

TO **The Owners, Strata Plan VR 855**
Patrick Frechette
Rancho Management Services
#101-4126 Norland Avenue
Burnaby BC V5G 3S8

EMAIL pfrechette@ranchogroup.com

3010.10**Shawnoaks Targeted Condition Assessment****January 23, 2008****REGARDING Recreation Building Condition Assessment**

Dear Patrick,

RDH Building Engineering Ltd. (RDH) was retained by Rancho Property Management to assess the condition of the building enclosure at the Shawnoaks Recreation Building and provide a brief letter report discussing our findings. This letter report has been written for an audience familiar with the Shawnoaks Recreation Building and the ongoing building enclosure concerns.

Per discussion during our December 05/08 site meeting, RDH arranged for TEK Roofing to perform exploratory openings at select locations on the Recreation Building to better determine the extent of deterioration and to ascertain an appropriate course of action to address building enclosure issues.

1. BUILDING DESCRIPTION

This Section provides recent relevant building history followed by a brief description of the building enclosure components of the Shawnoaks Recreation Building.

The Recreation Building is approximately 39 years old. It is a single storey wood framed structure built on a concrete foundation. During removal of the Recreation Building existing roof membrane assembly, we observed deterioration of the roof framing and supporting wall framing elements in numerous locations.

The Recreation Building amenities include a common meeting area, men's / women's dressing room and shower, a mechanical equipment room, a sauna room and a whirlpool room (Fig. 1.1). The whirlpool is no longer functioning and this room is currently used for general storage.

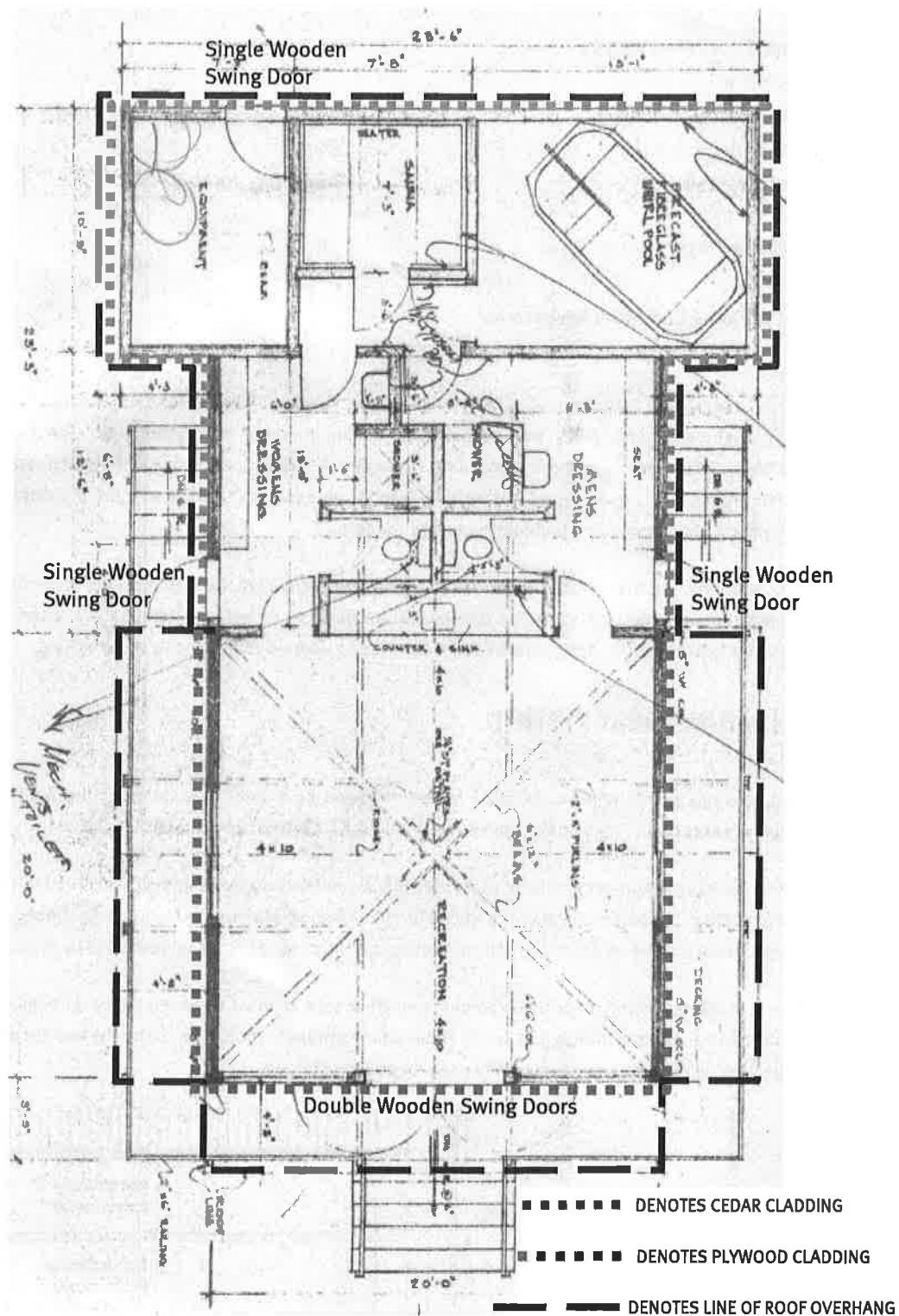


Fig. 1.1. Plan view of Recreation Building

1.2. Interior

The building is heated with electric baseboard heaters. The heaters were not operating at the time of the review. The interior was cool, damp and generally had a musty smell.

There are vents on the east and west elevation of the common area (Fig. 1.2.1). The dressing room and shower area is vented through the low slope roof assembly above (Fig. 1.2.2).

The sauna provides a unique interior environment (Fig. 1.2.3). The sauna cedar-clad wall assemblies, venting provisions and vapour control provisions have not been confirmed and should be further investigated at the time of rehabilitation.

There is a broken exhaust fan within the whirlpool room which is mounted into the exterior wall assembly (Fig. 1.2.4). The interior walls of the whirlpool room are finished with ceramic wall tile. The whirlpool has been abandoned.

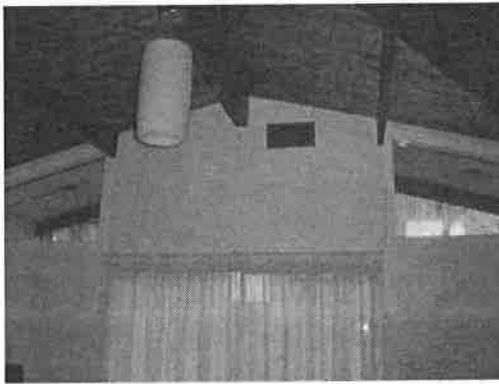


Fig. 1.2.1. Gable Vent In Common Area



Fig. 1.2.2. Exhaust Vents



Fig. 1.2.3. Sauna



Fig. 1.2.4. Whirlpool Room

1.3. Walls

The exterior wall assembly below the low slope roof area over the amenities area consists of vertical cedar cladding installed over building paper. The top of the wall is dressed with wooden fascia boards (Fig. 1.3.1). There is very little roof overhang to protect these walls.

The exterior cladding below the pyramid type sloped roof over the common area consists of painted dressed plywood infill panels installed over exterior sheathing and dressed with wood trim (Fig. 1.3.2).



Fig. 1.3.1. Typical Wall Assembly Below Low Slope Roof Area (Northeast Corner)



Fig. 1.3.2. Typical Wall Assembly Below Pyramid Type Sloped Roof Area (Southeast Corner)

1.4. Roofs

The roof over the common area is a vaulted pyramid with approximately 4' of overhang providing good protection for the wall assemblies. The roof consists of 6" x 12" beams resting on structural steel columns and connected at the apex with a structural steel bracket. These beams are in filled with 2" x 8" purlins and covered with structural wood planking. The original built-up roof (BUR) membrane has been overlaid with glass ply roofing felt, likely during previous repair work (Error! Reference source not found.).

The roof over the amenities area is a low slope built-up roof BUR assembly roof over structural wood planking and provides no overhang protection for the wall assemblies (Fig. 1.4.2).



Fig. 1.4.1. Typical Roof Assembly on pyramid roof



Fig. 1.4.2. Typical Flat Roof

1.5. Windows

The windows consist of field glazed single pane rake windows with wooden stops at the gable ends of the pyramid roof assembly with aluminum framed single glazed non-thermally broken windows at remaining areas around the building (Fig. 1.5.1). These types of window generally provide poor water penetration resistance and poor thermal performance. Most windows are protected by a significant overhang, however, the centrally located windows on the east and west elevations are located below the low slope roof and have no overhang protection (Fig. 1.5.2). There is no flashing or sealant present at these fully exposed window locations.

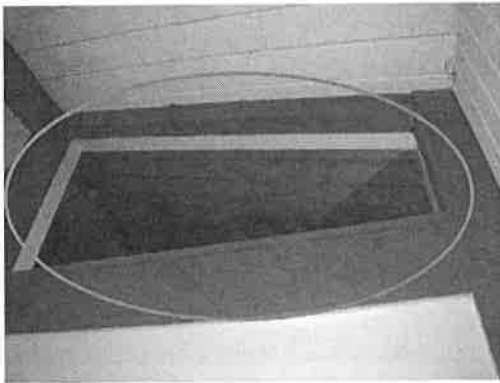


Fig. 1.5.1. Typical Field Glazed Single Pane Rake Window



Fig. 1.5.2. Typical Non Thermally Broken Single Glazed Windows at Fully Exposed Location

1.6. Doors

The entry doors are typical exterior wooden doors set into wooden casings with aluminum thresholds. This type of door assembly generally provides poor water penetration resistance.

The single swing entry doors on the east, west, and north elevation are situated in a high exposure location as there is no overhang protection. The head flashing over the exposed doors does not incorporate end dams and no sealant is present at the door casing to exterior cladding interface. There is a set of double swing entry doors on the south elevation adjacent to the outdoor pool area. These doors are situated in a low exposure location as they are protected by the roof overhang.



Fig. 1.6.1. Typical Exposed Swing Door



Fig. 1.6.2. Protected Double Swing Doors

2. OBSERVATIONS

The following is a pictorial representation of our findings. Observations are provided below each photograph. Comments have been provided where appropriate. A brief observation summary is provided at the end of this section. An overall representation of deterioration is shown on the roof plan provided in Appendix A.

2.1. Interior



Fig. 2.1.1. Interior of East Wall in Whirlpool Room

Observation(s):

- 1) Significant water staining at perimeter of roof planking likely as a result of water ingress through roof curb assembly above.

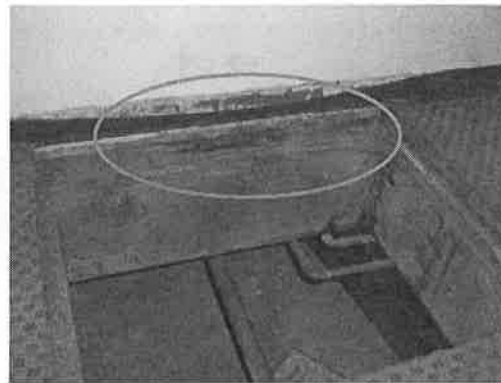


Fig. 2.1.2. Access Hatch to Crawl Space Below Common Area

Observation(s):

- 1) Water is present at the base of the interior common area wall likely as a result of water ingress through the north facing gable end of the sloped pyramid type roof assembly

2.2. Walls

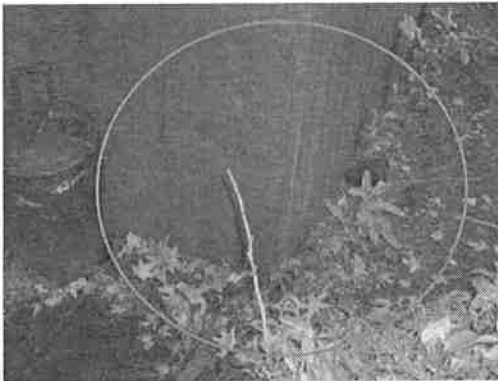


Fig. 2.2.1. Base of Wall on the East Elevation

Observation(s):

- 1) There is no clearance between the exterior cladding and grade. This may result in extended wetting of moisture sensitive materials and deterioration. This does not conform to the British Columbia Building Code which requires 8" of separation between the exterior cladding and grade.



Fig. 2.2.2. Base of Wall on the East Elevation

Observation(s):

- 1) There is significant deterioration of the underlying framing components and exterior cladding.
- 2) The insulation is wet and adhered to the back facer of the interior gypsum wall board which is also moisture damaged.



Fig. 2.2.3. Above West Elevation Entry Door

Observation(s):

- 1) The structural lintel above the door and low slope roof parapet framing are significantly deteriorated.

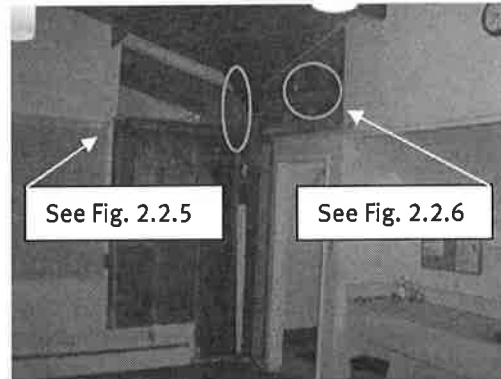


Fig. 2.2.4. View of Interior Exploratory Opening Below Northwest Corner of Sloped Roof

Observation(s):

- 1) There is significant deterioration around the field glazed window and north-facing gable end wall.

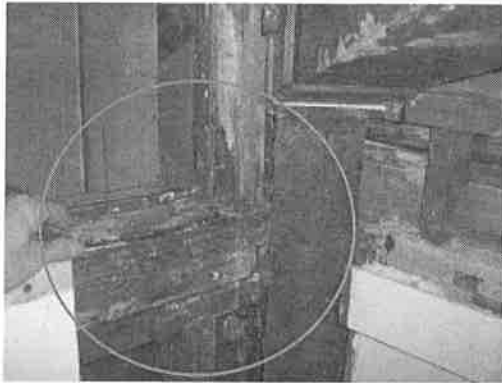


Fig. 2.2.5. Northwest Corner Common Area Window Sill

Observation(s):

- 1) The framing adjacent to the structural steel column is significantly deteriorated.

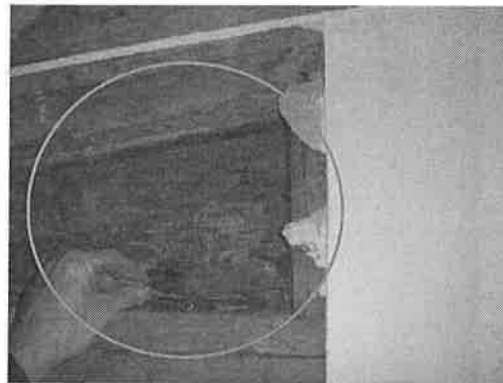


Fig. 2.2.6. Gable End Adjacent Northwest Corner in Common Area

Observation(s):

- 1) There is significant deterioration of exterior sheathing at the north-facing gable end wall.

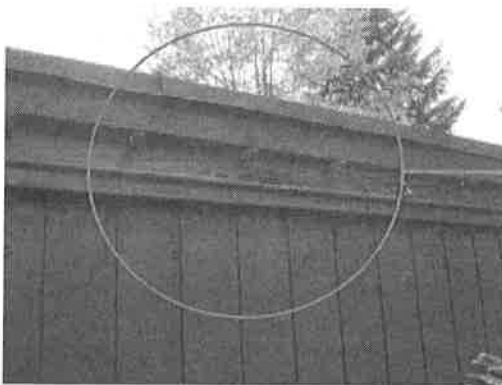


Fig. 2.2.7. Fascia at North Elevation Roof Curb

Observation(s):

- 1) There is significant deterioration of roof curb fascia along the entire perimeter of the low slope roof area.



Fig. 2.2.8. Underlying Framing Below North Elevation Roof Curb Fascia

Observation(s):

- 1) The underlying framing and sheathing are significantly deteriorated.

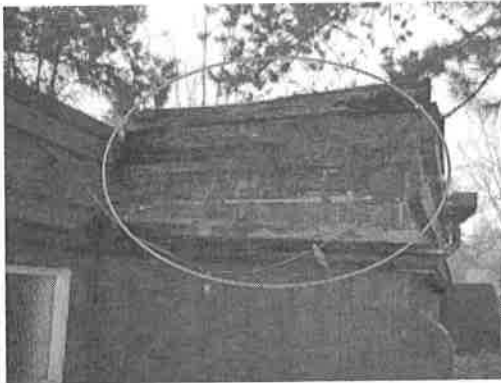


Fig. 2.2.9. South Face of the East Elevation Roof Curb and Wall Framing At The Low Slope Roof Area

Observation(s):

- 1) There is significant deterioration of roof curb and wall framing.

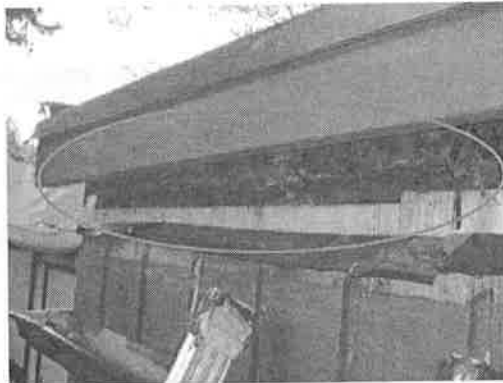


Fig. 2.2.10. East Elevation Roof Curb and Wall Framing Below Fascia At The Low Slope Roof Area

Observation(s):

- 1) There is significant deterioration of roof curb and wall framing.

The exterior sheathing is in sound condition. The sheathing is date stamped 1999 suggesting it was replaced around that time. Based on the observed deterioration the underlying problems and deteriorated framing were not properly addressed.

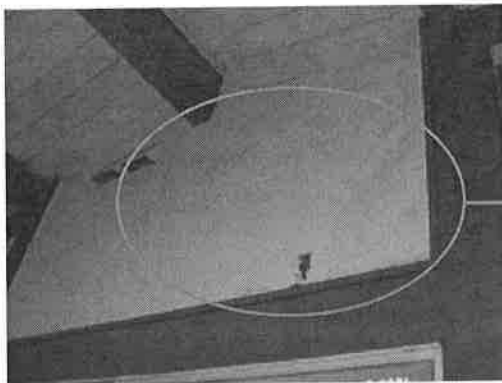


Fig. 2.2.11. Exterior Plywood Cladding At East Elevation

Observation(s):

- 1) The roof planking and lower wall framing are deteriorated. Note the white organic growth on the roof planking.

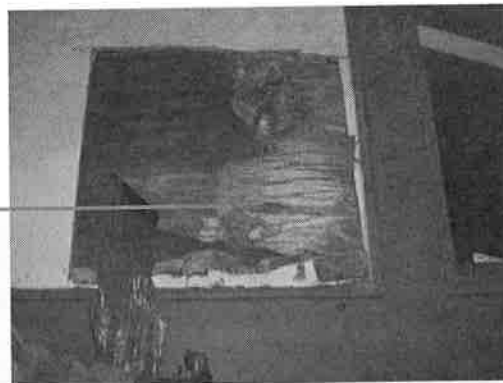


Fig. 2.2.12. Below Deterioration at Northwest Corner of Sloped roof

Observation(s):

- 1) The underlying wall sheathing and structural lintel are deteriorated. There is white organic growth present on the exterior sheathing.

2.3. Roofs

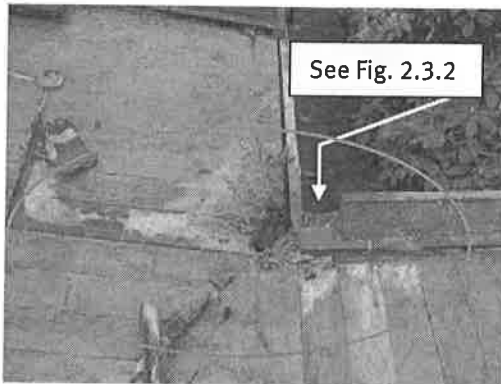


Fig. 2.3.1. Northwest Corner of Sloped Roof at Drain Location (Above Fig. 1.19)

Observation(s):

- 1) The roof planking and lower wall framing are deteriorated. Note the white organic growth on the roof planking.

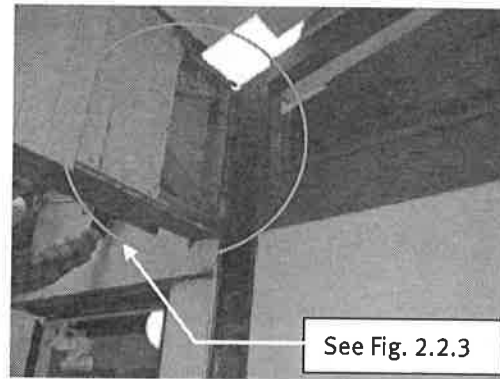


Fig. 2.3.2. Below Deterioration at Northwest Corner of Sloped Roof

Observation(s):

- 1) The underlying wall sheathing and support framing are deteriorated.
- 2) The ellipse shows the existing roof overhang framing which consists of cross-braced pony wall framing attached to the wall framing. The wall framing is deteriorated and the overhang framing is structurally compromised.



Fig. 2.3.3. Northeast Corner of Sloped Roof at Drain Location

Observation(s):

- 1) The ends of the roof planking and underlying wall framing are deteriorated.



Fig. 2.3.4. Gable End at Southeast Corner of Low Slope Roof

Observation(s):

- 1) There is significant deterioration of exterior sheathing at the north-facing gable end wall and roof curb.

2.4. Windows



Fig. 2.4.1. West Elevation Single Pane Field Glazed Window Assembly

Observation(s):

- 1) The window sill and underlying wood framing are extensively deteriorated.

2.5. Swing Doors



Fig. 2.5.1. North Elevation Equipment Room Swing Door



Fig. 2.5.2. East Elevation Entry Swing Door

Observation(s):

- 1) The door is deteriorated adjacent to the louver grill.
- 1) The wooden door casing and adjacent framing are deteriorated.

Observation Summary

There is significant deterioration of roof planking, roof curbs, and wall framing at select locations on most elevations of the Recreation Building. In some locations the framing deterioration is extensive and involves structural framing elements. Access to the building was restricted as a result of the deterioration. Deterioration of the existing swing doors and/or casing is present at the high exposure swing doors. Significant deterioration is also present adjacent to some window assemblies.

3. RECOMMENDATIONS

We recommend that a comprehensive exterior wall rehabilitation be performed on the Recreation Building prior to continuing with the roof membrane renewal work. For improved water penetration resistance and thermal performance, new higher performing windows and doors with improved interface detailing and overhang protection should be included as part of the rehabilitation. TEK Roofing has agreed to continue the roof membrane renewal work, per the original specifications, for the original contract value of \$30,000 upon completion of the exterior wall rehabilitation. This value is included in the Order of Magnitude costs provided.

Based upon our review of select locations around the Recreation building, there is significant levels of deterioration present at many locations, however, there are a few areas where there is minimal or no damage to the existing wood framing and exterior cladding. The sloped pyramid roof is supported by structural steel columns that are in sound condition. Therefore, demolition of the existing structure is not warranted.

Prior to the rehabilitation the Owners should consider the function to be provided by this building. Considering that the whirl pool has been decommissioned it may be prudent to have it removed while the exterior walls are removed during the rehabilitation.

The recommendations for the exterior wall rehabilitation are further outlined in the summary below.

3.1. Interior

The existing interior ventilation provisions should be further investigated at the time of exterior wall rehabilitation.

3.2. Walls

Based on our observations the existing wall assemblies should be replaced with a new rainscreen wall assembly with improved interface detailing. The new wall assembly should include overhang protection for exposed swing door and window assemblies.

3.3. Roofs

The roof renewal program being performed by TEK Roofing should be suspended until the recommended comprehensive exterior wall rehabilitation work has been completed.

3.4. Windows

The existing windows provide poor thermal performance as well as poor condensation and water penetration resistance. We recommend the existing glazing assemblies be replaced with new double glazed, thermally broken window assemblies with improved interface detailing. This work should be performed in conjunction with the exterior wall rehabilitation.

3.5. Doors

The exposed existing swing doors and casings are deteriorated to varying degrees at all high exposure locations. We recommend all existing door assemblies be replaced with new high performance door assemblies with improved interface detailing. Overhang protection should be provided over all existing exposed swing door assemblies.

4. Order of Magnitude Rehabilitation Project Costs

It is important to understand that the budget construction costs are based on our previous experience with similar projects. They are presented as probable costs for the rehabilitation recommendation suggested above and are based on approximate unit rates without a design criteria being developed. A more overall refined budget cost can be obtained once design criteria has been established.

The construction industry is volatile and pricing can vary significantly. Industry costs are dependant to a certain extent on factors external to the actual project.

Rehabilitation of interior is not included in Order of Magnitude budgets.

Table 4.1 Order of Magnitude Rehabilitation Project Costs

Construction Costs	\$120,000
Rot Repair	\$15,000
Consultant Allowance	\$45,000
Owner Contingency (20%)	\$27,000
Landscaping, security, legal	\$5,000
Sub Total (rounded)	\$210,000
GST (rounded)	\$10,000
Total Project Costs (rounded)	\$220,000

(Values have been rounded)

5. Next Steps

The Condition Assessment report represents conceptual level recommendations with respect to rehabilitation and renewal activities. It is important to understand these recommendations do not provide a basis for implementing remedial work. Conceptual recommendations need to be developed, refined and documented in detail before the construction work can be tendered to Contractors or a building permit obtained.

The next step typically begins with the design process where the Consultant considers alternative ways of addressing existing problems, and assists the Owners in making decisions with respect to the specifics of the rehabilitation program. Once decisions are made, the selected design is developed and documented in greater detail in the form of drawings and specifications. These documents indicate the exact extent and nature of the remedial work.

The drawings and specifications are used to obtain bids from pre-qualified contractors, obtain a building permit to carry out the work, and as a basis to carry out repair work. Once a contractor has been selected, usually on the basis of the lowest submitted bid, the project can move into the construction phase. During this phase, the remedial work program that has been designed by the consultant is implemented, and repair and construction takes place on site. The consultant administers the construction contract and undertakes field review of construction as the work proceeds.

Yours truly,

RDH Building Engineering Ltd.



James Bourget
Senior Project Technologist
jbourget@rdhbe.com

Reviewed by:

Marcus Dell, P. Eng.
Senior Building Science Specialist, Principal
mdell@rdhbe.com

cc	Marcus Dell, RDH Building Engineering Ltd.	TEL	604 873 1181	FAX	604 873 0933
	Carrie Dowling, RDH Building Engineering Ltd.		604 873 1181		604 873 0933
	Mark Will, RDH Building Engineering Ltd.		604 873 1181		604 873 0933