within the scope of Forensic's services at the Property. The objectives of Forensic's visual review were to document the existing construction conditions at the Property, to identify workmanship and/or building product deficiencies that have the potential to compromise the weather resistance of the Property's building enclosure assemblies, and to formulate an initial hypotheses regarding the causes of evident weather resistance deficiencies or damage at the Property.

8. **Inspection Openings:** At no time during Forensic's investigation were inspection opening (IO) locations examined through the Property's building enclosure assemblies to verify the condition of concealed building enclosure components and systems. As such, our investigation was limited to a visual review of the exterior surfaces of the Property's building enclosure assemblies.

9. **Water Leakage Replication Testing:** At no time during Forensic's investigation was water leakage replication testing performed to simulate environmental conditions that have the potential to facilitate water leakage in an attempt to re-create water leakage pathways at select building enclosure locations.

10. **Report Revisions:** Forensic reserves the rights to amend, modify, and/or re-issue this report as more information becomes available for Forensic's review, or as additional investigation proceeds. This report is intended solely for use by Forensic's client and should, in any event, be reproduced only in its entirety, with this disclaimer included.

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