

Capitol Square

Water Infiltration Investigation

EXECUTIVE SUMMARY

Based on the water infiltration investigation the identified and suspected leak sources occurring at Capitol Square have been divided into thirteen general categories as listed in the Table of Contents. The following is a brief summary of the main defective building elements:

1. **Curtainwall Glazing System:** Based on a limited visual survey and testing, an excessive amount of water is infiltrating the curtainwall system through failed glazing gaskets and splice joint sealant failures. The water does not weep out sufficiently and is suspected of causing the majority of the leaks observed at the building perimeters. Further testing is required to determine the actual path of infiltration through the aluminum frame curtainwall system and to provide a repair program.
2. **Storefront:** The weep system is not functioning as designed at the storefront gold panel at the second floor line. The system should be re-installed to weep properly or be fully wet-sealed to create a barrier system.

The wall base is set on a metal threshold and edge flashing which allows water to enter onto the interior floor at the end butt joints. The glazing gaskets also allow water to enter the kickplate section with no way to weep out. The kickplate should be re-worked to include a weep system and the storefront wall should be removed and re-set on a pan flashing. Alternately, the storefront could be wet-sealed to create a barrier system.

3. **Precast Concrete Panels:** All of the precast concrete curtainwall panels have visible cracks. Several of these cracks were determined to be the source of leaks to the interior. All panel cracks should be repaired.

The panels cast with returns at the building corners and column covers have cracks at the cold joints. These cracks also require repair.

4. **23rd Floor Deck Terrace:** The waterproof deck membrane is not properly terminated at the building wall. The exterior tile mortar bed extends into the wall cavity onto the lower exposed interior floor slab. This allows water in the mortar bed to run onto the structural slab and migrate through cracks in the slab to the floors below. The repair will involve removing and replacing much of the deck mortar bed and tile incorporating a better edge detail.

The condition of the deck membrane termination at the parapet walls was not confirmed. Further testing in these areas may be required.

5. **23rd Floor Curtainwall:** Weep holes added to the sidelight sill rails is allowing water collected in the beauty caps to drained directly back into interior wall cavity. These lower weep holes should be sealed.

The terrace entry doors need to be removed and replaced to re-work the threshold waterproofing. New astragals and weatherstripping is required around each door. Re-sloping of the interior floor may be required if the thresholds are raised.

6. **12th floor Corner Planters:** New waterproof membranes are required in three of the four planters. The recently installed membrane in the fourth planter should be inspected.

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7. **Building Expansion Joint:** A general tune-up of the expansion joint cover terminations is required. The condition of the expansion joint at the garage elevator threshold requires further investigation.
8. **Garage Elevator Penthouse:** The roof edge flashing and gold panel installation is allowing water to flow from the roof under the flashing to be trapped within the wall cavity. The penthouse edge flashing should be re-installed which may require a full re-roofing. The gold panel assembly may require re-installation to allow the aluminum trim pieces to weep water that enters the assembly through the joints.
9. **Garage Stairwell Penthouse:** Water flows over the penthouse roof directly over the entry door and then into the penthouse interior through the door and threshold. It then enters the wall cavity between the original inner wall and the new outer wall. The water within the wall cavity tracks straight down the inner wall to the ground floor causing leaks in the cafeteria. The water should be re-directed or collected at the penthouse roof level by resloping the roof or installing gutters or an awning over the door.

The threshold and wall should be waterproofed to prevent water from the garage floor slab from infiltrating to the penthouse interior.

10. **3rd Floor Roof Decks:** All deteriorated deck coating should be repaired. An elastomeric wall coating should be applied to the curtainwall precast panels at the deck edge to form a continuous waterproof membrane. The gap in the end of the deck edge flashing should be sealed.
11. **Roof Penthouse:** There are several miscellaneous leaks originating from elements at the roof penthouse level.

The economizer fan equipment duct penetration through the standing seam metal penthouse wall requires new flashing and sealing for the entire penetration.

Gaps in the concrete curb and membrane terminations require filling and repairing.

Cracks and penetrations in the modified EIFS wall finish require repair.

The deck coating may require repair one deck drain. Further tests are required.

Plumbing lines from the locker room require further inspection and repair.

A pan or floor coating should be installed at the waterheater, drainlines and floor drain penetration.

12. **Helipad:** The skirt around the raised helicopter landing area on the penthouse roof may require re-installation.
13. **Other miscellaneous leak sources and suspected leak sources** are discussed and will require further investigation.