

June 8, 2007

**Owners of Strata #2720's**  
C/O Roger Taylor  
#417 545 Manchester Rd.  
Victoria, BC

**DRAFT ONLY**

**Attention: Roger Taylor**

**Dear: Owners of Strata #2720's,**

**Re:** Annual maintenance review of your buildings located at 545 Manchester and 520 Dunedin St. Victoria, BC.

We have completed the annual review of the building envelope. This review was extended over one of the wettest and stormiest winters Victoria has experienced. The review was based on both the inspection of the building to identify concerned areas and owner identified concerns. The first part of this report will address the issues identified by the owners and findings of each. The second part of the report will address the areas opened to review the building envelope and assess its functioning.

### **Individual reports on specific units**

#### Hampton Court 545 Manchester:

- #101 Reported high condensation on window during repairs to exterior. This condensation has not occurred again. The only other water ingress was from a hot water tank in a unit above. I recommend monitoring the area and if there is further condensation that appears more than normal contacting us to review the area.
- #107 Experienced some water ingress at the time of the snow. It appears that the snow created an ice dam allowing water to build up and get under the flashing on the flat area outside of unit #207's deck. It was further reported that there where other times of water ingress. I recommend monitoring the area and if and when it becomes wet again having a closer look at it. The ice damming is a specific failure. I recommend that any snow build up in this area be removed and kept clear in the future to prevent further concerns. Further I recommend having the caulking replaced on the flashing of unit #207's deck and the area just outside of it.
- #117 There was a water stain in the corner of the bedroom just above the baseboard. There was also a report of mold on the exterior wall. Review of the area showed no obvious openings on the exterior of the wall. Given the location of the concern (sheltered side of the building), the report of mold growing up the wall, and the area of the damage I decided that it would be valuable to open the drywall in the corner of the room and use this as a test site. There was a trail of water between the vapour barrier and the insulation. We removed the drywall up to the ceiling to follow the water trail.

#117 Cont. The water trail went up to the dryer vent. Further review indicated that the water ingress appears to have been related to the dryer vent. The water trails were dry at the time of the review. The damage was not extensive and there was no mold or deterioration to the wall system. Water entered the dryer vent, flowed down to the corner and wet the drywall. There is no obvious connection between the water found and the mold reported on the wall. In my opinion the mold on the wall was a separate issue likely caused by the condensation of humid air on the colder surface of the wall. The wall would be colder in the area concerned as there is a portion of the building foundation that extends up into the wall. The area was behind a bed stopping airflow that would warm the wall and dry off any condensation, creating a good environment for mold growth. In my opinion the mold growth is not likely an envelope issue.

#206, #306, & #406 Water was entering unit #306 through the living room ceiling. Inspection of the balcony revealed substantial water ingress from the unit above. The soffit was removed and we could see patterns of water ingress that appeared to be occurring for more than a year. We followed up on the balcony above removing the stucco and discovering several wet areas on the sheathing related to individual openings such as the electrical light and outlet, flashing, and cracks in the stucco. The sheathing was inspected and while there was elevated moisture readings on the sheathing it showed only the first signs of deterioration (swelling) and no indications of mold or mildew growth. This damage was limited to the exterior side of the sheathing. We found three small areas of rot in the deck railing that were dry at the time of the inspection. This rot and deterioration would have predated the 1999 sealing of the building and is extensive deterioration (degree of deterioration not area of deterioration) than any of the new damage. The fact that it was dry reinforces my opinion that the sealing of the building has slowed down or stopped the majority of water ingress and related damage. The non-active or dormant rot (pre 1999) was not extensive enough to affect the structure of the deck or the safety of the railing. We repaired the damaged area.

The wet sheathing showed no signs of rot or mildew and only slight deterioration. There was limited water ingress to the structure and no deterioration or long term affects to any of the structure. This confirms the premise that there will usually be some indication of water ingress prior to significant structural damage. Due diligence by the owners and continued annual inspections should find water ingress prior to significant structural or microbiological damage.

The soffit material was left off for a period of time to assess the vinyl deck covering. Given the age of the vinyl decking and the work carried out on the deck we wanted to be certain that no small failures would go un-noticed.

#407 The entry hall skylight leaked at the corner. This skylight appears to be an original unit and as such is near the end of its life expectancy. I recommend either replacing the skylight or removing sealing and resetting it. This is a simple issue and not indicative of a larger concern.

#412 There was no evidence of water in the ceiling of this unit and it tested as dry. The owner explained that she felt the drywall and it was wet. There may have been condensation on the drywall however there is no indication that it was wet and no signs that would warrant

opening the area to look above. I recommend having the owner contact me when it is wet or appears to be wet so that we can test the area and follow up.

- #415 There is water staining on the laundry ceiling that appears to be a one-time occurrence. It was tested as dry on my initial visit and continued to be dry on a follow up visit. This is not a plumbing or sprinkler system failure. There was no indication of a roofing failure. It is possible that the cause was the same as the issue with CP#409. We sealed and painted the stains to allow the owner to monitor the area and report any further instances.

#### Churchill Place 520 Dunedin:

- #304 Not seen yet recommend reviewing area from exterior and resealing.
- #402 Water ingress was reported on two or more occasions. We attended the site however did not have the opportunity to see the concern when it was happening or still wet. The water ingress into the wall is occurring during periods of combined high winds and rain. The amount of ingress appears minor and drains through the window.

#### **Selected Areas:**

##### Front entrance column Churchill Place.

There was a significant crack in the stucco that was clearly allowing water ingress. This is the feature entrance of the building. The crack had previously been identified and not remediated as it was not part of the building structure. We removed the stucco, reviewed both the building paper and the sheathing front and back, and inspected the framing. The building paper and sheathing in the corner were deteriorated with indications of mildew. The deterioration went through the sheathing and to the framing of the overhang (non structural) the framing was wet and showing the first signs of decay. This is an architectural detail on the building and the deterioration did not extend to the building's structure.

This area of review was chosen for two reasons. Firstly it was an obvious area of water ingress. Secondly there was one large and several small cracks in the stucco cladding all in one area. The results of the review of this area showed that while water ingress was clearly a concern on the larger cracks the smaller cracks did not allow sufficient water ingress to get beyond the building paper.

##### West wall of Churchill Place

This area was chosen again as it appeared that there was water ingress. This was part of the decorative band just below the flashing. Our concern was that the Belzona product used to seal all of the lap joints in the flashing may have failed. When the stucco was removed it appeared as though the belzona product was still intact and the ingress was due to high winds forcing water up under the flashing to a space in the original stuccowork. The wetting was minimal and the issue corrected with the stucco repair. This does not look to be an indication of a larger problem. The water staining was easily spotted and no other similar areas of staining were noted.

##### West wall of Hampton Court.

This area was chosen due to its extensive stucco cracking. Further it is on one of the most exposed areas of the building. The building paper was deteriorated to some degree indicating repeated wettings. The paper was wet at the time of the review. The sheathing was wet and showing the

first signs of delaminating and deterioration. The water penetration had not reached the structure in a significant amount to cause anything other than light staining.

#### South wall of Hampton Court unit #406

We were already in this area and chose it as a further area of review for three reasons. Firstly we were already doing work in the area so it was cost effective. Secondly we found cracking of the stucco and knew the areas was getting wet, and finally its location again is in one of the most exposed parts of the building subject to the most consistent high winds.

We found that water ingress was occurring in three areas. Around the light box, cracks in the stucco, and around the electrical outlet. This was not surprising as it is consistent with the failings of the face seal wall system. The building paper was wet on the exterior surface and water had penetrated through the staples in the paper to the sheathing. The sheathing showed stains around the staples indicating a number of wetting cycles and some new wet areas. The sheathing however was in relatively good condition with only the first signs of minor delamination or deterioration. The water ingress did not get past the sheathing and did not affect the structure of the wall system.

#### South wall of Hampton Court Corner Cracks

The inspection identified many cracks at the corners at or below the decorative bands. All of the cracks were similar in nature and ranged in size. One of the areas we opened had a significant amount of rot and deterioration. By significant I am referring to the rot actually making its way through the building sheathing and beginning to affect the structural components of the building. Although the rot was in a limited area and had not compromised the structure it had reached beyond the building envelope. To clarify significant refers to the degree and depth of the damage and not the extent or area. We decided to go further and open another six or seven areas including one on the north wall of Churchill Place to ensure that the damage discovered was not occurring in other areas. We opened over a dozen of the cracked corners and noted that there had been water ingress and some slight damage to the sheathing. All of the areas opened with the exception of the one bad area tested between six and ten percent moisture. This is well within acceptable limits. The tests indicate that water is getting in during the heavy weather but is also drying out and not causing significant concerns in most areas.

The "damaged" corner had rot and deterioration of the building sheathing, the framing of the decorative band, and some initial deterioration of the building structure or framing. The damage did not require any structural repairs only the treatment of the area prior to closing it in. It was noted that in the initial construction of the building this corner was not insulated. The lack of insulation may have allowed more pressure differential in the wall cavity drawing in moisture during storms with high winds and causing the more extensive damage noted. We will open one or two more of the corners to see if the insulation was missed in some, most, or all of the corners. Without completing an air tightness test I can only offer this as a theory.

We opened the corner above the decorative band to ensure the water was not entering from above. We also opened the wall at the bottom to ensure the water had not run down the wall and spread out along the foundation damaging causing a further concern. Both areas tested within the safe limits and showed only initial signs of water ingress normal for this type of construction.

In my opinion this was an isolated area not indicative of all of the corners with cracking. I do recommend sealing all of the cracks in the stucco at the corners to reduce the chance of further damage in these areas.

## **Findings:**

We conducted the moisture review during and after extensive rains storms and “wetting” of the building. The areas opened where tested with a moisture probe as well as a protimeter probe style moisture meter. The meter was calibrated and tested on site before commencing the moisture tests.

The testing was completed on a layer-by-layer approach. The stucco was removed and the building paper tested, the building paper was removed and the back of it tested. The face of the OSB sheathing was tested and then a section of the OSB was removed so that the back could be tested. The wall cavity was accessed and tested. There where no indications of mold and only one area with high readings inside of the wall cavity.

All of the areas tested with readings in excess of 18% could be traced back to a breach in the cladding system. In all cases the break was a crack or movement in the stucco. The sealant and caulking applied by in the original work to seal the buildings was inspected randomly over both buildings and found to be in relatively good condition and not requiring significant work at this time.

## **Stucco Cracks**

In this report I have reported in general terms on stucco cracks. Stucco cracks are normal and to be expected on all wood frame buildings. Stucco cracks range from barely visible hairline cracks to larger open cracks. They usually run vertically coinciding with junctions or flex points of the building. Cracks are caused by building materials shrinkage, buildings movement, and expansion and contraction. It is difficult to count, quantify, or measure these cracks and for our purposes in my opinion not necessary. We are primarily looking to see what if any water ingress is resulting from the cracking and does it dry on its own or is it causing damage to the building.

In our last review of the building we recommended sealing all of the cracks in the stucco as a preventative measure. We attempted to complete this work in early fall of last year and found could not find a caulking product that did not show up on the stucco. The caulking was creating a “spider web” appearance on the building. This would have a significant negative affect on the building. We chose random test areas of the stucco to open and assess the affect of the smaller cracks and found little water ingress. I recommend opening some areas randomly in the mid to late summer to see if there is also a drying cycle to counter act the wetting cycle. At that point we can assess the best solution. Perhaps a tiered solution based on the size of the crack.

## **Conclusion**

The maintenance program is continuing to perform beyond initial expectations. While we had more instances of water ingress this year was to be expected for a combination of reasons. The building’s face seal system is getting older, the weather was extraordinarily harsh for Victoria, and there seams to be either more larger cracks of the stucco or some of the smaller cracks have been enlarging in the last few years.

The older the building gets the more maintenance it will require. What is obvious is that the instances of water ingress are coming to our attention during the early stages. There are no indications of excessive long-term wettings. There was only one area where the water ingress had affected the structure and the damage was in its initial stages and very minor. Most areas opened show minor signs of wetting and deterioration. These areas have fewer concerns than the areas opened prior to the extensive sealing of the building done at the beginning of this maintenance program.

The main principal is to maintain the building exterior until a remediation is deemed necessary. The benefit of this program is allowing the owners to get the most out of the life expectancy of the exterior cladding, windows, etc. Further it allows us to obtain information from other buildings (that were remediated) onto what products and methods have performed the best and what downfalls they have encountered. The industry has already benefited by the increase building science, refined remediation details, and products that are available. The industry of remediation is far better now than it was four or five years ago. Further the Owners are able to plan well in advance for any remedial work and the costs associated with the work. The idea is based on careful monitoring and maintenance of the envelope to ensure there are no structural, health, or safety issues. To date all the information collected points to the conclusion that the program is effective. We are becoming aware of issues before they are causing significant damage and every year there is more information on both the building science around the envelope and information on how other products and systems are performing.

#### Recommendations

1. Seal all of the corner cracks in the stucco. This is a continuation of the work stopped last year only not addressing the main wall cracks to prevent the "spider web" effect on the building.
2. Open some of the cracks on the walls mid to late summer to test the effects of the drying cycle.
3. Consider installing modified dryer "flapper" vents to the existing dryer vents to prevent lint blockage and help keep water out. I have come up with a cost effective design that would reduce the cleaning of the vents.

For further information or clarification please feel free to contact me at 479-8050 or alternatively at 858-9161.

Yours truly,

D. A. Downs  
Per DougLes Consulting Services Inc.