Hampton Court and Churchill Place

Building Enclosure Condition Assessment

545 Manchester Road and 520 Dunedin Street
Victoria, B.C.

March 10, 2021
RJC No. VIC.125902.0001

Prepared for:

The Owners of Strata VIS 2720
545 Manchester Road and 520 Dunedin Street
Victoria, BC

Prepared by:

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EXECUTIVE SUMMARY

Read Jones Christoffersen Ltd. (RJC) has completed a Building Enclosure Condition Assessment (BECA) of Hampton Court located at 545 Manchester Road and Churchill Place located at 520 Dunedin Street, Victoria BC for the Owners of Strata VIS 2720 (the Strata).

The building enclosure has benefited from past investments in proactive maintenance and renewal, and when necessary, prompt repairs. This has included regular building inspections by DougLes Consulting, development of maintenance plans, building envelope condition assessments, and most recently in 2020 a depreciation report by Suncorp Valuations. This has allowed some of the building assemblies to continue performing well given their age and the inherent limitations of their vintage, design and construction. In particular the roof assembly. Additionally, the repainting to the stucco cladding, foundation waterproofing membrane and localized flashing replacement have provided additional moisture protection to the buildings.

However, the condition of the building enclosure for the buildings does vary. Some assemblies are in good condition and performing well for their age, and intended use, while others are nearing the limit of their expected service life and are experiencing performance challenges.

RJC recommends near term replacement of windows and recoating of the exterior stucco cladding to address issues that will negatively effect the building performance and have the potential to cause underlying damage. Additionally, replacement of bathroom exhaust fans is also recommended in concert with window replacement, as well as rehabilitation of one significant deteriorated balcony.

RJC does not recommend near term replacement of the entire building enclosure based on current condition and demonstrated performance of the buildings. However, this recommendation is to be considered in conjunction with other factors, including the need to tie-in the recommended near term repairs to the surrounding assemblies, potential expansion of repairs due to uncovered conditions, and the potential for future re-work.

The Opinion of Probable Cost to complete the recommended near term work is $2,500,000.00

The Strata may wish to consider more comprehensive building enclosure renewals, perhaps with the goal of realizing a deep energy retrofit and recouping some of the reinvestment costs through various grant and incentive programs. However, as noted in the report, this level of renewal is not required based on the present condition and performance of the current building enclosure assemblies.

1.0 INTRODUCTION

Read Jones Christoffersen Ltd. (RJC) has completed a Building Enclosure Condition Assessment (BECA) of Hampton Court located at 545 Manchester Road and Churchill Place located at 520 Dunedin Street, Victoria BC for the Owners of Strata VIS 2720 (the Strata). The goal of the BECA is to assess the current general condition and performance of the building enclosure with respect to overall performance and potential moisture ingress or moisture related deterioration.

Photo 01 – Hampton Court from the North-West

Photo 02 – Churchill Place from the North-West

The building enclosure components reviewed include the following areas:

- Exterior Wall Assemblies
- Balconies Assemblies
- Glazing Assemblies
- Roof Assemblies

A description of the various components, their overall integrity, and remaining service life is provided in this report. Where applicable, recommendations for replacement, repair, or renewal of the assemblies are provided, along with Opinions of Probable Cost.

1.1 Description of Scope and Disclaimers

.1 Scope of Work

As outlined in RJC's proposal dated November 14, 2019, the scope of work undertaken included the following:

.1 Reviewed the original architectural and structural drawings to familiarize ourselves with the building enclosure design and details of the building.

.2 Reviewed previous reports and drawings prepared for past maintenance and/or repairs.

.3 Visually reviewed building enclosure components from the exterior including:

- Exterior walls including associated claddings, flashings and sealants
- Balconies, guard walls and associated detailing
- Windows and doors including associated flashings and sealants
- Roofs and soffits including associated penetrations flashings and terminations
- Representative thermographic survey of the buildings with an infra-red imaging camera

.4 Reviewed known problem areas and building enclosure concerns, as revealed by the Strata.

.5 Visually reviewed interior finishes of exterior walls and balconies from within units of both buildings.

.6 Reviewed exterior wall locations via exploratory recesses to visually determine the condition of the underlying building enclosure details and component materials. The test locations encompassed a representative sampling of background control samples and the high exposure and at risk building enclosure details.

.7 Prepared a written BECA report including:

- Observations and assessment of individual components of the building enclosure
- Recommendation and options for maintenance, renewal or repair
- Consideration of regulatory and/or thermal and energy performance improvements
- Annotated photographs
- Annotated reference drawings

In order to assist with the exterior recess openings, RJC coordinated the services of Camp Projects Inc. (the Contractor) to cut and expose the wall assemblies, and to patch the recesses after our review. The recess repairs included temporarily protecting the openings with a flashing cover plate and sealant.

Permanent repair and sealing of the exploratory openings should not be deferred beyond six (6) months from the date of this report.

.2 Disclaimers

The intent of this BECA was to review and assess the present general condition of the building enclosure assemblies with regard to moisture-induced deterioration. A structural design review was not conducted, as it was beyond RJC's scope of work. Review of seismic aspects, mechanical, electrical, fire safety systems, means of egress, and identification of mould-like substances were also beyond RJC's scope of work.

This report documents the current general condition of the building enclosure and has been prepared in accordance with generally accepted engineering practices. No warranties, either expressed or implied, are made as to the professional services provided under the terms of our scope of work and included in this report.

Services performed and outlined in this report were based, in part, upon visual observations of the site and structure.

1.2 Documents Reviewed

Drawings and previous maintenance data provided by the Strata or retrieved from RJC's archive were reviewed for building enclosure related information. Table 1 summarizes the documents that were reviewed by RJC to assist with the BECA.

Table 1 – Documents Reviewed

Drawings – Architectural	Drawings prepared by Herbert H. Kwan Architect, dated June 08, 1992. *Drawings revised August 4, 1992.*
Asbestos Bulk Sample Report	Report prepared by Island Environmental Health & Safety Ltd., dated February 01, 2019
Depreciation Report Draft	Depreciation Report Draft prepared by SunCorp Valuations. Dated May 4, 2020
BECA Report	Building Envelope Condition Assessment Report prepared by DougLes Consulting Services Inc. Dated 2014.
Depreciation Report	Depreciation Report Final V3.2 prepared by RBC Strata Consulting Ltd. Dated 2013.
Building Inspection	Building Inspection Reports prepared by Doug Les Consulting Services Inc. Dated 2010, 2008, 2007, 2005, 2003, 2001.
Miscellaneous Maintenance and Renewal Assessments and Repair Coordination	Engineer's Report prepared by Brewster Engineering and Management Ltd. Dated June 16, 2003. Short & Long Term Repair & Maintenance Plan prepared by the Strata Council for Strata 2720. Dated December 20, 2000. Summary of Repairs prepared by DougLes Consulting Services Inc. Dated February 22, 2000. Maintenance Options prepared by DougLes Consulting Services Inc. Dated April 14, 1999 Building Envelope Review I and II prepared by DougLes Consulting Services Inc. Dated March 27, 1999 and November 1998. Waterproof Membrane Review prepared by Levelton Engineering Ltd. Dated August 11, 1998.

1.3 Site Description

All directional references made in this report are based on Manchester Road and Dunedin Street running in an East/West direction.

The buildings are situated in the Burnside/Rock Bay area of Victoria (Figure 01). The site grounds generally consist of extensive areas of soft landscaping.

Figure 01 – Neighbourhood Context *Imagery ©2020 Google*

The buildings and landscaped plaza area sits atop the underground parking garage, which is accessed through a common driveway located at the south of the site (off Dunedin Street).

Based on the overhang ratio for the exterior walls, which varies from negligible at windows to significant at balconies, and the proximity of adjacent structures, the buildings of Hampton Court and Churchill Place are considered to have a medium to high level of exposure as determined by the exposure category nomograph (Figure 02).

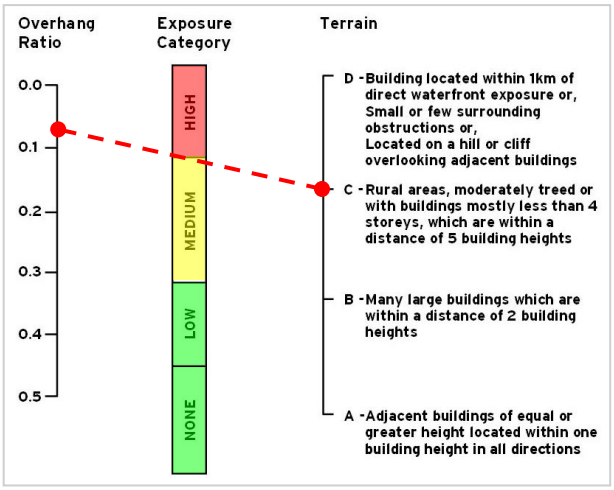

Figure 02 – Building Exposure Category Nomograph

1.4 Building Description

Hampton Court and Churchill Place were constructed circa 1993. Churchill Place contains 48 suites and Hampton Court contains 60 suites. Each building is four-storeys tall. Both buildings sit atop a common underground parkade.

The exterior walls are finished with stucco cladding that is, in large part, original to each building's construction. Repairs have been done at some localized areas where previous investigations have identified water entry issues.

Exterior windows and sliding patio doors are double glazed aluminum-framed assemblies for the residential units. Storefront aluminum framing and doors are present at each building's entrance lobby. Windows and doors incorporate double-pane Insulated Glass Units (IGUs); however, the frames are aluminum non-thermally broken systems.

Figure 03 – General Assemblies

The balconies are generally bounded by partial-height upstand guard walls with glazed aluminum guards spanning between stucco clad wood framed posts. Balcony surfaces are protected with vinyl sheet membranes. The membranes on some south facing balconies have been replaced recently.

The main roof of each building is a low-slope assembly protected by a 2-ply modified bitumen sheet membrane. The strata council representative indicated that the roofs are also part of the original construction.

Table 2 below provides a summary of the building structure and enclosure systems:

Table 2 – Building Description	
Name	Hampton Court & Churchill Place
Address	545 Manchester Road & 520 Dunedin Street, Victoria, BC
Number storeys	Four (4) and four (4) respectively
Number of elevators	Two (2) per building
Combustible construction	Yes – Wood frame on shared concrete foundation and parkade
Principal occupancy	Residential
Date of construction	Circa 1993
Number of Suites	Sixty (60) and forty eight (48) suites respectively
Structural systems	Wood frame structure on shared concrete foundation and parkade
Cladding types	Stucco cladding
Main Roof type	Low-slope assembly protected with a 2-ply modified bitumen membrane
Window and door types	Non thermally broken aluminum frames with double pane IGUs

1.5 Building History

Constructed circa 1993, the buildings are approaching three decades of service. As outlined in the review of documents described in Table 1, several targeted repairs of the building enclosure have been undertaken, as described in Table 3.

Table 3 – Building History (Major Maintenance, Renewal and Repair)	
1993	Original construction
1999/2000	Foundation waterproofing membrane replacement Flashing renewal Targeted balcony renewal Expansion joint caulking replacement Targeted stucco cladding repairs Miscellaneous repairs and maintenance
2010	Reapplication of acrylic coating to stucco cladding

2.0 SUMMARY OF FIELD INVESTIGATION AND OBSERVATIONS

Between August 13th and December 9th, 2020, RJC conducted both non-invasive and invasive reviews of the exterior enclosure. Access to various areas of the buildings, and opening of recesses, was provided by a Contractor (Camp Projects Inc.).

The following section summarizes our observations during the site review, and provides commentary and recommendations where possible. The assembly assessments are described further in the following Section 3.0 of the report.

2.1 Interior Conditions

Thirteen (13) interior reviews were conducted on seven (7) units in Hampton Court and six (6) units in Churchill Place. The interior reviews consisted of a visual assessment of interior conditions, and review of interior recesses cut in each unit. The interior recesses involved cutting a ½" to 1" diameter hole through the interior drywall in order to expose the vapour barrier, insulation, wood stud framing, and sheathing.

Observations were recorded with respect to the existing conditions of the enclosure materials and moisture content. Additionally, RJC recorded any signs of moisture related deterioration visible in the interiors. Further details outlining the findings can be found in *Appendix E – Interior Review*.

RJC has summarized the following information on interior conditions related to the performance of the building enclosure:

Photo 03 – Wood stool damaged by condensation

.1 Wood sills/stools along the bottom edge of the interior of the windows have localized moisture staining and damage, primarily due to condensation on the interior surface of the windows. Interior windows primarily located in poorly ventilated areas such as bedrooms and on low sunlight building elevations are subject to increased condensation and further damage to wood sills/stools (Photo 03). In locations prone to increased condensation, the moisture content of the wood sills/stools was high (>19%).

Photo 04 – Condensation on the interior face of at grade concrete wall assembly

.2 Interior wall recesses cut in first floor units near the at grade concrete wall assemblies indicated damage to wood sills, increased interior condensation on the interior surface of windows, and high moisture content of the interior drywall (>12% WME) due to the buildup of condensation on the interior face of the at grade concrete wall assembly (Photo 04). Condensation builds up on the interior face of the at grade concrete wall assembly when the concrete is cooled due to low exterior temperatures causing the warmer air of the interior wall assembly to condensate on the interior surface of the concrete.

Photo 05 – Typical interior wall cavity

.3 Interior wall recesses were cut primarily below window assemblies and in locations where isolated signs of staining were observed from the exteriors. In general, observations indicated clean interior wall cavities and appropriate moisture content of interior drywall (between 5%-12% WME) (Photo 05). Additionally, the wood framing of the interior wall cavities generally had a low moisture content (<12%). In locations where isolated signs of staining were observed from the exteriors, the interior wall cavities were generally clean; however, the moisture content of the sheathing was high (>19%).

.4 Bathroom fans are original in most suites and are switch operated. Regular operation of effective bathroom fans can lessen the internal moisture load (the relative humidity RH) and thereby reduce the potential for moisture accumulation (condensation) on the inside of the window frames.

2.2 Exterior Recess Reviews

Thirty (30) exterior recesses were cut open during the exterior review, spread across both buildings (fifteen (15) per building). This involved removing stucco cladding and flashings at various locations in order to expose the underlying building components, which included the stucco on metal lath, building paper, sheathing, and in some cases the wood stud framing.

Observations were recorded with respect to the existing condition of the enclosure materials and moisture content. Further details outlining the findings can be found in *Appendix D – Exterior Recess Review.*

To generate a balanced, conservative analysis of the existing condition of the buildings, recesses were distributed amongst all elevations of the building at high exposure critical details. Therefore, most recesses were purposefully placed at "at-risk" locations such as above and below windows, and at staining on the face of the stucco.

Table 4 and Figure 04 below summarize the moisture content readings of the OSB sheathing recorded during the exterior recess reviews.

Table 4 – Moisture Content Readings

	Number of Recesses	% of Recess
MC <19%	17	56.6%
>19% MC <28%	11	36.6%
MC >28%	2	6.8%

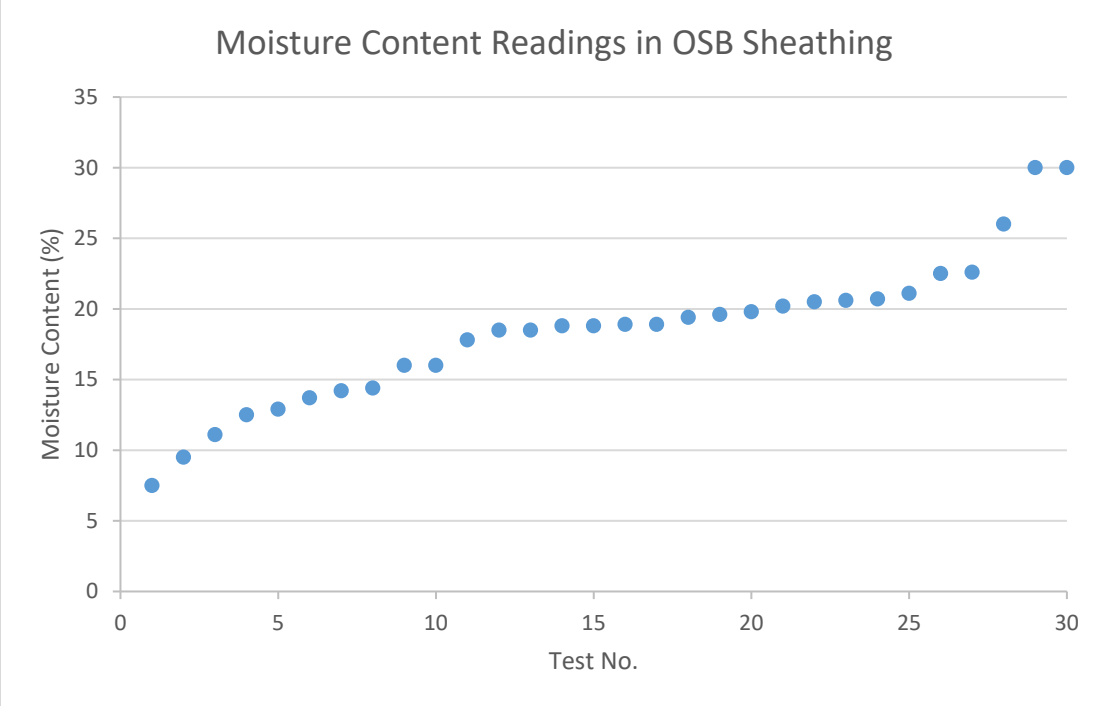

Figure 04 – Moisture Content Readings in OSB Sheathing

Due to practical limitations with access, RJC conducted exploratory recesses between the ground level and the 3rd floor level. Based on our experience with buildings of similar age, construction, and exposure, the results from our findings can be extended to upper portions of the building.

The exterior exploratory recesses reveal that in general, the wall's performance varies from poor to good, based on the proximity to windows and other penetrations. At most locations, the building paper was aged and appeared to have wetted and dried, the metal lath showed minor corrosion, the sheathing showed minor staining and had a low/normal moisture content (<19%) (Photo 06). Locations situated below windows, in areas of visible staining on the face of the stucco, and near cracks in the stucco, generally had deteriorated building paper, corrosion on the metal lath, and the sheathing showed significant staining and elevated moisture content (Photo 07).

Photo 06 – Typical Recess Condition

Photo 07 – Recess with Evidence of Water Ingress

The recess openings below windows indicate that there is some moisture ingress from the windows occurring. Typically, windows had very limited head flashings and did not appear to have any sill flashing, which may be contributing to water ingress of the areas below the windows (Photo 08).

Wood framed balconies typically did not show signs of elevated moisture ingress or staining. However, at one balcony on the North elevation of Hampton Court at Unit 215, the sheathing and building paper were completely deteriorated, allowing full view of the inside of the balcony (Photo 09). The structural framing in this location appeared to be completely wet and spongy/rotten. For more information on this balcony, please see *Appendix D – Exterior Recess Review*.

Photo 08 – Typical Window Without Sill Flashing

One opening was cut into the level 2 floor line at Unit 217 of Hampton Court, in what appeared to be a location of a previous exploratory opening, allowing review of the structural 2"x10" rim board. The original building paper was deteriorated, the metal lath was corroded, and the structural framing was saturated and beginning to deteriorate (Photo 10).

Photo 09 – Deteriorated Balcony at Hampton Court

2.3 Thermal Imaging Review

A representative thermographic survey of the buildings was performed using an infrared (IR) camera at various calibrations. The camera used was a FLIR B250 camera. The survey was performed during the evening of December 9th at 7:30pm. The weather was clear and cool, the exterior ambient temperature was 3°C and the relative humidity was 98%. When taking IR photos of a building exterior on a cool night, red/orange colours indicate warm temperatures leaving the building, either by design such as vents or due to low building envelope performance such as through aluminum window frames. In contrast, blue colours indicate cooler temperatures.

Photo 10 – Wet Structural Framing at Hampton Court

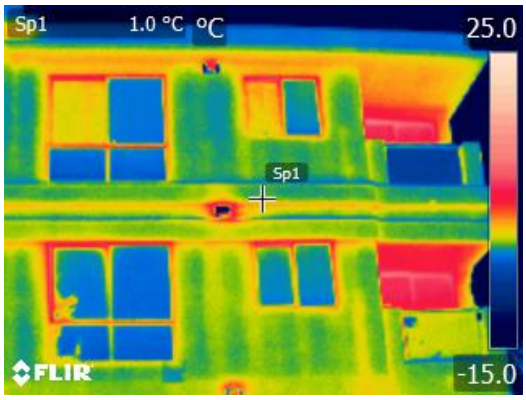

Photo 11 – Thermal Bridging at Windows, Balconies, and Studs

Photo 11 illustrates thermal losses are occurring at the windows and underside of balconies, as well as along the vertical wood studs. Losses at the windows are occurring because the aluminum framing is non-thermally broken, allowing heat to transfer from the warm area (inside) to the cool area (outside) through conduction. Losses are likely occurring at the underside of balconies as a result of insufficient insulation at balcony framing penetrations. Minor losses along wood studs are occurring as a result of wood studs being more conductive that the surrounding insulation. This allows heat from the building's interior to flow outward through the wall assembly at the studs.

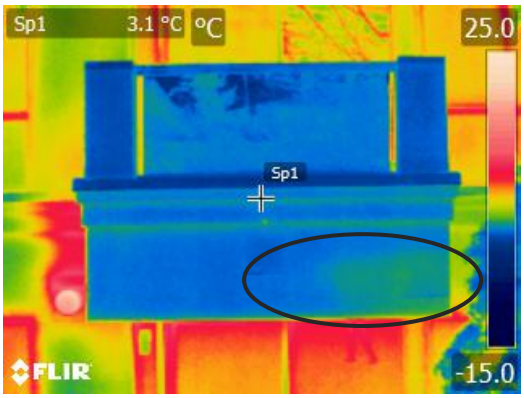

Photo 12 – Warm Location on Balcony Indicating Moisture

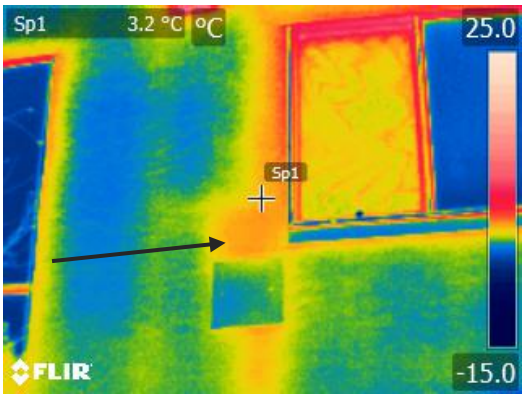

Photo 13 – Warm Location on Wall Indicating Moisture

Thermographic images were also taken of the wet balcony at Unit 215 of Hampton Court (Photo 12) and wet floor line framing of Unit 217 of Hampton Court (Photo 13) previously discussed. In this case, the warm location indicates water in the building envelope, which will maintain a more consistent temperature compared to the rest of the exterior wall assembly which has become cool during the night.

Overall, the thermographic images indicate and confirm normally expected thermal bridging around windows, doors, balconies, and wood framing. Areas of previously confirmed or suspected elevated moisture content were also confirmed though the thermographic images.

3.0 ASSESSMENT OF BUILDING ENCLOSURE CONDITION AND PERFORMANCE

3.1 Interior Systems and Assemblies

Moisture damage to the interior finishes has occurred in many suites at Hampton Court and Churchill Place and it ranges in severity from generally minimal to occasionally moderate. The occurrences of damage are most commonly minimal and appear as mild moisture staining on the surface of interior finishes.

The most common instances of minor staining is the result of accumulated window condensation wetting the window sills and jambs (further discussion on windows is provided in Section 3.3 – Glazing Assemblies). Condensation occurs when warm interior air of high relative humidity drops in temperature as it cools in proximity to relatively colder objects, such as exterior walls, windows, or even interior metal objects (light fixtures, towel rods, etc.). As air cannot hold as much moisture when it is cold as when it is warm, water condenses on the colder objects (analogous to droplets forming on the exterior surface of a cold glass of water).

To help circulate air, manage interior humidity levels and minimize the risk of condensation, all suites are provided with bathroom and kitchen fans. The bathroom fans in many suites are original to construction and switch operated. Effective use of the bathroom exhaust fans can help limit interior moisture load and thereby reduce the amount of moisture accumulation on the inside of the windows.

The most effective means of achieving this goal in existing buildings of this vintage is to install new fans and utilize timers or automatic humidistats to control the fans. These devices can be calibrated or set to limit the interior RH to desired levels. At certain times of the year, continual operation of the fans should be expected.

Based on the observed interior conditions, RJC recommends that the bathroom fans be considered for replacement. This will provide better interior humidity control within the suites, lessen the potential for condensation on the existing window frames, and assist with general management of ventilation within the suites.

Table 5 – Recommendation for Interior Conditions	
A	Replace bathroom exhaust fans with new units complete with automated controls to better manage interior relative humidity.

3.2 Exterior Wall Assemblies

The primary exterior walls are comprised of nominal 2x6 wood stud framing clad with 3/4" painted stucco. The assembly was confirmed by exploratory observations and review of historical assessments and the original Architectural drawings.

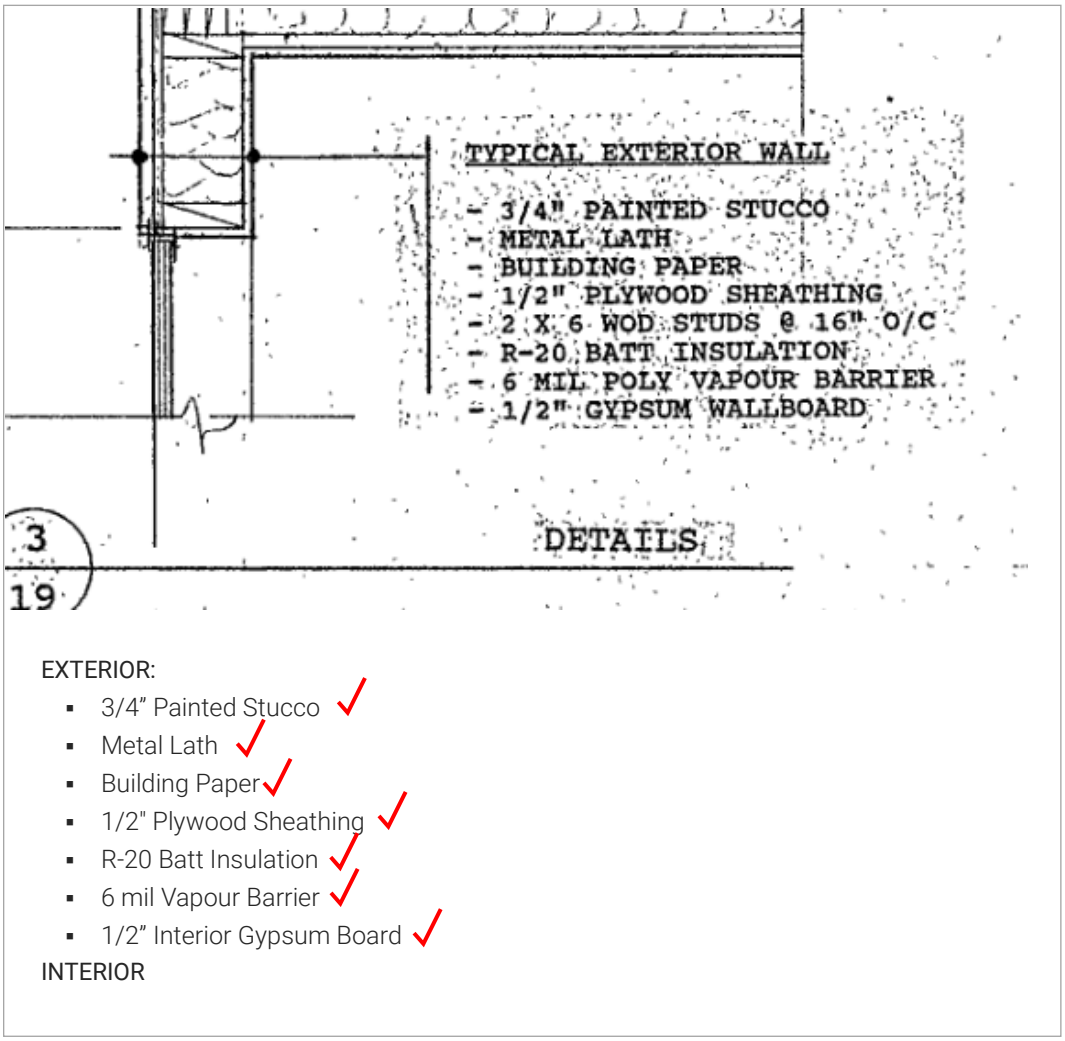

Figure 05 – Wood stud wall assembly

Stucco wall assemblies as constructed at Hampton Court and Churchill Place are face-sealed systems, which rely entirely on the ability of the acrylic coating, flashings, and associated sealants to shed moisture away from the walls.

These types of assemblies cannot manage moisture that penetrates past the exterior face as there is no dedicated drainage path behind. As such, wall components like the OSB sheathing and wood stud framing, can be significantly affected by water ingress. Failure can take the form of disintegration of the sheathing and of the wood studs, and in extreme cases pull through of screws fastening the metal lath leading to separation of the sheathing and finish from the face of the building.

Due to the inherent limitations of a face-sealed cladding system, a high level of vigilance regarding maintenance of sealant joints and repair to damage of the cladding finish is necessary to stop as much water entry through the exterior surface as possible, and to achieve a reasonable service life for the cladding.

Based on previous reports, we understand that the stucco cladding was repainted with an acrylic latex stucco paint in circa 2010. The results of this maintenance activity are evident. The acrylic coating has largely protected the structure from water ingress, as the exploratory recesses indicate that where there is moisture induced deterioration it is generally localized behind the cladding at at-risk locations and details as discussed in Section 2.2.

Evidence of past moisture related deterioration was observed in locations where the building paper was generally deteriorated and metal lath displayed minor signs of corrosion but the sheathing was not wet and had relatively low moisture content.

Generally, face-sealed stucco assemblies of this type and vintage do not perform well in the coastal climate of British Columbia.

Additionally, exterior walls located at the sill of first floor units are comprised 8" concrete sill walls. The assembly was confirmed, with the exception of the 1/2" protection board, by exploratory observations and review of historical assessments and the original Architectural drawings.

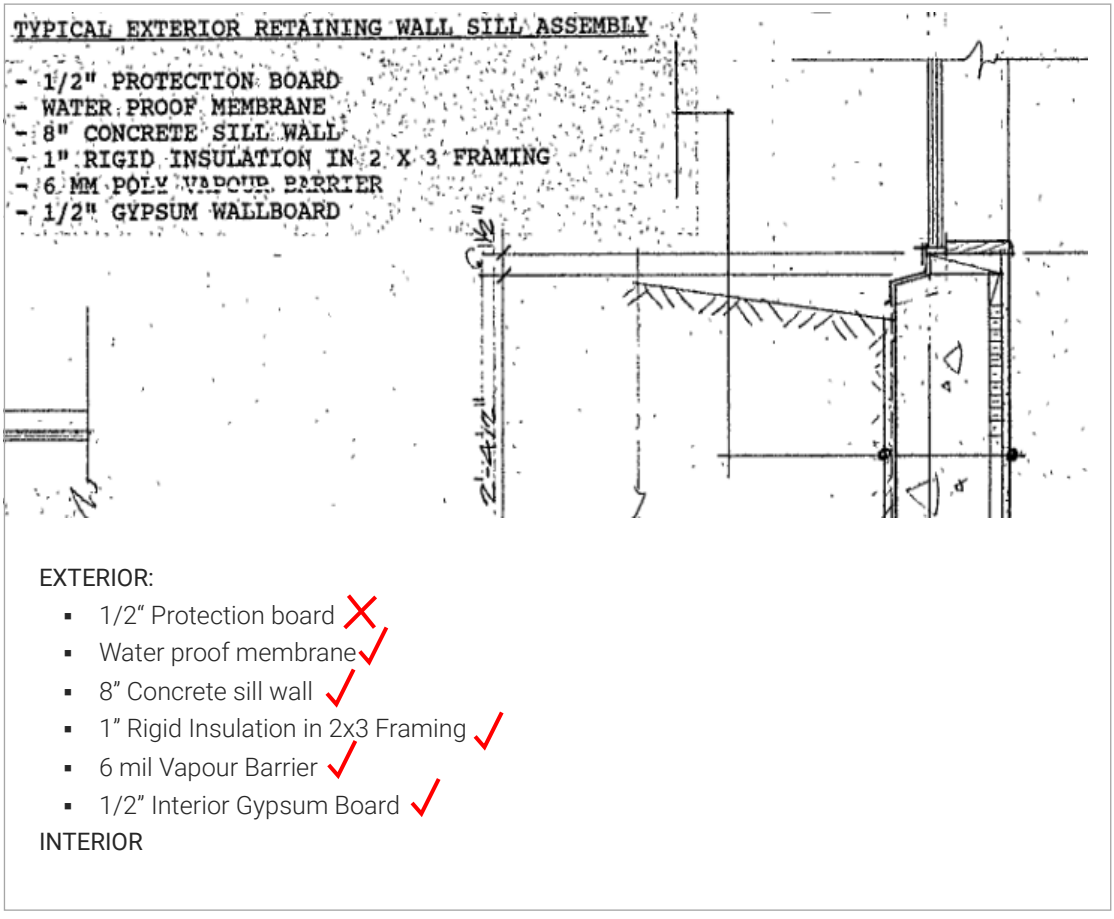

Figure 06 – Concrete sill wall assembly

The perimeter base-of-wall waterproofing was replaced in 2000 and is generally performing well. Increased condensation on the interior face of the concrete sill wall was observed in localized areas where unprotected concrete contacts the at grade drainage rock (Photo 14).

Photo 14 – Condensation on the interior face of at grade concrete wall assembly

Buildings of this vintage with this type of cladding have historically performed poorly, often requiring extensive repairs or full cladding replacement. Fortunately, with the care and maintenance of the recoating previously completed, the cladding at Hampton Court and Churchill Place is generally performing well with only localized areas of moisture induced deterioration.

Therefore, based on present performance and condition, a cladding replacement is not necessary. Based on present condition and need, RJC recommends cracks present on the stucco be repaired and that a new acrylic coating be applied to the stucco.

Table 6 – Recommendation for Wall Assemblies	
B	Localized stucco repairs where cracks are present and application of new acrylic coating to the stucco
C	Localized flashing replacement.

It is important to consider the sequencing and renewal cycle of the cladding and sealants in concert with other building systems, particularly the glazing assemblies. Refer to Section 6.0 of this report for discussion of the effect of other assemblies on the performance of the stucco and the potential for future added costs of non-aligned major renewals.

3.3 Glazing Assemblies

Photo 15 – Glazing Assemblies

Window, sliding door, and skylight assemblies are original to the time of the buildings' construction.

The assemblies are comprised of non-thermally broken punched aluminum framing with double-pane Insulated Glass Units (IGUs).

Windows do not have any jamb or sill flashings, but do incorporate very minimal head flashings. With the absence of sill flashings, there is an increased risk of water ingress through the window assemblies because wind driven rain, surface water on the window face, and weep hole runoff are not directed away from the bottom of the window. This is evident through staining on the face of the stucco below window sills, and elevated moisture content and staining of the exterior wall sheathing observed in some of the recesses, as previously discussed in Section 2.2 and 3.2.

The original head flashings are minimal, and may be contributing to moisture ingress at window assemblies. Because moisture cannot be adequately diverted away from the windows, and the lack of a dedicated drainage cavity behind the stucco cladding, continuity and effectiveness of the transition details between the windows and stucco cladding is essential.

Photo 16 – Condensation Accumulation in Window Track

Window assemblies (particularly along the East elevation) have significant condensation in the window sill tracks (Photo 16). This was confirmed by several residents who reported having to dry water from the tracks each day.

During the assessment, glazing stops (the snap-on sections that help retain the IGUs in the window frames) were observed to be loose at some locations (Photo 17). Loose glazing stops can be a risk if they come off, as the IGUs will be unsupported. At the time of our review, there was one window where a glazing stop was detached. If one or more glazing stops are missing or loose there is an increased risk of glazing leakage and, in extreme events, glazing fall out.

Photo 17 – Loose Glazing Stop

With the windows approaching their intended service life (approximately 30 years) the window frame mitre joints and their seals tend to fail towards the end of the expected life of the window system as they undergo thermal expansion and contraction, and normal ageing through their lifespan.

Such failure allows exterior moisture (from regular rainfall) or interior condensation to enter the frames and leak into the walls below. This is partly the reason why staining at the exterior sheathing and stucco was observed below windows.

All operable windows appeared to be slider systems. The operation of these units was not tested during this assessment.

Skylight observations will be included in Section 3.5 of this report.

Photo 18 – Window Mitre Joint and Weep Hole

Aluminum framed windows and door assemblies of the type installed at Hampton Court and Churchill Place are generally considered to have an expected service life of 30 to 35 years, dependent upon quality, installation, and maintenance. Notwithstanding the conditions observed, the original assemblies at the buildings are approaching the end of their intended service.

The original aluminum sliding doors located at balconies throughout Hampton Court and Churchill Place appear to be in better condition that the windows. While the inherent durability of the door assemblies is similar to the window assemblies, the doors are generally well protected from the elements as they are located underneath generous overhanging balconies. Based on present performance and condition, the sliding doors do not need to be replaced.

Further degradation of performance is to be expected at an increasing rate. RJC recommends that the window assemblies be replaced in the near term as they achieve and exceed their anticipated service life. Replacement will entail removal of the existing windows and integration of the new windows with the building's moisture barrier. RJC does not recommend the use of exterior flanged "renovation windows" which are not integrated with the building enclosure.

Targeted envelope repairs may be required in areas of significant moisture damage surrounding windows.

Table 7 – Recommendation for Glazing Assemblies	
D	Replace exterior windows, including targeted envelope repairs.

It is important to consider the sequencing and renewal cycle of the sliding doors in consideration of the windows. The Strata may wish to consider the benefits of replacing all aluminum glazing assemblies, windows and doors, as one project as this will provide economies of scale, and collectively improve thermal performance and interior comfort.

3.4 Balcony Assemblies

The balconies are located throughout the building at every 2nd, 3rd and 4th floor unit. The balcony assemblies are comprised of wood framing cantilevered out from the building. The horizontal surfaces are protected with sheet vinyl membranes and are enclosed by stucco clad upstands, aluminum guardrails and glass panels. The balcony soffits are constructed of perforated aluminum panels. These panels provide for airflow within the balcony floor framing, increasing the drying potential of the assembly.

The balconies in general are in good condition with only one issue with respect to the waterproofing system observed. Soffits appear to be clean and there were no signs of water penetrating through the wood framing due to failure in the membrane.

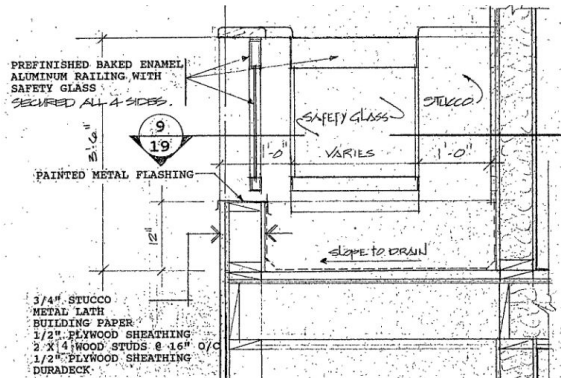

Figure 07 – Typical balcony Detail

Photo 19 – Typical Balcony Stacks

A recess cut into the balcony on the North elevation of Hampton Court at Unit 215 revealed significant deterioration of sheathing and structural framing and is further documented in *Appendix D – Exterior Recess Review*. However, no significant leaks were observed on the underside of the soffit. An infrared survey later confirmed the extent of the moisture (Photo 19 in Section 2.3). The exact cause of the leak was not confirmed, however, it could be assumed it is the result of a targeted vinyl membrane failure and/or cap flashing imperfections.

Photo 20 – Staining on Balcony Guardwall

All of the balconies reviewed are well sloped and the respective drainage scuppers appear to be functioning properly, with no staining observed underneath. A recess was cut directly beneath one scupper and showed only minor moisture staining, see *Appendix D – Exterior Recess Review* for further description of recesses.

Stucco clad guardwalls in some locations had staining on the exterior face of the stucco and minor deterioration of the stucco coating (Photo 20).

In general, the balcony assemblies in their current condition appear to be functioning effectively. However, it is recommended to repair the deteriorated balcony at the North elevation of Hampton Court.

Table 8 – Recommendation for Balcony Assemblies	
E	Repair the balcony at Unit 215 on the North elevation of Hampton Court.

3.5 Roof and Skylight Assemblies

The age of the existing roof assembly was indeterminate. The assembly is conventional roof system which incorporates a two-ply torch applied membrane with rigid insulation (Photo 21).

Photo 21 – General roof layout

In general, the main roof assemblies are in good condition. No pooling of water on the membrane was observed at the time of the visit and water appears to be draining adequately. However, RJC observed signs of organic growth build-up on the surface of the membrane in poor drainage locations.

Although the roof assembly is showing no major signs of damage, some localized areas of blistering of the membrane were observed and will require localized repairs to prevent accelerated deterioration of the assembly. Blisters are at more risk of puncture than flat, well-adhered membrane and indicate potential leaks or other imperfections below. Blister repairs generally require localized removal of the membrane to investigate conditions and the application of a patch to reinstate the membrane.

Table 9 – Recommendation for Roof Assemblies	
F	Targeted waterproofing repairs and maintenance to the roof membrane.

Aluminum framed acrylic dome skylight assemblies of the type installed at Hampton Court and Churchill Place are generally considered to have an expected service life of 30 to 35 years, dependent upon quality, installation, and maintenance. In general, the skylight assemblies appear to be installed with appropriate waterproofing detailing and no reports of leaking were noted. Despite their age, the skylights appear to be functioning well.

Table 10 – Recommendation Skylight Assemblies	
G	Continued maintenance and evaluation for leaks.

In conjunction with a full replacement, service life replacement of the skylights would be recommended, including improved insulation and mounting details for the curb to optimize performance, durability, and future maintenance or renewal.

4.0 CONCLUSIONS AND SUMMARY OF RECOMMENDATIONS

4.1 Conclusions

The condition of the building enclosure of Hampton Court and Churchill Place varies significantly dependent upon which assembly or component is being considered and assessed. Some of the assemblies are in good condition and performing well for their age and intended use, whereas others are nearing the limit of their expected service life and are experiencing performance challenges.

Overall, the building enclosure of Hampton Court and Churchill Place has benefited from an ownership group that has chosen to invest in proactive maintenance and renewal, and when necessary, prompt repairs. Because of this, the buildings have outperformed many others of similar age and construction.

RJC has provided recommendations to address current or near term issues that will negatively effect building performance with the potential to cause underlying damage. For assemblies that are performing adequately and are far from the expected limits of their service life we have recommended continued maintenance and renewal.

Interior systems affecting the building enclosure are limited for buildings of this type, age and construction. Effective management of interior relative humidity will help limit the potential for interior condensation; however, the exhaust fans within the suites are largely original and not provided with optimal controls. We recommend the fans be replaced and provided with modern sensors and controls to better manage interior relative humidity.

The most critical building envelope assembly at the current time is the windows. They are now 30 years old and at the limit of their expected service life. Leakage appears to be an issue throughout all elevations, and the damage caused by these leaks will increase as the assemblies continue to age. Near term replacement is recommended.

The sliding patio doors, while of the same age and similar condition to the windows do not require replacement at this time, and continued maintenance and repair is recommended.

The waterproofing of the balcony decks appears to be in good condition in all but one instance. Targeted repairs on the Unit 215 balcony are recommended.

Exterior walls generally were in good condition, with minimal moisture ingress. However, locations below windows and in areas of visible staining on the face of the stucco showed elevated moisture contents and minor deterioration of the sheathing, and in isolated cases the structural framing (including one balcony). We recommend localized stucco repairs where cracks are present, application of new acrylic coating to the stucco, and replacement of sealants at all wall penetration locations.

Localized signs of deterioration are present on the roofing assembly and are expected to increase as time passes given the age of the assembly. In the near term, localized repairs to damaged areas and constant monitoring of the roofing assembly, including the skylights, is recommended. Planning for roof replacement should be considered in the near term however.

The summation of the recommendation to address necessary repairs or renewal, while not insignificant, is not considered to be a comprehensive building enclosure renewal. As outlined in Section 6.0 of this report, the Strata has options to consider in terms of the execution and timing of major renewals.

Careful consideration will be required to balance the critical needs of the buildings with the return on investment the Strata may recoup from various repair options, and determine the course of action that best meets the needs of the Strata.

4.2 Summary of Recommendations

As detailed in Section 3.0, RJC has provided recommendations to address current needs of specific building enclosure assemblies where required *to maintain performance and prevent damage to the building*. Table 10 is a summary of the recommendations associated with this assessment.

Table 10 – Summary of Recommendations and Estimated Year for Replacement

Interior Systems and Assemblies	**A.** Replace bathroom exhaust fans with new units complete with automated controls to better manage interior relative humidity.	2021
Exterior Wall Assemblies	**B.** Localized stucco repairs where cracks are present and application of new acrylic coating to the stucco	2022-2025 (Patch exploratory holes in 2021)
Exterior Wall Assemblies	**C.** Localized flashing replacement.	2022-2025
Glazing Assemblies	**D.** Replace exterior windows, including targeted envelope repairs due to moisture damage.	2022-2025
Balcony Assemblies	**E.** Repair deteriorated balcony at Unit 215 on the North elevation of Hampton Court.	2021
Roof Assemblies	**F.** Targeted waterproofing repairs and maintenance to the torch applied membrane.	Ongoing
Skylight Assemblies	**G.** Continued maintenance and evaluation for leaks.	Ongoing

As noted, the recommendations present above are based on near-term needs. The Strata may wish to consider more comprehensive and combined renewals and upgrades including walls, sliding doors and main roofs. Further discussion of this alternative is provided in Section 6.0 of this report.

5.0 OPINIONS OF PROBABLE COST

The following Opinions of Probable Cost (OPCs) are presented to provide an expectation as to the magnitude of costs (±50%) required to complete the recommended work.

The opinions provided are based on conceptual repair methods, recently obtained broad unit rates, and experience with similar projects. A detailed estimate of costs is not provided because it would require the preparation of engineered plans, details, specifications and schedules to achieve a quantifiable cost estimate.

Table 11 – Opinions of Probable Cost	
Bathroom Fan Replacement	$ 140,000.00
Stucco Repairs and Application of New Acrylic Coating to the Stucco	$ 410,000.00
Flashing Replacement	$ 70,000.00
Replace Exterior Windows, Including Targeted Envelope Repairs	$ 1,100,000.00
Repair Deteriorated Balcony at Unit 215 of Hampton Court	$ 15,000.00
Targeted Waterproofing Repairs and Maintenance to the Roof Membrane	$ 10,000.00
Access and Staging	$ 90,000.00
Contractor's General Requirements	$ 180,000.00
Construction Contingency Allowance	$ 90,000.00
Professional Fees *(Engineering, Architectural, Legal, etc.)*	$ 200,000.00
Permits *(estimated 1.25% of Construction Costs)*	$ 30,000.00
GST (5%)	$ 120,000.00
Total Opinion of Probable Cost (Rounded)	**$ 2,500,000.00**

The costs prepared for the OPC are presented in 2020 Q4 dollars.

Please note that the OPC is intended to be used as a general guide for developing budgets and guiding the next steps of the Strata's decision making process. The OPC is not to be considered the actual cost of the project. Any reliance the Strata places on this OPC is at their own risk. RJC is not responsible for an OPC that does not reflect final project cost.

6.0 CLOSING COMMENTS

6.1 Performance Improvements, Deep Energy Retrofits, Green Incentives

The recommendations and associated OPCs presented in this report are based on a like-for-like renewal of the existing assemblies and components (with the important caveat that all new assemblies and components will meet current building code requirements).

For example, to meet current code minimums, the replacement windows will be more than twice as thermally efficient and airtight than the existing assemblies, and new windows will reduce unintended solar heat gain by half (where original IGUs haven't already been replaced with newer Low-E technology). This will provide a real and noticeable improvement in occupant comfort.

However, when just replacing the windows, as large and costly as such a project will be, it will not be considered a comprehensive upgrade or "deep energy retrofit" to bring the building's overall performance on par or beyond that of contemporary buildings.

To achieve a deep energy retrofit at Hampton Court and Churchill Place – with the expectation of at least a 50% reduction of on site energy use and the potential to achieve near net-zero performance – the scope of work would have to include all of the BECA recommendations in this report, plus;

- replacement of the exterior sliding doors,
- replacement of the stucco claddings,
- replacement of the main roof,
- potential replacement or upgrades of common mechanical and ventilation systems,
- potential upgrades of electrical systems,
- potential addition or incorporation of on-site renewable power generation.

The costs associated with any repair or renewal project, including that described by the BECA recommendations, are substantial. It is therefore important to understand that "green policies" legislated by all levels of government have begun incentivising building performance improvements.

Incentive programs cover many aspects of assessment, design and construction and there are many available to building owners for providing financial support of performance upgrades when completed as part of a building repair or renewal project.

Regardless of which approach the Strata may decide to embark upon – necessary current repairs or a more comprehensive renewal – various programs are available and we strongly recommend the Strata explore which program can provide funding support for future projects at Hampton Court and Churchill Place.

6.2 Future Considerations

.1 The Process

The scope of work described by RJC's recommendations is significant and represents a substantial reinvestment in the property. While the recommendations presented in the BECA require a correspondingly significant reinvestment by the Strata, it is important for the owners to recognize there is time to be thoughtful and plan next steps to best meet the needs of the Strata Corporation.

It is RJC's experience that coming to terms with and addressing the recommendations is a step-by-step process, and this is a process which the Strata is just beginning by having completed a BECA .

Assessment ⇨ Design Development ⇨ Construction Documents ⇨ Procurement ⇨ Construction ⇨ Completion

The next step for the Strata is to consider options of how best to proceed and establish a timeline for action. In executing the recommendations, it may be possible to consider targeted or phased renewal plans, or pause to consider comprehensive improvements and taking advantage of performance-improvement incentives as outlined above.

Given the magnitude of the costs involved with any approach, we recommend the Strata's next step to be a purposeful Design Development process where costs and return on investment are compared and analyzed across a broad spectrum of factors including performance and comfort, disruptions and timeline, and the real estate marketability of the property, amongst many others.

.2 Cost and Marketability Considerations

As it relates to the capital cost of reinvesting in the property, we recommend the Strata also consider the cost and marketability implications of the BECA recommendations to address near term needs versus the possibility of completing a comprehensive renewal.

From a pure construction cost perspective, the Strata will spend more money executing the current "targeted" BECA recommendations now, and then completing the remaining renewal of the walls, roof and sliding doors several years from now, than it would if all renewals were completed within once comprehensive project.

An advantage to completing targeted renewals in the near term is that it addresses the current physical needs of the property.

A disadvantage to only completing the targeted renewals in the near term is that there will be a significant repeated cost incurred by the Strata for remobilizing the entirety of both buildings to complete more comprehensive service life renewals in the future. Also, the building occupants will have to endure substantial construction disruptions for two extended projects as opposed to one.

One of the primary advantages of a comprehensive renewal project, be it a "deep energy retrofit" or not, is the opportunity to refresh and update the buildings' overall appearance and provide uniformity of performance and maintenance and doing so at a lesser overall cost than phased renewals or renewals completed over the course of many years.

Importantly, should the Strata elect to complete building renewals as a series of projects spread over time, consideration must be given to the effect of detail tie-ins between phased scopes of work and the potential complications of warranty overlaps between different contractors. Also, it cannot be overstated enough that when constructing within existing assemblies (such as new windows into existing stucco clad walls) there is always a higher potential for in-service leakage, call-backs, and follow-up repairs because of the failure of adjacent older assemblies. Simply put, if all assemblies are renewed at once the potential for work to be undermined by older assemblies is eliminated.

Finally, the Strata should also consider the marketability differences between a building with partially completed renewals over several years versus comprehensively completed renewals as one project. The valuation of this difference is outside RJC's expertise and we recommend the Strata consult their management and real estate professionals for guidance in this respect.

6.3 Closure

Neither RJC, nor any company with which it is affiliated, nor any of their respective directors, employees, agents, servants or representatives shall in any way be liable for any claim, whether in contract or in tort including negligence, arising out of or relating in any way to mould, mildew or other fungus, including the actual, alleged or threatened existence, effects, ingestion, inhalation, abatement, testing, monitoring, remediation, enclosure, decontamination, repair, or removal, or the actual or alleged failure to detect mould, mildew or other fungus.

This Building Enclosure Condition Assessment report was prepared for the Owners of Strata VIS 2720. It is not for the use or benefit of, nor may it be relied upon, by any other person or entity without written permission of RJC and the Owners of Strata VIS 2720.

We trust that this information meets your current requirements. Please do not hesitate to contact the undersigned if you have any questions, comments, or concerns.

Yours truly,

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Appendix A Glossary of Terms

A number of terms used in the Condition Assessment have specific meaning and are defined below.

Air Barrier; refers to materials and components that together control the flow of air through an assembly and thus limit the potential for heat loss and condensation due to air movement.
Assembly; refers to the collective layers of components and materials which together comprise the complete cross section of a wall or roof.
Balcony; a horizontal surface exposed to the outdoors, projected from the building so that it is not located over a living space or acting as a roof.
Basecoat; refers to the initial wet state material of stucco, either factory or field mixed.
Blistering; raised air pockets in a membrane resulting from evaporation of water that is trapped in the roof system during application or which migrates into the roof system either from exterior deficiencies or vapour drive through the roof assembly. The condition can occur between the membrane plies or between the membrane and the substrate.
Blocking; a solid block of material used to support or raise up another material or element.
Bubbling; raised air pockets in a sealant resulting from expansion of air trapped in the material during application or evaporation of water trapped in the material during production or application.
Building Enclosure; is an environmental separator, generally between the inside and the outside of a building (including the ground), but also between dissimilar environments within the building.
Building Paper; refers to asphalt impregnated organic sheet material that creates a water shedding surface behind the cladding.
Cladding; a material or assembly, which forms the exterior skin of the wall, and is exposed to the exterior environment.
Control Joint; a joint in the building enclosure permitting differential movement of portions of the building structure due to thermal changes, shrinkage of materials and pre-determined locations of movement. Also reduces or localizes cracking of brittle materials such as stucco, where movement needs to be controlled.
Deck; refers to a horizontal surface exposed to outdoors, located over a living space, and intended for pedestrian use in addition to performing the function of a roof.
Detail; refers to a location within the building enclosure assembly where the typical construction is interrupted because it meets a penetration of the assembly. Examples include balcony guardrail connections, window and door penetrations, balcony to wall intersections.
Dimensional Lumber; refers to pieces of wood that are cut to standard sizes.
Drainage; refers to a water management principal that utilizes surfaces of the assemblies to drain water away from the assembly.
Drainage Cavity; refers to the space behind the water shedding surface (cladding) that provides a path for free drainage of incidental water within the assembly.
Drying; refers to a water management principal that incorporates features and materials that facilitate diffusion and evaporation of moisture from materials that get wet.
Durability; refers to the ability of a material, components, assembly or building to perform its required function in its service environment over a period of time without unforeseen maintenance, repair or renewal.

EIFS; acronym for Exterior Insulated Finish System. EIFS is a multilayered cladding system that is applied directly to the exterior face of the structure, ie. sheathing or concrete. Where there is no membrane applied between the EIFS and the substrate, EIFS is considered to be a face-sealed system as the exterior face of the system is the primary water penetration barrier. The components of EIFS are as follows:

Insulation; the insulation in an EIFS system is either a closed cell EPS (Expanded Polystyrene) or Polyisocyanurate. The insulation can either attach to the substrate with mechanical and/or adhesive attachments.

Lamina; refers to the water barrier and finish coatings that are applied to the insulation. The lamina consists of the basecoat, reinforcing mesh and finish coat.

Basecoat; refers to the initial material coat of EIFS, typically a cementitious polymer adhesive. The basecoat is the primary water penetration barrier in the lamina and is applied with the reinforcing mesh

Reinforcing Mesh; a fibreglass grid used as a reinforcing layer. The reinforcing mesh is embedded into the basecoat.

Finish Coat; refers to the final material coat of EIFS, which provides colour and texture. The finish coat is applied over the basecoat and is typically an acrylic or acrylic based coating.

EPDM; acronym for Ethylene Propylene Diene Terpolymer. Refers to a single-ply rubber roofing membrane.

Face-seal; building enclosure assembly where the water penetration performance of the wall is dependent on the ability of the exterior surface of the cladding/windows and associated sealant to shed water. This system cannot easily accommodate water that penetrates past the exterior face since no positive drainage path or additional continuous barrier to water is provided.

Finish Coat; refers to the final wet state material of stucco, which provides colour and texture, applied over the basecoat.

Flashing; sheet metal or other material used in roof or wall construction and designed to shed water (typically sloped outwards and with a drip edge to shed water). Used in conjunction with:

Cap (or parapet) flashing; top of wall (at roof), pier, column or chimney.

Counter flashing; prevents water from penetrating behind the top edge of base flashing, and consists of a separate piece of flashing placed over the top of the base flashing.

Drip flashing; directs water flowing down the face of vertical component, such as walls or windows, away from the surface so that it does not continue to run down the surface below the component.

Saddle flashing; an upturn, transition piece between a horizontal and vertical plane, i.e. balcony guard wall caps and wall intersection.

Head/sill flashing; at head or sill of window or other penetration.

Base flashing; refers to part of the roofing that is turned up at the intersection of a roof with a wall or another roof penetration.

Through or Cross Cavity Flashing; a flashing that intercepts and directs any water flowing down the moisture barrier plane of a wall assembly to the outside (at floor levels, above windows and doors, etc.), and prevents exterior moisture from entering the wall assembly below the flashing. Typically found in rainscreen wall assemblies.

Glazing; the glass portion of a window, door or skylight.

Head; horizontal member at the top of a window or door opening.

Insulated Glass Unit (IGU); refers to a hermetically sealed assembly consisting of two or more lites of glass separated by a spacer bar and sealed/joined with sealant.
Jamb; either of the vertical members at the sides of a window or door opening.
Lite; refers to an industry term for piece or pane of glass (includes sealed units).
Low-E Glass; Low emissivity glass; a type of reflective glass used to reduce radiation heat transfer and improve the 'U' value of the glazing.
Maintenance; refers to a regular process of inspection, minor repairs and replacement of components of the building enclosure to maintain a desired level of performance for the intended service life without unforeseen renewal activities. Maintenance activities are typically for items with life cycles of less than one year.
Membrane; waterproof material or combination of materials in an exterior wall or floor assembly whose purpose is to prevent moisture and water vapour from passing through.
Moisture Barrier; material or combination of materials in an exterior wall assembly whose purpose is to retard the penetration of incidental water further into the wall structure once past the cladding. Materials used commonly are building paper and house wrap.
Moisture Content; amount of moisture based on either a relative scale or for wood, the weight of water contained in the wood expressed as a percentage of the weight of oven dry wood.
Mullion; a vertical or horizontal member that separates lites of glass.
Muntin bar; a vertical or horizontal member within a sealed unit to give the appearance of separate lites.
Penetration; an intentional opening through an assembly in which ducts, electrical wires, pipes, and fasteners are run between inside and outside.
Rainscreen; a strategy for rain penetration control that relies on deflection of the majority of water at the cladding, a cavity which provides a drainage path for water that penetrates past the cladding, and air tightness within the assembly to the interior of the cavity which limits pressure differentials across the cladding.
Renewal; refers to activities associated with expected replacement of worn out components or materials of a building enclosure and are typically for items with life cycles in excess of one year.
Repair; replacement or reconstruction of enclosure assemblies, components or materials at specific localized areas of the building enclosure so that it can fulfill its original intended functions.
Reverse Lap; refers to a negative lap in building materials where the upper layer of material extends behind the lower layer of material.
Saddle; transition of horizontal surfaces such as a top of a balcony guardrail or parapet wall with a vertical wall surface.
SBPO; acronym for Spun-Bonded Polyolefin. Refers to a sheet material that creates a water shedding surface behind the cladding.
Sealant; is an elastomeric material with adhesive properties used to seal joints or openings against the passage of air and water.
Scupper; refers to a metal pipe or trough section creating a drainage overflow from a roof or balcony to a downpipe or surface below.
Service Life; refers to the period of time during which building enclosure materials, components and assemblies perform without unforeseen maintenance and renewals costs.
Sheathing; material (oriented strand board (OSB), plywood, exterior gypsum board, etc.) used to provide structural stiffness to the wall framing and backing for the cladding and sheathing paper.

Sheathing Paper; refers to asphalt impregnated organic sheet material which creates a water shedding surface behind the cladding.

Shiplap; wooden sheathing in which the boards are rabbeted so that the edges of each board lap over the edges of adjacent boards to make a flush joint

Sill; horizontal member at the base of a window or door opening.

Soffit; refers to the underside of a horizontal exterior surface, such as at the underside of balconies or eaves.

Stucco; refers to a material usually made of portland cement, sand, and a small percentage of lime and applied in a plastic state to form a hard covering for exterior walls

- **Basecoat**; refers to the initial wet state material of stucco, either factory or field mixed.
- **Finish Coat**; refers to the final wet state material of stucco, which provides colour and texture, applied over the basecoat.
- **J-Stop**; a metal extrusion formed in the shape of a 'J' used in enclose the edges of panel materials or stucco.
- **Lath;** a metal grid used as a reinforcing layer for the stucco.
- **W-Channel**; a metal w-shaped extrusion commonly used in buildings as control joints.

Swiggle Seal; a material used as a spacer between glazing panes in insulated glazing units (IGUs) that has a corrugated aluminum strip encased in a bituminous resin. A desiccant may be included within the seal.

System; describes a combination of materials and components that perform a particular function such as an air barrier system, or moisture barrier system.

Tempered Glass; is a stronger glass, created in a secondary process via controlled air-cooling of the heated glass. Tempered glass is four times stronger than annealed glass and when shattered breaks into small pieces. It is resistant to thermal stress and often used as safety glass.

Thermal Break; refers to a low heat conducting layer between the interior and exterior portions of a metal frame to reduce heat flow and decrease condensation potential.

Threshold; the lower horizontal member of a doorframe extending from jamb to jamb that lies directly under a door and is set on the floor.

Vapour Barrier; refers to a material with low vapour permeability which is located on the warm side of the assembly to control the flow of vapour through the wall assembly and limit the potential for condensation due to diffusion.

Walkway; refers to a corridor exposed to outdoors which provides pedestrian access between suites and stairwells or elevators. It may or may not also act as a roof.

Weather-stripping; refers to the material around operable lites used to reduce air leakage or water penetration, or both.

Weep hole; a small opening in the sill or intermediate horizontal members or a window or door that allows infiltrated water to drain to the building exterior.

Window; refers to a manufactured assembly of a frame, sash, glazing and necessary hardware, made to fit an opening in a wall.

- **Awning**; an operable window with a top mounted hinged sash that swings out at the bottom.
- **Casement**; an operable window with a vertically hinged sash to open in or out.
- **Fixed;** a window in which the glazed unit is fixed in place and does not open.
- **Slider**; an operable window that contains one or more operating sashes that open and close by sliding sideways in the frame.

Appendix B Testing Procedures and Deterioration of Materials

TESTING PROCEDURES

MOISTURE TESTING

Moisture tests were carried out at various locations on surfaces of building components, including interior drywall on exterior walls, the interior face of the exterior sheathing exposed at borescope review sites and the exterior sheathing exposed at the exterior recesses.

Moisture tests performed on interior surfaces are intended to locate areas of dampness not immediately visible. These tests are used as a tool to identify areas that have a high probability of underlying rot. It should be noted that moisture content (MC or moisture content by mass of dry material) testing with electric moisture meters is "inferential, that is electrical parameters are measured and compared against a calibration curve to obtain an indirect measure of moisture content. The range of moisture contents that can be detected by these meters is from a minimum of 6 or 7% MC to a maximum of 25 to 27% MC (nominal value of the fibre saturation point in wood). The accuracy of these meters is ±0.5 to 2% MC over a 95% confidence interval" (ASTM Standard D4444-92).

Moisture content readings were taken using a Delmhorst Total Check moisture meter. This moisture meter has built in calibration for several wood species as well as gypsum wall board (drywall). This meter is capable of providing direct readings of gypsum based products over a range of 0.1% to 6% MC as a percentage of dry mass of gypsum.

As described in succeeding sections, the bio-deterioration of wood typically requires a moisture content of some 19% with sustained fungal growth occurring above 27% or the fibre saturation point. Given the limitations of electric moisture meters, measured moisture contents below 7% will be presented as DRY with measured values above 27% recorded as FS or Fibre Saturation. Values between these values will be reported as recorded with an estimated accuracy of ± 2%.

DETERIORATION OF MATERIALS

FUNGAL GROWTH IN CELLULOSE MATERIALS

Fungi are microscopic organisms that feed on organic matter and can develop on cellulose based building materials, if conditions conducive to growth of the fungi persist. Among the factors required for growth of cellulose deteriorating fungi (most commonly basidiomycetes) moisture content of the host material is the only controllable factor. The fungi develop from spores that germinate on suitable host substrates, such as wood or the paper facing of gypsum board. The spores use various parts of the materials cellular structure as both a food source and a space to colonize. The consumption of nutrients and spread of the colony in the wood or paper continues as long as the appropriate environmental conditions are available, principally warm temperatures and a supply of moisture.

DETERIORATION OF WOOD

Destruction of the wood cells, resulting from fungal growth described above, reduces a timber's ability to resist structural stresses and ultimately leads to a loss of structural capacity. Some wall systems manage to collect and store water for considerable periods of time, which can allow rapid and extensive deterioration of structural wood framing to take place.

For the purpose of this report, as shown in Figure B-1, we have classified moisture content readings into three categories:

- Less than 19% (below 7% - DRY)
- Between 19% and 28%
- Greater than 28% (Fibre Saturated – FS)

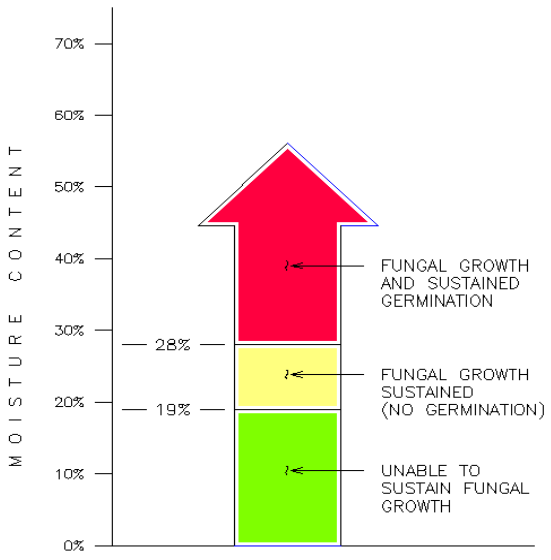


Figure B-1

Wood elements with moisture content of less than 19% may be considered unable to sustain fungal growth. In light of the inaccuracies of the meter at lower readings, for the purpose of this report, readings below 7% have been noted as "Dry". Between 19% and 28%, fungal growth may be sustained but not initiated. At approximately 28%, germination and growth of fungal spores can be expected. Above 28%, a substantial increase in fungal growth and associated wood rot can be expected. For the same reasons as stated above, recorded readings greater than 28% have been assigned "FS" indicating Fibre Saturation. Moisture content readings should be interpreted in combination with all other factors.

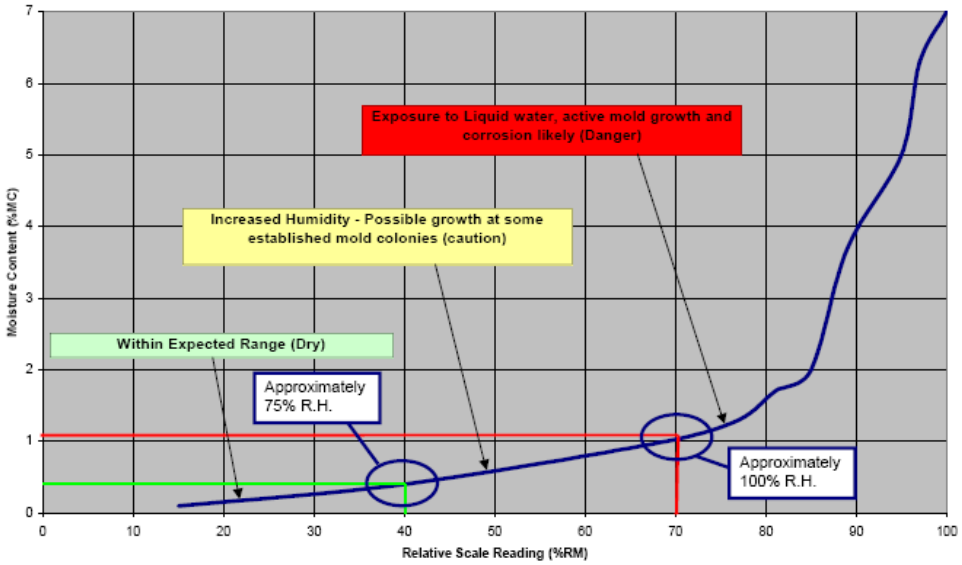
DETERIORATION OF GYPSUM BOARD

Deterioration of gypsum board results when the board is wetted for extended periods. Though affected by the same conditions, the two components of the board, gypsum and paper, deteriorate in different manners. As discussed above, the deterioration of the paper is primarily due to fungal growth, which uses the celloluse fibre in the paper as both a food source and a space to colonize. The gypsum is hygroscopic, so will absorb moisture, gradually softening with continued exposure to damp conditions.

MOISTURE IN GYPSUM BOARD

The typical moisture content of gypsum board is fairly low (around 0.5% or less). At this low level, the normal propensity of gypsum is for the moisture content of the core to seek equilibrium with the surrounding air. This ability to absorb moisture from the surrounding environment means the moisture content of gypsum board may fluctuate as the relative humidity changes. This characteristic of gypsum board makes accurate and reliable measurement of its moisture content very difficult, if not impossible, to attain with the average hand-held moisture meter.

In view of the above, hand-held moisture meters are more appropriately used to provide a "relative" moisture content, or a "rank ordering" of moisture contents between gypsum board in one area of a building when compared with that in another area of the building. Comparative tests of board in two different areas in the same building may determine which board is "wetter" but will not necessarily quantify "how much wetter." As such, a hand-held moisture meter may be used to determine the relative level of moisture but not the absolute amount.



For the purpose of this report, direct moisture content measurements of gypsum board were made with a Delmhorst Total Check electric moisture meter. This moisture meter has a specific calibration to provide accurate readings of gypsum moisture content over a range of 0.1% to 6%.

Published research indicates a significant loss in structural properties of gypsum wall board at moisture contents as low as 0.5%. Above 1% moisture most physical properties including fastener pull through, and flexural strength are reduced below target values specified in the relevant material standards. Above 2% these same physical parameters are reduced to 50% or less of expected values. The potential for biological growth increases for moisture contents above 1% with corrosion of metals increasing as well.

For the purpose of this report we have classified gypsum moisture content readings into three categories:

- Dry or Normal - <0.5% - typically shown as green notations. Normal conditions, no deterioration anticipated
- Caution – 0.5% - 1% - typically shown as yellow notations. Reduced physical properties, biological growth possible. Corrosion of attached or adjacent metal possible.
- Concern - > 1% - typically shown as red notations. High potential for biological growth, severe strength loss and corrosion of metals accelerated.

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Appendix C General Exterior Review

Exterior Observations

Visual observations of the exterior cladding assemblies and general building enclosure assemblies was completed and reordered in the section below.

Ext. Temperature:	~21ºC	Ext. R.H.	71%	Recorded by	MC/PL/TB
Dates:	August 13th, 2020				
Ext. Conditions:	Sunny				

TABLE C1 – GENERAL EXTERIOR REVIEW	
Hampton Court – West Elevation Level 2 Staining and organic growth observed on stucco face below window sill. Typical throughout all elevations.	 Photo C-1
Hampton Court – East Elevation Level 1 Hose bib penetration without flashing or sealant joint.	 Photo C-2

TABLE C1 – GENERAL EXTERIOR REVIEW	
Hampton Court – East Elevation Level 2 Evidence of past stucco repair surrounding window. Targeted stucco patches observed throughout. Likely from previous remedial repairs. Improved flashings at head and sill of window are present.	 Photo C-3
Hampton Court – North Elevation Level 2 Balcony Organic growth at the base of balcony guard-posts observed at several locations. Likely the result of splash-back from rain water landing on the surrounding flashing.	 Photo C-4
Hampton Court – North-West Elevation Level 2 Balcony Organic growth and stucco deterioration along the corner of a balcony post.	 Photo C-5

TABLE C1 – GENERAL EXTERIOR REVIEW	
Hampton Court – North Elevation Level 2 Balcony Typical staining on flashing tape. This was consistent at most locations	 Photo C-6
Hampton Court – North Elevation Level 1 Vent Dark staining on the face of the stucco at some exterior exhaust vents. Typical at most elevations.	 Photo C-7
Churchill Place – East Elevation Level 1 vents Staining on face of stucco beneath dryer exhaust vent.	 Photo C-8

TABLE C1 – GENERAL EXTERIOR REVIEW	
Churchill Place – South Elevation Level 2 vent Typical staining on the face of the stucco beneath windows. Staining beneath exterior vent. Possibly the result of fastener corrosion.	 Photo C-9
Churchill Place – West Elevation Level 2 Floor Line Staining and deterioration of stucco finish above horizontal flashing at floor line.	 Photo C-10
Hampton Court – West Elevation Level 2 Floor Line Negatively sloped flashing observed throughout (2° inward shown). This will prevent water from effectively shedding off the building, increasing the possibility of leaks into the building envelope.	 Photo C-11

TABLE C1 – GENERAL EXTERIOR REVIEW	
Hampton Court – North Elevation Unit 203 Balcony Typical balcony flashing-to-stucco transition detail. Does not provide diversion from water away from the stucco wall.	 Photo C-12
Churchill Place – East Elevation Level 1 Window Dark staining on the blinds and interior finishes of some East-facing ground floor units.	 Photo C-13
Hampton Court – East Elevation Level 2 Window Reglet window sill flashing. This appears to have been installed post-construction in some locations.	 Photo C-14

TABLE C1 – GENERAL EXTERIOR REVIEW	
Hampton Court – East Elevation Level 2 Window Reglet window head flashing. Appears to have been installed post-construction in some locations.	 Photo C-15
Hampton Court – South Elevation Typical aluminum window sill with weep hole. No sill flashings present at most windows. This is the condition per original construction.	 Photo C-16
Hampton Court – South Elevation Level 2 Vent Corrosion and complete deterioration of thin metal on some exterior vents. Typical at most elevations.	 Photo C-17

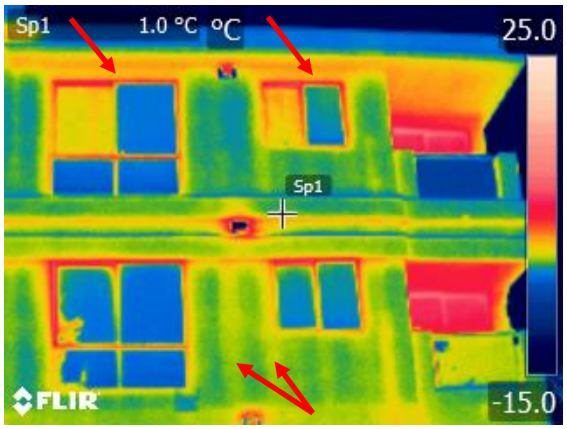
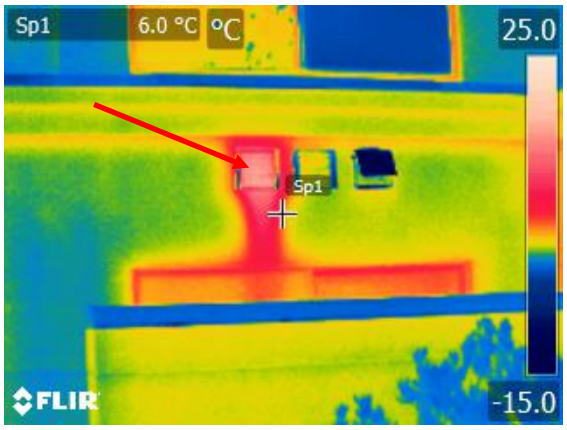
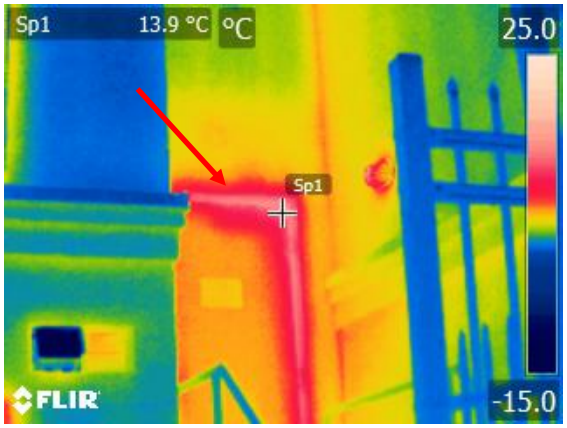
TABLE C1 – GENERAL EXTERIOR REVIEW	
Churchill Place – West Elevation Typical thermal bridging (heat loss) at aluminum window frames. Minor thermal bridging of studs in wall cavity.	 Photo C-18
Churchill Place – West Elevation Heat leaving the building through an exhaust vent	 Photo C-19
Hampton Court – East Elevation Typical heat loss through exterior door seal	 Photo C-20

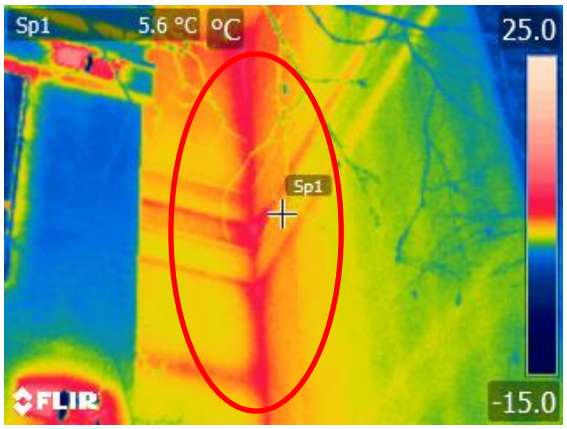
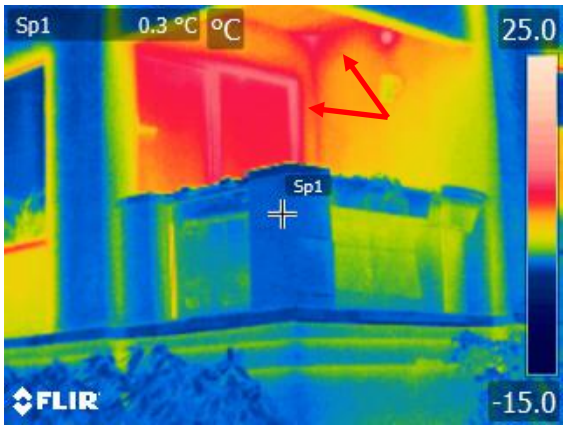
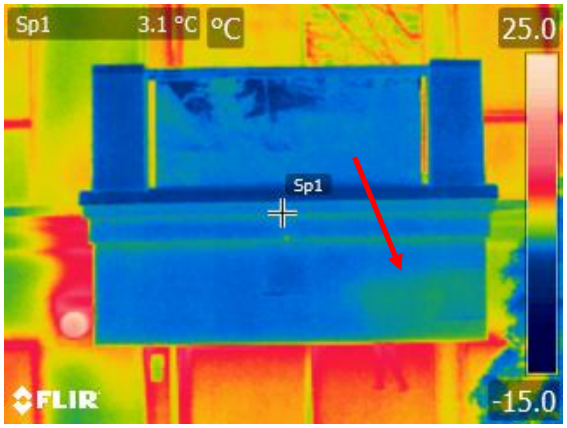
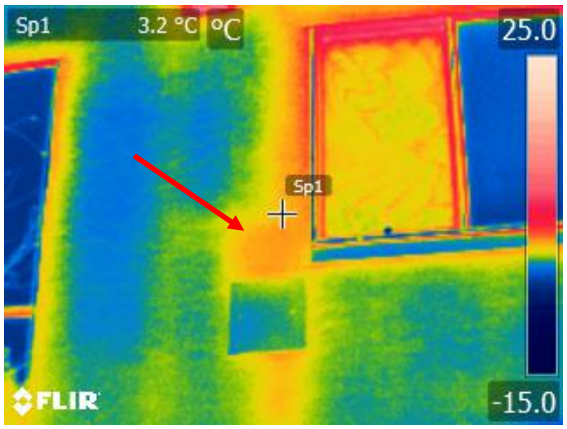
TABLE C1 – GENERAL EXTERIOR REVIEW	
Hampton Court – East Elevation Typical thermal bridging at inside corner of stucco wall assembly where stud framing is built up.	 Photo C-21
Hampton Court – North-West Elevation Sliding patio doors, and the underside of balconies showed elevated heat loss.	 Photo C-22
Hampton Court – North Elevation Warm spot on balcony confirms extent of wet location in balcony documented in exploratory opening #25.	 Photo C-23

TABLE C1 – GENERAL EXTERIOR REVIEW	
Hampton Court – East Elevation Warm spot on stucco wall confirms extent of wet location in wall assembly documented in exploratory opening #26.	 Photo C-24

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Appendix E Interior Reviews

Hampton Court - Unit 103		
Bathroom fans connected to humidistat? Kitchen fans exist / operational? Dehumidifiers in suite? Humidifiers in suite?	Yes / **No** **Yes** / No Yes / **No** Yes / **No**	
Exterior Temp.: 7 ºC	**Exterior RH.: 74%**	

General Observations:

- Signs of condensation were present on the bedroom window sill located on the South elevation of the building.
- Signs of organic growth to the trim were observed. The moisture content of the wood trim was measured as 26%.
- The interior side of the base of wall concrete located below the bedroom window was wet to the touch.
- The moisture content of the wood framing below the window was measured as 21.9%
- The moisture content of the interior drywall below the window was measured as 14%

Photo E-1

Photo E-2

Photo E-3

Hampton Court - Unit 107		
Bathroom fans connected to humidistat? Kitchen fans exist / operational? Dehumidifiers in suite? Humidifiers in suite?	Yes / **No** **Yes** / No Yes / **No** Yes / **No**	
Exterior Temp.: 7 ºC	**Exterior RH.: 74%**	

General Observations:

- The finishes of the wood trim at the living room window sill were deteriorated. The moisture content of the wood trim was measured as 14.0%.
- The interior side of the base of wall concrete located below the living room window was dry.
- The moisture content of the wood framing below the window was measured as 19.8%
- The moisture content of the interior drywall below the window was measured as 12.2%

Photo E-4

Photo E-5

Hampton Court - Unit 114		
Bathroom fans connected to humidistat? Kitchen fans exist / operational? Dehumidifiers in suite? Humidifiers in suite?	Yes / **No** **Yes** / No Yes / **No** Yes / **No**	
Exterior Temp.: 7 ºC	**Exterior RH.: 74%**	
General Observations:		
▪ The living room window did not display signs of moisture related deterioration. The moisture content of the wood trim at the sill was 9.0% ▪ The interior side of the base of wall concrete located below the living room window was dry. ▪ The moisture content of the wood framing below the window was measured as 13.7% ▪ The moisture content of the interior drywall below the window was measured as 9.8%	 **Photo E-6**	

Hampton Court - Unit 203		
Bathroom fans connected to humidistat? Kitchen fans exist / operational? Dehumidifiers in suite? Humidifiers in suite?	Yes / **No** **Yes** / No Yes / **No** Yes / **No**	
Exterior Temp.: 7 ºC	**Exterior RH.: 74%**	
General Observations:		
▪ Signs of condensation at the bedroom window sill were observed. The moisture content of the wood trim at the sill was 19.1% ▪ The moisture content of the OSB sheathing was 21.7% ▪ The moisture content of the interior drywall below the window was measured as 16.4%	 **Photo E-7**	

Hampton Court - Unit 217		
Bathroom fans connected to humidistat? Kitchen fans exist / operational? Dehumidifiers in suite? Humidifiers in suite?	Yes / **No** **Yes** / No Yes / **No** Yes / **No**	
Exterior Temp.: 7 ºC	**Exterior RH.: 74%**	
General Observations:		
▪ The living room window did not display signs of moisture related deterioration. ▪ The moisture content of the wood trim at the sill was 9.3% ▪ The moisture content of the OSB sheathing was 12.8% ▪ The moisture content of the interior drywall below the window was measured as 9.8%	 **Photo E-8**	

Hampton Court - Unit 302		
Bathroom fans connected to humidistat? Kitchen fans exist / operational? Dehumidifiers in suite? Humidifiers in suite?	Yes / **No** **Yes** / No Yes / **No** Yes / **No**	
Exterior Temp.: 7 ºC	**Exterior RH.: 74%**	
General Observations:		
▪ Signs of condensation at the living room window sill were observed. ▪ The moisture content of the wood trim at the sill was 7.4% ▪ The moisture content of the OSB sheathing was 17.2% ▪ The moisture content of the interior drywall below the window was measured as 11.6%	 **Photo E-9**	

Hampton Court - Unit 408		
Bathroom fans connected to humidistat? Kitchen fans exist / operational? Dehumidifiers in suite? Humidifiers in suite?	Yes / **No** **Yes** / No Yes / **No** Yes / **No**	
Exterior Temp.: 7 ºC	**Exterior RH.: 74%**	
General Observations:		
▪ The living room window did not display signs of moisture related deterioration. ▪ The moisture content of the wood trim at the sill was 11.3% ▪ The moisture content of the OSB sheathing was 12.1% ▪ The moisture content of the interior drywall below the window was measured as 15.4%	 **Photo E-10**	

Churchill Place - Unit 111		
Bathroom fans connected to humidistat? Kitchen fans exist / operational? Dehumidifiers in suite? Humidifiers in suite?	Yes / **No** **Yes** / No Yes / **No** Yes / **No**	
Exterior Temp.: 7 ºC	**Exterior RH.: 74%**	

General Observations:

- Signs of condensation were present on the bedroom window located on the East elevation.
- Signs of organic growth to the trim were observed.
- The moisture content of the wood trim was measured as 18.4%.
- The moisture content of the interior drywall below the window was measured as 16.0%
- Signs of condensation were present on the living room window on the south building elevation.
- Signs of organic growth to the window trim located at the living room window were observed.
- The moisture content of the wood trim was measured as 14.5%.
- The interior side of the base of wall concrete located below the living room window was dry.
- The moisture content of the interior drywall below the window was measured as 15.6%

Photo E-11

Photo E-12

Photo E-13

Churchill Place - Unit 112		
Bathroom fans connected to humidistat? Kitchen fans exist / operational? Dehumidifiers in suite? Humidifiers in suite?	Yes / **No** **Yes** / No Yes / **No** Yes / **No**	
Exterior Temp.: 7 ºC	**Exterior RH.: 74%**	

General Observations:

- Significant signs of condensation were present on the bedroom window located on the East elevation.
- The wood trim below the window was rotting and cracked.
- The moisture content of the wood trim was measured as 14.6%.
- The interior side of the base of wall concrete located below the living room window was dry.
- The moisture content of the interior drywall below the window was measured as 16.7%
- The moisture content of the wood framing below the window was measured as 11.1%

Photo E-14

Photo E-15

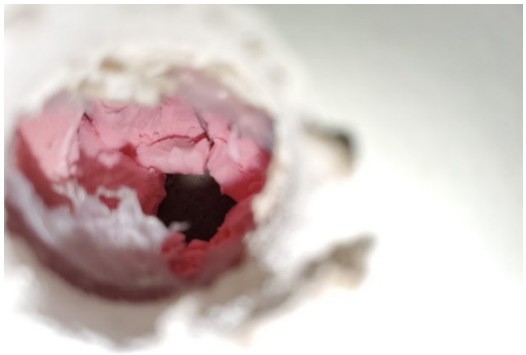

Photo E-16

Churchill Place - Unit 211		
Bathroom fans connected to humidistat? Kitchen fans exist / operational? Dehumidifiers in suite? Humidifiers in suite?	Yes / **No** **Yes** / No Yes / **No** Yes / **No**	
Exterior Temp.: 7 ºC	**Exterior RH.: 74%**	
General Observations:		
▪ Significant signs of organic growth were present on the bedroom window sill located on the East elevation. ▪ The moisture content of the wood trim was measured as 9.4%. ▪ The moisture content of the OSB sheathing below the window was measured as 23.0% ▪ The moisture content of the wood framing below the window was measured as 21.8% ▪ The living room window located on the South building elevation did not show signs of moisture related deterioration.	 **Photo E-17**  **Photo E-18**	

Churchill Place - Unit 212		
Bathroom fans connected to humidistat? Kitchen fans exist / operational? Dehumidifiers in suite? Humidifiers in suite?	Yes / **No** **Yes** / No Yes / **No** Yes / **No**	
Exterior Temp.: 7 ºC	**Exterior RH.: 74%**	

General Observations:

- Significant signs of condensation were present on the windows located on the East elevation of the building.
- Signs of organic growth were present on the sills of windows located on the East elevation.
- The moisture content of the wood trim was measured as 17.2%.
- The moisture content of the interior drywall below the window was measured as 19.6%
- No significant signs of moisture deterioration were observed on the kitchen window located on the South elevation of the building.
- The moisture content of the wood trim was measured as 10.5%.
- The moisture content of the OSB sheathing below the window was measured as 22.4%
- The moisture content of the wood framing below the window was measured as 10.5%
- The moisture content of the interior drywall below the window was measured as 15.0%

Photo E-19

Churchill Place - Unit 312		
Bathroom fans connected to humidistat? Kitchen fans exist / operational? Dehumidifiers in suite? Humidifiers in suite?	Yes / **No** **Yes** / No Yes / **No** Yes / **No**	
Exterior Temp.: 7 ºC	**Exterior RH.: 74%**	
General Observations:		

- Significant signs of condensation were present on the bedroom window located on the East elevation of the building.
- Signs of organic growth were present on the bedroom window.
- The moisture content of the wood trim was measured as 15.5%.
- The moisture content of the interior drywall below the window was measured as 16.7%
- The moisture content of the OSB sheathing below the window was measured as 21.0%

Photo E-20

Photo E-21

Churchill Place - Unit 402		
Bathroom fans connected to humidistat? Kitchen fans exist / operational? Dehumidifiers in suite? Humidifiers in suite?	Yes / **No** **Yes** / No Yes / **No** Yes / **No**	
Exterior Temp.: 7 ºC	**Exterior RH.: 74%**	

General Observations:

- Signs of condensation were present on the kitchen window located on the West building elevation.
- Paint beneath the window trim was observed to be cracked and peeling.
- Signs of moisture related deterioration were observed on the kitchen bulkhead located above the cabinetry.
- Cracking to the interior drywall was observed beneath the bedroom window located on the West elevation of the building.
- The moisture content of the interior drywall below the window was measured as 10.9%
- The moisture content of the OSB sheathing below the window was measured as 23.7%
- The moisture content of the wood framing below the window was measured as 10.8%

Photo E-22

Photo E-23

Photo E-24

Churchill Place - Unit 402	
General Observations:	
	 **Photo E-25**

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Appendix D Exterior Recess Review

Exterior Recess Observations

Deterioration Reference Scale

0 No staining or deterioration evident
1 Slight (less than 5% staining or deterioration)
2 Low (5% to 25% staining or deterioration)
3 Medium (25% to 75% staining or deterioration)
4 High (Above 75% staining or deterioration)
5 Extensive Deterioration (including structural framing)

Moisture Content:

Moisture content readings were taken where available. The figures shown on the recess condition photographs are rounded to the nearest whole number.

Table D-1 – General Exterior Review

Recess Number	Exterior Temp.	Exterior R.H.	Wall Type (refer to DWG)	Deterioration Ref. Scale
1	7ºC	74%	Parapet	4

Photo D-1

Photo D-2

Recess Location

Churchill Place – Roof at East parapet wall

General Comments

Roof modified bitumen membrane appeared to lap sufficiently up parapet wall.

Recess Condition

- Recess interior appeared wet at time of observation
- Surface staining and organic growth observed on exterior face of stucco.
- Metal lath was corroded.
- Building paper was stained, and heavily deteriorated.
- OSB sheathing was stained and visibly wet. Moisture content measured as High, >28%

Table D-1 – General Exterior Review

Recess Number	Exterior Temp.	Exterior R.H.	Wall Type (refer to DWG)	Deterioration Ref. Scale
2	7ºC	74%	1	0

Photo D-3

Photo D-4

Recess Location

Churchill Place – West wall, below second floor window

General Comments

A layer of building paper was observed to have been installed post-construction.

This was assumed to be from a previous exploratory opening.

Recess Condition

- Recess interior appeared dry at time of observation
- No staining observed on exterior face of stucco. Opening was cut into a previous stucco patch.
- Metal lath was in good condition.
- Building paper was in good condition
- OSB sheathing did not appear stained. Moisture content measured as 7.5%.

Table D-1 – General Exterior Review

Recess Number	Exterior Temp.	Exterior R.H.	Wall Type (refer to DWG)	Deterioration Ref. Scale
3	7ºC	74%	1	1

Photo D-5

Photo D-6

Recess Location

Churchill Place – North elevation 2nd floor balcony

General Comments

Recess Condition

- Recess interior appeared dry at time of observation
- No staining or organic growth was observed on exterior face of stucco.
- Metal lath was in good condition.
- Building paper was aged. Appeared to have wetted and dried.
- OSB sheathing did not appear stained. Moisture content measured as 9.5%

Table D-1 – General Exterior Review

Recess Number	Exterior Temp.	Exterior R.H.	Wall Type (refer to DWG)	Deterioration Ref. Scale
4	7ºC	74%	Balcony	1-2

Photo D-7

Photo D-8

Recess Location

Churchill Place – North elevation 3rd floor balcony

General Comments

Recess Condition

- Recess interior appeared dry at time of observation
- No staining or organic growth was observed on exterior face of stucco.
- Metal lath showed signs of minor corrosion.
- Building paper was aged.
- OSB sheathing did not appear stained. Moisture content measured at 11.1%

Table D-1 – General Exterior Review

Recess Number	Exterior Temp.	Exterior R.H.	Wall Type (refer to DWG)	Deterioration Ref. Scale
5	7ºC	74%	1	1-2

Photo D-9

Photo D-10

Recess Location	Recess Condition
Churchill Place – East elevation 3rd floor clear field	▪ Recess interior appeared dry at time of observation. ▪ No staining or organic growth was observed on exterior face of stucco. ▪ Metal lath had minor surface corrosion. ▪ Building paper was aged. ▪ OSB sheathing did not appear stained. Moisture content measured at 12.5%
General Comments	

Table D-1 – General Exterior Review

Recess Number	Exterior Temp.	Exterior R.H.	Wall Type (refer to DWG)	Deterioration Ref. Scale
6	7ºC	74%	1	1-2

Photo D-11

Photo D-12

Recess Location

Churchill Place – East elevation 3rd floor

General Comments

Recess Condition

- Recess interior appeared dry at time of observation.
- No staining or organic growth was observed on exterior face of stucco.
- Metal lath had minor surface corrosion.
- Building paper was aged.
- OSB sheathing did not appear stained. Moisture content measured at 16.0%.

Table D-1 – General Exterior Review

Recess Number	Exterior Temp.	Exterior R.H.	Wall Type (refer to DWG)	Deterioration Ref. Scale
7	7ºC	74%	1	2

Photo D-13

Photo D-14

Recess Location

Churchill Place – East elevation 3rd Floor

General Comments

Opening was cut in an existing stucco patch, which appeared to be from a previous exploratory opening.

Recess Condition

- Recess interior appeared dry at time of observation.
- Staining was observed on the exterior face of the stucco.
- Metal lath had minor surface corrosion.
- Original building paper was in poor condition. A newer layer of building paper and tuck tape was observed, assumed to be from previous exploratory opening.
- OSB sheathing had minor staining. Moisture content was measured at 14.2%

Table D-1 – General Exterior Review

Recess Number	Exterior Temp.	Exterior R.H.	Wall Type (refer to DWG)	Deterioration Ref. Scale
8	4ºC	87%	1	3

Photo D-13

Photo D-14

Recess Location

Churchill Place West elevation 3rd floor below window

General Comments

A small crack was observed running from the window sill downward, through the exploratory opening.

Recess Condition

- Recess interior appeared damp at time of observation.
- Staining was observed on the exterior face of the stucco.
- Metal lath had minor surface corrosion.
- Building paper was deteriorated.
- OSB sheathing appeared stained. Moisture content was measured as High, >28%.

Table D-1 – General Exterior Review

Recess Number	Exterior Temp.	Exterior R.H.	Wall Type (refer to DWG)	Deterioration Ref. Scale
9	4ºC	87%	1	3

Photo D-15

Photo D-16

Recess Location

Churchill Place – West elevation 2nd floor above flashing

General Comments

Opening cut above negatively sloped flashing. Stucco appeared to be cracking and pealing above the flashing.

Recess Condition

- Recess interior appeared damp at time of observation.
- Staining was observed on exterior face of stucco.
- Metal lath had minor surface corrosion.
- Building paper was deteriorated.
- OSB sheathing appeared stained. Moisture content was measured at 20.6%.

Table D-1 – General Exterior Review

Recess Number	Exterior Temp.	Exterior R.H.	Wall Type (refer to DWG)	Deterioration Ref. Scale
10	4ºC	87%	1	2-3

Photo D-17

Photo D-18

Recess Location

Churchill Place – South elevation below window

General Comments

Opening cut beneath window with visible staining running down from sill

Recess Condition

- Recess interior appeared dry at time of observation.
- Staining was observed on the exterior face of the stucco.
- Metal lath had minor surface corrosion.
- Building paper was deteriorated.
- OSB sheathing appeared stained. Moisture content was measured at 14.4%.

Table D-1 – General Exterior Review

Recess Number	Exterior Temp.	Exterior R.H.	Wall Type (refer to DWG)	Deterioration Ref. Scale
11	4ºC	87%	1	3

Photo D-19

Photo D-20

Recess Location

Churchill Place – South elevation 2nd floor beneath vent

General Comments

Opening cut beneath vent. Visible staining on face of stucco running down from vent.

Recess Condition

- Recess interior appeared dry at time of observation.
- Staining was observed on the exterior face of the stucco.
- Metal lath was corroded.
- Building paper was deteriorated.
- OSB sheathing appeared stained. Moisture content measured at 18.5%.

Table D-1 – General Exterior Review

Recess Number	Exterior Temp.	Exterior R.H.	Wall Type (refer to DWG)	Deterioration Ref. Scale
12	4ºC	87%	Balcony	3-4

Photo D-21

Photo D-22

Recess Location

Churchill Place – South elevation 3rd floor balcony

General Comments

The opening was cut into a crack in the stucco that appeared to have been filled in the past.

Recess Condition

- Recess interior appeared damp at time of observation.
- No staining was observed on the exterior face of the stucco.
- Metal lath was corroded.
- Building paper was deteriorated.
- OSB sheathing appeared stained. Moisture content measured at 19.6%.

Table D-1 – General Exterior Review

Recess Number	Exterior Temp.	Exterior R.H.	Wall Type (refer to DWG)	Deterioration Ref. Scale
13	4ºC	87%	1	2-3

Photo D-23

Photo D-24

Recess Location

Churchill Place – South elevation 3rd floor beside window

General Comments

Opening was cut in the location of an existing crack that had been filled.

Recess Condition

- Recess interior appeared dry at time of observation.
- Staining was observed on the exterior face of the stucco. A crack that appeared to have been filled was also present.
- Metal lath was corroded.
- Building paper was aged.
- OSB sheathing had minor staining. Moisture content measured 20.5%.

Table D-1 – General Exterior Review

Recess Number	Exterior Temp.	Exterior R.H.	Wall Type (refer to DWG)	Deterioration Ref. Scale
14	4ºC	87%	1	3

Photo D-25

Photo D-26

Recess Location

Churchill Place – South elevation 2nd floor window

General Comments

Opening cut in a crack that appeared to have been filled.

Recess Condition

- Recess interior appeared damp at time of observation.
- No staining was observed on the exterior face of the stucco. A crack that appeared to have been filled was present.
- Metal lath was corroded.
- Building paper was aged and brittle.
- OSB sheathing appeared stained. Moisture content measured at 22.6%.

Table D-1 – General Exterior Review

Recess Number	Exterior Temp.	Exterior R.H.	Wall Type (refer to DWG)	Deterioration Ref. Scale
15	4ºC	87%	1	3

Photo D-27

Photo D-28

Recess Location

Churchill Place – South elevation below of 3rd floor window

General Comments

Stucco aggregate was observed behind the building paper, indicating possible water entry.

Recess Condition

- Recess interior appeared dry at time of observation.
- Staining was observed on the exterior face of the stucco.
- Metal lath had minor corrosion.
- Building paper was deteriorated.
- OSB sheathing appeared stained. Moisture content measured at 20.7%.

Table D-1 – General Exterior Review

Recess Number	Exterior Temp.	Exterior R.H.	Wall Type (refer to DWG)	Deterioration Ref. Scale
16	4ºC	87%	1	2-3

Photo D-27

Photo D-28

Recess Location

Hampton Court – West elevation 2nd floor

General Comments

Recess Condition

- Recess interior appeared dry at time of observation.
- No staining was observed on the exterior face of the stucco. An open crack was observed running through the recess location.
- Metal lath was corroded.
- Building paper was aged and in fair condition.
- OSB sheathing appeared stained. Moisture content measured at 18.5%.

Table D-1 – General Exterior Review

Recess Number	Exterior Temp.	Exterior R.H.	Wall Type (refer to DWG)	Deterioration Ref. Scale
17	4ºC	87%	1	1-2

Photo D-29

Photo D-30

Recess Location

Hampton Court – West elevation ground floor

General Comments

Recess Condition

- Recess interior appeared dry at time of observation.
- No staining was observed on the exterior face of the stucco.
- Metal lath was in good condition.
- Building paper was aged and in fair condition.
- OSB sheathing did not appear stained. Moisture content measured at 13.7%.

Table D-1 – General Exterior Review

Recess Number	Exterior Temp.	Exterior R.H.	Wall Type (refer to DWG)	Deterioration Ref. Scale
18	4ºC	87%	Balcony	2

Photo D-31

Photo D-32

Recess Location

Hampton Court – South elevation 3rd floor balcony

General Comments

Recess Condition

- Recess interior appeared damp at time of observation.
- No staining was observed on the exterior face of the stucco.
- Metal lath had minor corrosion.
- Building paper was aged and in fair condition.
- OSB sheathing had minor staining. Moisture content measured at 20.2%.

Table D-1 – General Exterior Review

Recess Number	Exterior Temp.	Exterior R.H.	Wall Type (refer to DWG)	Deterioration Ref. Scale
19	4ºC	87%	1	1

Photo D-33

Photo D-34

Recess Location

Hampton Court – South elevation 2nd floor

General Comments

Recess Condition

- Recess interior appeared dry at time of observation.
- No staining was observed on the exterior face of the stucco.
- Metal lath was in good condition.
- Building paper was aged and in fair condition.
- OSB sheathing did not appear stained. Moisture content measured at 12.9%.

Table D-1 – General Exterior Review

Recess Number	Exterior Temp.	Exterior R.H.	Wall Type (refer to DWG)	Deterioration Ref. Scale
20	4ºC	87%	1	2

Photo D-35

Photo D-36

Recess Location

Hampton Court – South elevation below 3rd floor window

General Comments

Recess Condition

- Recess interior appeared dry at time of observation.
- Staining was observed on the exterior face of the stucco.
- Metal lath was in good condition.
- Building paper was aged.
- OSB sheathing appeared to have minor staining. Moisture content measured at 18.8%.

Table D-1 – General Exterior Review

Recess Number	Exterior Temp.	Exterior R.H.	Wall Type (refer to DWG)	Deterioration Ref. Scale
21	4ºC	87%	1	2-3

Photo D-37

Photo D-38

Recess Location

Hampton Court – West elevation below 3rd floor window

General Comments

Recess Condition

- Recess interior appeared dry at time of observation.
- Minor staining was observed on the exterior face of the stucco.
- Metal lath had minor corrosion.
- Building paper was deteriorated.
- OSB sheathing appeared stained, significantly near the corner of the above window. Moisture content measured at 18.8%.

Table D-1 – General Exterior Review

Recess Number	Exterior Temp.	Exterior R.H.	Wall Type (refer to DWG)	Deterioration Ref. Scale
22	4°C	87%	1	3

Photo D-39

Photo D-40

Recess Location

Hampton Court – West elevation 2nd floor balcony column

General Comments

Recess Condition

- Recess interior appeared damp at time of observation.
- Minor staining was observed on the exterior face of the stucco. Stucco surface coating appeared to be deteriorating.
- Metal lath had minor corrosion.
- Building paper was deteriorated.
- OSB sheathing appeared stained. Moisture content measured at 19.4%.

Table D-1 – General Exterior Review

Recess Number	Exterior Temp.	Exterior R.H.	Wall Type (refer to DWG)	Deterioration Ref. Scale
23	4ºC	87%	1	4

Photo D-41

Photo D-42

Recess Location

Hampton Court – North elevation above balcony door

General Comments

Opening was cut below a very large flat section of standing seam metal flashing.

Recess Condition

- Recess interior appeared damp at time of observation.
- No staining was observed on the exterior face of the stucco.
- Metal lath had significant corrosion.
- Building paper was aged.
- OSB sheathing appeared very stained, and spongy/rotten. Moisture content measured at 18.9%.

Table D-1 – General Exterior Review

Recess Number	Exterior Temp.	Exterior R.H.	Wall Type (refer to DWG)	Deterioration Ref. Scale
24	4ºC	87%	1	3-4

Photo D-43

Photo D-44

Recess Location

Hampton Court – North elevation 2nd floor above flashing

General Comments

Recess Condition

- Recess interior appeared damp at time of observation.
- Staining was observed on the exterior face of the stucco.
- Metal lath was corroded.
- Building paper was deteriorated.
- OSB sheathing appeared stained near base of recess (nearest the flashing below). Moisture content measured at 21.1%.

Table D-1 – General Exterior Review

Recess Number	Exterior Temp.	Exterior R.H.	Wall Type (refer to DWG)	Deterioration Ref. Scale
25	4ºC	87%	Balcony	5

Photo D-45

Photo D-56

Recess Location

Hampton Court – North elevation 2nd floor balcony

General Comments

Photo D-56 shows a pen cap penetrated approximately 1 inch into the 2x4 wood framing.

The framing cavity had significant organic growth and staining.

Recess Condition

- Recess interior appeared wet at time of observation.
- No staining was observed on the exterior face of the stucco.
- Metal lath was corroded.
- Building paper was completely deteriorated.
- OSB sheathing appeared very stained, and spongy/rotten. Moisture content measured at 18.9%.

Table D-1 – General Exterior Review

Recess Number	Exterior Temp.	Exterior R.H.	Wall Type (refer to DWG)	Deterioration Ref. Scale
26	4ºC	87%	1	5

Photo D-47

Photo D-48

Recess Location

Hampton Court – East elevation 3rd floor line

General Comments

Recess Condition

- Recess interior appeared wet at time of observation.
- No staining was observed on the exterior face of the stucco.
- Metal lath was corroded.
- Building paper was deteriorated. A Blueskin peal and stick membrane appeared to have been applied over the building paper, likely from a previous exploratory opening.
- OSB sheathing was not observed in this location. A structural 2x10 appeared to be stained and spongy/rotten. Moisture content of the framing measured at 22.5%.

Table D-1 – General Exterior Review

Recess Number	Exterior Temp.	Exterior R.H.	Wall Type (refer to DWG)	Deterioration Ref. Scale
27	4ºC	87%	1	4

Photo D-49

Photo D-50

Recess Location	Recess Condition
Hampton Court – East elevation below window	▪ Recess interior appeared damp at time of observation. ▪ No staining was observed on the exterior face of the stucco. ▪ Metal lath had significant corrosion. ▪ Original building paper was deteriorated. New building paper was in fair condition. ▪ OSB sheathing appeared stained and soft. Moisture content measured at 26.0%.
General Comments	
The opening was cut in the place of a previous stucco patch.	

Table D-1 – General Exterior Review

Recess Number	Exterior Temp.	Exterior R.H.	Wall Type (refer to DWG)	Deterioration Ref. Scale
28	4ºC	87%	1	4

Photo D-51

Photo D-52

Recess Location

Hampton Court – North elevation 3rd floor below window

General Comments

Recess Condition

- Recess interior appeared damp at time of observation.
- No staining was observed on the exterior face of the stucco.
- Metal lath was in fair condition.
- Building paper was aged and in fair condition.
- OSB sheathing appeared stained. Moisture content measured at 19.8%.

Table D-1 – General Exterior Review

Recess Number	Exterior Temp.	Exterior R.H.	Wall Type (refer to DWG)	Deterioration Ref. Scale
29	4ºC	87%	1	2

Photo D-53

Photo D-54

Recess Location

Hampton Court – North elevation 3rd floor below window

General Comments

Opening was cut in a location of suspected previous exploratory opening.

Recess Condition

- Recess interior appeared dry at time of observation.
- No staining was observed on the exterior face of the stucco. A crack was observed running down from the above window.
- Metal lath had minor corrosion.
- Building paper was aged and in fair condition.
- OSB sheathing appeared to have minor staining. Moisture content measured at 16%.

Table D-1 – General Exterior Review

Recess Number	Exterior Temp.	Exterior R.H.	Wall Type (refer to DWG)	Deterioration Ref. Scale
30	4ºC	87%	Balcony	2

Photo D-55

Photo D-56

Recess Location

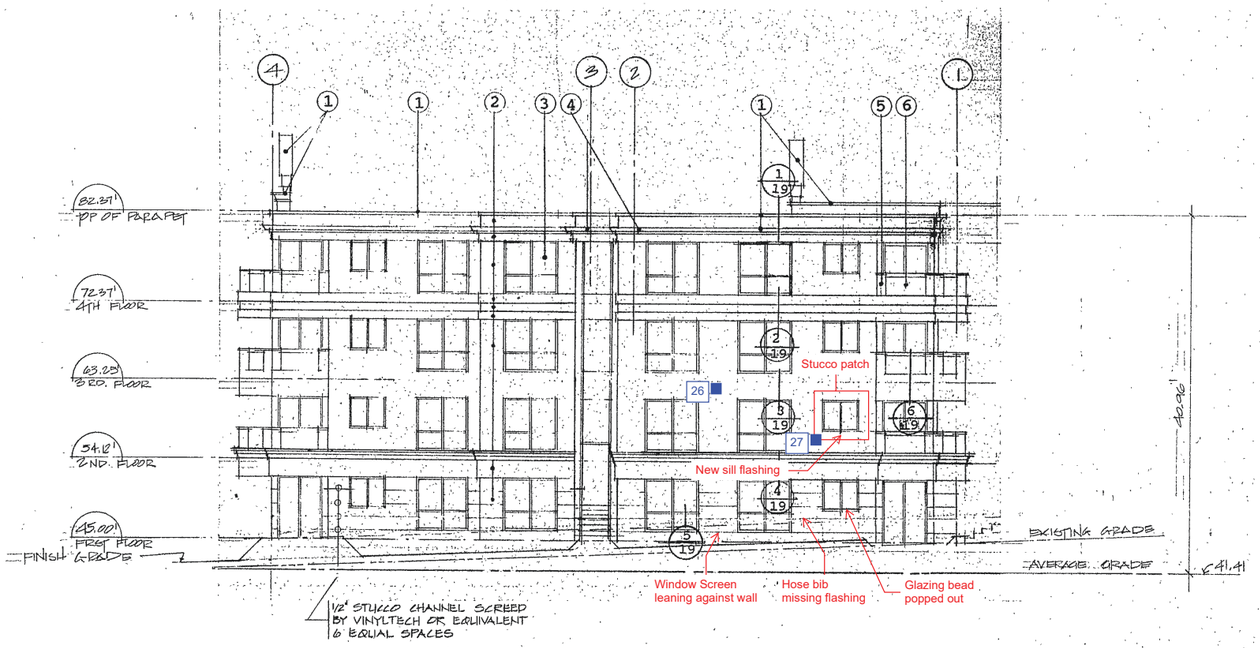
Hampton Court – North elevation 2nd floor balcony beneath scupper.

General Comments

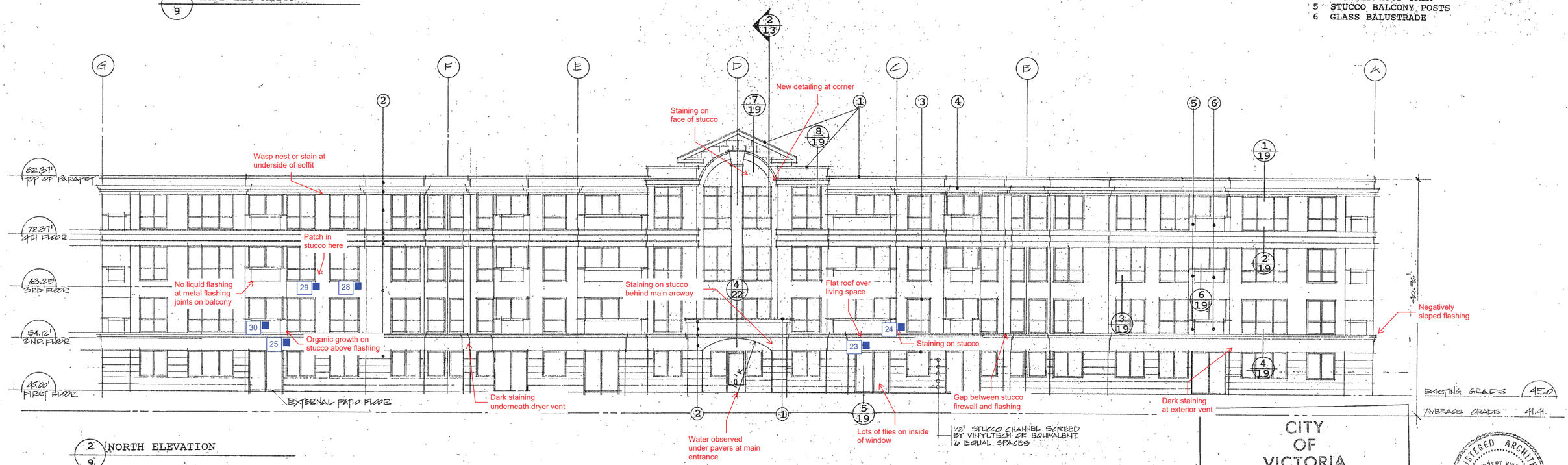
Recess Condition

- Recess interior appeared dry at time of observation.
- No staining was observed on the exterior face of the stucco.
- Metal lath was in good condition.
- Building paper was aged and in fair condition.
- OSB sheathing appeared to have minor staining. Moisture content measured at 17.8%.
- Wood framing appeared to have no staining. Moisture content measured at 15.5%.

Appendix F Elevation Drawing Mark-up of Exterior Reviews



1/9 EAST ELEVATION



2/9 NORTH ELEVATION

Legend

- Locations of exploratory openings (15/building)

Units with exploratory openings created on 2020/11/30

Hampton Court
1. Unit 103
2. Unit 107
3. Unit 117
4. Unit 203
5. Unit 217
6. Unit 302
7. Unit 408

Churchill Place
1. Unit 111
2. Unit 112
3. Unit 211
4. Unit 212
5. Unit 312
6. Unit 402

LEGEND

1 PAINTED METAL FLASHING
2 PAINTED STUCCO - SAND FLOAT FINISH
3 ALUMINUM WINDOWS
4 PAINTED WOOD TRIM
5 STUCCO BALCONY POSTS
6 GLASS BALUSTRADE

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CITY OF VICTORIA

The City relies on the engineer or architect from whom it required certification pursuant to Section 6200 of the Building Bylaw.

REGISTERED ARCHITECT HERBERT KWAN VICTORIA BRITISH COLUMBIA

Hampton Court

consultants

project CONDOMINIUM DEVELOPMENT
DUNEDIN & MANCHESTER STREETS
VICTORIA, B.C.

drawing BUILDING 1
EAST & NORTH ELEVATIONS

drawing no.

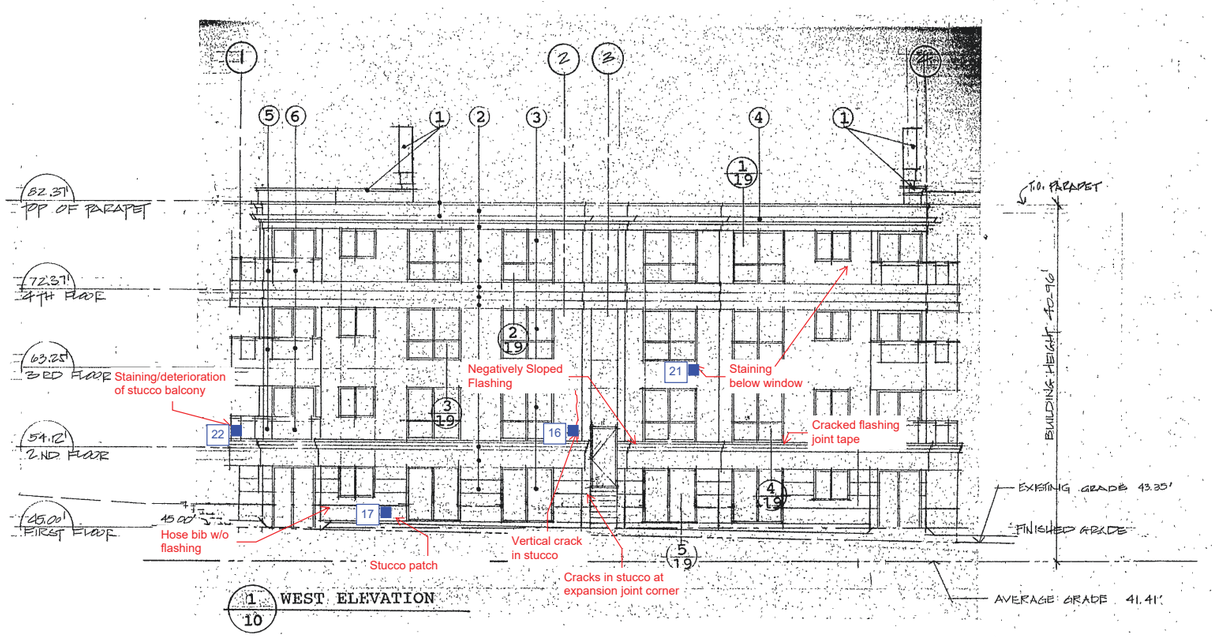
job no. 92.02

sheet 9 of 22

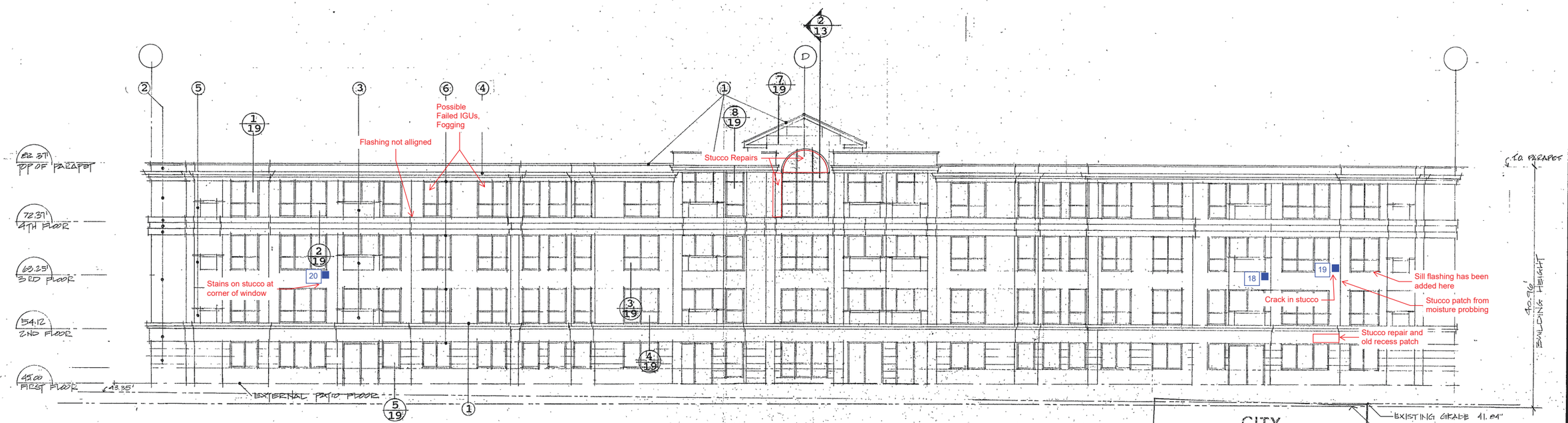
scale 1/8" = 1'-0"

revision date AUG 4, 1992 date JUNE 8, 1992

89-63689



1/10 WEST ELEVATION



2/10 SOUTH ELEVATION

LEGEND

1 PAINTED METAL FLASHING
2 PAINTED STUCCO - SAND FLOAT FINISH
3 ALUMINUM WINDOWS
4 PAINTED WOOD TRIM
5 STUCCO BALCONY POSTS
6 GLASS BALUSTRADE

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VICTORIA, B.C.

drawing BUILDING 1
WEST & SOUTH ELEVATIONS

drawing no.

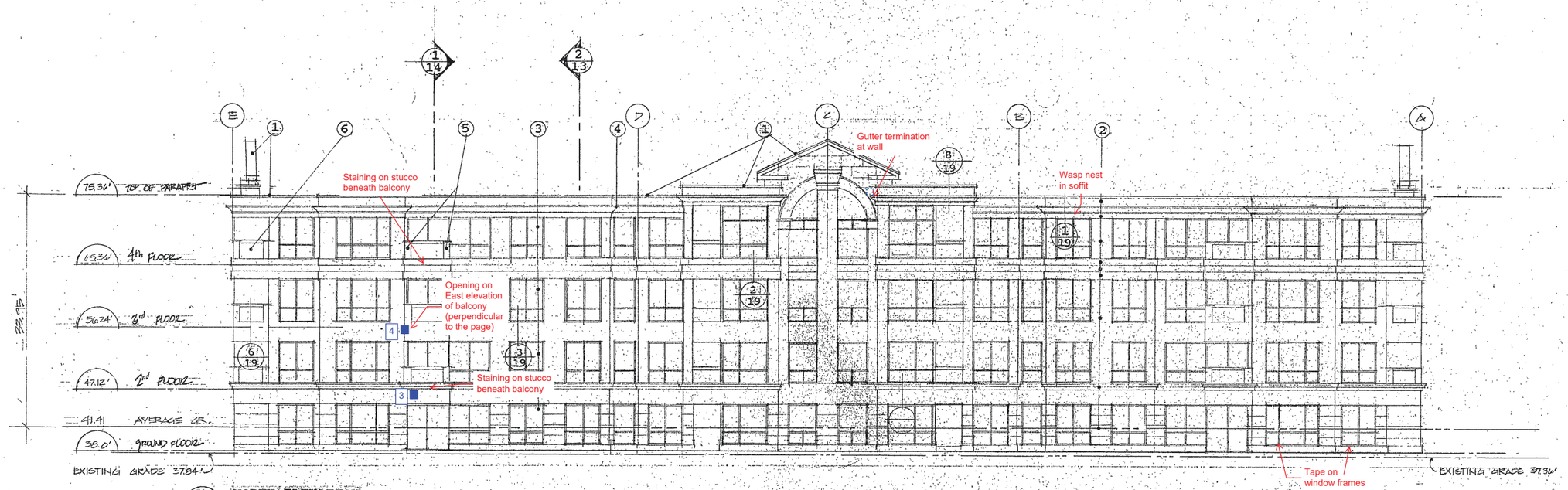
job no. 92.02

sheet 10 of 22

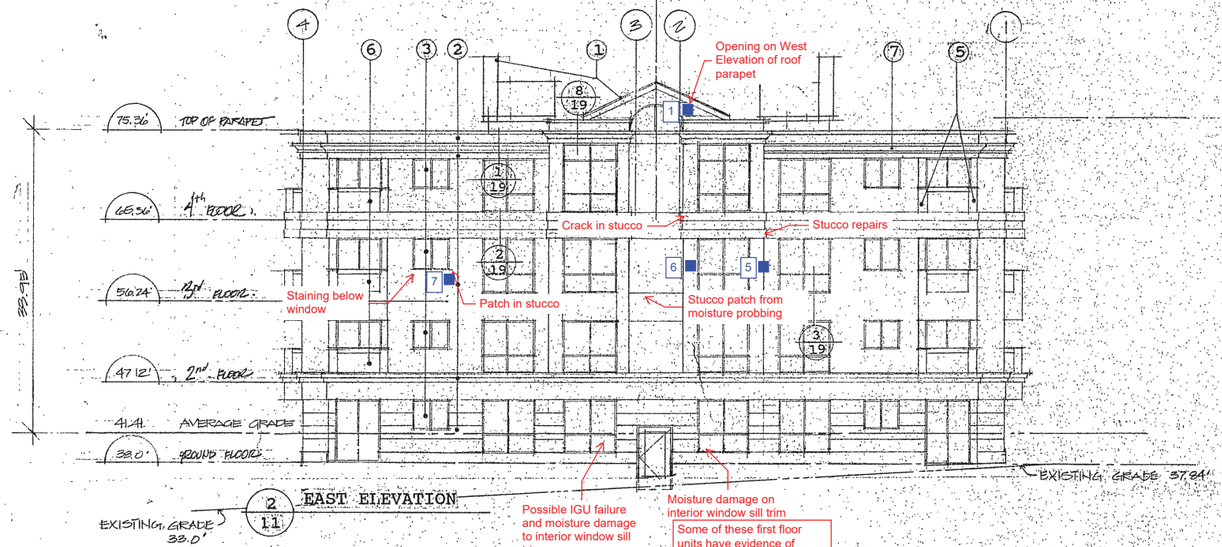
scale 1/8" = 1'-0"

revision date AUG 4, 1992 date JUNE 8, 1992

IB-63689



1/11 NORTH ELEVATION



2/11 EAST ELEVATION

LEGEND

1 PAINTED METAL FLASHING
2 PAINTED STUCCO - SAND FLOAT FINISH
3 ALUMINUM WINDOWS
4 PAINTED WOOD TRIM
5 STUCCO BALCONY POSTS
6 GLASS BALUSTRADE

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Churchill Place

consultants

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VICTORIA, B.C.

drawing BUILDING 2
NORTH & WEST ELEVATIONS

drawing no.

job no. 92.02

sheet 11 of 22

scale 1/8" = 1'- 0"

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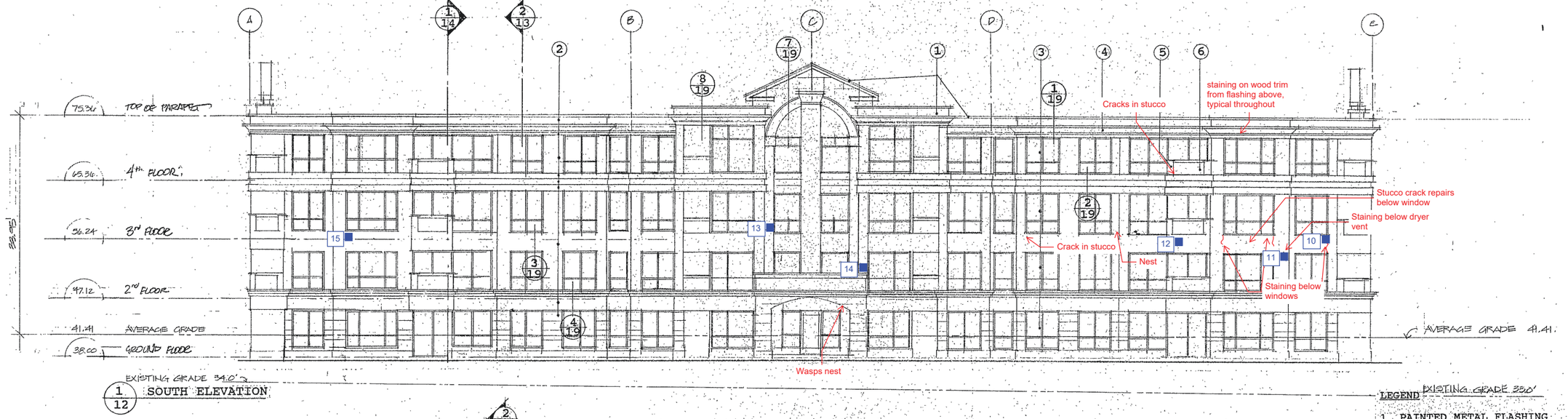
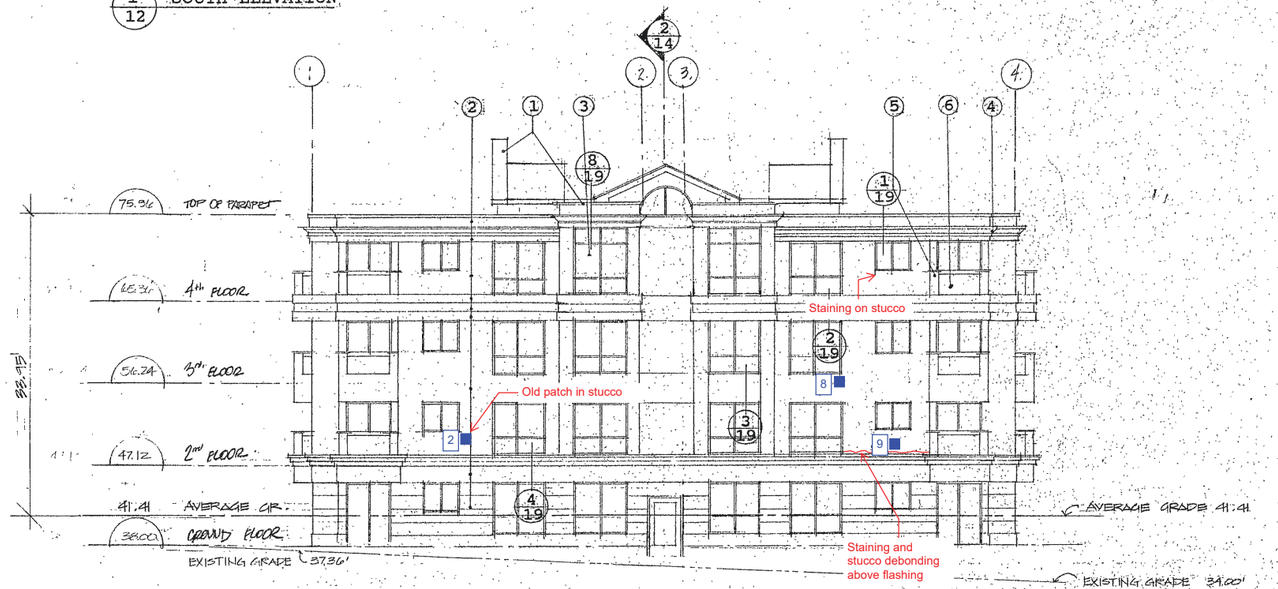


1/12 SOUTH ELEVATION



2/12 WEST ELEVATION

LEGEND EXISTING GRADE 33.0'

1 PAINTED METAL FLASHING
2 PAINTED STUCCO - SAND FLOAT FINISH
3 ALUMINUM WINDOWS
4 PAINTED WOOD TRIM
5 STUCCO BALCONY POSTS
6 GLASS BALUSTRADE

LEGEND

Churchill Place

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DUNEDIN & MANCHESTER STREETS
VICTORIA, B.C.

drawing BUILDING 2
SOUTH & WEST ELEVATIONS

drawing no.

job no. 92.02

sheet 12 of 22

scale 1/8" = 1'-0"

revision date AUG 4, 1992 date MAY 25, 1992