AMS SUMMER BOARD LEARNING SESSIONS

JULY 22, 2019

Managing the Needs of Aging Buildings

Condition Assessments and Evaluation

Kathleen Smith

RDH

An Introduction to What We Do at RDH

- New Buildings
- Existing Buildings
  - Condition Assessments
  - Maintenance Reviews
  - Repair/Rehabilitation Design & Field Review
  - Construction Management: managing all repairs
- Maintenance and Planning
  - Reserve Studies
  - Maintenance Manuals
  - Small Project Support
- Litigation Support
- Forensic Investigation
- RDH is in CAN, WA, OR, CA, MA

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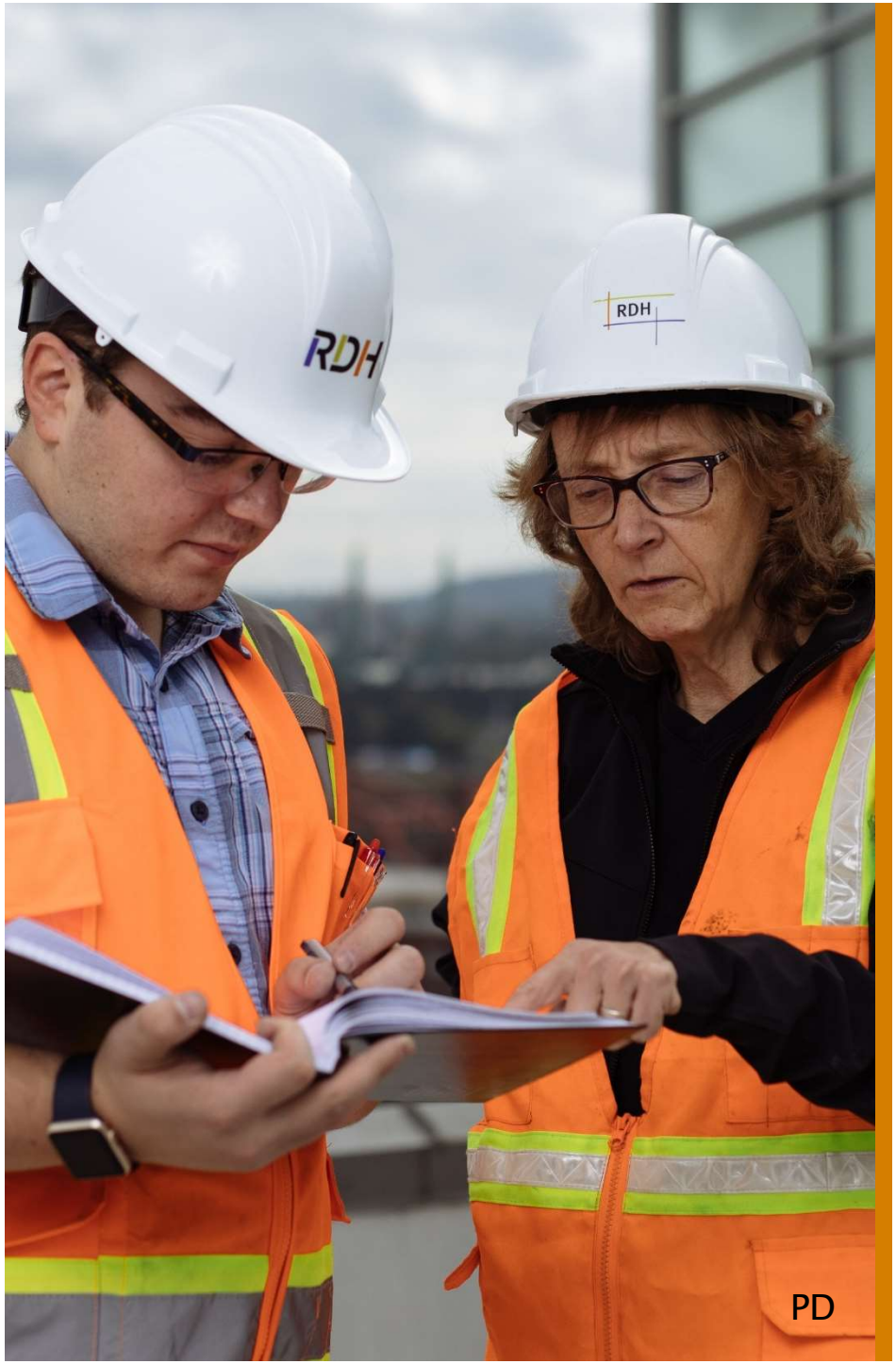
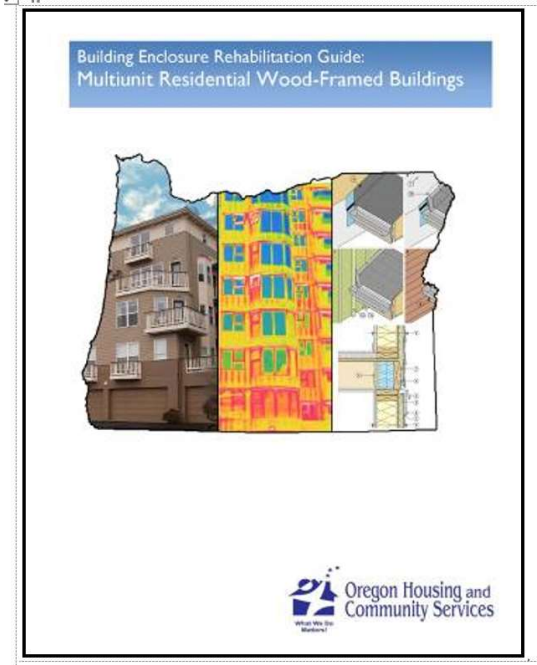
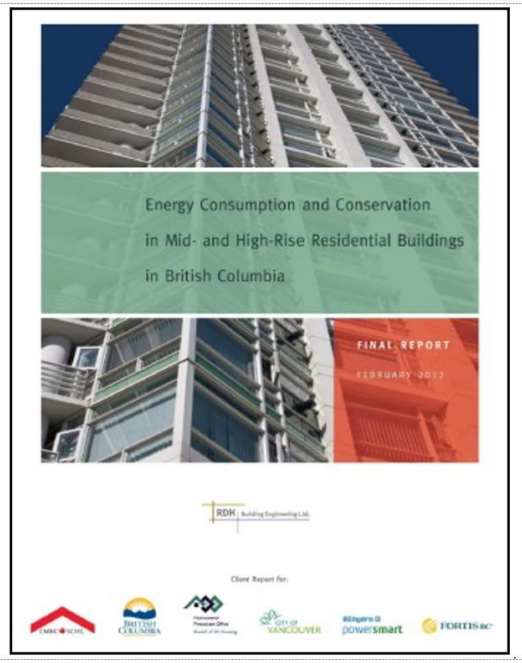
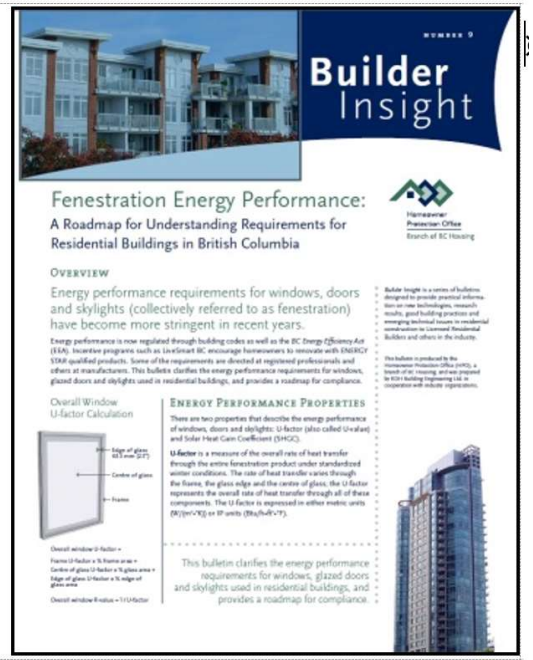


Why RDH?



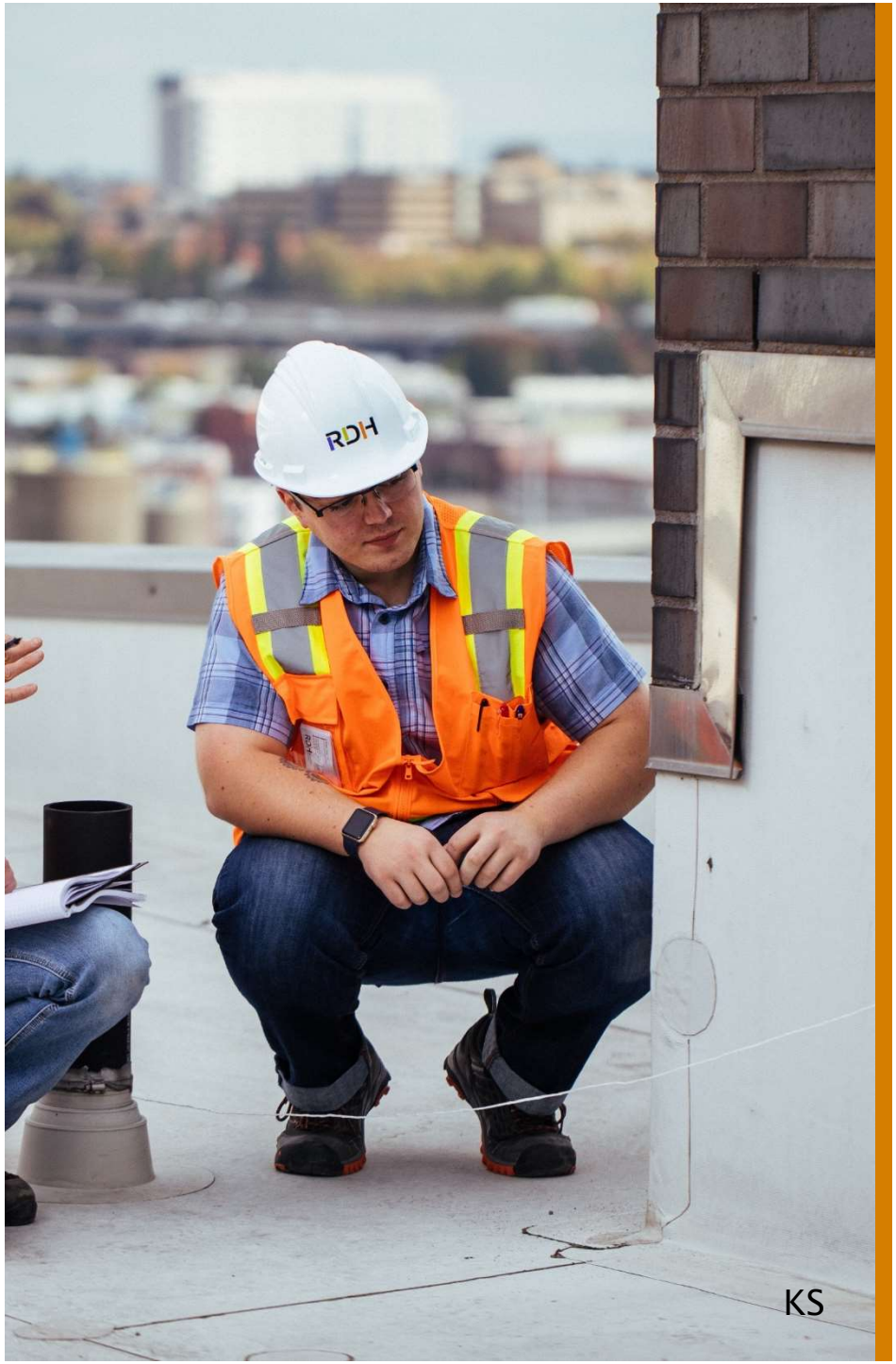




RDH is the leader in the Building Enclosure Engineering field. The above documents are examples of our research and guideline work related to building enclosure performance. (Building Enclosure Rehabilitation Guide: Multiunit Residential Wood-Framed Buildings; Research Study: Energy Consumption and Conservation in Mid and High Rise Residential Buildings; Builder Insight No. 9, Fenestration Energy Performance).

Challenges in Managing and Maintaining Condominiums

- Construction Defects
- Deferred Maintenance
- Aging systems and components
- Lack of knowledge or planning
- Inadequate reserves
- Focus on other matters
- Board turnover/continuity



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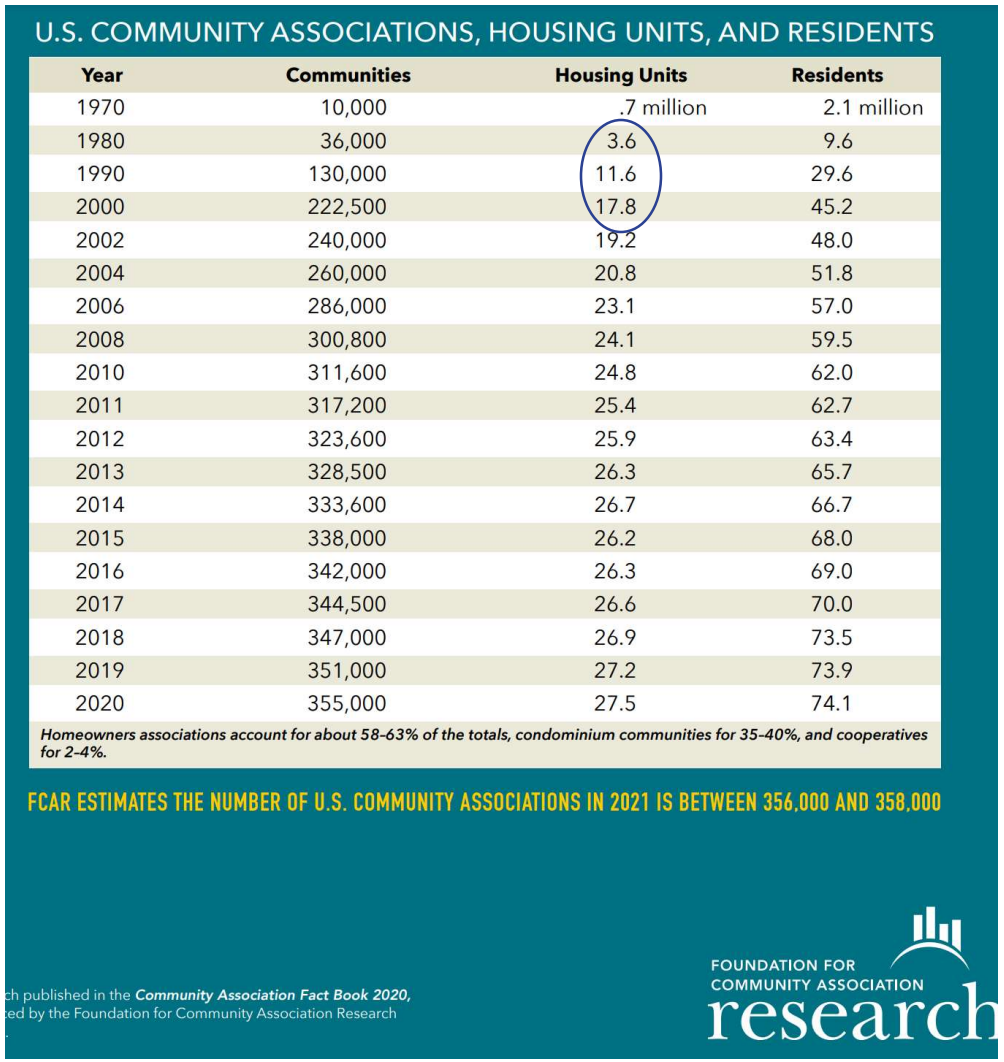
The Problem

- Condominium units in the US represents a growing need and approach to residential accommodation
- 2020 – 25 to 27% of urban population live in a condominium



U.S. COMMUNITY ASSOCIATIONS, HOUSING UNITS, AND RESIDENTS

Year	Communities	Housing Units	Residents
1970	10,000	.7 million	2.1 million
1980	36,000	3.6	9.6
1990	130,000	11.6	29.6
2000	222,500	17.8	45.2
2002	240,000	19.2	48.0
2004	260,000	20.8	51.8
2006	286,000	23.1	57.0
2008	300,800	24.1	59.5
2010	311,600	24.8	62.0
2011	317,200	25.4	62.7
2012	323,600	25.9	63.4
2013	328,500	26.3	65.7
2014	333,600	26.7	66.7
2015	338,000	26.2	68.0
2016	342,000	26.3	69.0
2017	344,500	26.6	70.0
2018	347,000	26.9	73.5
2019	351,000	27.2	73.9
2020	355,000	27.5	74.1

Homeowners associations account for about 58-63% of the totals, condominium communities for 35-40%, and cooperatives for 2-4%.

FCAR ESTIMATES THE NUMBER OF U.S. COMMUNITY ASSOCIATIONS IN 2021 IS BETWEEN 356,000 AND 358,000

ch published in the ***Community Association Fact Book 2020,***
ed by the Foundation for Community Association Research

FOUNDATION FOR COMMUNITY ASSOCIATION research

The Problems

- Construction Defects
- Obsolescence
- Premature Failure
- Aging Infrastructure: Major systems that have reached the end of service life
- Lack of or inadequate planning or guidance
- Lack of or inadequate maintenance
- Insufficient reserve planning and knowledge
- Insufficient reserve funding
  - Built before reserve studies required
  - Not adequately funding
  - Study inaccurate

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Other Underlying Causes

- Insurance issues
- "Free Rider Effect"
  - Short-term thinking
  - "Not on my watch"
  - Lack of personal responsibility
- Focused on other matters
  - Emergency repairs rather than big picture
  - Impacts on individuals
- Board Turnover - Continuity

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They Don’t Build Them The Way They Used to

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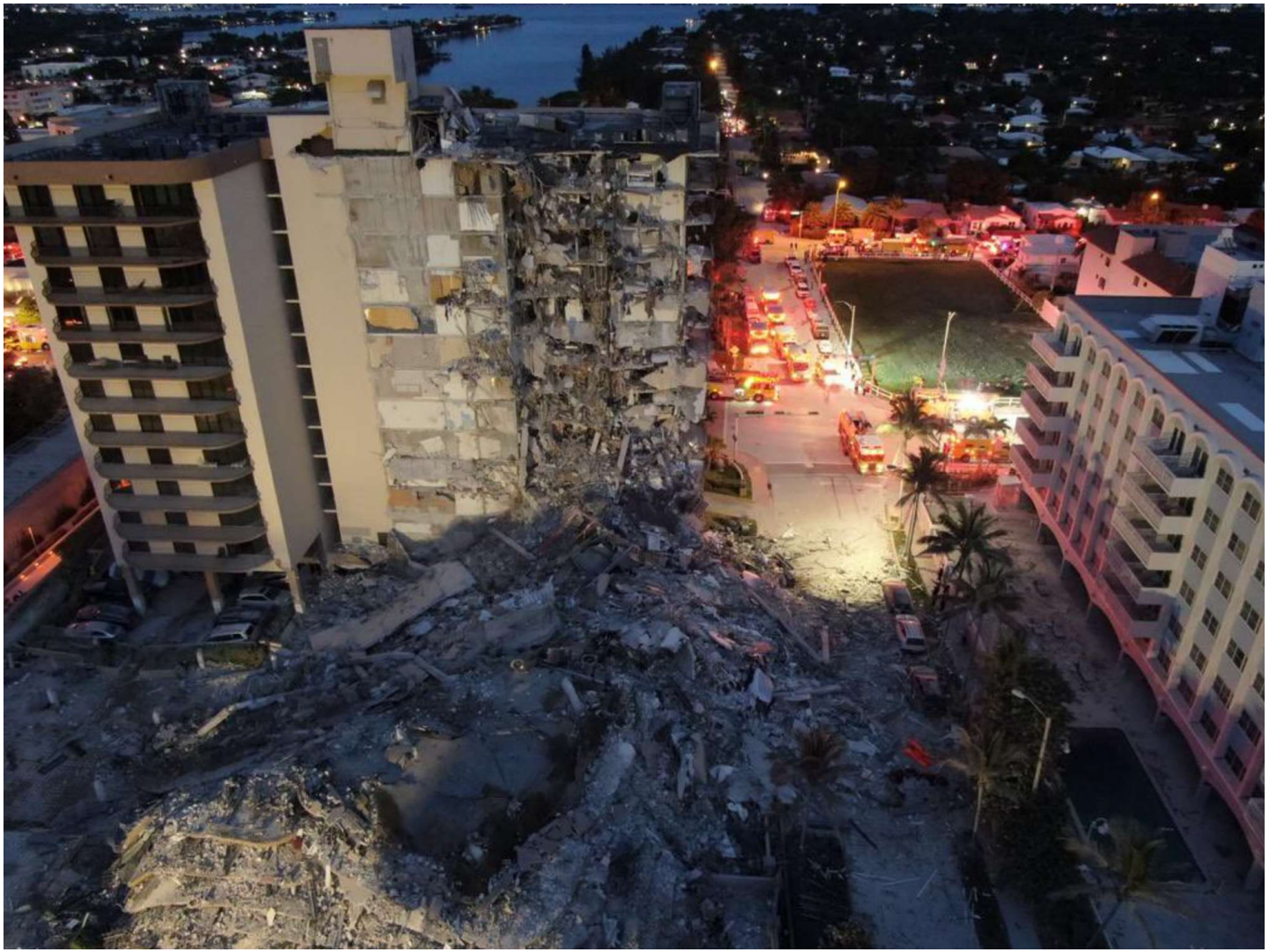
June 24, 2021 – Surfside Condominium Collapse



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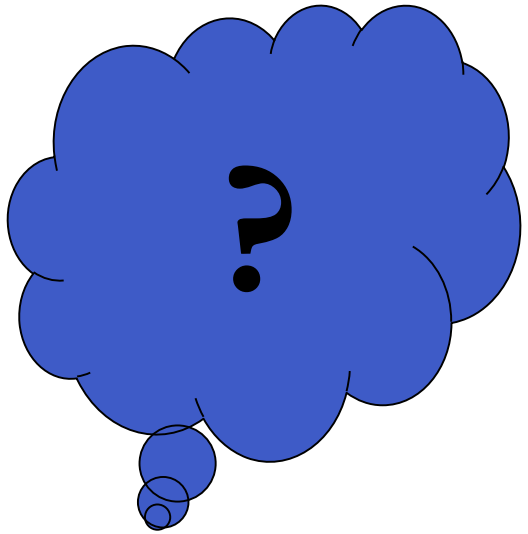
The Worries: How do We Know ……?

There are so many questions and concerns:

- What is the problem? Or do we even have one?
- How big is the problem?
- How do we prepare and plan?
- How do we fund? Can we Afford it?
- Who can we trust?
- Do we need our Lawyer's help?
- Can we have a martini!?!



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Condition Assessments

- Evaluation of the condition of a building – systems, assemblies and performance.
- Review the construction documents, conduct an owner/occupant survey, and visually review the condition of the building or building system.
- We often create exploratory openings to gain an understanding of the condition of hidden components.

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Condition Assessments

- Where needed a Structural Engineer can be brought in to review conditions of concern.
- Other engineering designations may also be called upon.
- Through this analytical process, we verify overall condition and identify areas that may need renewals or repairs.
- We provide a Building Enclosure Condition Assessment Report describing the condition of the building.

Building Types Result in Many Variations in Needs

High-Rise

Low-Rise

Townhouse

Heritage Conversions

Mixed Use

Homeowner Association

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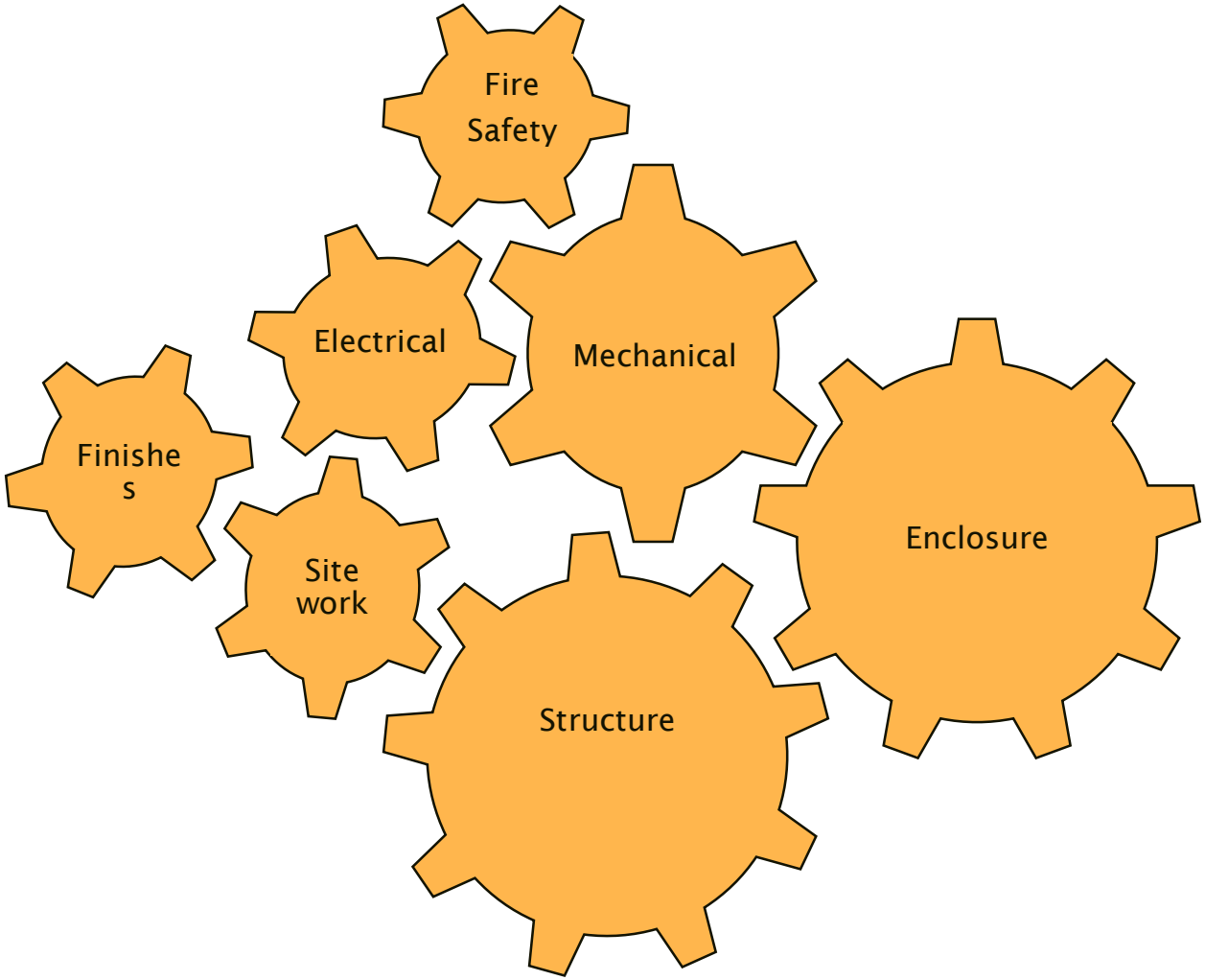
What Systems are Affected?



There are Many Assets with each System

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Historically: Biggest & Most Expensive Projects

High-Rise	Low-Rise	Townhouse
Glazing / Windows	Roofing	Roofing
Cladding	Glazing / Windows	Cladding
Mechanical Systems	Cladding	Buried services
Plumbing System	Mechanical Systems	Roadways
Elevators	Plumbing System	Landscaping
Electrical System	Elevators	Fences
Other		

What Reduces the Life of Assets…?

Uncontrollable Factors:

- **The Original Design**
  - Quality of materials
  - Design details
  - Construction practices
- **The Environment**
  - Weathering
  - Normal wear and tear
  - Force majeure
  - Obsolescence

Controllable Factors:

- **The Occupants**
  - Level of use (overloading)
  - Misuse and abuse
  - Improper use of facilities/amenities
- **The Managers & Decision Makers**
  - Lack of periodic inspections and adjustments (neglect)
  - Insufficient care and attention to the facilities
  - Inadequate budget

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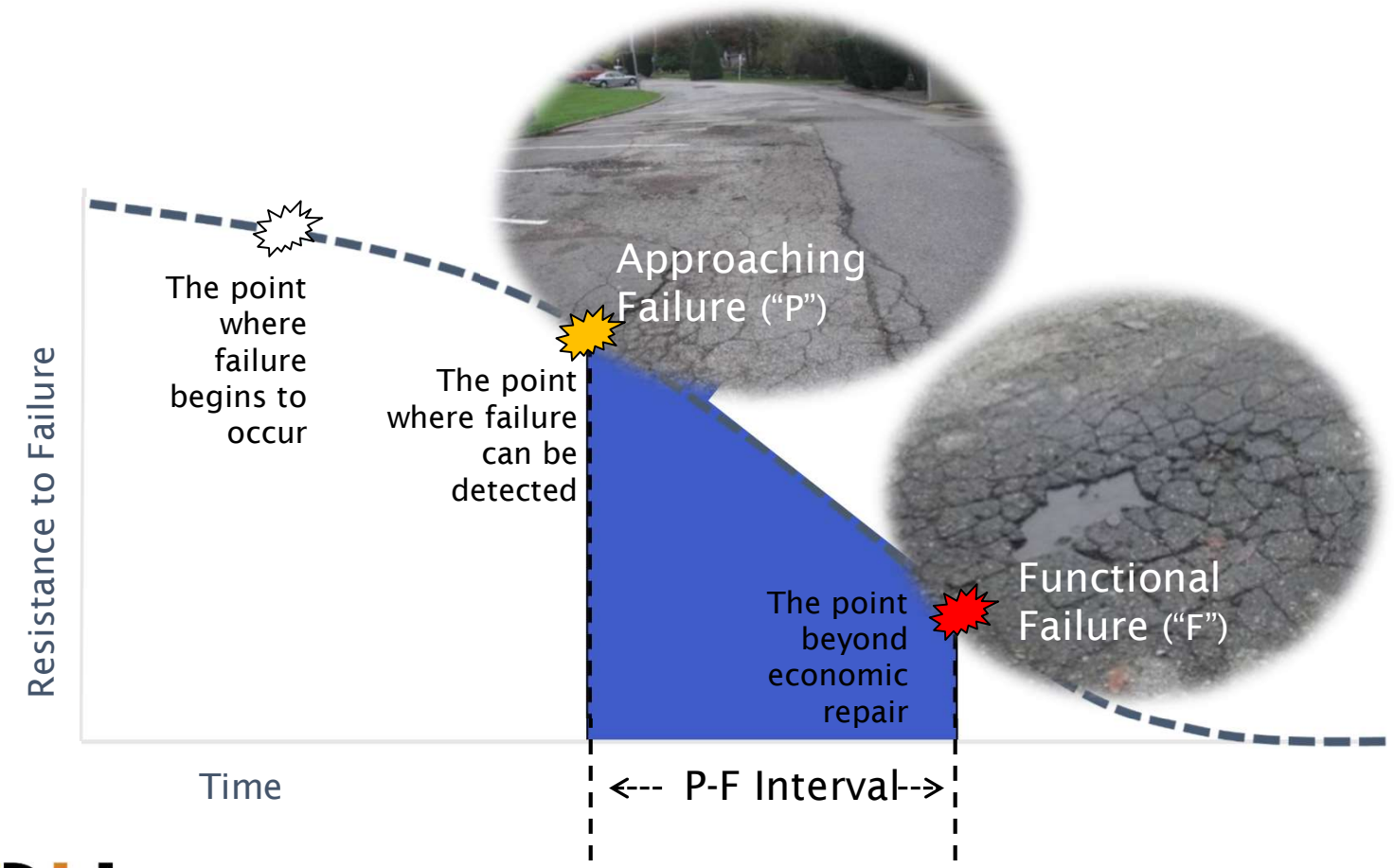
The Stages of Deterioration of an Asset



ASTM E 2018 Standard Guide for Property Condition Assessments

- Utilize *ASTM E 2018 – Standard Guide for Property Condition Assessment: Baseline Property Condition Assessment Process* as a basis.
- PCAs may be inclusive of all building systems or specific to systems along (i.e. Building Enclosure).
- Allows the consultant leeway in scope tailoring efforts to meet the needs of the project

Non-Invasive Assessment

Visual-only method of accessible locations to provide a general understanding of the existing conditions. The PCA is non-comprehensive and does not speculate as to the condition or performance of concealed conditions.

Invasive Assessment

Visual observations with aspects of testing to better understand the as-built conditions and performance of components. The invasive or testing technique allows the consultant to gain a better understanding of the underlying system condition and performance.

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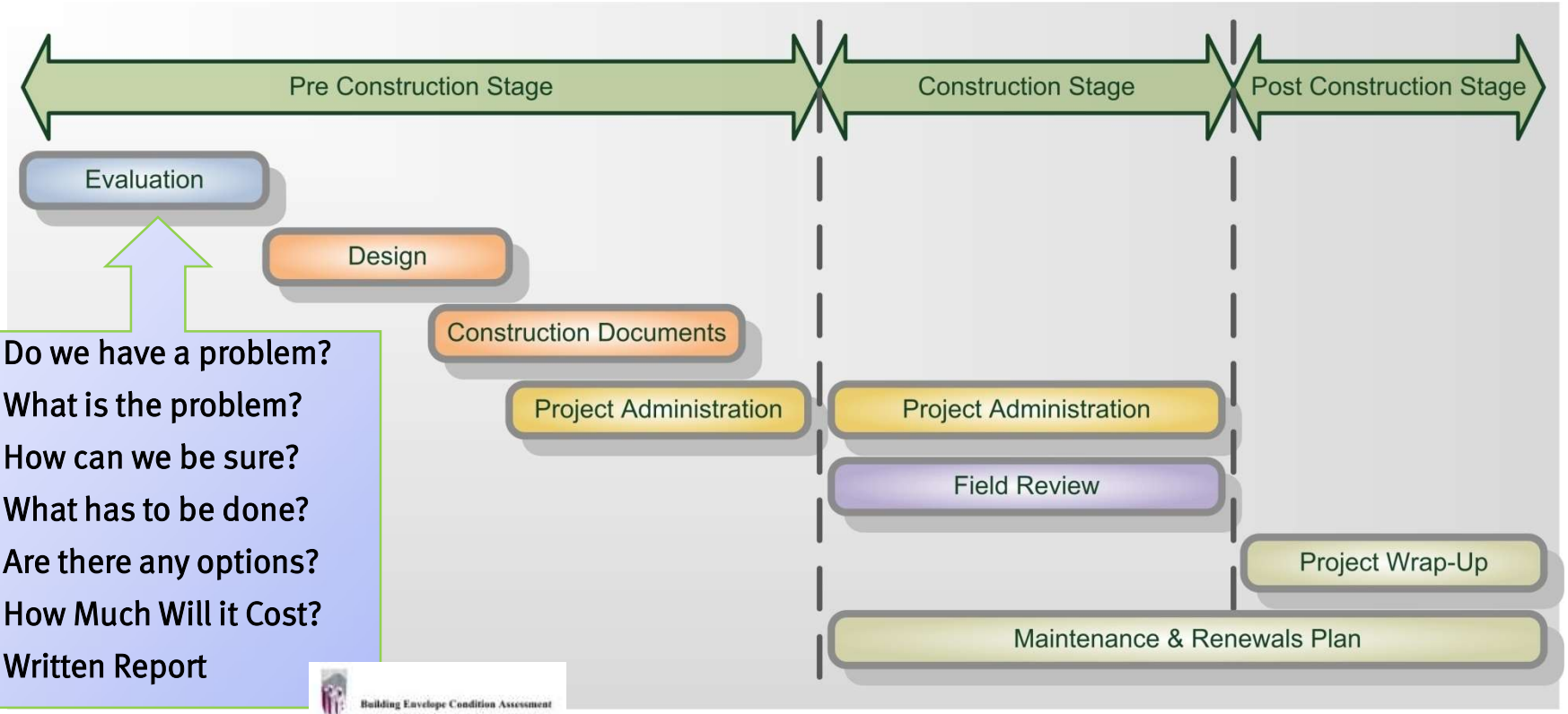
Evaluation – Condition Assessment



- Do we have a problem?
- What is the problem?
- How can we be sure?
- What has to be done?
- Are there any options?
- How Much Will it Cost?
- Written Report

Building Envelope Condition Assessment
Cranberry Lane

The Team:

- Consultant
- Community Manager
- The Board or Committee
- Attorney

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Access Can Be Challenging…

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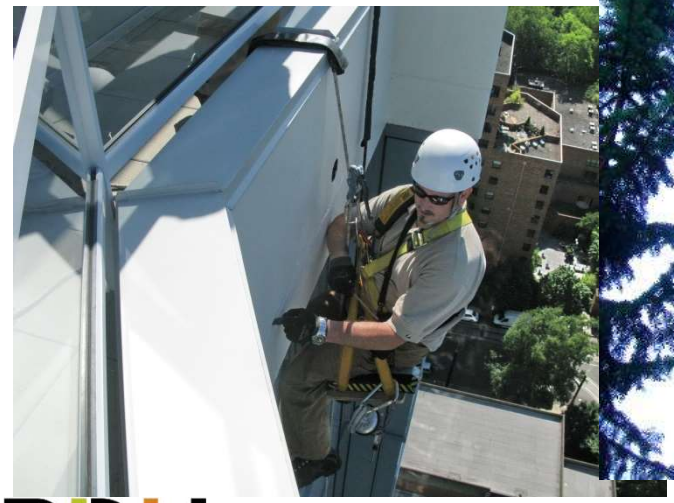
Visual Evaluation Access



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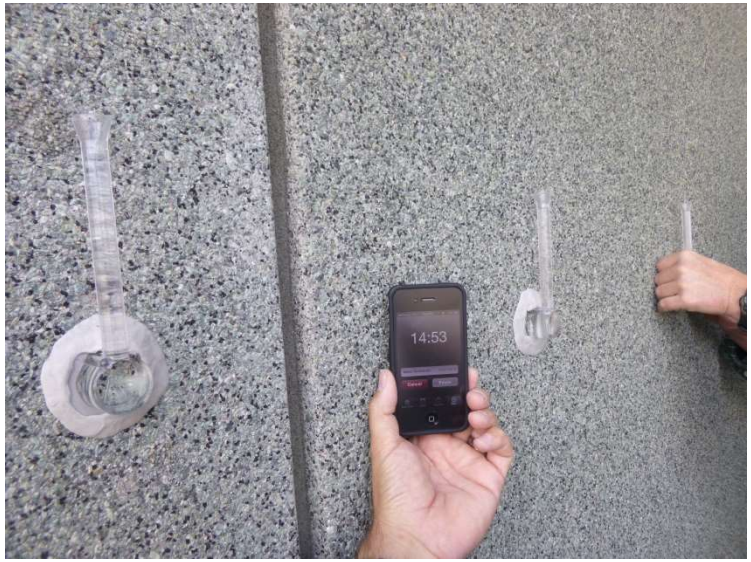
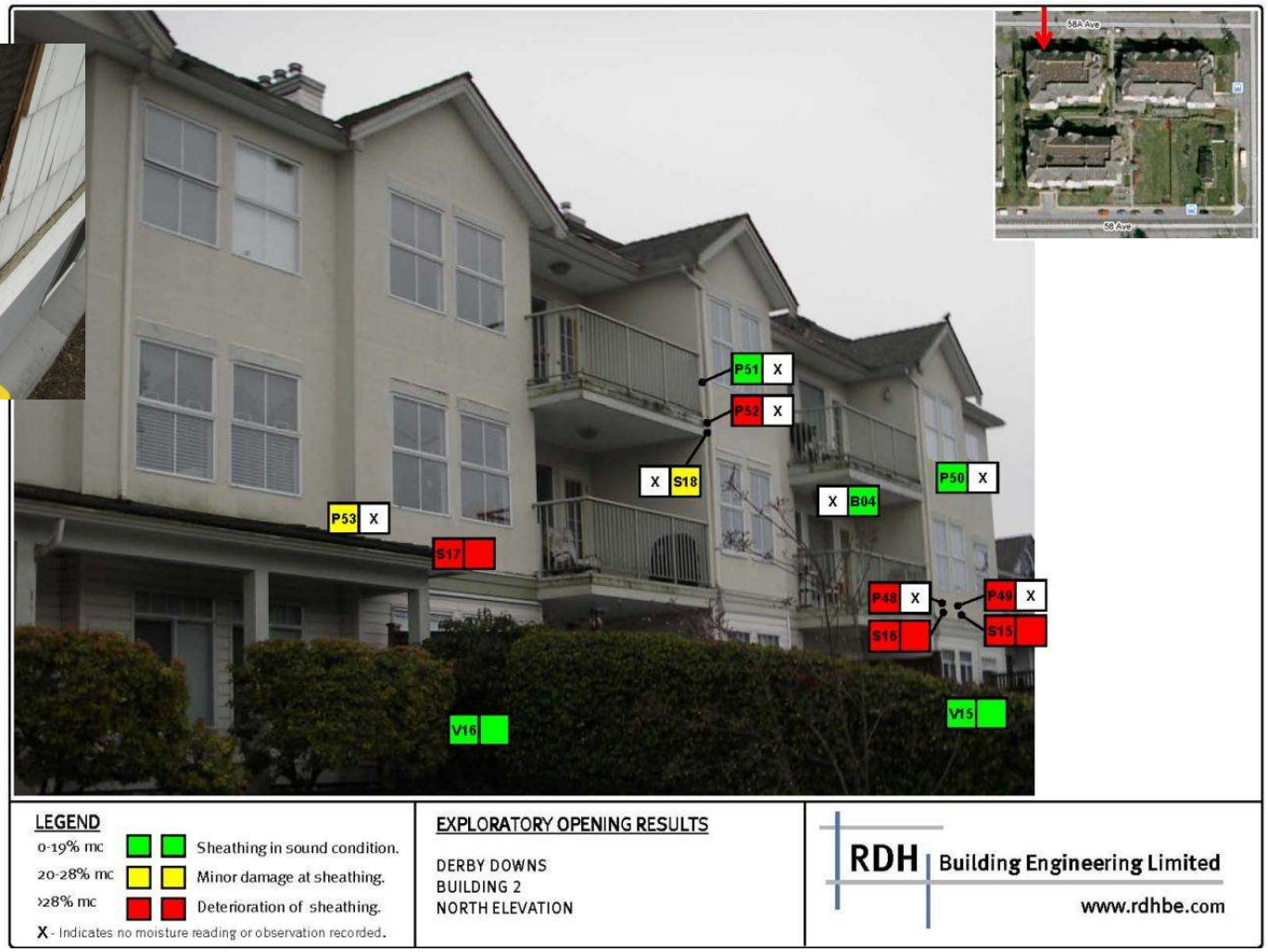
Visual Evaluation

Diagnostic and Assessment Tools



Investigative Techniques - Building Enclosure: Moisture Probing



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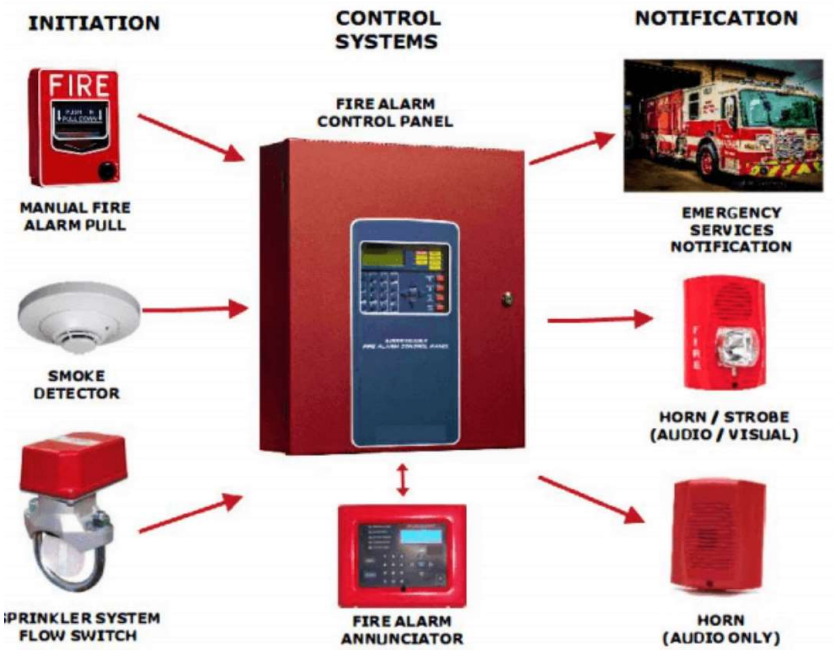
Exploratory Openings

Fire Life Safety – Testing and Evaluation per Code



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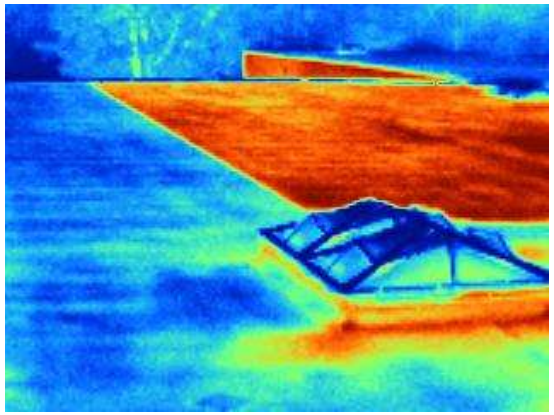
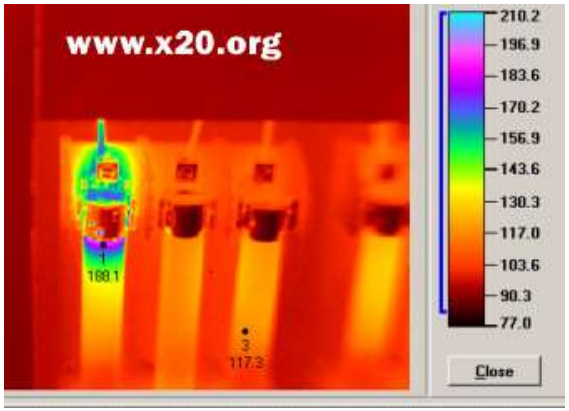
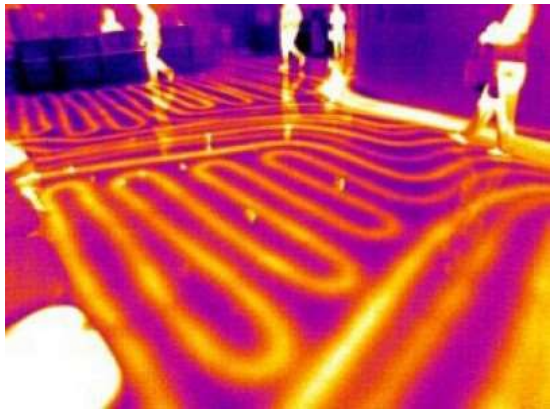
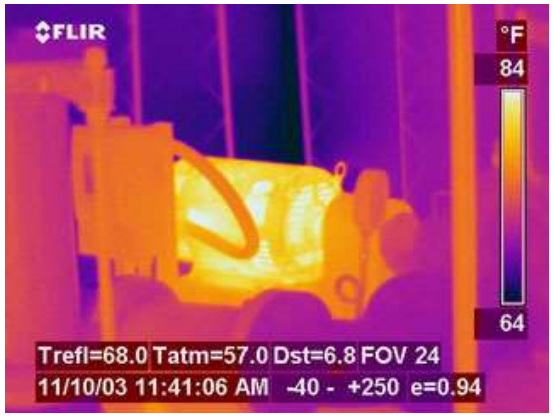
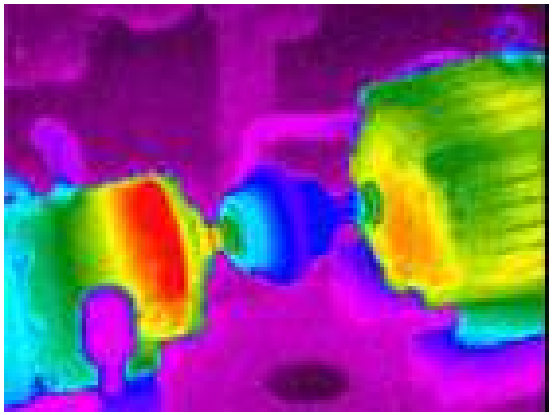
Investigative Techniques: Thermographic Scans

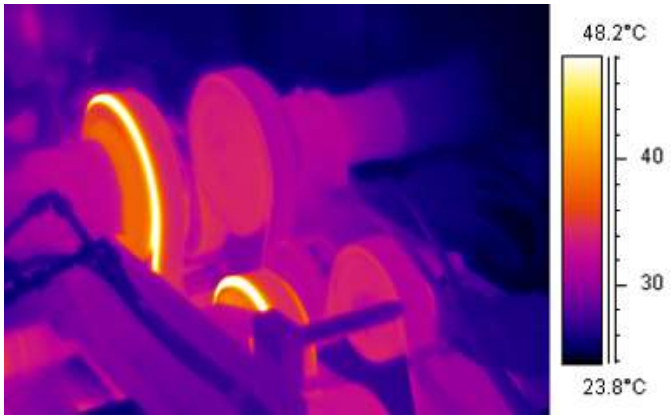




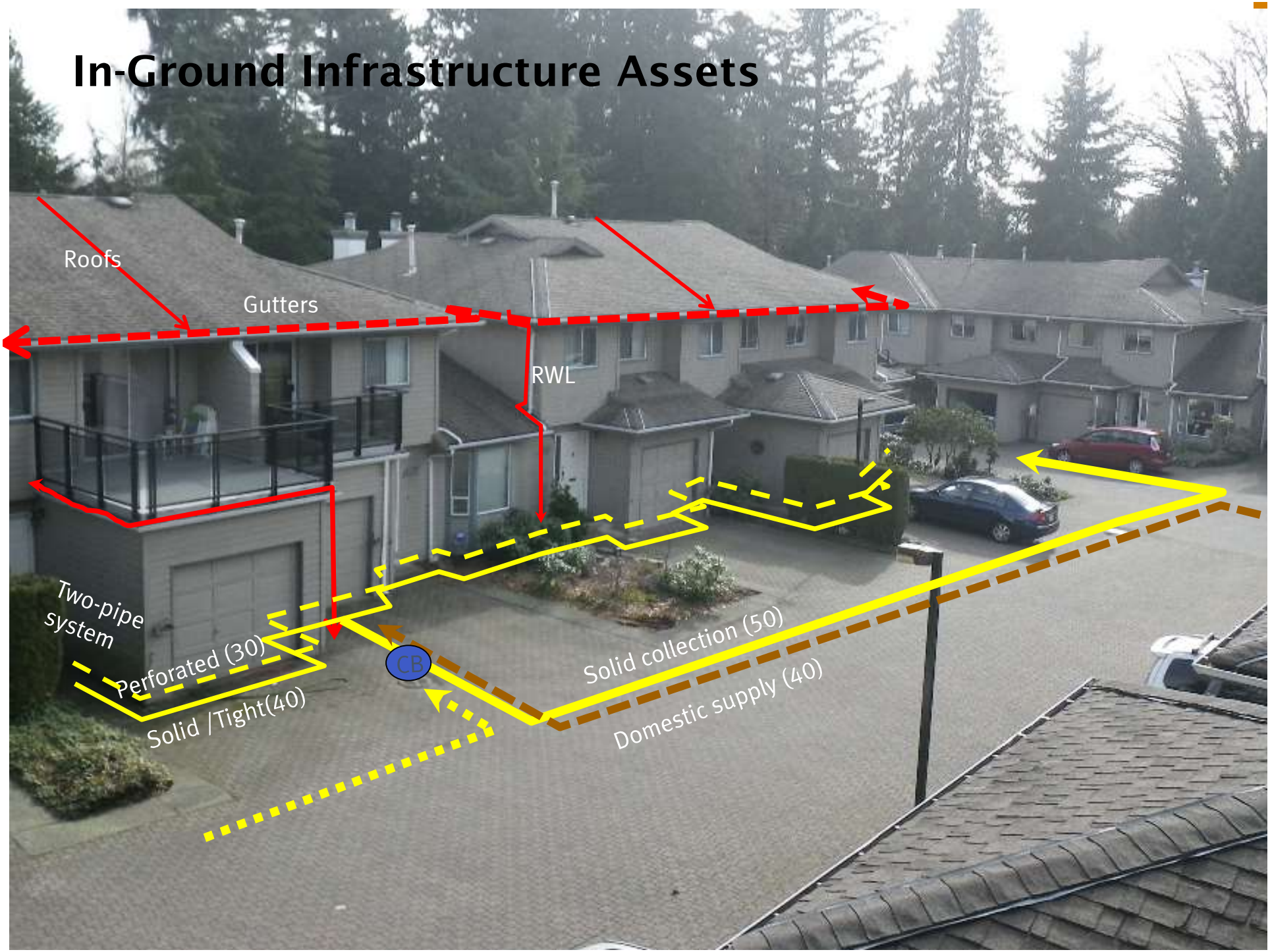








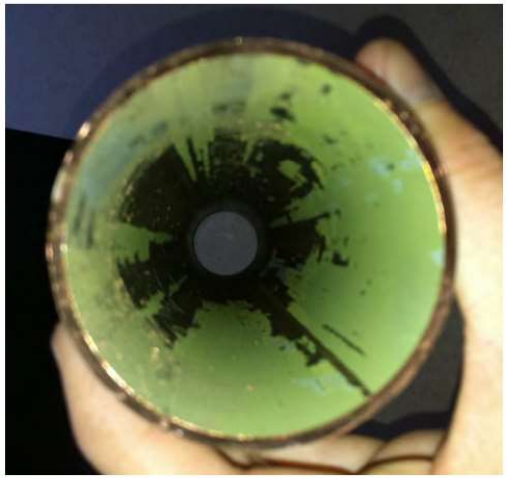
In-Ground Infrastructure Assets



Investigative Techniques: Camera Scoping

Power Auguring and Hydroflushing of Drain Lines

Investigative Techniques: Pipe Sampling for Plumbing Systems



A 2-1/2" diameter hot water pipe was removed from the outlet of the roof-level storage tank. Minor mineral deposits were noted, but generally the sample pipe is in good condition and would not be anticipated to reduce flow. The piping is suitable for substantial continued service life.

Duct Scopes and Cameras

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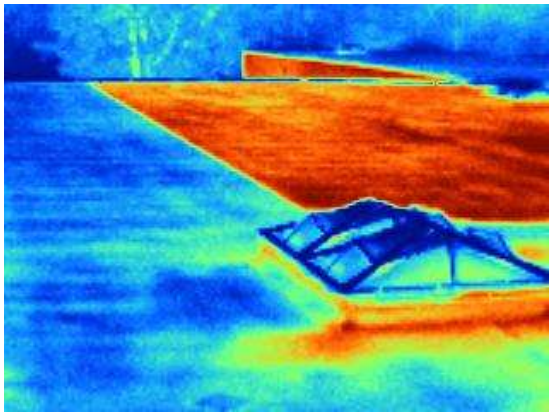
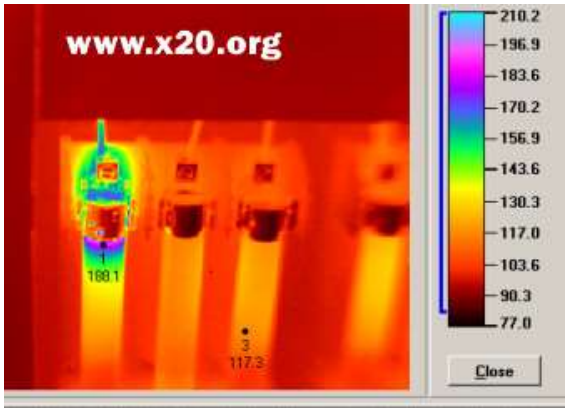
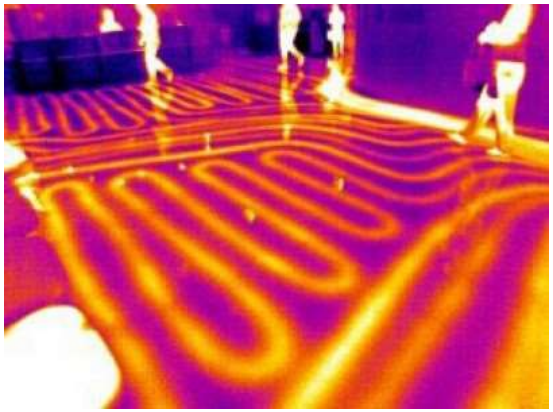
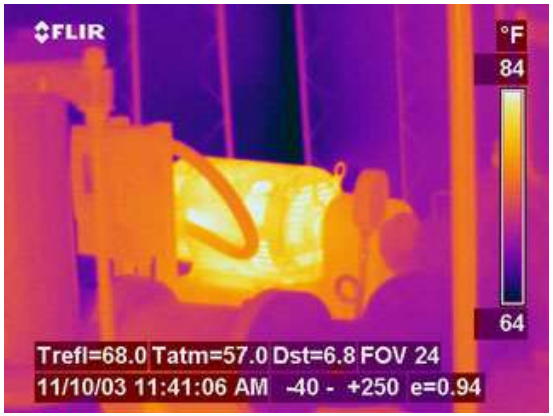
Electrical and Mechanical: Assess Condition, System, Service Life and Performance

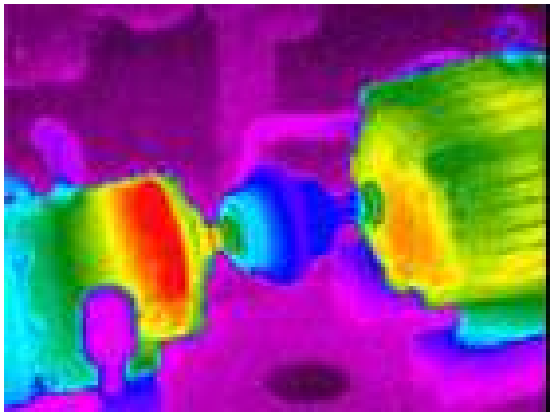
Thermographic Scans

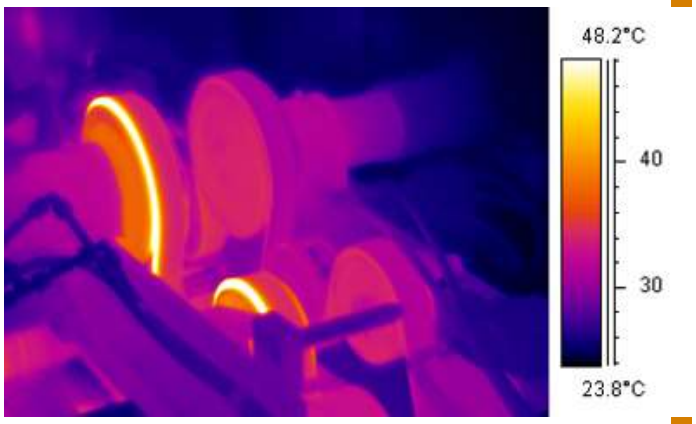




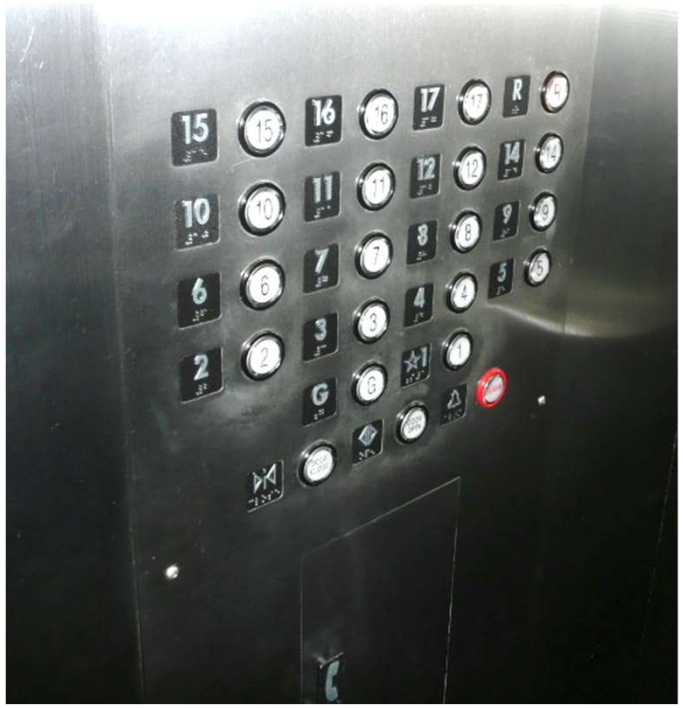


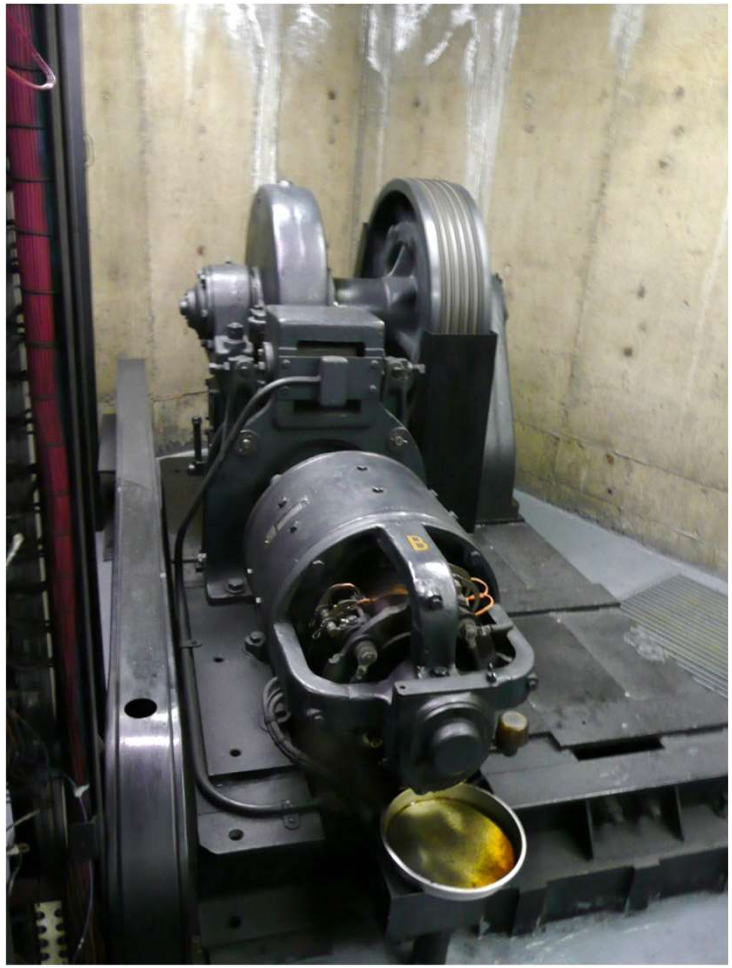






Elevator Systems Consultant Code Evaluation, Service Life, Condition





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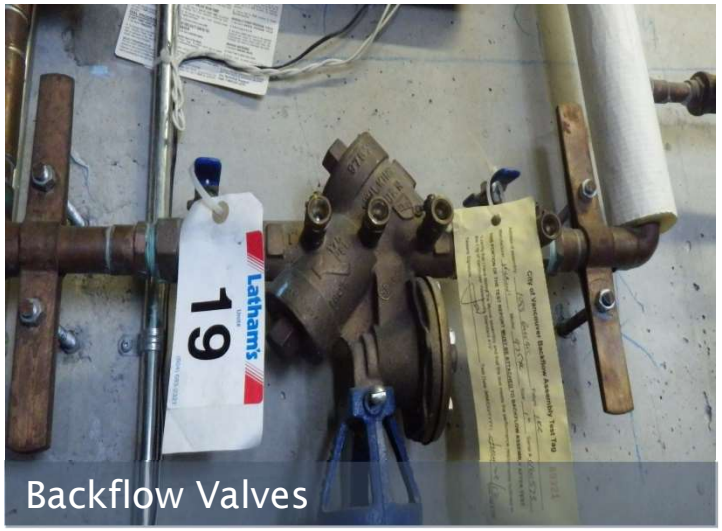
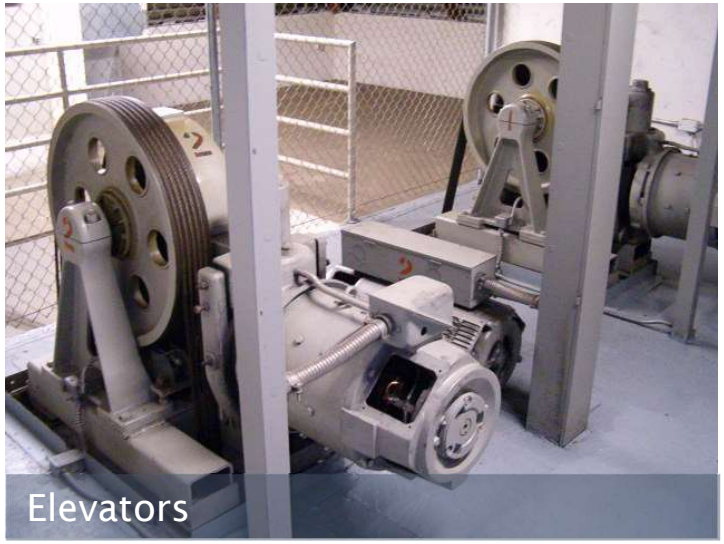
Assets that Require Certificates

Boilers and pressure vessels



Backflow Valves



Elevators

Swimming Pools

Fall protection

After Field Work:

- Consultant prepares report:
  - Describes investigative efforts and systems reviewed
  - Lists observations, testing conducted and findings
  - Should include photographs
  - Include Recommendations:
    - Major maintenance needs
    - Assets that are approaching end of life and replacement timelines
    - Premature failure, obsolescence or other condition concerns
    - Additional evaluation needs
    - Costs (?)
    - Prioritization
    - Next steps

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With New Information in Hand…

- Questions are being answered
- If this is construction defect – working with attorney to resolution
- Communities have information and knowledge for planning maintenance and renewal events
- Repair scope of work (if needed) is conceptually defined
- Project planning can begin for the immediate and near future
- Update reserve study with new information
- Repeat the condition assessment in five years.

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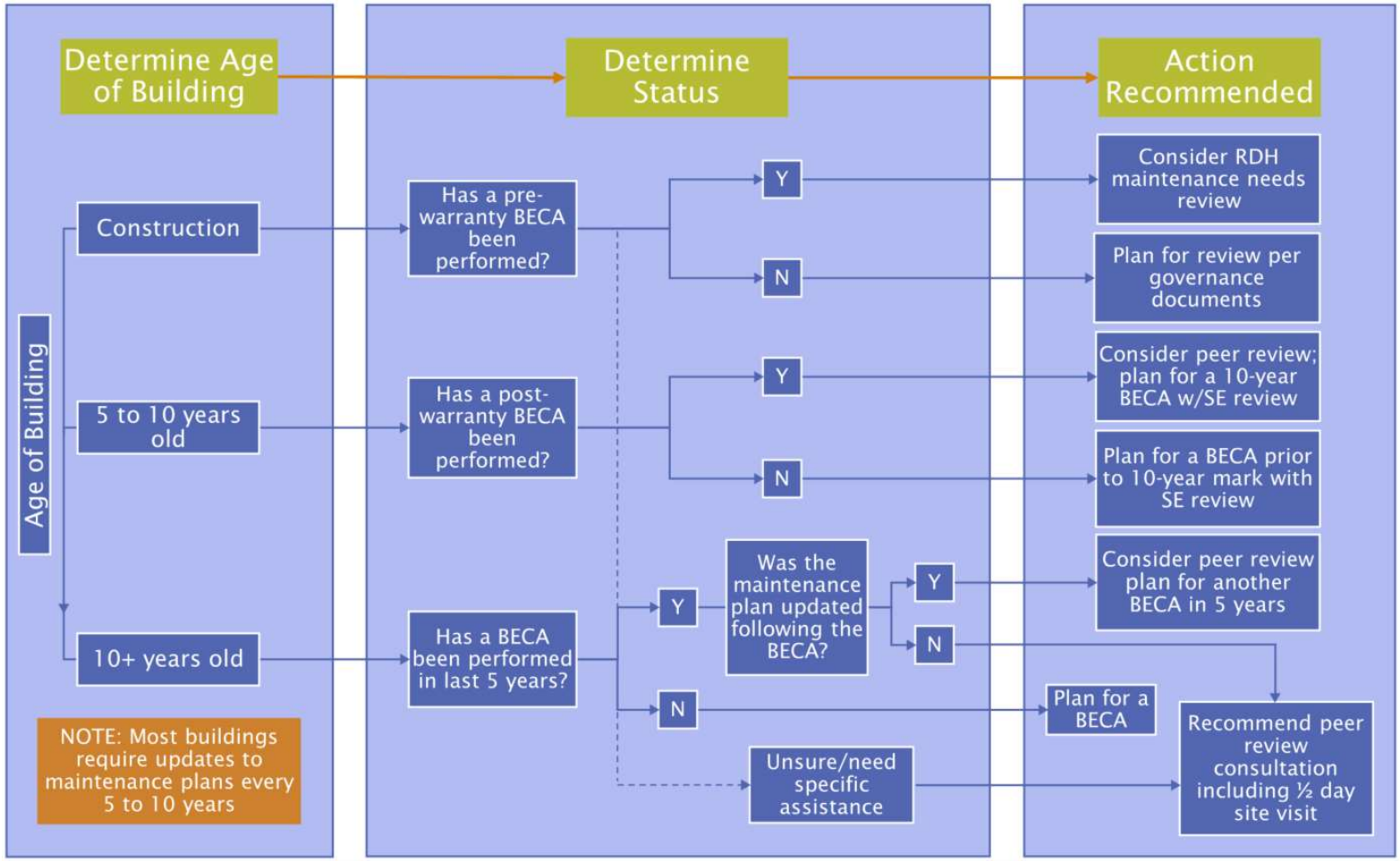
Flow Chart for Building Assessment and Maintenance



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FOR FURTHER INFORMATION
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Discussion + Questions

ksmith@rdh.com

Learn more at

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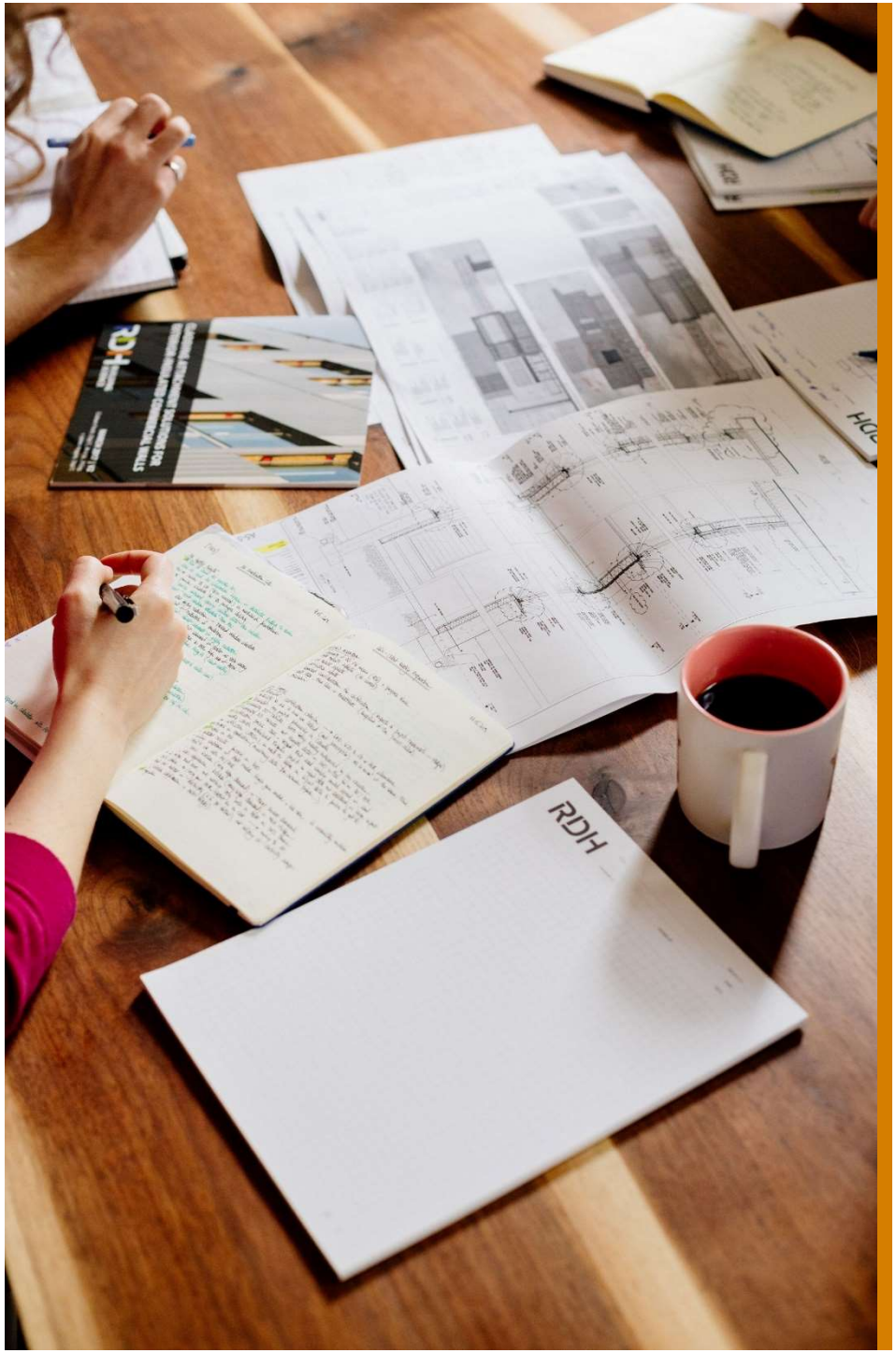
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