



From Depreciation Report to Renewal

Six Steps to Successful Renewals

SEPTEMBER 22, 2019



RDH BUILDING
SCIENCE

Outline

- Introduction
- Key Concepts
- The Six Steps
- Project Examples

Introduction

- Focus is on major building enclosure renewal projects
- Basic concepts apply to any scale of project from repairs to full enclosure renewals



Key Concepts

→ Building Enclosure

→ Roof, Walls, Windows, Doors, Balconies, Subgrade Assemblies that keep weather, bugs, sound, etc. out.

→ Asset

→ Individual building component identified in the Depreciation Report that is the Strata Corporation's responsibility to maintain and repair. E.G. Roofs, exterior lighting, exterior windows.

→ Repair - A localized fix

→ Rehabilitation - Replacement of assets that have not performed as designed or have been in place past their useful service life

→ Renewal - Replacement of assets that have reached the end of their service lives

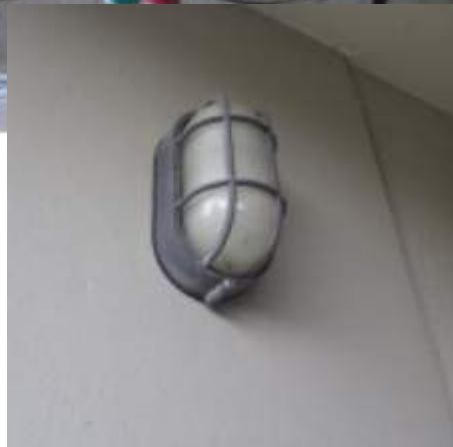
Assets – “Simple” and “System”

→ “Simple” assets

→ Individual assets typically replaced as part of regular maintenance program



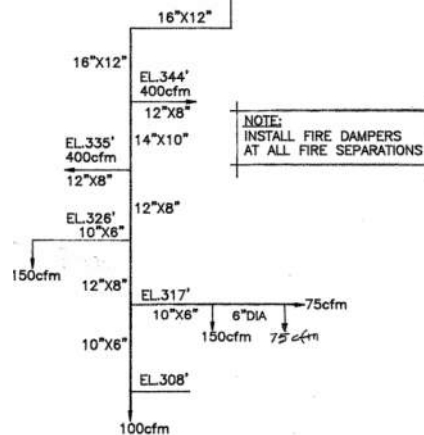
through
pecial ass



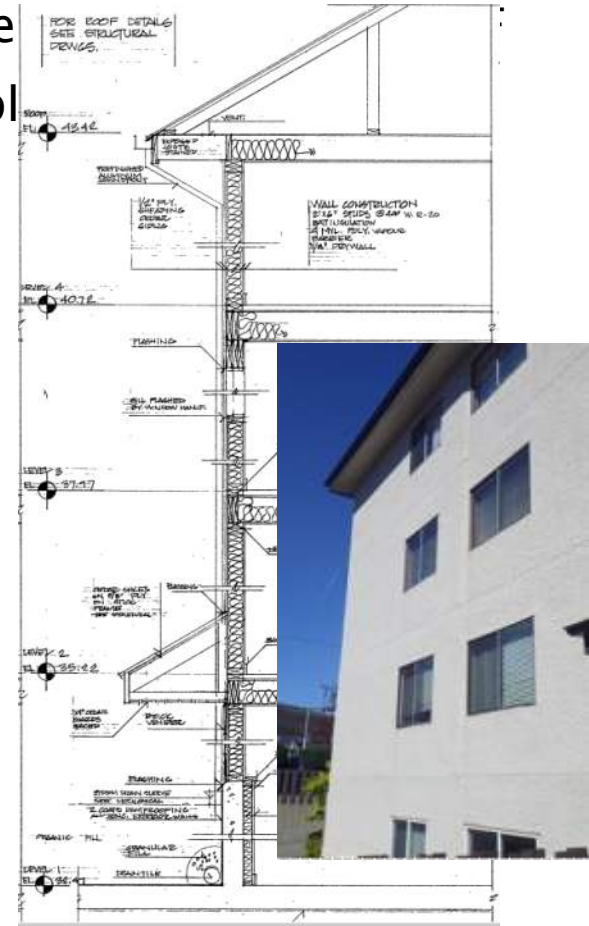
Assets – “Simple” and “System”

→ “System” assets

- Assets integrated with other assets to collectively perform functions
- Renewals typically require specialized knowledge
- Require specialized knowledge for installation



CORRIDOR VENTILATION UNIT





Six Steps to Renewal

The Six

1. Identify 2. Investigate 3. Design 4. Describe 5. Review

6. PEACE OF MIND
the completed project

1. IDENTIFY

→ The Depreciation Report

→ But could be a window leak or a burst pipe

Depreciation Report

- Catalogue of Strata Corporation Assets
 - Generic service life expectancy
 - Approximate renewal year
 - Approximate cost to replace

Encl 16 - Metal Swing Doors



Location

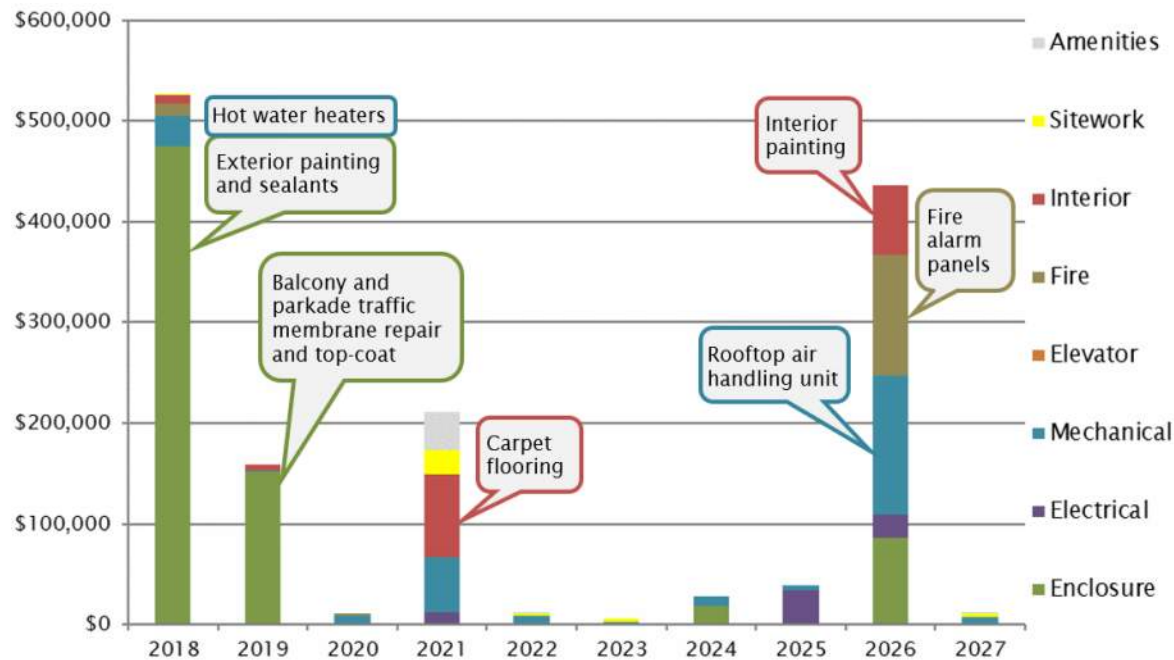
Access.

Description

Painted metal swing doors, some with in pressed steel frames used to access the building, exterior service rooms and parkade.

Depreciation Report - *Tactical Plan*

→ Type and magnitude of potential renewal work within the next ten years.



→ Identifies the Strata's priority items

→ Determining what to do leads to the next step - *Investigate*

2. INVESTIGATE

→ The Building Enclosure Condition Assessment

The Building Enclosure Condition Assessment

- The assets identified in DR tactical plan for replacement are investigated:
 - Are they actually at the end of service life?
 - What is the condition of elements hidden from view?
- A Building Enclosure Condition Assessment provides a detailed review of the elements that make up a building enclosure:
 - Roofs
 - Exterior walls
 - Windows and doors
 - Balconies
 - Below grade conditions

Building Enclosure Condition Assessment

→ Uncovering hidden conditions



Building Enclosure Condition Assessment

- The Building Enclosure Condition Assessment provides:
 - Understanding of actual condition of assets
 - An analysis of what those conditions mean
 - Recommendations based on the analysis

- The resulting *Understanding* of the building is the foundation of the Third Step – *Design*.



3. DESIGN

→ The Design and Planning Report

Design

→ Objectives

- Develop design options and solutions to address Building Enclosure Condition Assessment recommendations
- Owner involvement and engagement in decision making process
- Acceptable project scope
- Explore alternative ways of addressing budget
 - › Extent of work
 - › Bundling projects, etc.

Design

→ Design accounts for:

- Assets affected by work that are not necessarily identified as needing replacement
- Building Code Requirements
- Municipal Planning Regulations
- Construction practice and methods
- Appropriate materials and assemblies

→ Can also address aspects such as:

- Aesthetics
- Function
- Sound transmission from outside of building
- Comfort
- Energy performance

Design

→ Outcomes

→ Knowledge of project scope and budget sufficient to create resolution(s) for owner ratification at an SGM

→ Fundamental design decisions that provide clear basis for going forward.

→ These design decisions need to be developed and documented in the next step - *Describe*



4. DESCRIBE

→ Construction Documents

Describe

→ Construction Documents

LEGEND

- 1. REAL
- 2. DETAIL - DETAIL
- 3. ELEVATION
- 4. SECTION

1 GENERAL

1.1 DESCRIPTION

EAST ELEVATION RENOVALS

2 PRODUCTS

2.1 CONCRETE BOARD

- Concrete board products that are identified for use in the project and:
 - Concret Board & Durlock
 - Woscon Paraflex
 - Or approved alternate

2.2 WINDOW FRAME

2.3 CONCRETE BOARD

2.4 WINDOW FRAME

- Commercial Floor Slab Reinforced Sheathing ASTM G 1025, ANSI A135.3, minimum 1/2" thick.
- Frame must comply with seismic requirements when installed in accordance with ASTM E 2444 Section 6.7.7.3.
- Quality Control Procedures must be used in accordance with ASTM E 189:
 - Frame Spandrel
 - Frame Casework
 - Frame Glazing
 - Frame Gaskets
 - Frame Glass
- Termination: Minimum of 1" (2x) wall thickness, unless noted otherwise at the design level shall not vary by more than 1/8" per foot.
- Change these opening operations before in accordance with ASTM G 1025.01 Section 6.7.7.3. The frame shall not be less than 1/8" thick and shall not have a maximum of more than 1/8" in total depth.

2.5 HARDWARE

- Hardware used on fast-track glass doors must be used.

3 EXECUTION

3.1 CONCRETE BOARD

- Install concrete board around perimeter of concrete frame and seal all exposed ends as shown on drawings.

RDH BUILDING SCIENCE

DOOR SCHEDULE

NO.	SYMBOL	GLASS	FRAME	OPERATOR	TRACK	FINISH
1	S-1	CLARIFIED LOW IR TINTED INSULATED GLASS UNITS (IGU) WITH 1/4" AIR SPACE, 1/2" CLEAR GLASS, 1/4" CLEAR GLASS	ALUMINUM ANODIZED	INTERNAL BALCONY	ALUMINUM ANODIZED	ALUMINUM ANODIZED
2	S-2	CLARIFIED LOW IR TINTED INSULATED GLASS UNITS (IGU) WITH 1/4" AIR SPACE, 1/2" CLEAR GLASS, 1/4" CLEAR GLASS	ALUMINUM ANODIZED	INTERNAL BALCONY	ALUMINUM ANODIZED	ALUMINUM ANODIZED

BALCONY FRAMING

RDH BUILDING SCIENCE

Why bother with all this?

Describe

→ Construction Documents:

- Are used to describe the work in the form of plan drawings, details, specifications, Technical Specifications and “Front End” - General Conditions, bid forms, etc.
- Are used to Tender the project - “*apples to apples*”
- For permitting
- Form part of construction contract between the Strata and the Contractor
- Are the basis of Quality Assurance

Describe

→ After the tendering process and contractor selection, these documents are used during construction for the next step

- *Review*



5. REVIEW

Review

→ The work is documented in Site Visit Reports as quality assurance.

RDH BUILDING SCIENCE

12.1 SPACE: Phase Two
TRADE: RMP
LOCATION: Balcony Sliding Glass Door
FLOOR: 8. ELEVATION: East. SUITE: 801, 811
COMMENTS:
 Reviewed sliding door flashing at units 801 and 811. Items are noted.

- The sill flashing reveal at the door jamb at units 801 and 811 interferes with the jamb flashing installation.
- Metal tab at end of flashing extends flush with jamb.
- 8th floor sliding doors have a framed wall cavity. Installation will be required. Cavity is complete board sheathing. Flashing panel installation is required.

ACTION REQUIRED:

- Plumb metal flashing to ensure surface has proper reveal.
- Cut tab back +/- 1/2" from wall face to allow for proper flashing installation.
- Install permeable sheathing membrane prior to flashing installation in accordance with manufacturer's instructions.

12.2 SPACE: Phase Two
TRADE: RMP
LOCATION: Window Jamb at Existing Brick Veneer
FLOOR: 8. ELEVATION: East
COMMENTS:
 Window jamb flashing interface sketch (SK-09) was reviewed. Items are noted.

ACTION REQUIRED:
 Mock-up flashing installation in accordance with sketch (SK-09).

12.3 SPACE: Phase One
TRADE: SS
LOCATION: Balcony Guard Rails
ELEVATION: West. SUITE: 603, 703
COMMENTS:
 The Sentry Glass panels and glazing shoe installation following items are noted:

- The Sentry Glass panels at suites 603 & 703 were not properly installed.
- Flashing over base shoe to be installed in order to ensure proper flashing length.

ACTION REQUIRED:

- Information only.
- Flashing to be mistret tightly to cladding, field job for RDH review.

12.4 SPACE: Phase One
TRADE: RMP
LOCATION: Wall vent, various locations.
COMMENTS:
 Reviewed removable wall vent flashing detail alternate detail is acceptable. Panel to be fastened to wall to be readily removable for access.

INFORMATION ONLY:

RDH BUILDING SCIENCE

WINDOW JAMB FLASHING AT INTERFACE BETWEEN BRICK VENEER AND WALL WITH LARGE ROUGH OPENING

EXTENT OF EXISTING PAINTED WOOD CHAIR RAIL, CUT TO SUIT AT JAMB & REFINISH EDGE TO MATCH EXISTING

CUT BACK EXISTING GWS AND SECURE EDGE WITH FASTENER

NEW WOOD STOOL & TRIM TO SUIT

SEALANT AT ALL JOINTS

WINDOW FRAME & GLAZING

BACKER ROD & SEALANT

INSULATION

STEEL STUDS C/W CLIP AT TOP & BOTTOM

FULLY EMBED WINDOW CLIPS IN SEALANT

EXISTING CONCRETE UPSTAND CONTINUES AT BALCONY

SLATE GREY METAL CLOSURE FLASHING

BACKER ROD & SEALANT

SEAL FLASHING C/W END DAMS

MINERAL WOOL

CONTINUOUS FASTENING CLIP EMBEDDED IN SEALANT

Align with sill flashing

Backer rod and sealant


METAL CLOSURE FLASHING

Review



Review

→ Administer the contract and review progress draws.



CERTIFICATE OF PAYMENT NO. 05

Consultant: RDH Building Science Inc.

RDH Building Science Inc.
730 Grant Avenue #203
Courtenay, BC V9N 2T3

Making Buildings Better™

Date: January 29, 2019
Invoice No.: 10631-005
Job No.: 10631

Project: Building Enclosure Rehabilitation RDH Project #: 5855-004

This is to certify that the total value of the work completed to date and the value of the materials on site, as of December 31, 2018 \$853,120.41 excluding GST, Builders Lien and Deficiency Holdback Deductions.

CONTRACT STATEMENT

Total Additions:		Original Contract Amount:	\$
To C.O. #:			
CO-02	\$ 867,591.00		
CO-03	\$ 3,911.17		
CO-05	\$ 2,790.00		
	\$ 3,213.26		
Total Deductions:			
CO-04	\$ (2,642.17)		
Net Adjustment:	\$ 874,833.26	Net Adjustment:	\$ 874,833
		Revised Contract Amount:	\$ 874,833

STATEMENT OF PAYMENT

Total Value Of Work Completed To Date:	\$	853,120.41
Less Total Value Of Work Of Previously Issued Certificates:	\$	775,752.39
Value Of Work For This Certificate:	\$	77,368.02
Deficiency Holdback Retention Total To Date:	\$	-
Deficiency Holdback Released:	\$	-
Net Deficiency Holdback Retained:	\$	(1,500.00)
10% Builders Lien Holdback Deducted Previously:	\$	(77,575.24)
10% Builders Lien Holdback Deducted This Claim (excl. GST):	\$	(7,736.80)
10% Builders Lien Holdback Deducted This Claim Including GST:	\$	(8,122.64)
Net Amount This Certificate (excl. GST):	\$	68,131.22
5% GST:	\$	3,406.58
Amount Payable This Certificate Including GST:	\$	71,537.81

Certified by RDH Building Science Inc.

INVOICE No. 7440

31-Dec-13
Progress Claim No. 06
D13-0040
Revised 2014_01_29

c/o RDH Building Engineering Ltd.
#208 - 730 Grant Avenue
Courtenay, BC V9N 2T3

Attn: Robin Theriault

Re: Rehabilitation & Renewals Project

Description of Work	Contract Amount \$	Complete To Date %	Previously Claimed %	Total this Draw \$ Value	Balance Remaining (\$)	
General Conditions	77,650.00	85%	66,002.50	75%	58,237.50	7,565.00
Bonding/Insurance	3,932.50	100%	3,932.50	100%	3,932.50	-
Insurance	3,682.80	100%	3,682.80	100%	3,682.80	-
Mobilization	3,000.00	100%	3,000.00	100%	3,000.00	-
Scaffolding	71,331.00	73%	53,498.25	73%	53,498.25	17,832.75
Balcony Railings	45,800.00	50%	22,900.00	28%	12,824.00	10,076.00
Body Band Repairs	47,035.50	73%	35,276.43	60%	28,221.30	7,055.33
Walls - masonry, cladding	9,418.25	100%	9,418.25	80%	7,534.60	1,883.65
Roofs	18,300.00	60%	11,010.00	40%	7,240.00	3,070.00
Balconies	136,300.75	73%	102,225.56	64%	67,232.48	14,993.08
Sealants	25,899.20	85%	22,014.32	75%	19,424.40	2,589.92
Vinyl Membrane	41,000.00	63%	26,650.00	50%	20,500.00	6,150.00
Roofing	17,300.00	100%	17,300.00	100%	17,300.00	-
Painting	15,300.00	30%	4,590.00	25%	3,825.00	765.00
Stucco	9,500.00	100%	9,500.00	50%	4,750.00	4,750.00
Fireplace vents	25,000.00	50%	11,500.00	25%	5,750.00	5,750.00
Contingency Allowance	44,500.00	60%	42,660.00	60%	38,400.00	4,260.00
Total	615,000.00	73%	447,361.57	61%	377,493.40	69,868.17
Change Orders as Attached	-	-	-	-	-	-
Total	615,000.00	73%	447,361.57	61%	377,493.40	69,868.17
Less 10% Holdback	-	-	44,736.16	-	37,749.34	6,986.82
Total	-	-	402,625.41	-	339,744.06	62,881.35
GST (97597103R70001)	-	-	20,811.27	-	16,987.29	3,144.07
Total	-	-	422,756.68	-	356,731.35	66,025.42

Total Amount This Invoice: 66,025.42

Page 1 of 1



Review

→ When construction is completed, all deficiencies addressed, and final payments made the last step has been reached.

RDH
Making Buildings Better

730 Grant Avenue #208
Courtenay, BC V9R 2T3 | 250.703.4753
rdhinc.com

**Builders Lien Act
(Section 7 (10))**

CERTIFICATE OF COMPLETION

We, RDH Building Engineering Ltd., of 730 Grant Avenue, Courtenay, British Columbia certify that, for the purposes of the **Builders Lien Act**, the following contract was completed on December 21st, 2018.

Street address or other description of the land affected by the improvement:

Brief description of the improvement:
Building Enclosure Repair and Renewal

Brief description of the contract, including the date of the contract and the names of the parties to it:
CCDC-5B Contract dated June 19th, 2018

Signed: _____
RDH Building Science Inc.

Date: January 14, 2018

6. Peace of Mind

- Completed projects with detail documentation throughout the construction process

Yorkshire Court BEFORE



Yorkshire Court AFTER



Creekside Townhomes BEFORE



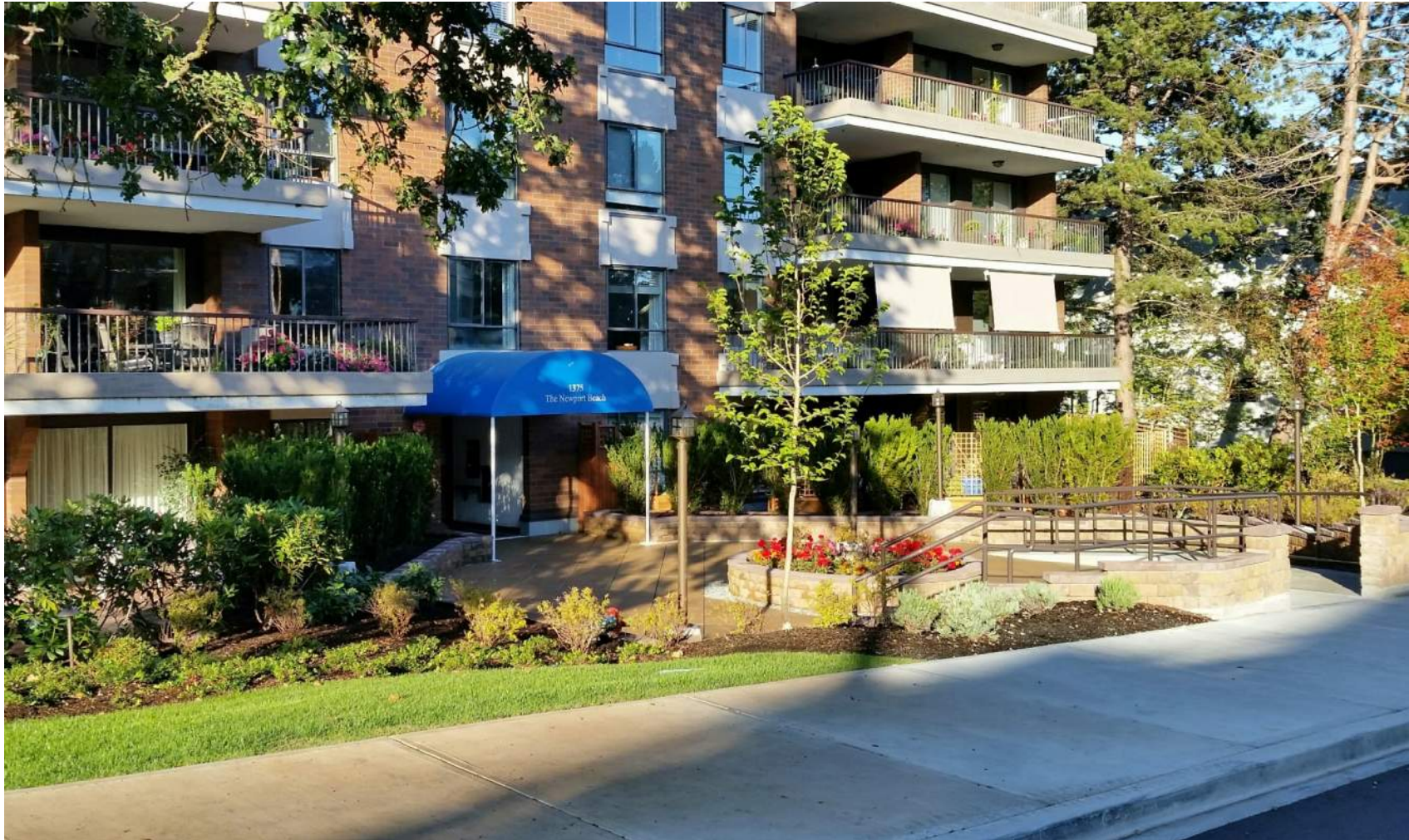
Creekside Townhomes AFTER



Newport Beach - BEFORE



Newport Beach - AFTER



Church Hill Estates BEFORE



Church Hill Estates AFTER



Lord Harley BEFORE



Lord Harley AFTER



Summary

<i>IDENTIFY</i>	The Depreciation Report
<i>INVESTIGATE</i>	The Building Enclosure Condition Assessment (BECA)
<i>DESIGN</i>	Develop Scope of Work and Project Budget that addresses BECA Recommendations
<i>DESCRIBE</i>	Describe design in drawings and specifications for permitting, and tendering
<i>REVIEW</i>	Confirm work carried out in general conformance with the drawings and specifications.
<i>PEACE OF MIND</i>	A completed project

Discussion + Questions

FOR FURTHER INFORMATION PLEASE VISIT

→ www.rdh.com

→ www.buildingsciencelabs.com

OR CONTACT US AT

→ cou@rdh.com

