MORRISON HERSHFIELD

June 19, 2018 MH Ref: 8170089.01

Stela Diaz
Bellwether Housing
1651 Bellevue Ave.
Seattle, WA 98122

Re: Building Envelope Condition Assessment
Graham-Terry Apartments, 2020 Terry Avenue, Seattle, WA

Dear Ms. Diaz,

1. Introduction

Morrison Hershfield (MH) was retained by Bellwether Housing to conduct a condition assessment of the building envelope and cladding elements at the Graham-Terry Apartments building, located at 2020 Terry Avenue in Seattle, WA. Authorization for the study was provided via a signed contract, by Stela Diaz of Bellwether Housing on September 13th, 2017.

The objective of this assessment was to provide an assessment of the current condition of the building envelope components with regards to water penetration and air infiltration (weatherization) at the east elevation facing the alley and to determine if the water intrusion that occurred in 2017 at Units 324 through 724 vertically was due to conditions isolated at this location or if there happened to be systemic problems with the east elevation facing the alley. Additionally, we understand that Bellwether is looking for us to determine the typical areas and details where problems may be occurring, identify typical building details for potential leakage, provide commentary on the building's future performance, and provide conceptual recommendations on corrective measures to repair damage and prevent future damage. We are providing this letter report to outline the results of our assessment work.

Photo references throughout the report can be found in Appendix A. Observations and corresponding photos of each exploratory opening can be found in Appendix B.

2. Limitations

This assessment is based on a review of available documents, visual observations, selective intrusive exploratory openings and moisture content measurements taken at a sample of building envelope elements. This report documents our observations of the current condition of various building envelope elements and identifies factors or mechanisms that are believed to have led to the current condition. The report is not intended to provide an opinion regarding responsibility of any specific party in causing or contributing to the conditions observed.

Any comments or conclusions within this report represent our opinion, which is based upon the documents provided to us, our field review of physical conditions, and our past experience. No specific testing was conducted for this assessment. This review is limited to technical,

construction and performance items related to the building envelope. In issuing this report, MH does not assume any of the duties, liabilities of the designers, builders or owners of the subject property. Owners, prospective purchasers, tenants, or others who use or rely on the contents of this report do so with the understanding as to the limitations of the documents reviewed, the general visual review undertaken and limited openings conducted, and understand that MH cannot be held liable for damages which may be suffered with respect to the purchase, ownership, or use of the subject property.

The review was limited to building envelope performance issues, specifically related to water penetration. Where feasible and applicable, and as may be outlined in this report, the envelope systems were also reviewed for assemblies used to control air leakage, vapor diffusion and thermal performance. Our review for this assessment does not include structural connections, mechanical systems, fire rated assemblies, interior finishes, or other components not related to the building envelope.

3. Background Information

The 2020 Terry Apartments building complex was designed by GGLO Architects and completed in 1992 (see Photo No. A1). The building is six-stories in height at the east elevation along the alley, with the single level of partially below-grade parking occurring at Level 2 of the building. The building steps down an additional story at the Terry Avenue side of the site. In addition to administrative, parking and maintenance spaces on Level 2, the building contains 107 residential apartments. The parking garage and foundations consist of reinforced concrete construction with the remainder of the building complex of wood-frame construction with a combination of tile and stucco cladding; the uppermost story on the alley side has been over-clad with sheet metal siding.

In 2000-01, exterior cladding repairs and window replacement were undertaken at the west elevations of the east and west wings of the 2020 Terry Building based upon design documents prepared by Exterior Research & Design/Trinity Engineering. In 2003, a stucco survey was performed by Ian McGlynn that included the east (alley) elevation, which according to a summary of the report noted that there were some problem areas, but the elevation at the alley did not need an immediate stucco replacement. In 2006, Wiss, Janney, Elstner Associates, Inc. (WJE), investigated water intrusion of the exterior wall construction and noted that previous stucco repairs were apparent on the east elevation facing the alley. Subsequently, in 2009, the stucco cladding of the uppermost story (seventh) at the east elevation was over-clad with a sheet metal panel system. In 2010, MH performed a preliminary building envelope condition assessment that included the east elevation for the Housing Resource Group, predecessor to Bellwether Housing (BH). In 2017, some tenants occupying units on the east side of the east wing of the 2020 Terry Apartments (facing the alley) complained of moisture intrusion into their units, and BH performed exploratory openings in the units listed in the Introduction, confirming the presence of moisture intrusion. MH performed a preliminary assessment of the moisture intrusion and recommended a follow-up investigation to include a limited number of exterior exploratory openings, which was authorized by our proposal dated August 30, 2017.

At the stucco cladding, windows are vinyl framed with fixed and vertically-sliding operable units in various configurations. 2020 Terry Avenue has a low-slope modified bitumen roofs with granular surface and sheet metal parapet caps.

4. Assessment Methods

In addition to the site work, MH undertook a general review of the architectural drawings produced by GGLO Architects to become familiar with the design intent of the building envelope systems. MH also reviewed Lynda Carey Boyle's summary of Ian McGlynn's stucco survey of 2003, the Limited Moisture Infiltration Investigation (East and South Elevations) report by WJE of 2006, and the Preliminary Building Envelope Condition Assessment report by MH of 2010.

The fieldwork portion of the assessment was completed on April 7, 2017, and May 21 and 22, 2018, by David Rash of Morrison Hershfield. The fieldwork included visual review of exterior components from ground level, manlift and roof locations. Ten intrusive exploratory openings through the exterior building envelope were conducted by Tatley Grund, Inc., including removal of the stucco cladding at selected vinyl window and wall conditions. Morrison Hershfield also assessed current conditions of building envelope components including exterior walls, windows, and roof parapets. The weather at the time of the field work was overcast with temperatures ranging from 50 to 57 degrees F on April 7, 2017and sunny with temperatures ranging from 56 to 68 degrees F on May 21 and 22, 2018.

Morrison Hershfield used a Delmhorst BD-2100 moisture meter to check the moisture levels in the plywood sheathing beneath the stucco cladding. Acceptable levels of moisture content for wood products are determined based on their percentage of moisture content for the given material and based on the scale below. Green is considered a normal level of moisture content, while red is a higher than normal level and suggests moisture intrusion.

Wood
Green: 6% – 15%
Yellow: 15% – 17%
Red: >17%

5. Assessment of Current Conditions

5.1. Roof

The following sections provide the results of the assessment work, outlining the observed cladding assemblies, details and conditions.

5.1.1. Roof Parapet – Sheet Metal Coping

5.1.1.1. Materials

MH observed a sheet metal roof coping with standing-seam joints installed at the roof parapet; see Photo No. A2.

5.1.1.2. Observations and Discussion

The sheet metal coping covering the building parapet appeared to be in good condition. Where the parapet over the affected units intersected with

a higher parapet to the north, which also projected eastward, the coping interface with the wall did not appear to be fully sealed (see Photos No. A3 and No. A4); however, this location was at the north side of the affected units. At the approximate location of the south side of the affected units, the coping standing seam was sealed, both at the pin-holes at the front and rear faces of the coping and at the lapped joints in the vertical faces of the seam (see Photo No. A5).

The transition flashing between the parapet coping and the top of the siding, lacked functional sealant over the affected units (see Photo No. A6).

5.1.2. Roof – SBS Modified Bitumen

5.1.2.1. Materials

During the initial site visit in 2017, MH observed a two-ply modified bitumen roofing system including granulated cap sheet, with internal drains with overflow drains, and slope provided by crickets.

5.1.2.2. Observations and Discussion

The general condition of the roof membrane reviewed by MH at the 2020 Terry Building was good. Based upon the visual roofing observations in 2017, the condition of the roofing system was considered unlikely to be contributory to the water intrusion issues that occurred in 2017.

5.2. Levels 3-7 East Elevation (facing the alley)

The following sections provide the results of the assessment work, outlining the observed building envelope assemblies, details and conditions. Refer to Appendix B for exploratory openings at the exterior wall and windows.

5.2.1. Exterior Walls

5.2.1.1. Assemblies

Levels 3 through 7 of the 2020 Terry Apartments building exterior wall assembly, as outlined in the architectural drawings and confirmed at five exploratory openings, consists of the following (exterior to interior):

- Exterior stucco or tile cladding (over-clad with sheet metal siding at Level 7).
- One layer of 60-minute asphaltic building paper weather resistive barrier (WRB).
- 5/8-inch exterior plywood sheathing (Levels 3, 4, and 5) or 5/8-inch exterior gypsum sheathing (Levels 6 and 7).
- 2x6 wood framing with batt insulation and interior plastic sheeting vapor retarder.

- 5/8-inch interior gypsum wall board.

5.2.1.2. Observations and Discussion (Sheet Metal Siding Over-Clad)

At the seventh story of the building complex (see Photo No. A7), the sheet metal siding over-cladding of the east (alley) wall is in generally good condition. The window head flashings were attached through the siding and into the building with exposed gasketed screws. Likewise, the bottom edge of the metal siding was attached to the building with exposed gasketed screws (see Photo No. A8). There are, however, a number of window opening and vent penetration details that are likely suspect in regards to retarding water intrusion.

Many of the window jambs are reliant upon foam insulation closures for sealing the window opening contrary to the window jamb detail provided by WJE for the over-clad installation. The foam closures are only partially sealed to the sheet metal siding and some are deformed (see Photos No. A9 and A10).

Where exhaust vent penetrations are aligned with the standing seam of the sheet metal siding, the standing seam has been removed leaving the side of the vent penetration open to water penetration (see Photos No. A11, through A14).

5.2.1.3. Observations and Discussion (Stucco Cladding)

The observed stucco cladding is a face-sealed system that relies on the continuity of the finish coat and sealant joints to prevent water penetration. A weather-resistant asphaltic building paper is installed behind the stucco coating to protect the sheathing and framing from any moisture that gets pass the stucco. No drainage plane exists behind the stucco for water to drain out of the wall assembly. See Photo No. A15.

In general, the stucco cladding appeared to be in fair condition. Minor cracking of the finish coat was observed, as well as extensive corrosion of the metal trim elements at window openings. The corrosion at window openings was most evident during the site visit or 7 April 2017, prior to the recent installation of replacement sealant at the window sills (see Photos No. A16 through A19). The existing sealant joints were found to be in good condition with no cracking or failed adhesion observed. Rust was also evident at some of the trim metal stucco accessories, primarily the horizontal J-molding along the base of the stucco cladding, which had become separated from the stucco in some locations (see Photo No. A21). Rust observed at the J-molding was most likely from water which penetrated the stucco layer and accumulated on this molding due to lack of weep holes for drainage. Rust was also evident at some of the nails securing the exterior gypsum board or plywood sheathing and the metal

lath to the wall structure. Some vertical control joints were crushed or deformed (see Photo No. A22).

During the site visit of 7 April 2017, most of the exhaust vent penetrations lacked sealant joints at their perimeters. By the time of the 2018 site visits, sealant had been installed at these locations (see Photos No. A23 and A24).

The stucco cladding has a series of extruded metal reveals generally located at the floor level between the upper stories. The reveals are installed with butt joints between individual prefabricated pieces, which results in a series of gaps that allow some water penetration through the stucco cladding, which has allowed some minor corrosion to occur at the reveal butt joints (see Photo No. A25). Some of the gaps are visibly open (see Photo No. A26) and occasionally the butt joints have resulted in a hole in the lower horizontal flange of the joint (see Photo No. A27). In addition, where the extruded metal reveal terminates at a building corner, a visibly open crack has developed and the exterior finish of the adjacent soffit is peeling (see Photo No. A28).

Although no staining of the exterior gypsum sheathing was observed at the exterior surface at Level 6, water staining and some physical deterioration was evident on the interior surfaces at Unit 724 and Unit 624 (see Photos No. A29 and A30). Refer to Appendix B for the 2018 exploratory openings at the exterior walls.

5.2.2. Windows

5.2.2.1. Materials

The vinyl windows installed at the 2020 Terry Building were observed from the eastside alley. Window types included fixed and single-hung operable units. Refer to Photo No. A16.

5.2.2.2. Observations and Discussion

The general condition of windows reviewed by MH at the 2020 Terry Building appears to be fair. A discussion with Brian Huff and a limited review the operation of the windows during the site visits indicate that many of the single-hung sash windows open and close with some difficulty and do not travel in alignment with the window frames (see Photos No. A31 through A34).

At all window locations, the flange appeared to be installed directly atop the exterior gypsum sheathing with SAM (self-adhesive membrane) flashing installed over the initial layer of 60-minute asphaltic building paper. Although this is not considered a defect in this face-sealed stucco system, MH generally recommends that the WRB extends into the rough opening

and a formed sill pan be provided to protect the wall framing from window and door leaks.

Window frames were typically sealed along their perimeter, but a few were observed as missing some sealant at the window sill; see Photo No. A20. Fully sealed window opening perimeters are typical of face-sealed cladding systems; however, it is not a recommended practice by MH. In addition, a number of window frames have developed breaks or cracks (see Photos No. A35 through A37).

6. Conclusions and Recommendations

The following conceptual repairs are based upon visual review as well as intrusive investigation and are intended to address the conditions where water penetration and resulting damage was observed and to ensure the building envelope and associated systems provide adequate performance to resist further moisture problems. Due to the nature of this assessment, the repairs outlined below are contingent on the findings during the repair process. The repairs are also based on an extrapolation of the observed conditions with the assumption that the conditions noted during this assessment are typical throughout the complex. As part of the repairs outlined below, all damaged materials will require replacement.

6.1 Wall Assemblies

Face-sealed stucco cladding systems rely heavily on continuous and effective finish coats and exterior seals to resist rain water intrusion and require a higher level of maintenance than other cladding systems. The exterior finish coats and seals tend to most often be compromised at transitions to windows, flashings, and expansion joints, but may also occur at inside and outside corners or even in the field of the wall. Some of the exploratory openings indicated an increasing level of deterioration of building envelope components in comparison with previous building envelope assessments, which was likely exacerbated by missing sealant at the exhaust vent penetrations and some windows, as observed on 7 April 2017. The butt joints of the extruded metal reveals have likely allowed water intrusion behind the stucco cladding, particularly where visibly open gaps or holes occur.

It is generally accepted that a face-sealed stucco system requires vigilant maintenance of sealant performance. Water intrusion can be expected when the joint systems fail or reach the end of their service life. The Pacific Northwest's marine climate can be particularly challenging for face-sealed stucco cladding that lacks a drainage cavity and a means to allow for any water intrusion that happens to occur to exit the cladding assembly. There was no intentional drainage cavity as part of the stucco cladding assembly, and the one layer of 60-minute asphaltic building paper that comprises the WRB has experienced minor wrinkling and may be acting as a minimal drainage cavity, but there are no intentional exit paths.

The over-cladding of the stucco at the seventh story may be contributing to the increasing deterioration of building envelope components on the east elevation facing the alley. The sheet metal siding was attached to the stucco cladding and gypsum sheathing with exposed gasketed screws. When originally installed tight against the exterior face of the sheet metal siding, the gasketed screws would have been effective in sealing the fastener holes against water intrusion. Over time, some of these screws will back-out due to thermal cycling of the sheet metal siding, minimizing the effectiveness of the gaskets against water intrusion. In addition, the over-clad drawings indicated that the WRB between the sheet metal siding and the existing stucco cladding was to be 60-minute asphaltic building paper which has no self-sealing properties when penetrated by fasteners, and some fasteners penetrate completely through the exterior gypsum sheathing (see Photo No. A38). In addition, the surface texture of the stucco cladding is relatively rough so that even when fasteners are tightly attached to the stucco, air spaces can occur between the WRB and exterior surface of the stucco cladding. This combination of attributes has the potential for allowing any water that penetrates past the metal siding to intrude into the exterior gypsum sheathing.

6.2 Recommended Repairs

The existing stucco cladding and sheet metal siding over-cladding should be removed and replaced with an appropriately designed rainscreen cladding system at the east elevation facing the alley. As part of this recladding project, existing windows should be removed and replaced, and be provided with appropriate window opening detailing to help direct to the exterior any water intrusion that happens to occur. Horizontal reveals and cornices should be integrated into the rainscreen assembly and details to direct water to the exterior. Any deteriorated structural components should be removed and replaced with like kind materials. Some physical deterioration of exterior plywood and gypsum sheathing has already occurred, and recladding should occur within the next three years or sooner to minimize the potential for additional physical deterioration of building components.

Consideration should be given to recladding the remaining building elevations that were not included in the 2000-01 recladding project or the east elevation facing the alley. These elevations have many of the same design and construction elements as the east elevation facing the alley and could potentially be developing the same problems.

Please feel free to contact us should there be any questions with this assessment.

Yours truly,
Morrison Hershfield Corporation

David A. Rash, RRC
Building Science Consultant

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MORRISON HERSHFIELD

APPENDIX A:
Photographs

Photo No. A1.

Overview of 2020 Terry Avenue apartment building facing the alley from the northeast.

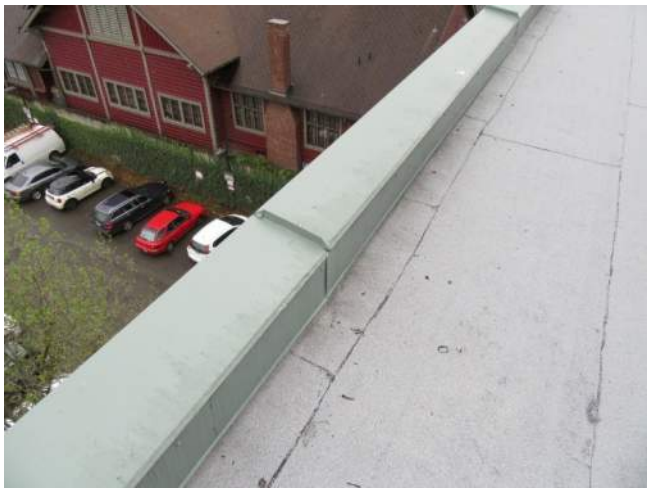


Photo No. A2.

General view of roof parapet with sheet metal coping having standing seam joints.

Photo No. A3.

Parapet coping transition with sheet metal panel system of seventh-story over-clad siding.

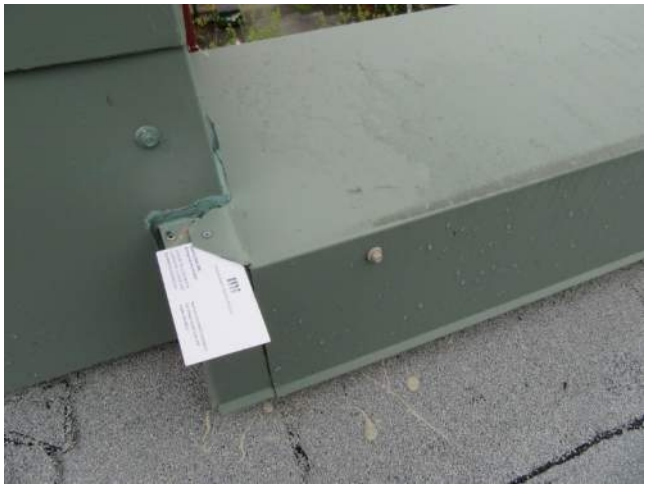


Photo No. A4.

Seams in parapet coping at location above north side of Unit 724 were not fully seamed.

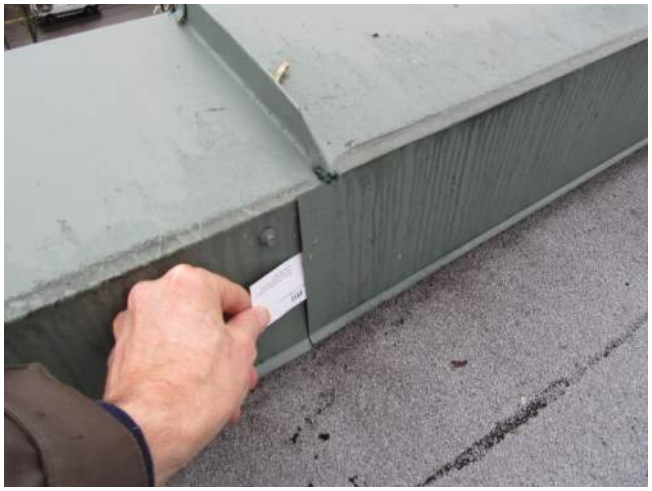


Photo No. A5.

Seams in parapet coping at location above south side of Unit 724 appeared to sealed.

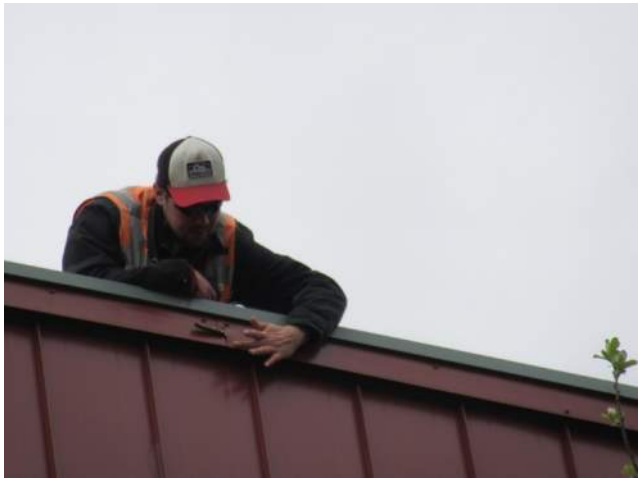


Photo No. A6.

Unsealed seam in transition flashing between roof parapet and top of sheet metal siding.

Photo No. A7.

General view of seventh-story with sheet metal siding over-cladding.

Photo No. A8.

Sheet metal siding secured with gasketed screws.

Photo No. A9.

Sealant not installed continuous behind foam closure gasket at window opening.

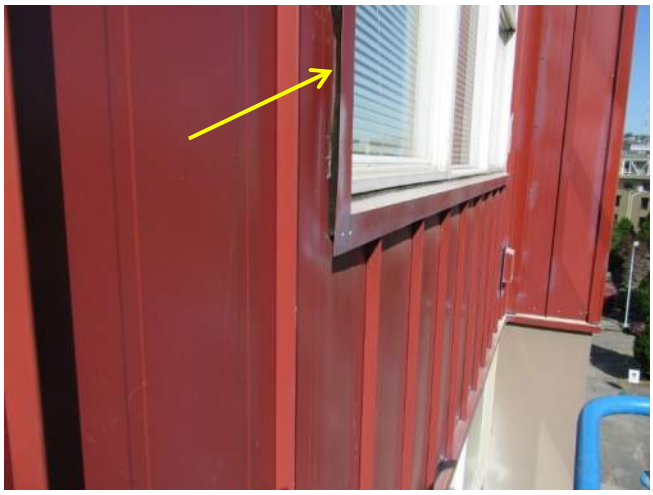


Photo No. A10.

Sealant not installed continuous behind foam closure gasket and foam closure deformed (arrow) at window opening.

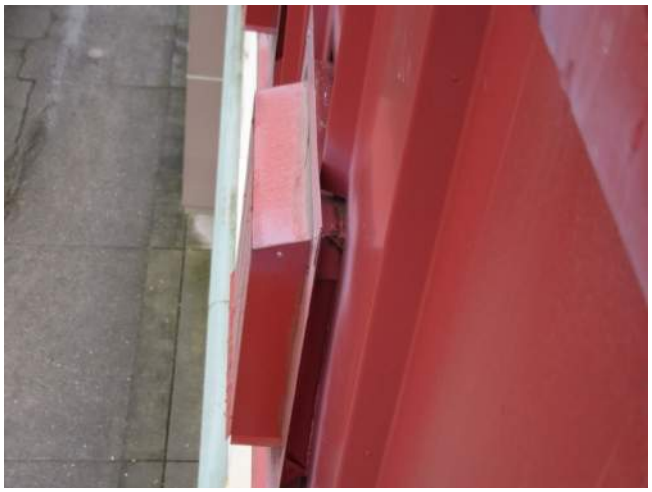


Photo No. A11.

Vent penetration cover not integrated into sheet metal siding system, as viewed from above.

Photo No. A12.

Vent penetration cover not integrated into sheet metal siding system, as viewed from the side.

Photo No. A13.

Close-up view of upper side of vent penetration cover with no closure flashing.

Photo No. A14.

Close-up view of lower side of vent penetration cover with no closure flashing.

Photo No. A15.

Stucco cladding at middle portion of east elevation facing the alley.

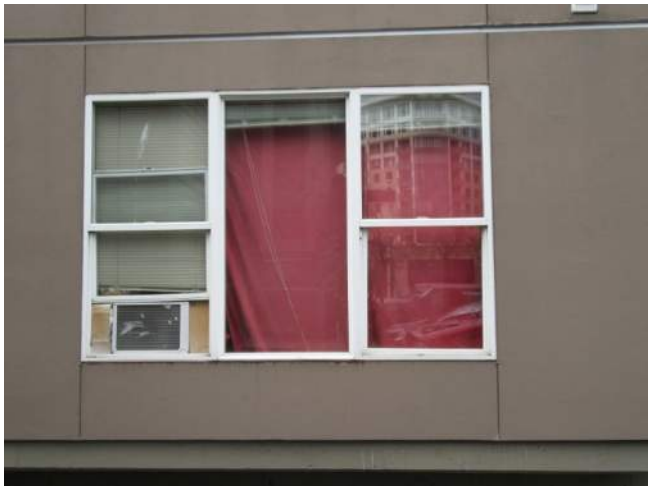


Photo No. A16.

Typical window group of two single-hung sash windows flanking a single fixed-pane window (Unit 320) in 2017.

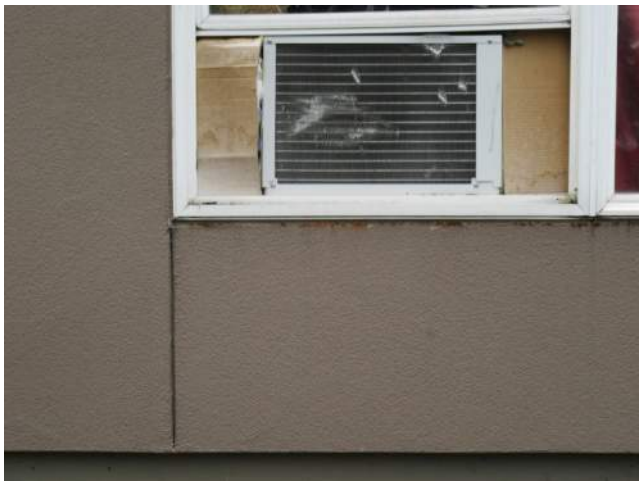


Photo No. A17.

Extent of rust and staining along window sill at south side of window group in Photo No. A14.

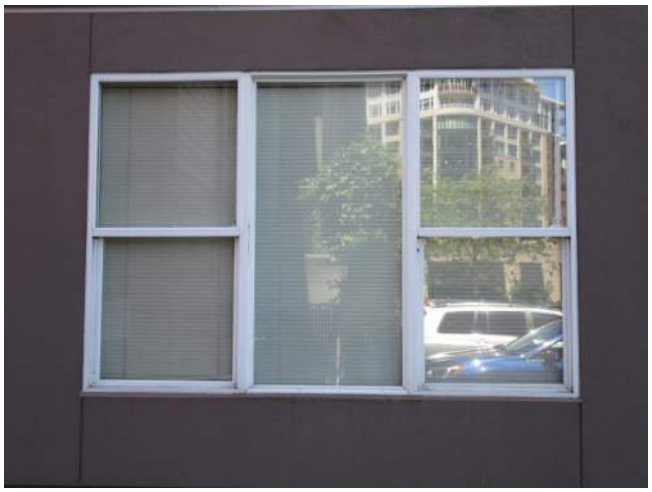


Photo No. A18.

Window of Unit 320 in 2018 with new sealant installed along sill.

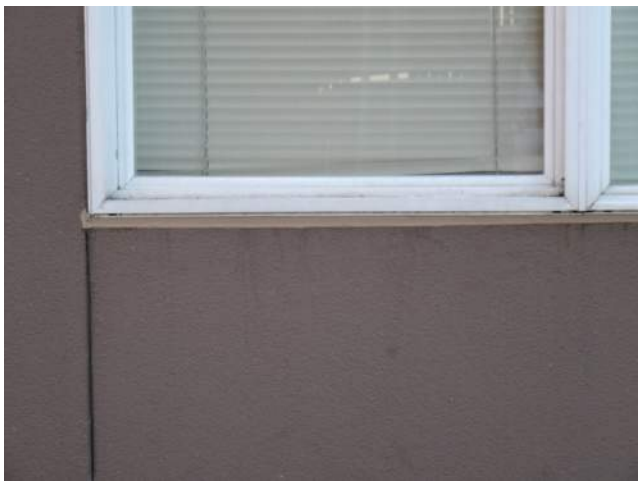


Photo No. A19.

Evidence of rust and staining diminished at Unit 320 in 2018 after installation of new sealant (compare with Photo No. A15).

Photo No. A20.

Missing sealant joint at portion of window sill opening at Unit 325 (in 2017).

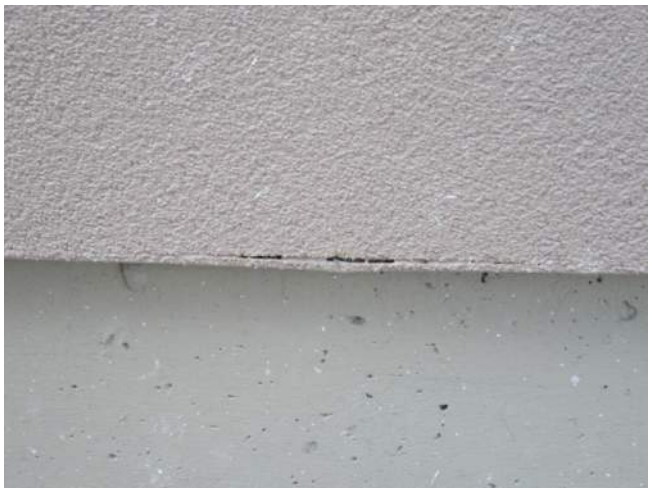


Photo No. A21.

J-molding separating from stucco cladding along bottom edge of cladding.

Photo No. A22.

Crushed or deformed vertical control joint above window jamb/head juncture.

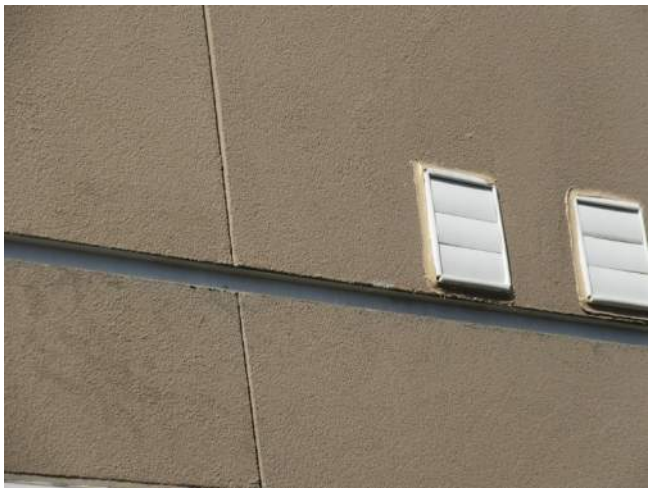


Photo No. A23.

Typical sheet metal reveal at floor level with exhaust vent penetrations adjacent (in 2018).

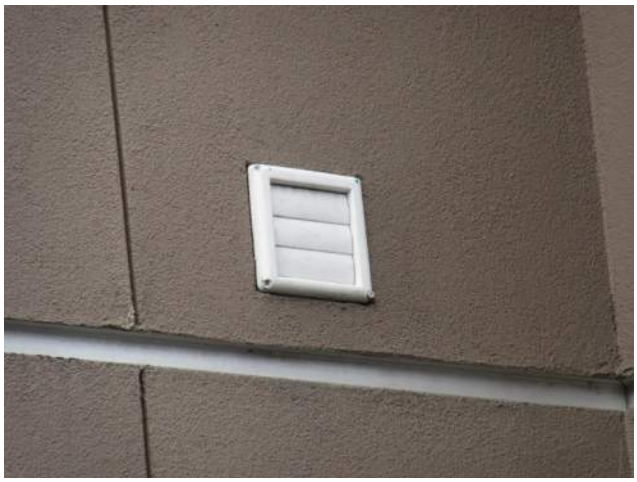
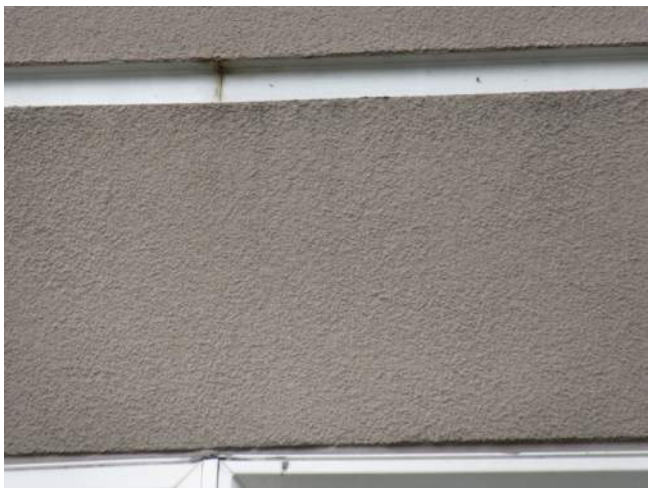
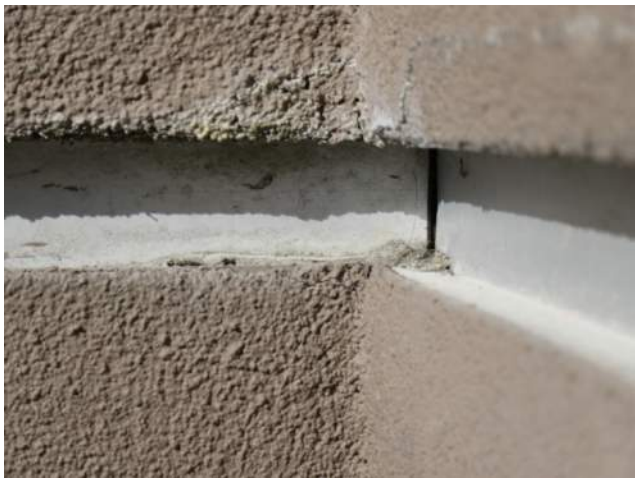
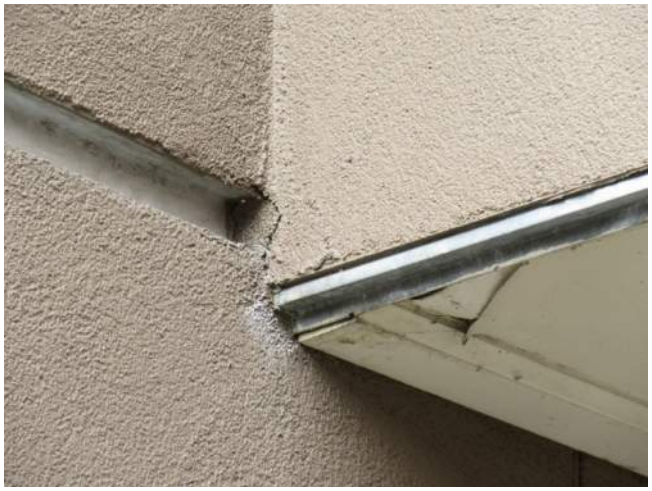
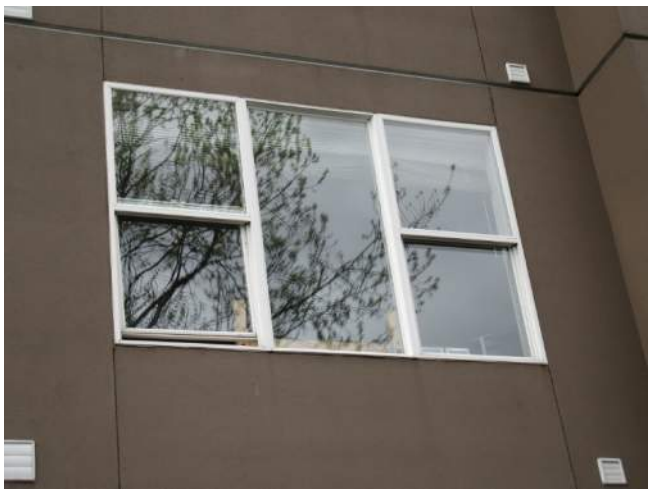
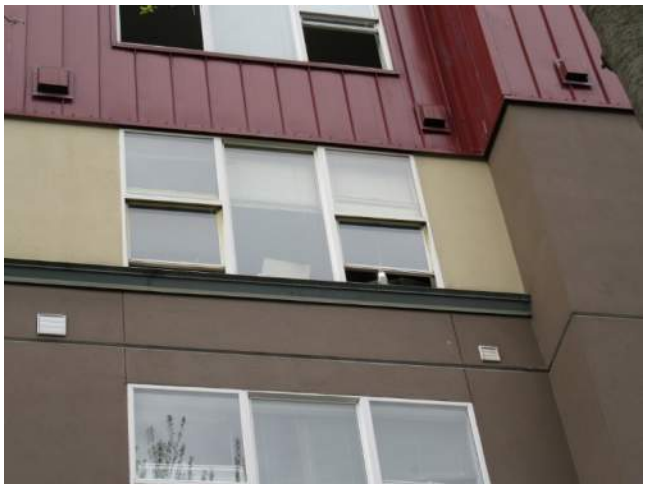


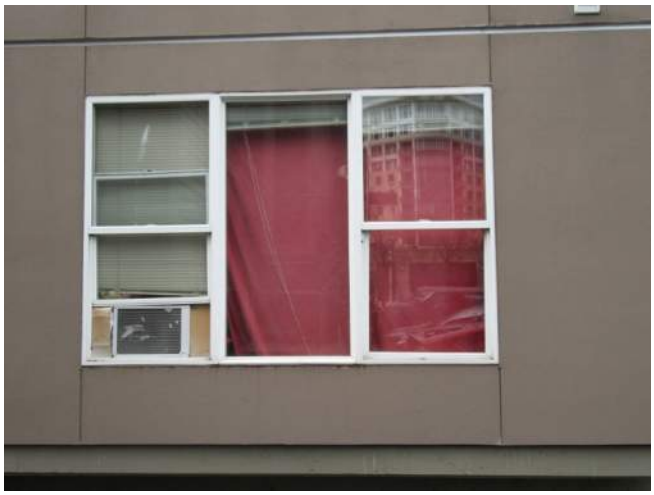
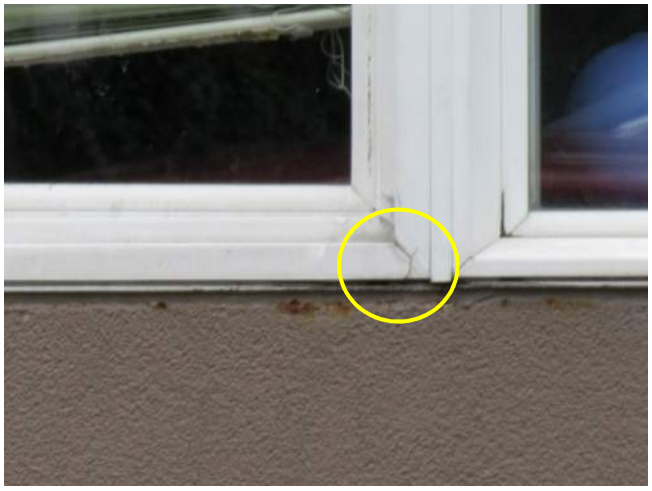
Photo No. A24.

Typical exhaust vent penetration with no sealant at perimeter of penetration (in 2017).

	**Photo No. A25.** Corrosion at butt joint of sheet metal reveal and rust along bottom of stucco cladding at top edge of reveal.
	**Photo No. A26.** Visibly open gap at corner intersection of sheet metal reveal (Level 6).
	**Photo No. A27.** Open hole at corner intersection of sheet metal reveal (Level 5).

	**Photo No. A28.** Crack in stucco cladding at corner intersection and delamination of finish surface of overhanging soffit.
	**Photo No. A29.** Exploratory opening (7 April 2017) in east wall of Unit 724 with physically damaged gypsum sheathing and wet wood framing.
	**Photo No. A30.** Exploratory opening (30 March 2017) in east wall of Unit 624 with visibly wet wood framing and gypsum board sheathing (photo by Brian Huff).

	**Photo No. A31.** Skewed single-hung sash at Unit 424 (south side of window group).
	**Photo No. A32.** Skewed single-hung sash at Unit 524 (south and north sides of window group).
	**Photo No. A33.** Skewed single-hung sash at Unit 624 (north side of window group).

	**Photo No. A34.** Skewed single-hung sash at Unit 320 (south side of window group).
	**Photo No. A35.** Break in window sill frame; also rust and staining at stucco coating below window.
	**Photo No. A36.** Crack in window frame at sill/jamb juncture.

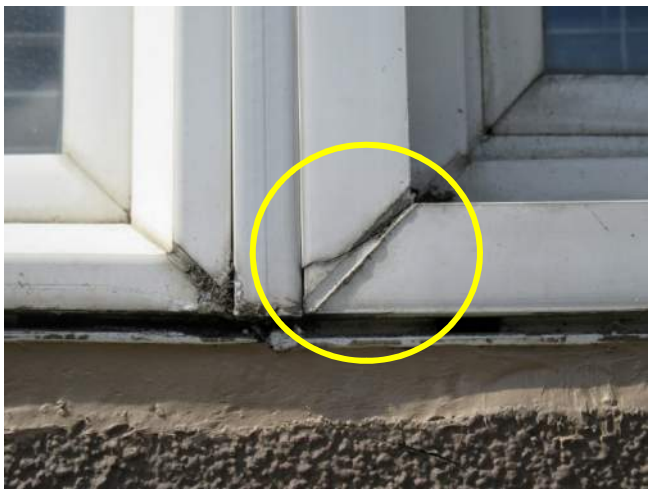


Photo No. A37.

Crack in window frame at sill/jamb juncture.

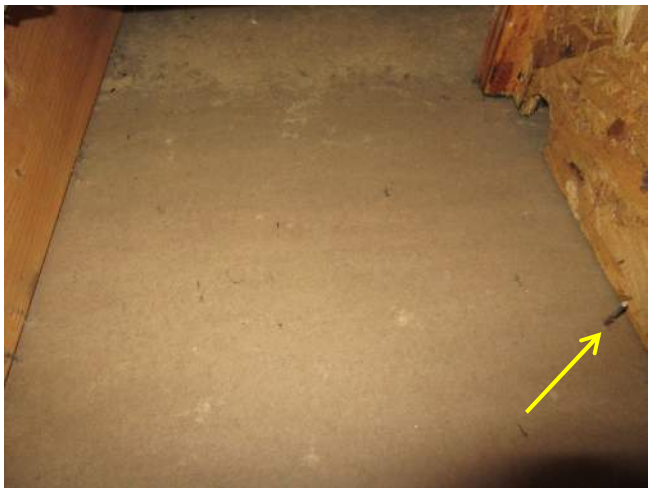
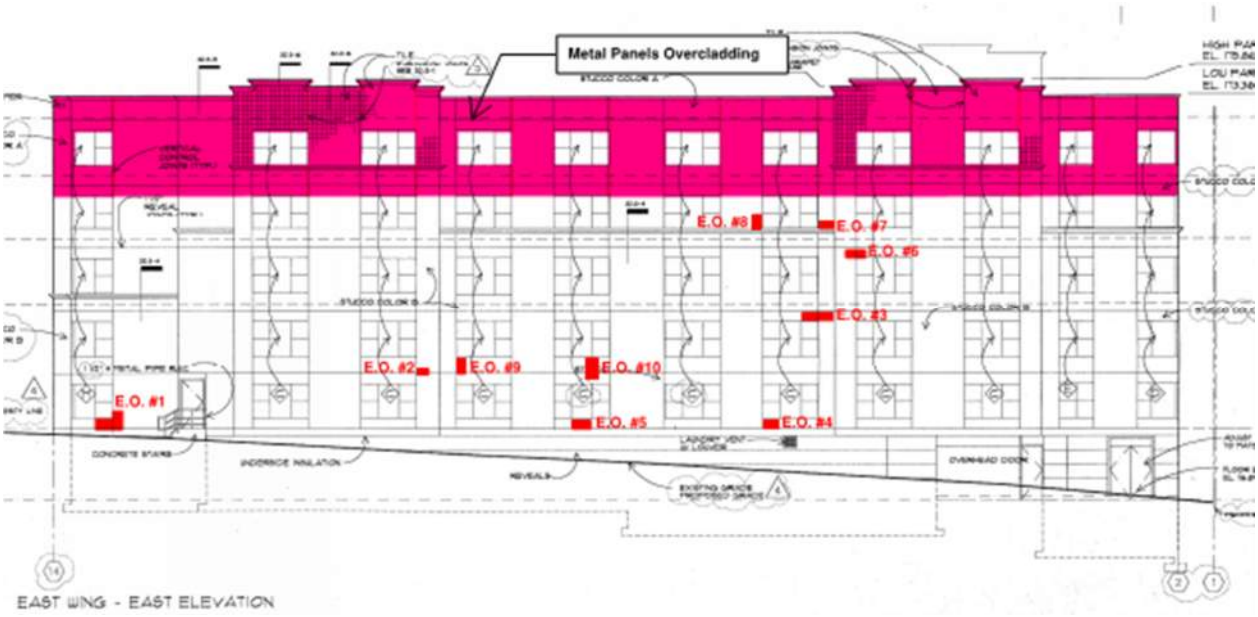


Photo No. A38.

Fastener penetration through exterior gypsum sheathing at Unit 724, with rust evident where the fastener penetrates the sheathing.

MORRISON HERSHFIELD

APPENDIX B:
Exploratory Openings



Exploratory Opening Locations
at the East Elevation facing the alley

MORRISON HERSHFIELD

Exploratory Opening No. 1

Location	Level 2 East Elevation facing onto alley
Detail Addressed	Window Sill/Jamb and Wall Assembly
Reason location selected	Confirm wall assemblies, details, and substrate condition
Moisture Content	Dry

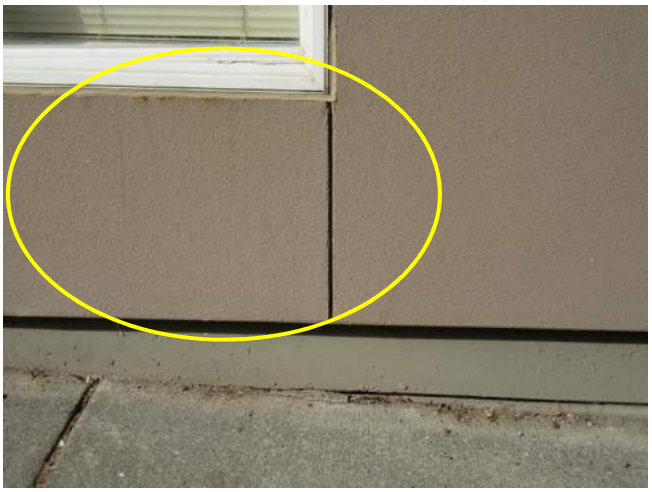


Photo No. B1.

Overall view of exploratory opening location.

Observations

- Wall assembly interior to exterior (based upon a review of construction drawings and on-site observation): 5/8-inch interior gypsum wallboard, batt insulation with interior vapor barrier in 2x6 wood stud cavity, plywood sheathing, one layer of 60-minute asphaltic building paper, stucco coating.
- Condition of stucco cladding: No surface cracks were observed at or around the exploratory opening area. Some rust at the J-molding along the bottom of the cladding.
- Existing weather resistive barrier was observed to be intact with minor wrinkling.
- Condition of exterior plywood sheathing: Appeared intact with some minor staining observed; no organic growth observed. Sheathing felt dry to the touch.

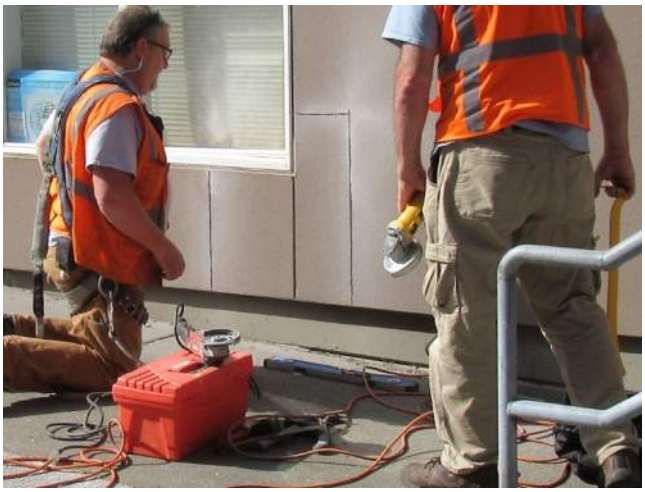


Photo No. B2.

Initial size of exploratory opening at window sill/jamb and stucco control joint.

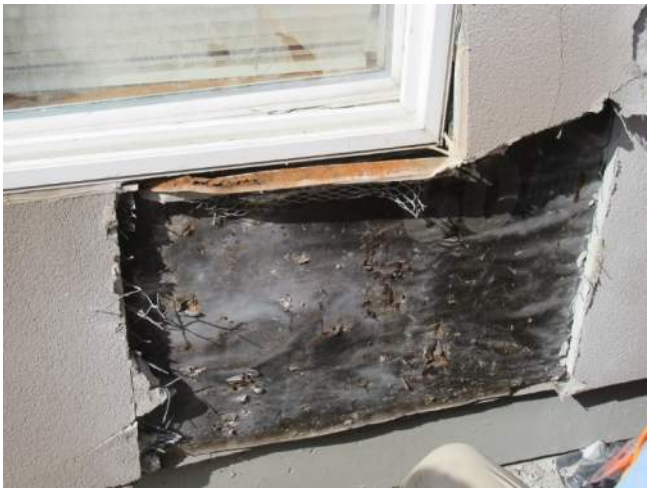


Photo No. B3.

Stucco cladding removed, showing asphaltic building paper with minor wrinkling.

Photo No. B4.

View of exterior plywood sheathing with the asphaltic building paper peeled back.

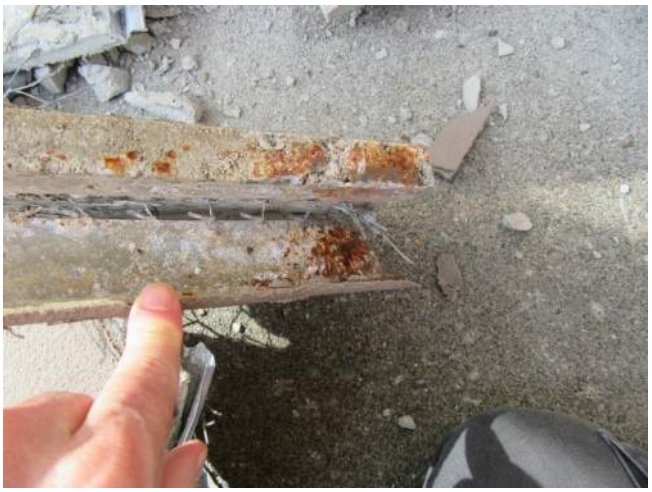


Photo No. B5.

Close-up view of the stucco control joint screed with rust increasing towards bottom of stucco cladding.

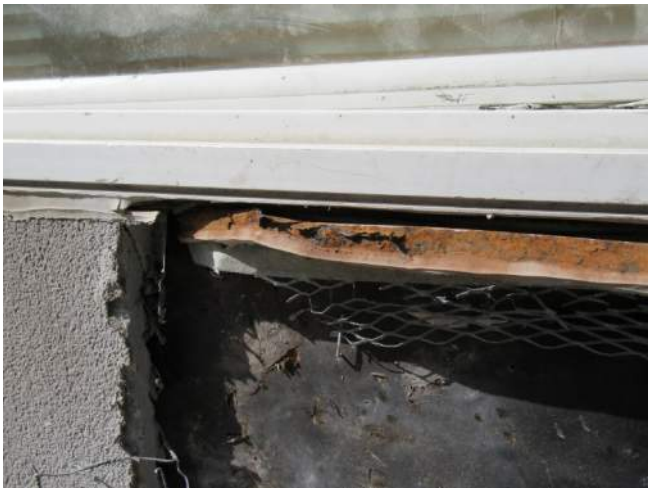


Photo No. B6.

Close-up of rust observed at the stucco screed at the window sill.

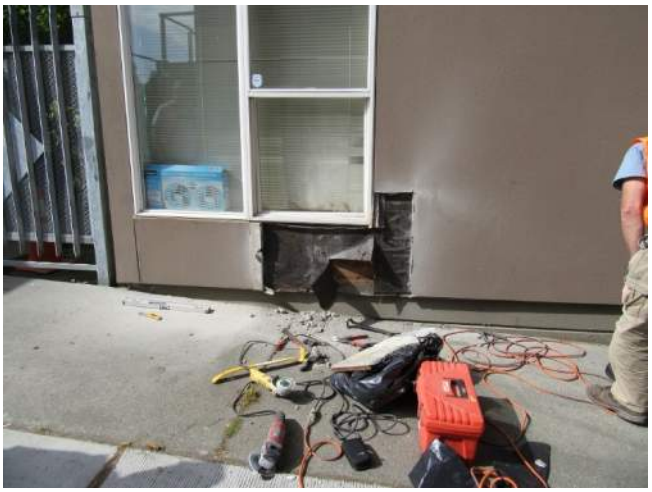


Photo No. B7.

Overall view of extended exploratory opening at location #1.

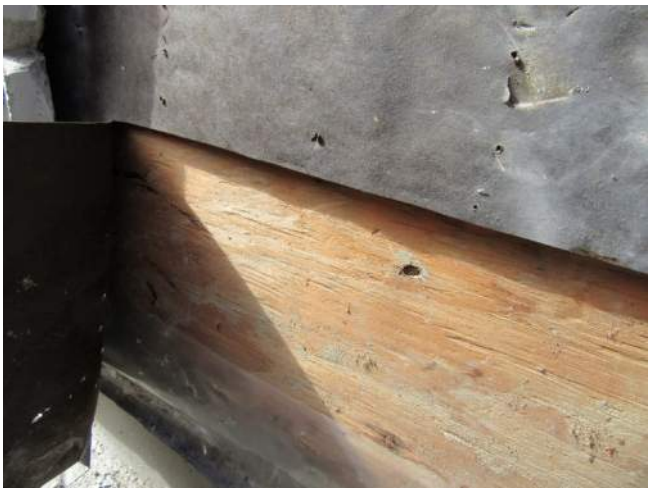


Photo No. B8.

View of plywood sheathing with the asphaltic building paper layers peeled back at extended exploratory opening.

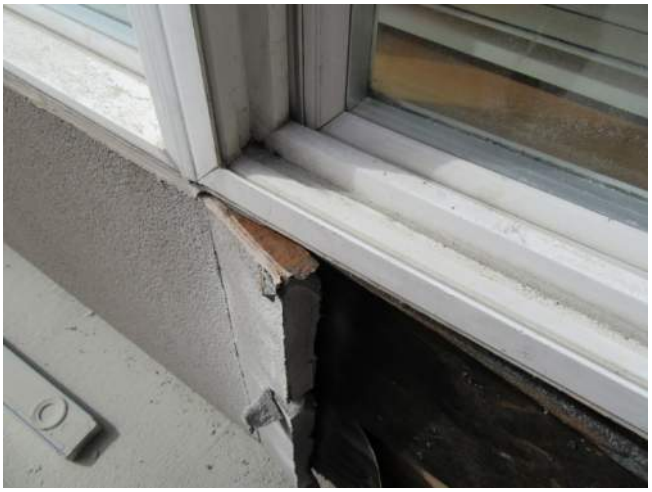


Photo No. B9.

Close-up of rust observed behind sealant joint at window sill.

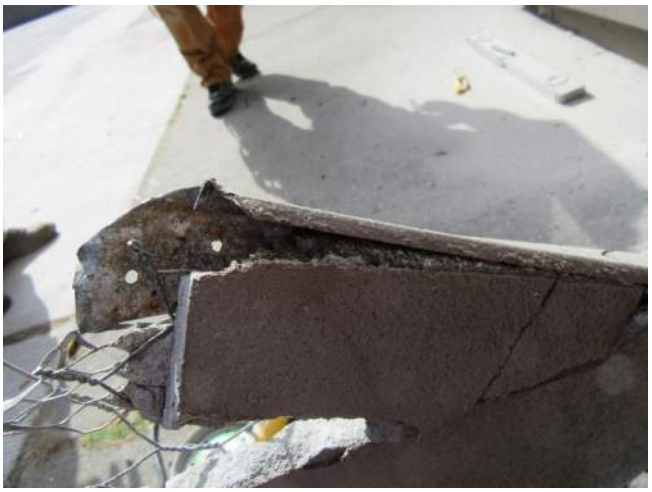


Photo No. B10.

Close-up of rust observed in the J-molding of extended exploratory opening.

Exploratory Opening No. 2

Location	Level 3 East Elevation facing onto alley
Detail Addressed	Stucco control joint (vertical) and Reveal (horizontal) of Wall Assembly
Reason location selected	Confirm wall assemblies, details, and substrate condition
Moisture Content	Dry

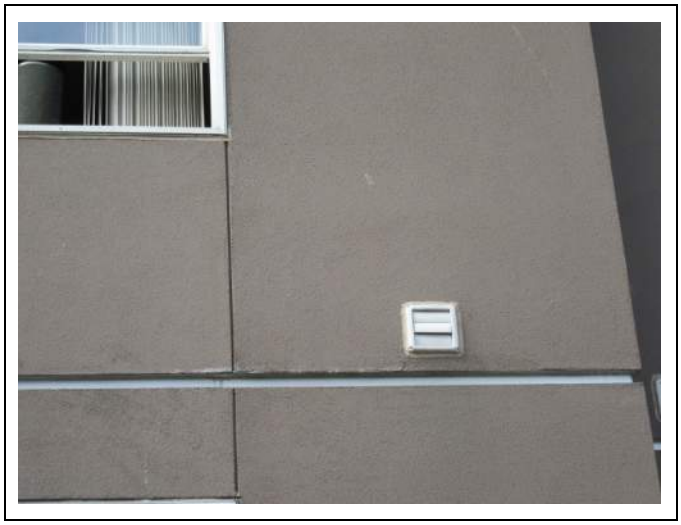


Photo No. B11.

Overall view of exploratory opening location.

Observations

- Wall assembly interior to exterior (based upon a review of construction drawings and on-site observation): 5/8-inch interior gypsum wallboard, batt insulation with interior vapor barrier in 2x6 wood stud cavity, plywood sheathing, one layer of 60-minute asphaltic building paper, stucco coating.
- Condition of stucco cladding: No surface cracks were observed at or around the exploratory opening area. Some separation of stucco screeds from stucco at control joints.
- Existing weather resistive barrier was observed to be intact with minor wrinkling.
- Condition of exterior gypsum sheathing: Appeared intact with no major staining observed and no organic growth observed. Sheathing felt dry to the touch.

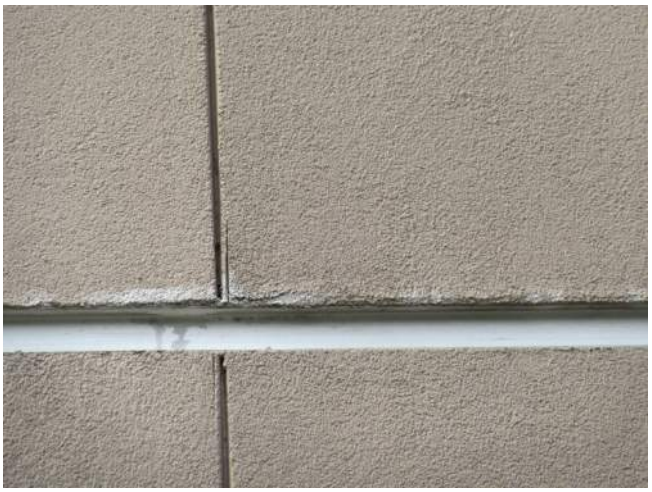


Photo No. B12.

View exploratory opening area with the exterior stucco layer removed; minor separation of stucco screeds from stucco at control joints.

Photo No. B13.

Stucco cladding removed, showing asphaltic building paper with minor wrinkling.

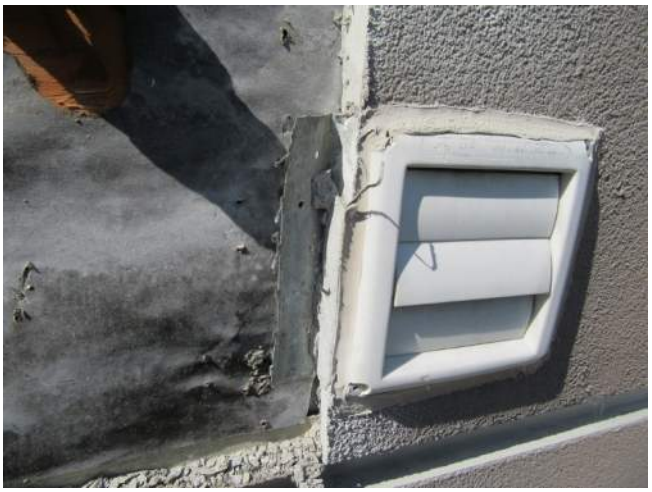


Photo No. B14.

View of the exterior gypsum sheathing beneath the existing building paper.

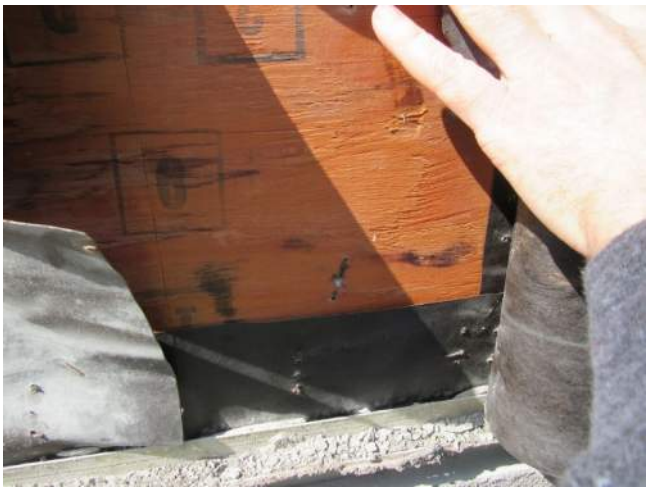


Photo No. B15.

View of exterior plywood sheathing with the asphaltic building paper layers peeled back.

Photo No. B16.

Cluster of nails penetrating the asphaltic building paper at the ride side of the exploratory opening.

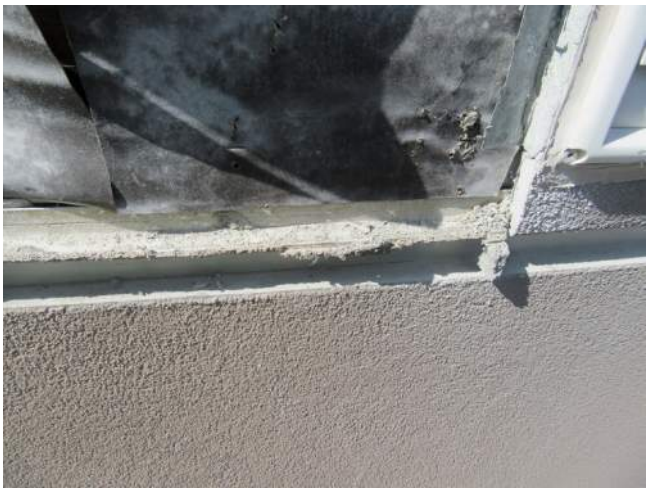


Photo No. B17.

Cluster of nails penetrating the asphaltic building paper at the ride side of the exploratory opening.

Exploratory Opening No. 3

Location	Level 4 North Elevation facing onto alley
Detail Addressed	Wall Assembly at outside corner
Reason location selected	Confirm wall assemblies, details, and substrate condition
Moisture Content	Dry

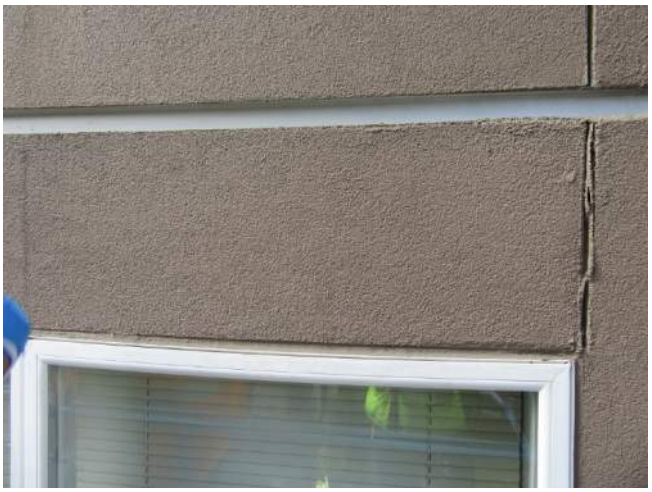


Photo No. 18.

Overall view of exploratory opening location with crushed or deformed control joint above window jamb/head juncture.

Observations

- Wall assembly interior to exterior (based upon a review of construction drawings and on-site observation): 5/8-inch interior gypsum wallboard, batt insulation with interior vapor barrier in 2x6 wood stud cavity, plywood sheathing, one layer of 60-minute asphaltic building paper, stucco coating.
- Condition of stucco cladding: No surface cracks were observed at or around the exploratory opening area. Control joint above window jamb/head juncture was crushed or deformed.
- Existing weather resistive barrier was observed to be intact with minor wrinkling.
- Condition of exterior gypsum sheathing: Appeared intact with no staining observed and no organic growth observed. Sheathing felt dry to the touch.

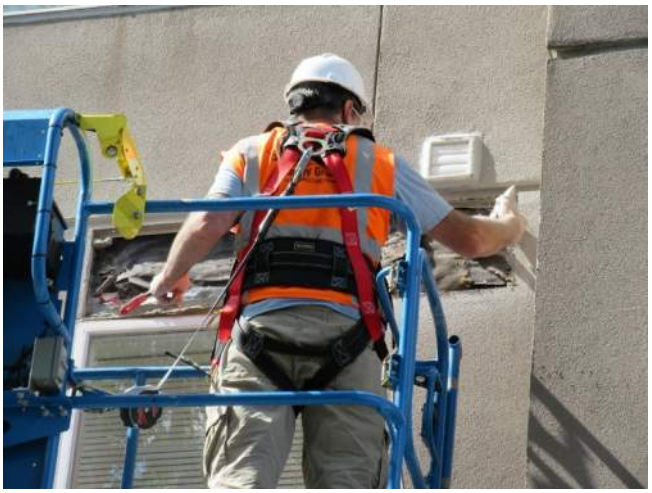


Photo No. B19.

View of exploratory opening area with the exterior stucco layer removed.

Photo No. B20.

Stucco cladding removed, showing asphaltic building paper with minor wrinkling.

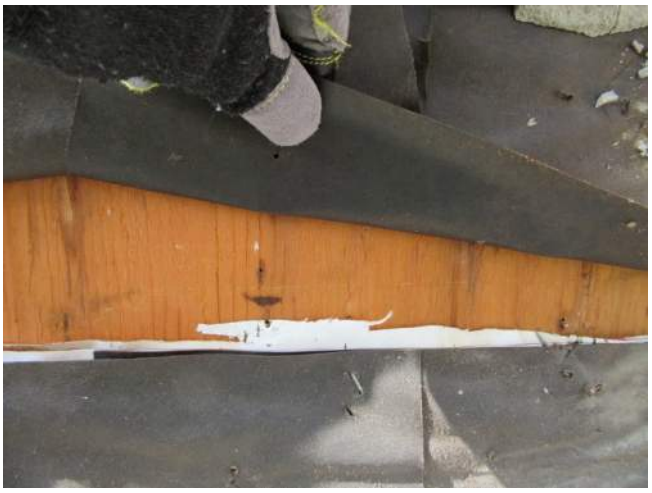


Photo No. B21.

View of exterior plywood sheathing with the asphaltic building paper peeled back.

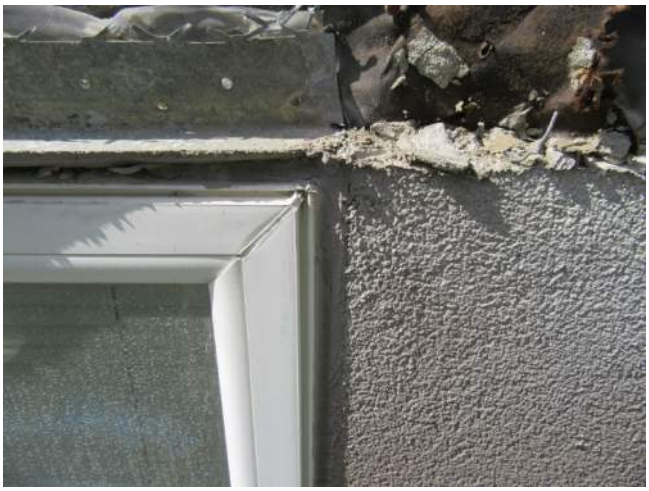


Photo No. B22.

Cluster of nails penetrating the asphaltic building paper at the ride side of the exploratory opening.

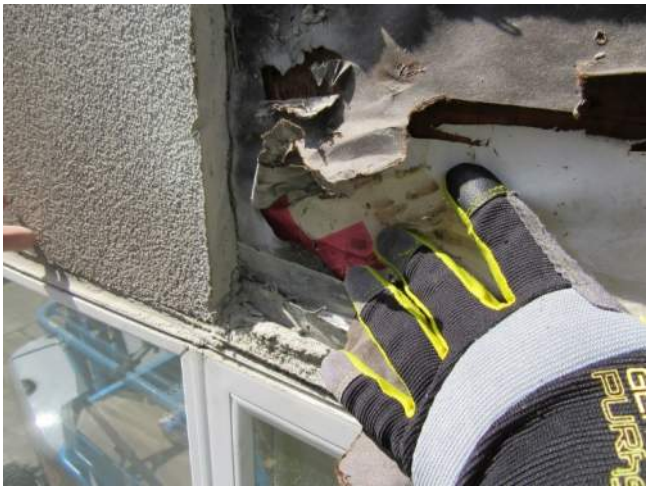


Photo No. B23.

Cluster of nails penetrating the asphaltic building paper at the ride side of the exploratory opening.

Exploratory Opening No. 4

Location	Level 3 East Elevation facing onto alley
Detail Addressed	Window Sill and Wall Assembly
Reason location selected	Confirm wall assemblies, details, and substrate condition
Moisture Content	Dry

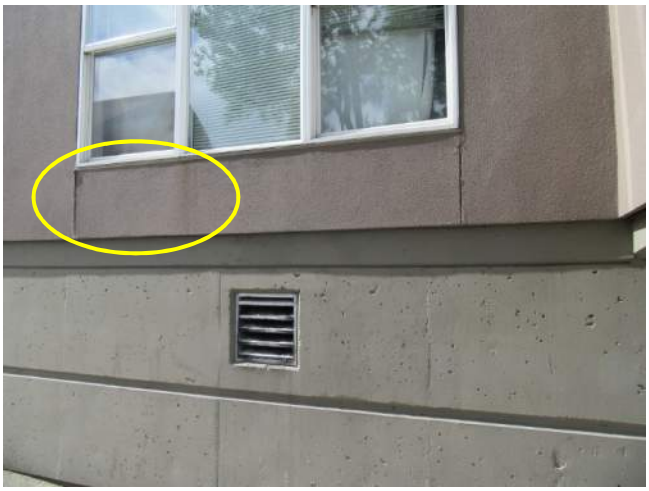


Photo No. B24.

Overall view of exploratory opening location.

Observations

- Wall assembly interior to exterior (based upon a review of construction drawings and on-site observation): 5/8-inch interior gypsum wallboard, batt insulation with interior vapor barrier in 2x6 wood stud cavity, plywood sheathing, one layer of 60-minute asphaltic building paper, stucco coating.
- Condition of stucco cladding: No surface cracks were observed at or around the exploratory opening area. Some rust at the J-molding along the bottom of the cladding and at the vertical stucco screeds.
- Existing weather resistive barrier was observed to be intact with minor wrinkling. Rust was at the sheathing nails.
- Condition of exterior plywood sheathing: Appeared intact with minor staining observed and some surface deterioration. Sheathing felt dry to the touch.

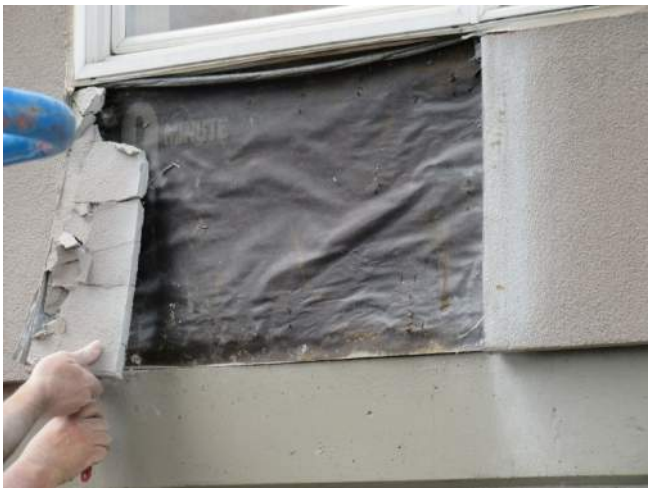


Photo No. B25.

Stucco cladding removed, showing asphaltic building paper with minor wrinkling.

Photo No. B26.

View of exterior plywood sheathing with the asphaltic building paper peeled back.

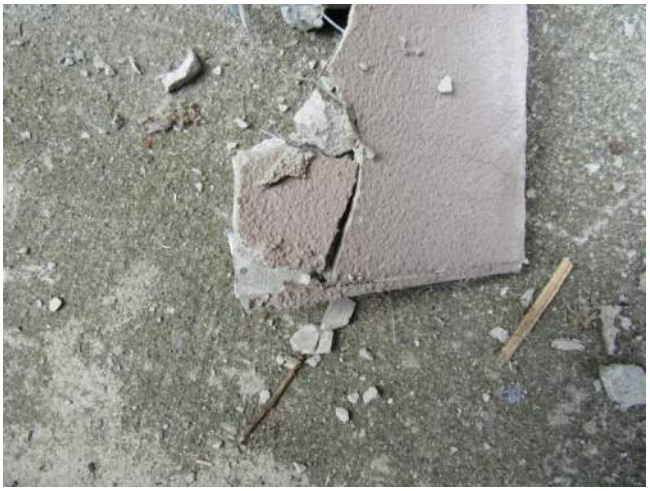


Photo No. B27.

Cracking at stucco adjacent to exploratory opening. Rusting of J-molding can be seen through the exterior crack.

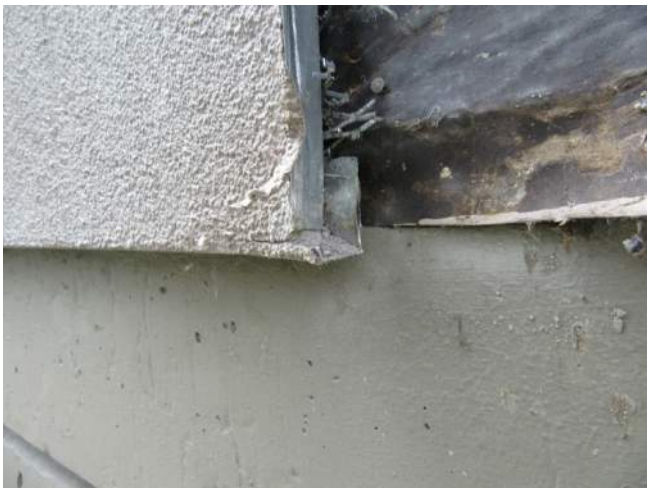


Photo No. B28.

Rust at stucco screed of the vertical control joint.

Exploratory Opening No. 5

Location	Level 3 East Elevation facing onto alley
Detail Addressed	Window Sill and Wall Assembly
Reason location selected	Confirm wall assemblies, details, and substrate condition
Moisture Content	Dry

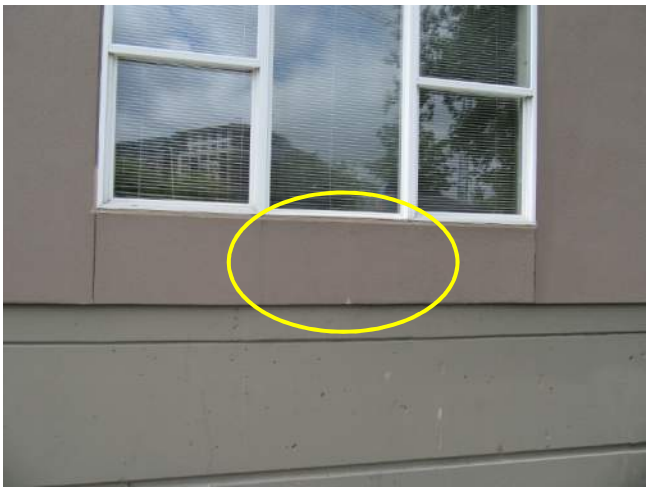


Photo No. B29.

Overall view of exploratory opening location.

Observations

- Wall assembly interior to exterior (based upon a review of construction drawings and on-site observation): 5/8-inch interior gypsum wallboard, batt insulation with interior vapor barrier in 2x6 wood stud cavity, plywood sheathing, one layer of 60-minute asphaltic building paper, stucco coating.
- Condition of stucco cladding: Surface cracks observed at center the exploratory opening area (see Photo B30) and stucco cladding had efflorescence at its bottom edge (see Photo B31). Stucco had expanded metal lath, indicative of a repair location as the other exploratory openings had a hexagonal-pattern wire lath. Small amounts of rust were observed at the horizontal stucco screeds
- Existing weather resistive barrier was observed to be intact with minor wrinkling.
- Condition of exterior plywood sheathing: Appeared intact with minor staining observed; ad no organic growth was observed. Sheathing felt dry to the touch.

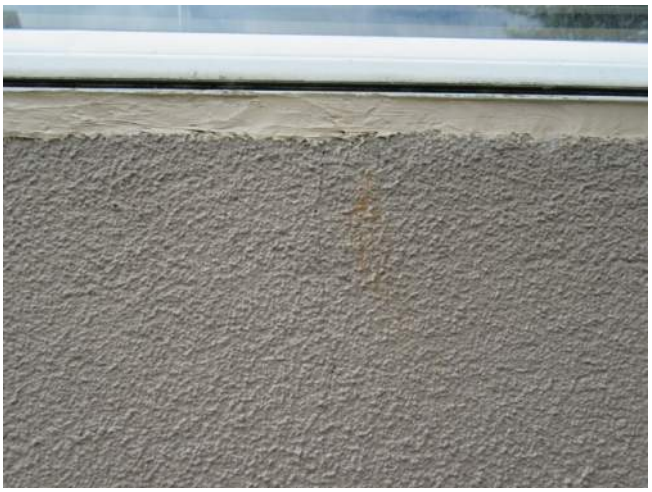


Photo No. B30.

Top edge of the exploratory opening with hairline crack visible.

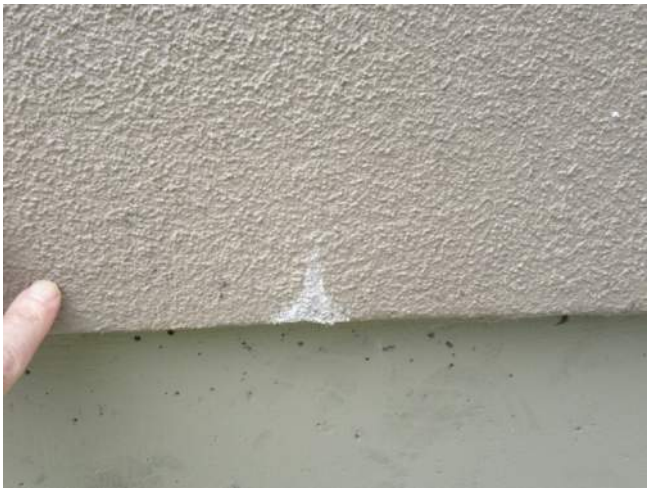


Photo No. B31.

Bottom edge of the exploratory opening with minor efflorescence.

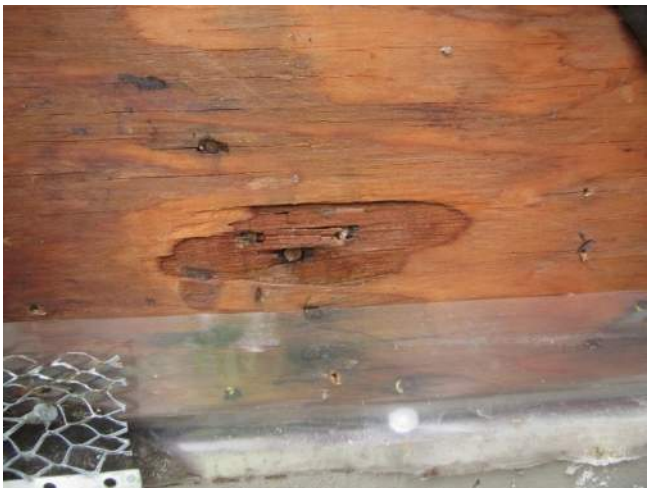


Photo No. B32.

View of exterior plywood sheathing with water stains and some minor surface deterioration.

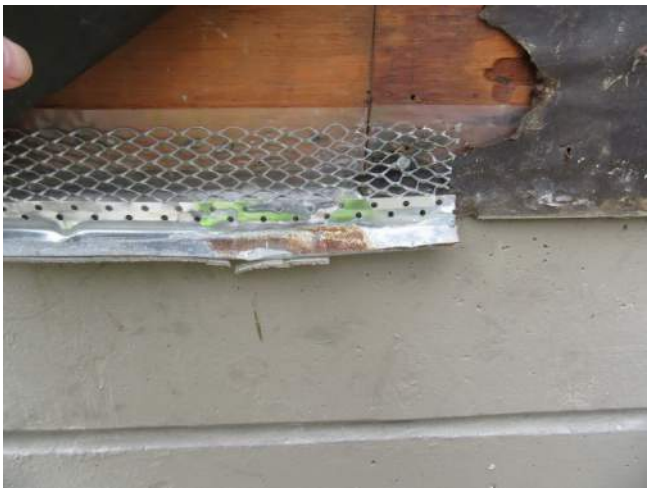


Photo No. B33.

Small area of corrosion at location of efflorescence at bottom of exploratory opening.

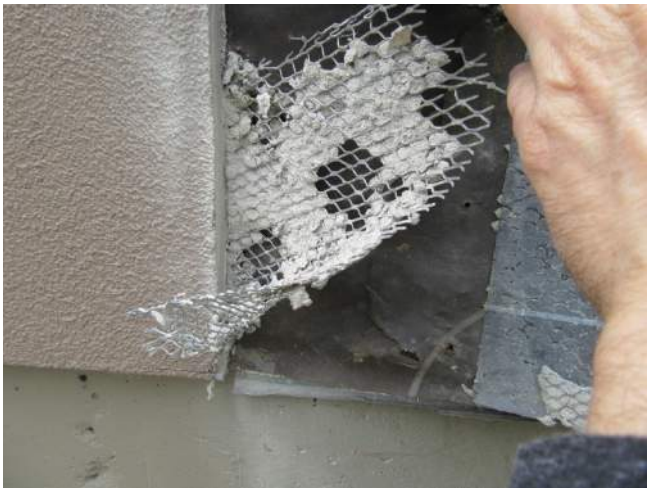


Photo No. B34.

Expanded metal lath of stucco cladding at exploratory opening.

Exploratory Opening No. 6

Location	Level 4, East Elevation facing onto alley
Detail Addressed	Window Head and Wall Assembly
Reason location selected	Confirm wall assemblies, details, and substrate condition
Moisture Content	Dry (moisture readings of 11.1% to 12.4%)

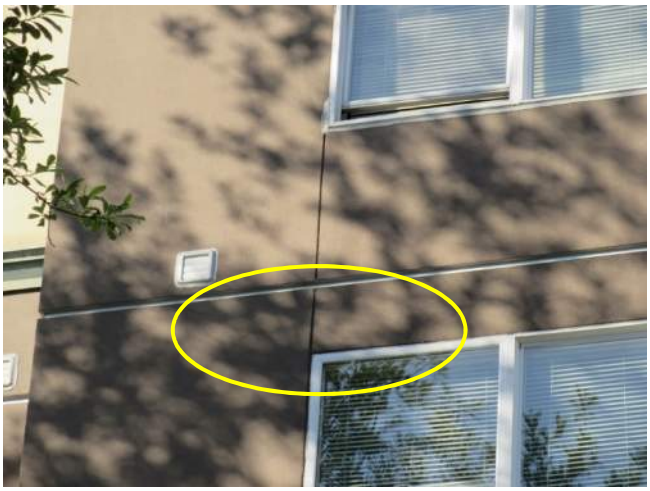


Photo No. B35.

Overall view of exploratory opening location.

Observations

- Wall assembly interior to exterior (based upon a review of construction drawings and on-site observation): 5/8-inch interior gypsum wallboard, batt insulation with interior vapor barrier in 2x6 wood stud cavity, plywood sheathing, one layer of 60-minute asphaltic building paper, stucco coating.
- Condition of stucco cladding: No surface cracks were observed at or around the exploratory opening area. Small amount of rust was observed at stucco screeds at control joints. Nails securing the stucco screeds were rusted.
- Existing weather resistive barrier was observed to be intact with minor wrinkling.
- Condition of exterior plywood sheathing: Appeared intact with minor staining observed and no organic growth observed. Sheathing felt dry to the touch

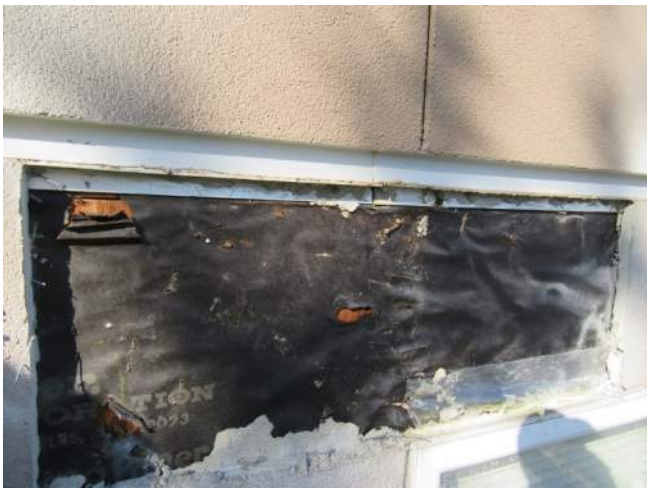


Photo No. B36.

Stucco cladding removed, showing asphaltic building paper with minor wrinkling.

Photo No. B37.

View of exterior plywood sheathing with the asphaltic building paper peeled back.

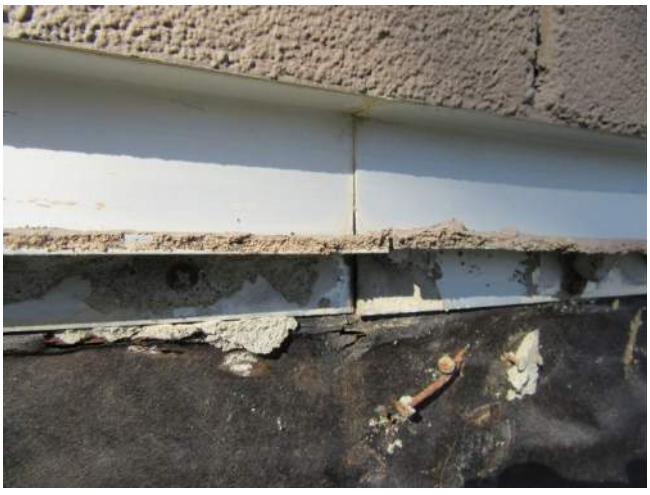


Photo No. B38.

Sheet metal reveal with minor corrosion at butt joint of nailing flange. Nails below reveal have rust at nail-heads and shanks.

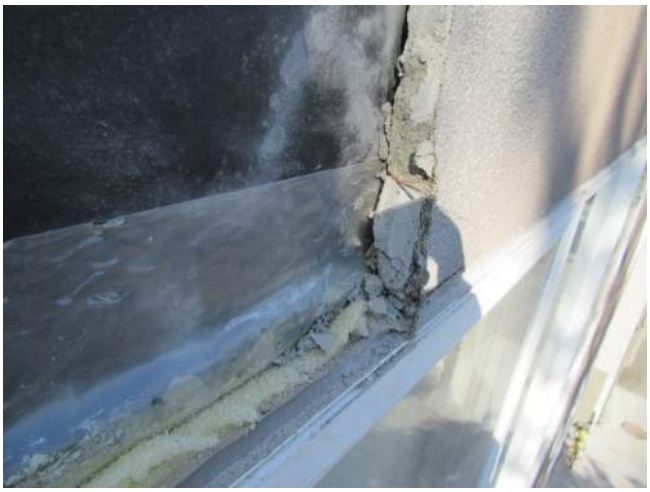


Photo No. B39.

Minor corrosion at exposed fragment of stucco lath.

Exploratory Opening No. 7

Location	Level 6, East Elevation facing onto alley
Detail Addressed	Window Jamb and Wall Assembly at sheet metal cornice
Reason location selected	Confirm wall assemblies, details, and substrate condition
Moisture Content	Dry

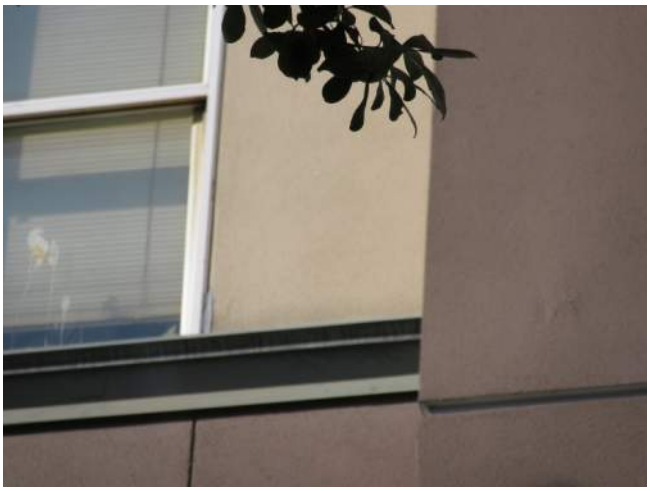


Photo No. B40.

Overall view of exploratory opening location.

Observations

- Wall assembly interior to exterior (based upon a review of construction drawings and on-site observation): 5/8-inch interior gypsum wallboard, batt insulation with interior vapor barrier in 2x6 wood stud cavity, plywood sheathing, one layer of 60-minute asphaltic building paper, stucco coating.
- Condition of stucco cladding: No surface cracks were observed at or around the exploratory opening area. Extensive corrosion (rust) at stucco screeds at control joints and window jamb.
- Existing weather resistive barrier was observed to be intact with minor wrinkling.
- Condition of exterior gypsum sheathing: Appeared intact with minor staining observed; no organic growth observed. Sheathing felt dry to the touch.

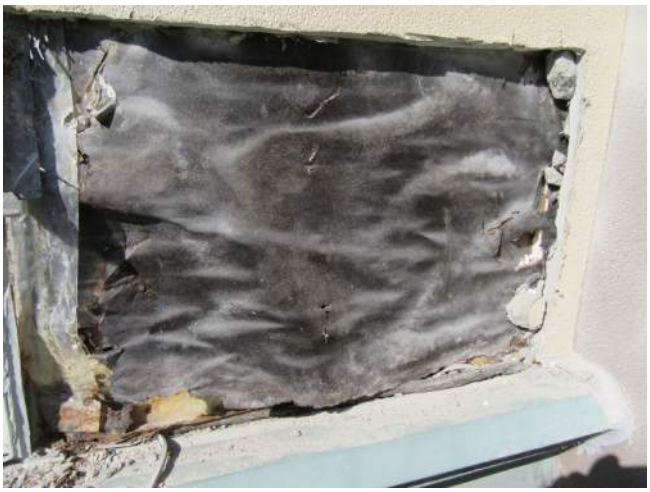


Photo No. B41.

Stucco cladding removed, showing asphaltic building paper with minor wrinkling.

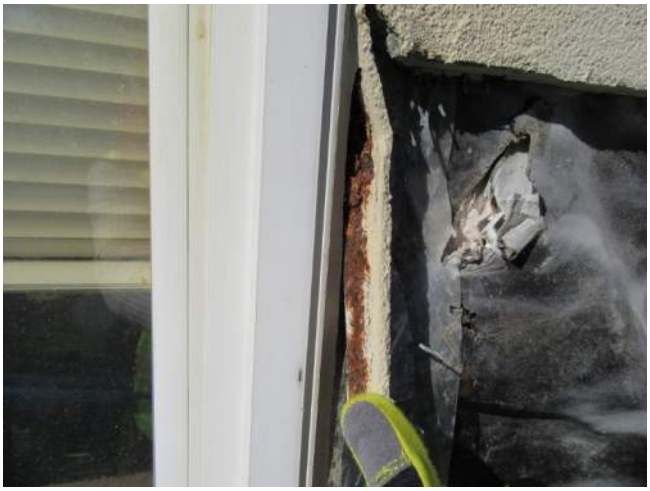


Photo No. B42.

Close-up of standing-seam that has not been properly seamed.

Photo No. B43.

View of roofing membrane beneath the standing-seam metal roof.

Photo No. B44.

View of exterior gypsum sheathing with the asphaltic building paper peeled back.

Photo No. B45.

Rust at metal screed of stucco cladding along bottom of exploratory opening.

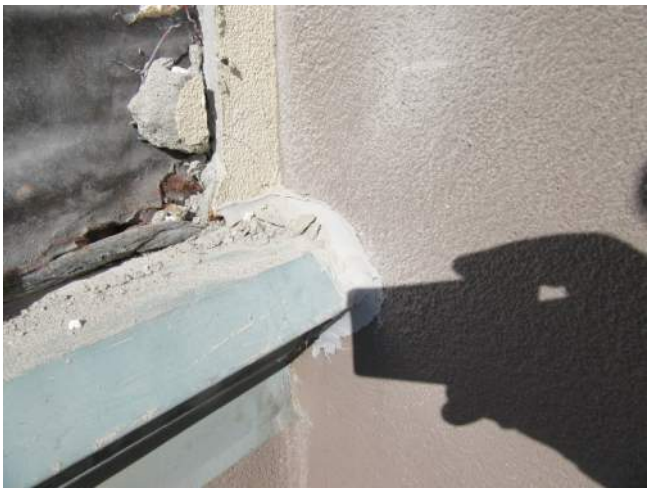


Photo No. B46.

Close-up termination of sheet metal cornice with adjacent stucco-clad wall.

Exploratory Opening No. 8

Location	Level 6, East Elevation facing onto alley
Detail Addressed	Window Jamb and Wall Assembly at sheet metal cornice
Reason location selected	Confirm wall assemblies, details, and substrate condition
Moisture Content	Dry

Photo No. B47.

Overall view of exploratory opening location.

Observations

- Wall assembly interior to exterior (based upon a review of construction drawings and on-site observation): 5/8-inch interior gypsum wallboard, batt insulation with interior vapor barrier in 2x6 wood stud cavity, plywood sheathing, one layer of 60-minute asphaltic building paper, stucco coating.
- Condition of stucco cladding: No surface cracks were observed at or around the exploratory opening area. Extensive corrosion (rust) at stucco screeds at control joints and window jamb.
- Existing weather resistive barrier was observed to be intact with minor wrinkling.
- Condition of exterior gypsum sheathing: Appeared intact with minor staining observed and no organic growth observed. Sheathing felt dry to the touch

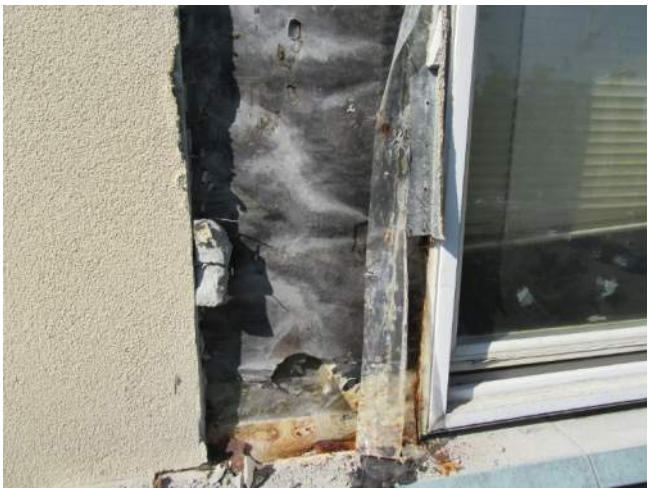


Photo No. B48.

Stucco cladding removed, showing asphaltic building paper with minor wrinkling.

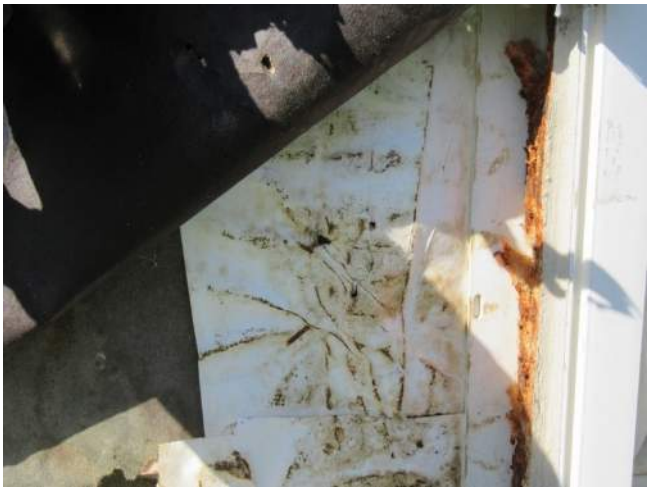


Photo No. B49.

Self-adhesive membrane flashing at window jamb installed behind nailing flange with rust stains at sealant joint.

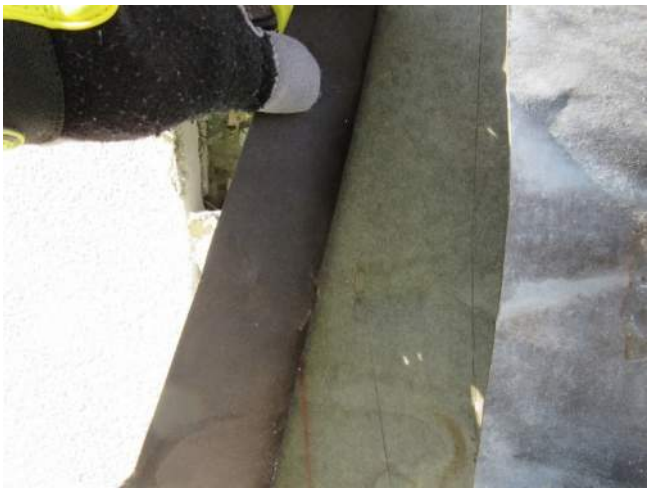


Photo No. B50.

View of exterior gypsum sheathing with the asphaltic building paper peeled back.

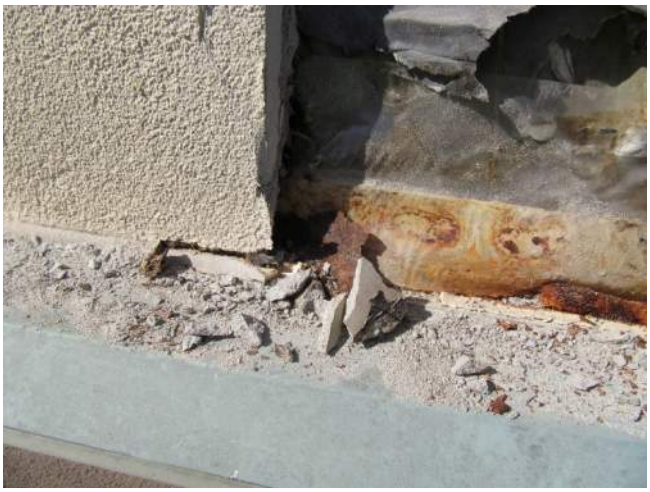


Photo No. B51.

Rust stains at vertical flange of horizontal building cornice.

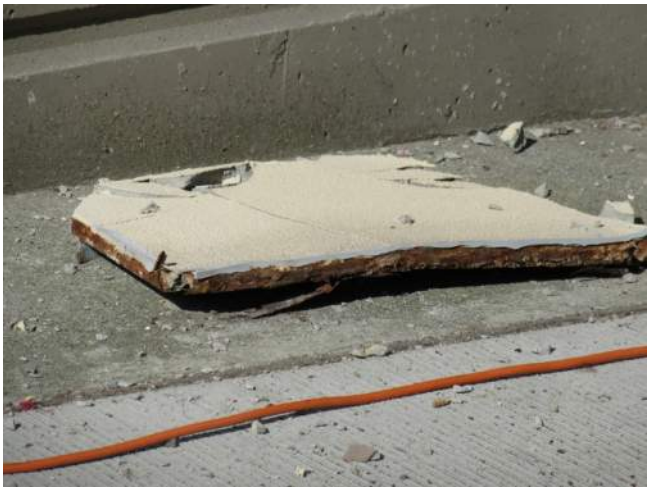


Photo No. B52.

Extensive corrosion visible at stucco screeds at edges of exploratory opening.

Exploratory Opening No. 9

Location	Level 4, East Elevation facing onto alley
Detail Addressed	Window Sill and Wall Assembly
Reason location selected	Confirm wall assemblies, details, and substrate condition
Moisture Content	Dry (moisture readings of 10.4% and 14.8%)

Photo No. B53.

Overall view of exploratory opening location.

Observations

- Wall assembly interior to exterior (based upon a review of construction drawings and on-site observation): 5/8-inch interior gypsum wallboard, batt insulation with interior vapor barrier in 2x6 wood stud cavity, plywood sheathing, one layer of 60-minute asphaltic building paper, stucco cladding.
- Condition of stucco cladding: No surface cracks were observed at or around the exploratory opening area. Some separation of stucco screeds from stucco at control joints.
- Existing weather resistive barrier was observed to be intact with minor wrinkling.
- Condition of exterior plywood sheathing: Appeared intact with minor staining observed and no organic growth observed. Sheathing felt dry to the touch.

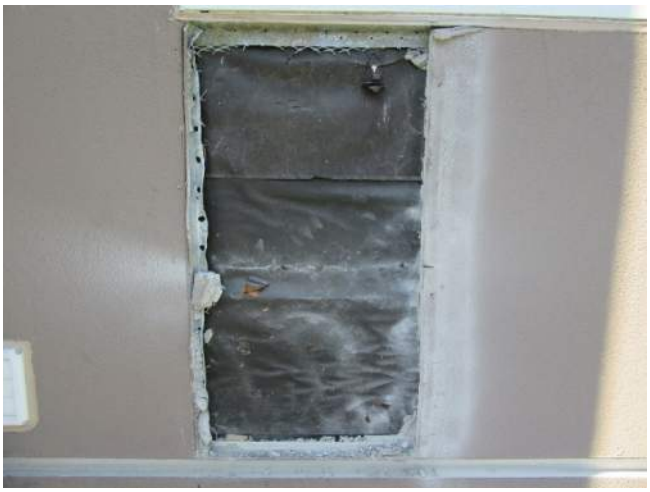


Photo No. B54.

Stucco cladding removed, showing asphaltic building paper with minor wrinkling.

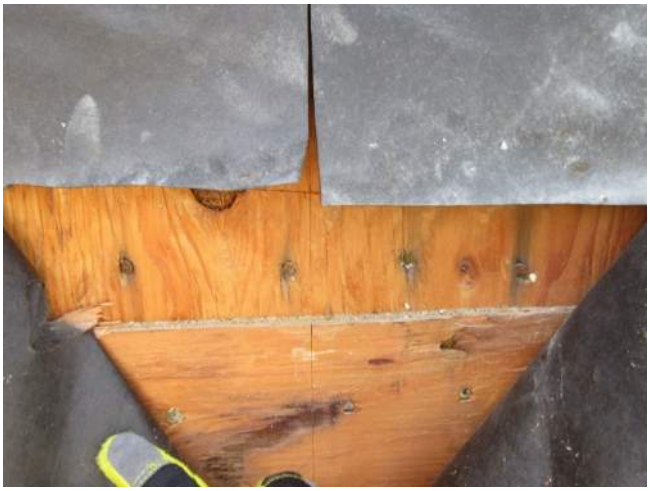


Photo No. B55.

View of exterior plywood sheathing with the asphaltic building paper peeled back.

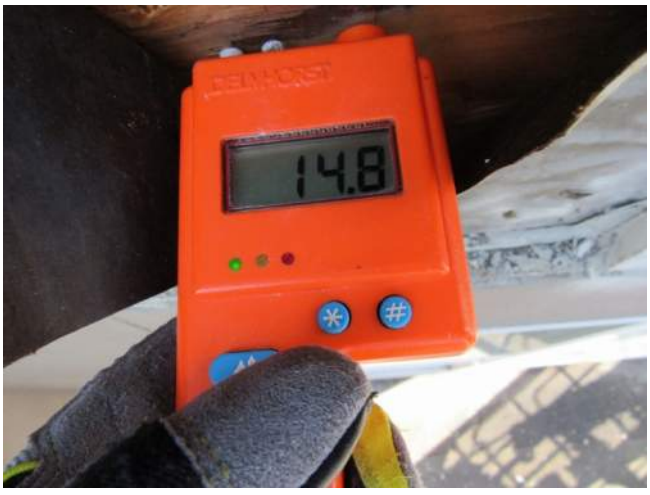


Photo No. B56.

Moisture reading of 14.8% at location of dark water stain visible in Photo No. B55.

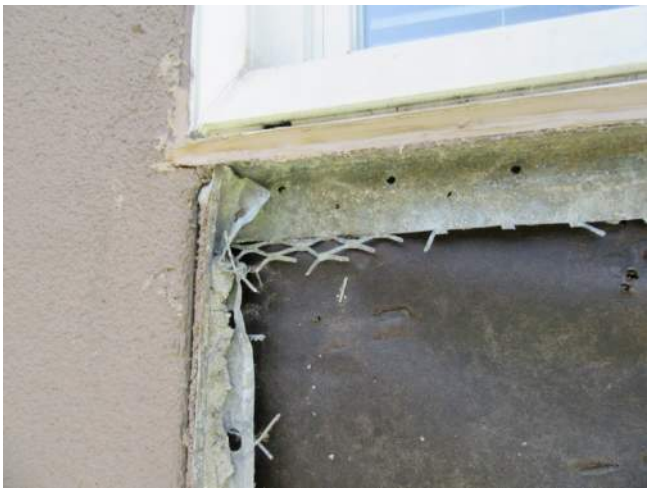


Photo No. B57.

Close-up of stucco screeds below window sill and at vertical control joint.

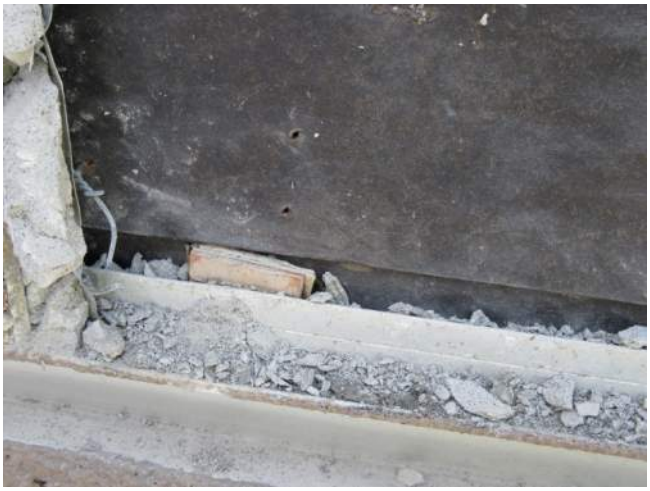


Photo No. B58.

Close-up of top horizontal flange of extruded metal reveal.

Exploratory Opening No. 10

Location	Level 4, East Elevation facing onto alley
Detail Addressed	Window Sill and Wall Assembly
Reason location selected	Confirm wall assemblies, details, and substrate condition
Moisture Content	Dry with some wet areas (11.8% to 31.3%)

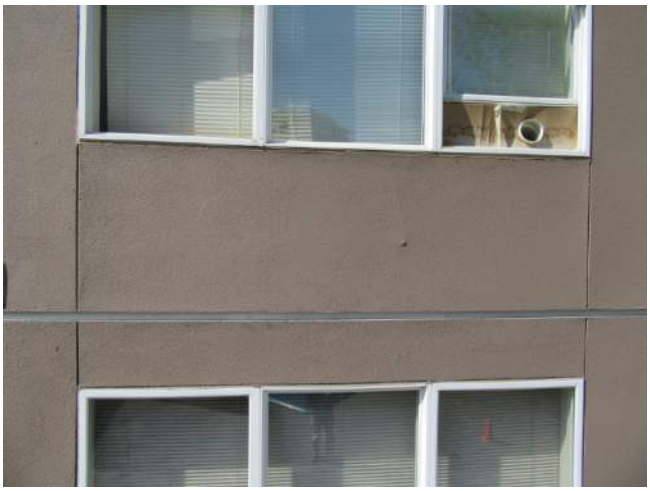


Photo No. B59.

Overall view of exploratory opening location.

Observations

- Wall assembly interior to exterior (based upon a review of construction drawings and on-site observation): 5/8-inch interior gypsum wallboard, batt insulation with interior vapor barrier in 2x6 wood stud cavity, plywood sheathing, one layer of 60-minute asphaltic building paper, stucco cladding.
- Condition of stucco cladding and coating: Small protuberance visible below middle fixed-pane unit of window group from rusted remnant of scaffolding tie-wire. Minor corrosion of stucco screed at window sill.
- Existing weather resistive barrier (WRB) was deteriorated with portions of the WRB remaining adhered to stucco cladding after removal of the cladding.
- Condition of exterior plywood sheathing: Visible deterioration with partial delamination of outside veneer; no organic growth observed. Sheathing felt damp to the touch in some locations.

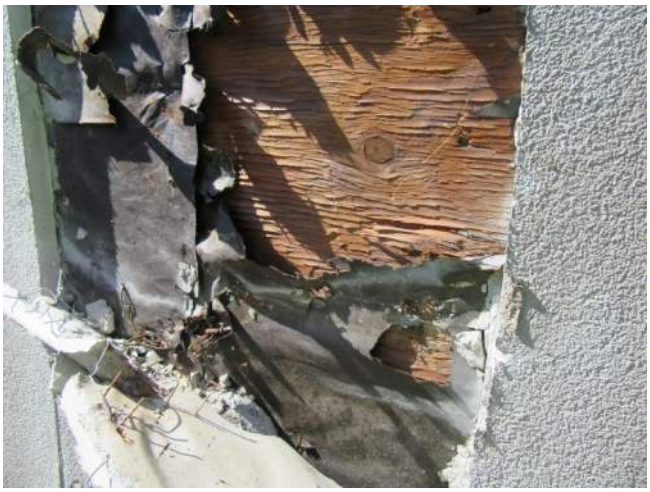


Photo No. B60.

Loss of asphaltic building paper (WRB) with removal of stucco cladding. Visible deterioration of outside veneer of plywood sheathing.

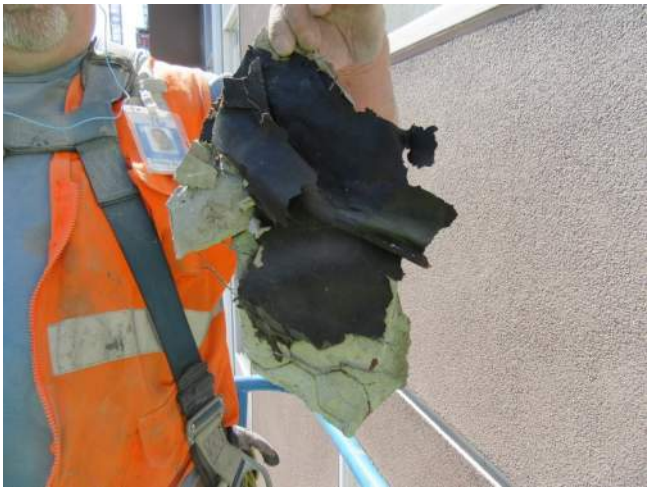


Photo No. B61.

Asphaltic building paper adhered to back of removed stucco cladding.

Photo No. B62.

Close-up view of vestigial rusted end of tie-wire attached to the wall structure.

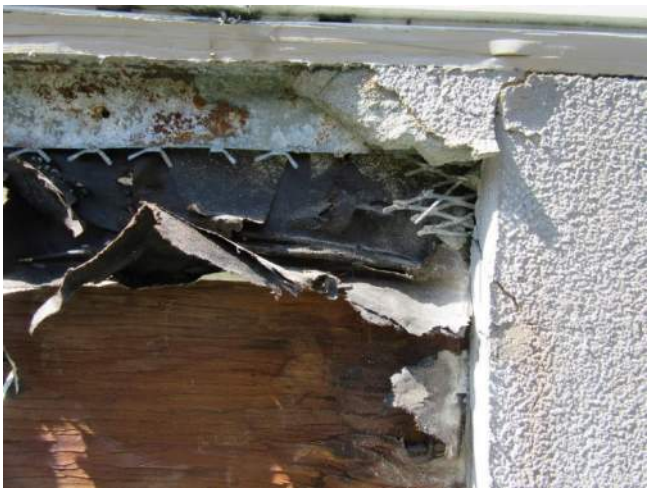


Photo No. B63.

Minor corrosion visible on stucco screed at window sill and rust staining on surface of stucco coating.

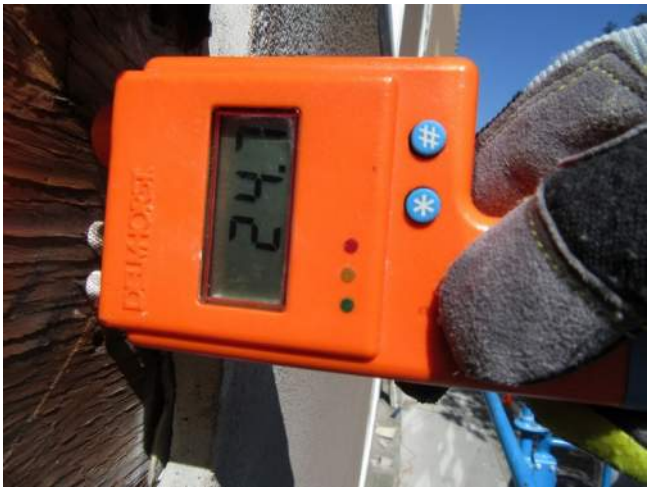


Photo No. B64.

Moisture reading of 24.7% at location of dark water stain visible in Photo No. B55.

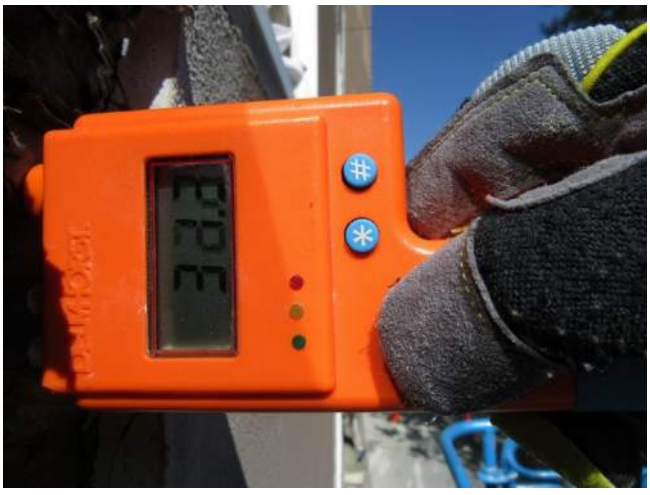


Photo No. B65.

Moisture reading of 31.3% at upper corner of plywood sheathing visible in Photo No. B63.

Photo No. B66.

Moisture reading of 11.8% at location south of plywood location visible in Photo No. B64.

Photo No. B67.

Moisture reading of 18.3% at location of plywood slightly above location of Photo No. B66.