



BC BUILDING SCIENCE PARTNERSHIP

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BUILDING ENVELOPE & STRUCTURAL CONSULTANTS - WWW.BCBUILDINGSCIENCE.COM

September 26, 2008

The Owners; Strata Plan LMS 2379

C/o Century 21 Prudential Estates (RMD) Ltd.
7320 Westminster Highway
Richmond, BC V6X 1A1
Attn: Mr. Jarvie Way, Property Manager

**SUBJECT: THE IVY'S (LMS 2379: 652 TO 689 WEST 7TH AVENUE, VANCOUVER
SUMMARY OF COMPLETED BUILDING ENVELOPE MAINTENANCE & REPAIRS**

As requested, BC Building Science Partnership (BCSP) has prepared this letter so as to summarize the recent building envelope repairs that were recently completed at the above noted property.

The intent of this summary is to provide both current and future owners a better understanding of the processes involved in establishing the basis for the maintenance and repairs that were completed and other pertinent information pertaining to the recent work completed at the exterior walls of this building.

Project Description

The existing building in question consists of four separate three-level, wood-frame buildings containing a series of residential units all located over a common underground parking garage. The original construction of this complex occurred in approximately 1995 – 1996 based on the date of the original Architectural drawings.

The 1st floor contains one level apartment style units whereas the 2nd & 3rd floor contain townhouse style units.

The building has flat roofs waterproofed with an SBS membrane system. The building is generally moderately exposed to rain wetting with only limited overhang protection from the roof level.

The building is generally clad with two assemblies:

- a) **Shingle Cladding:** At most of the wall areas the building is clad with cedar shingles finished with a solid paint finish. The shingles are applied directly over an asphalt saturated building paper moisture barrier. This system is considered to be a concealed barrier assembly as some drainage potential exists behind the shingle system.
- b) **Painted Plywood Cladding:** At select areas of the complex; generally at the inset wall areas painted plywood was used as the cladding. This cladding system is also installed over an asphalt saturated building paper moisture barrier. However due to the flat panel construction there is very little drainage or drying potential behind the plywood cladding; therefore this assembly would be considered as a face-seal cladding system.

The windows at all areas are a welded PVC frame window system. The windows are set into the cladding in a face-seal manner with no specific flashings at the sill or head trim to deflect rainwater to the exterior. As a result we observed that some trims are showing excessive weathering and / or decay at the window perimeters.

The top floor units have a deck located within the flat roof assembly. These decks are waterproofed with PVC sheet membranes. The ground floor units have patios at grade. There are no balconies at any units.

[E060262/IVYS-1.08]

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BCBSP Involvement / Condition Assessment

Previous Assessments & Repairs

Prior to our firm becoming involved at this complex two prior engineering assessments were performed. Both engineering reports concluded that the building envelope was generally functional and showed no signs of widespread water ingress or failure. Rather, various isolated concerns were reported.

Arising out of the first assessment completed by MHP Consultants the plywood panel cladding systems were replaced at the west elevation of Building 655.

East Wall Repairs at Buildings 669 & 657

Our firm was first retained in fall of 2006 to assist the Strata and Edenvale Restorations with a series of repairs that were already underway at the east elevation of Building 669 and 657. Previous engineering reports had identified a concern with the performance of the plywood cladding assembly and detailing at the windows within the shingle cladding areas as summarized above. Previous assessments had identified the east elevations as showing the highest level of priority and thus repairs were initiated at these locations.

Based on recommendations proposed by BCBSP and incorporating the repair strategies already in place by the Strata and Edenvale Restorations the following general scope of remediation was performed. During this work BCBSP performed various consulting services including preparation of drawings outlining the recommendations for reinstating the cladding systems and documenting the completion of the work. 12 site visit reports were issued.

- **Plywood Panel Cladding Areas:**
 - The plywood cladding was completely removed along with the existing building paper.
 - Resultant decay to the sheathing and framing behind the plywood cladding was remediated.
 - The windows were removed and then reinstated to current rainscreen detail standards incorporating a sub-sill membrane flashing and new sill and head flashings with end-dams.
 - A new rainscreen drainage cavity system was installed at these cladding areas utilizing an upgraded two ply building paper moisture barrier and vertical, treated wood strapping.
 - A new more durable fibre-cement panel cladding system was installed over the rainscreen drainage cavity system and incorporating wood trims to recreate and match with the original / existing cladding design. All claddings and trims were painted.
- **Shingle Cladding Areas:**
 - As the shingle areas did not show any obvious signs of damage to the sheathing or structure behind a series of targeted repairs were completed only to the windows within the shingle areas. The intent of these targeted repairs were to address deficiencies observed with the installation of the trims at the perimeters of the windows.
 - The existing trims were removed at the perimeter of the windows.
 - New sill and head flashings with end-dams were installed.
 - New painted wood trims were then installed including sealant at appropriate junctions.
 - A new flashing above the head trim was installed including integration under the shingles above.
 - The entire existing shingle cladding assembly was then painted including existing roof fascias and other wood components at the area within the scope of remediation.
- **Entry Stair Junction:**

- o At isolated entry stairs the flashings were not adequately installed and were allowing water to penetrate below the stairs. Only those entry stairs showing an immediate concern of water penetration were repaired by installing a new flashing at the cladding to stair junction.

Condition Assessment

Once the repairs were completed at these two elevations the Strata engaged BCBSB to perform an assessment at other areas of the complex. The intent was to develop a prioritized plan of remediation so that any other areas that showed an immediate need for remediation could be addressed. BCBSB issued a report in August 2007. This report summarized the findings of the repairs completed as noted above and also included the results of testing performed at other areas of the complex during the spring / summer of 2007.

At this time two areas of priority were identified. First the last east elevation at Building 685 showed outward signs of being in similar condition to the east elevations of Building 669 and 657. The south elevation of 685 also showed similar signs of deterioration to the plywood panel cladding. These areas therefore were deemed to warrant repairs as an immediate priority to the same scope of repair completed at Buildings 669 and 657 generally as described above.

The remainder of the cladding at the complex did not show any outward signs of deterioration and the test openings completed showed no immediate signs of water penetration or resultant damage behind. Therefore the repair of the remainder of the building was considered to be of moderate priority. It was felt that a superficial program of replacing any missing or failed sealant at penetrations (windows, etc) and the application of a new finish surface (paint) to the claddings – shingles and existing plywood panel cladding would be sufficient to extend the life of the claddings at these areas indefinitely into the future.

The focus and scope of this assessment was related to the exterior cladding systems. We did not specifically review the roofing or deck systems at the complex.

Repairs at Building 685

The Strata then engaged Edenvale Restorations in the spring of 2008 to complete the recommended repairs at Building 685. Similar details and scopes of work were completed at the east and south elevation of this building as were completed at Buildings 669 and 657; i.e. plywood panel cladding replaced with new fibre-cement panel cladding on a rainscreen system, targeted repair of the trims and flashings at the windows within the shingle cladding areas and application of a new paint finish to all claddings and fascias.

After the repairs were nearing completion at this building sufficient funds were made available and Edenvale Restorations also incorporated the replacement of the plywood panel cladding at the north elevation of all buildings into the scope of the project.

Exterior Painting

In addition to retaining Edenvale Restorations to complete the recommended repairs at Building 685 the Strata also engaged Remdal Painting to repair or replace any defective or missing sealant and apply a new paint finish to all existing claddings and trims throughout the remainder of the complex. Though BCBSB was not involved in the review and specification of the painting finish the Strata retained a third party consultant to oversee the painting applications through the Master Painters & Decorators Association.

Completion

All exterior work was completed as was identified by BCBS in our Condition Assessment report of August 2007 with all work (Edenvale and Remdal) generally completed in July of 2008.

As the repairs completed are generally considered to be required as part of a building's regular maintenance and renewal and due to the targeted nature of the repair work completed, this project was outside the mandate of the Homeowner Protection Act and permit requirements at the City of Vancouver. Therefore third party water penetration warranty insurance was not available and is therefore not applicable. We note though that the Contractor has provided a two-year warranty against labour and material defects or deficiencies on the work they have performed.

From this point forward the exterior assemblies are generally deemed to have been brought to a 'maintainable' state. Regular maintenance will need to be performed, most importantly the inspection of the exterior components to identify any areas that may need repair or maintenance before they become a more significant concern.

DISCLAIMER & CLOSURE

The above information is abbreviated for the purposes of providing a brief summary of the project. Detailed drawings were issued covering the scope of repairs. Field reviews, change orders and site instructions were also issued during the course of the project. For more specific information related to the project these documents should be referred to.

A detailed maintenance plan should also be prepared. This maintenance plan should contain specific information outlining how the building envelope systems should be maintained in order to ensure their performance. By adequately maintaining and repairing the building envelope the overall value of the building can be sustained and / or improved.

Also note that this report is prepared for the Owners, for the current Owners' information and may not be used or relied upon by any other person, unless that person is specifically named by us in this Agreement as a beneficiary of the Report, in which case the Report may also be used by the additional beneficiary we have named. The Strata and Strata representatives agree to indemnify, defend, and hold BC Building Science Partnership harmless if any third party brings a claim against us relating to any reliance on this report.

We hope the above information clarifies the scope and status of the project. Should access to any of the previous evaluation reports or detailed construction documents be required, the strata should be contacted for this information through the property managers or the strata council.

Regards,

BC BUILDING SCIENCE PARTNERSHIP

Andrew Creighton, ASCT.
Project Manager

CC: Strata Plan LMS 2379
CC: Edenvale Restoration Specialists

Scott Venn / Don Phillips
John Whipp