

# British Columbia's Approach to Post Disaster Building Assessments



Steven Bibby

*Director, Security and Emergency Services*

*[sbibby@bchousing.org](mailto:sbibby@bchousing.org)*



# POST-DISASTER DAMAGE AND SAFETY ASSESSMENT OF THE BUILT ENVIRONMENT PROJECT CSSP-2016-CP-2268



Funded by:



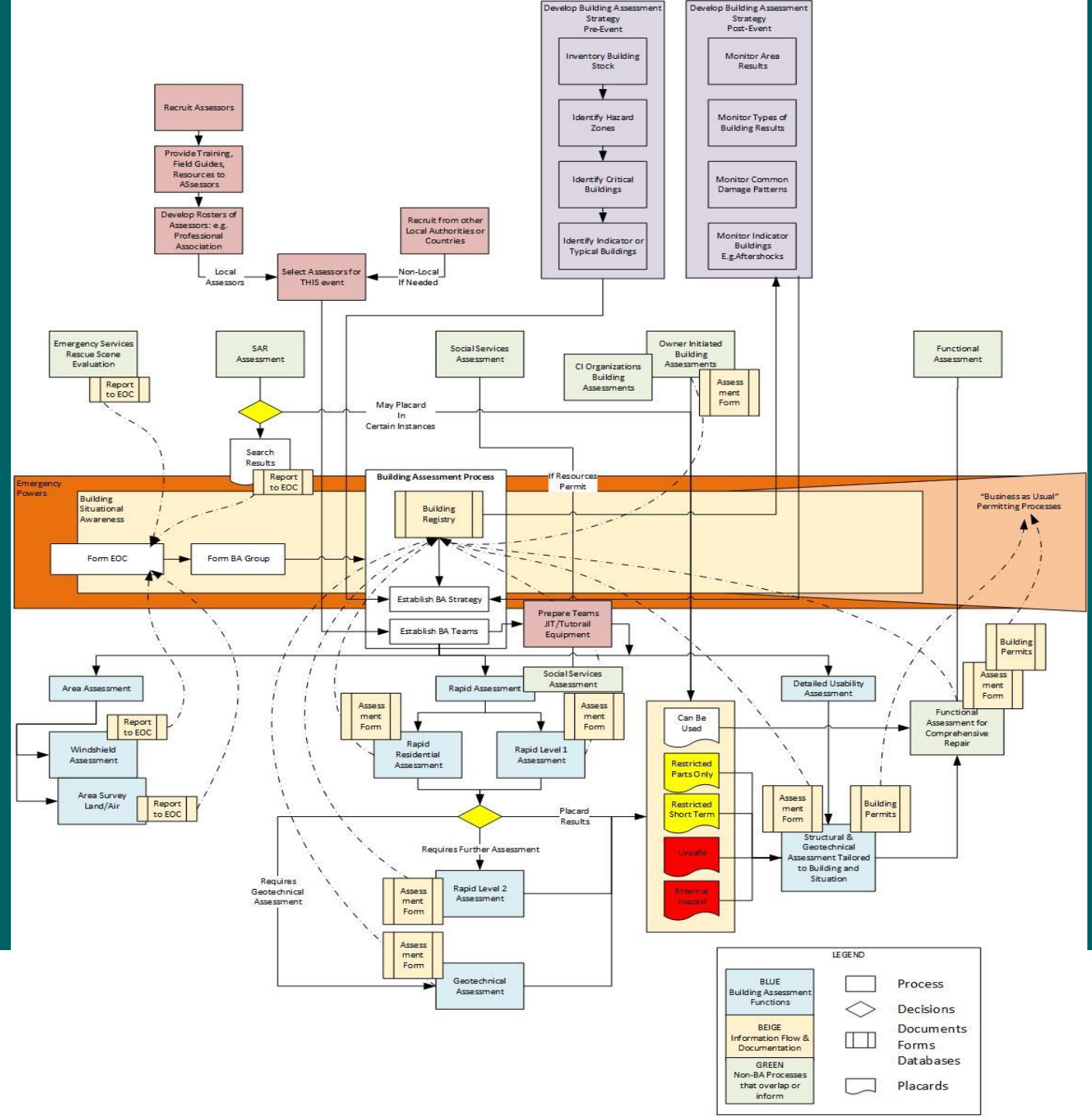
Government of Canada

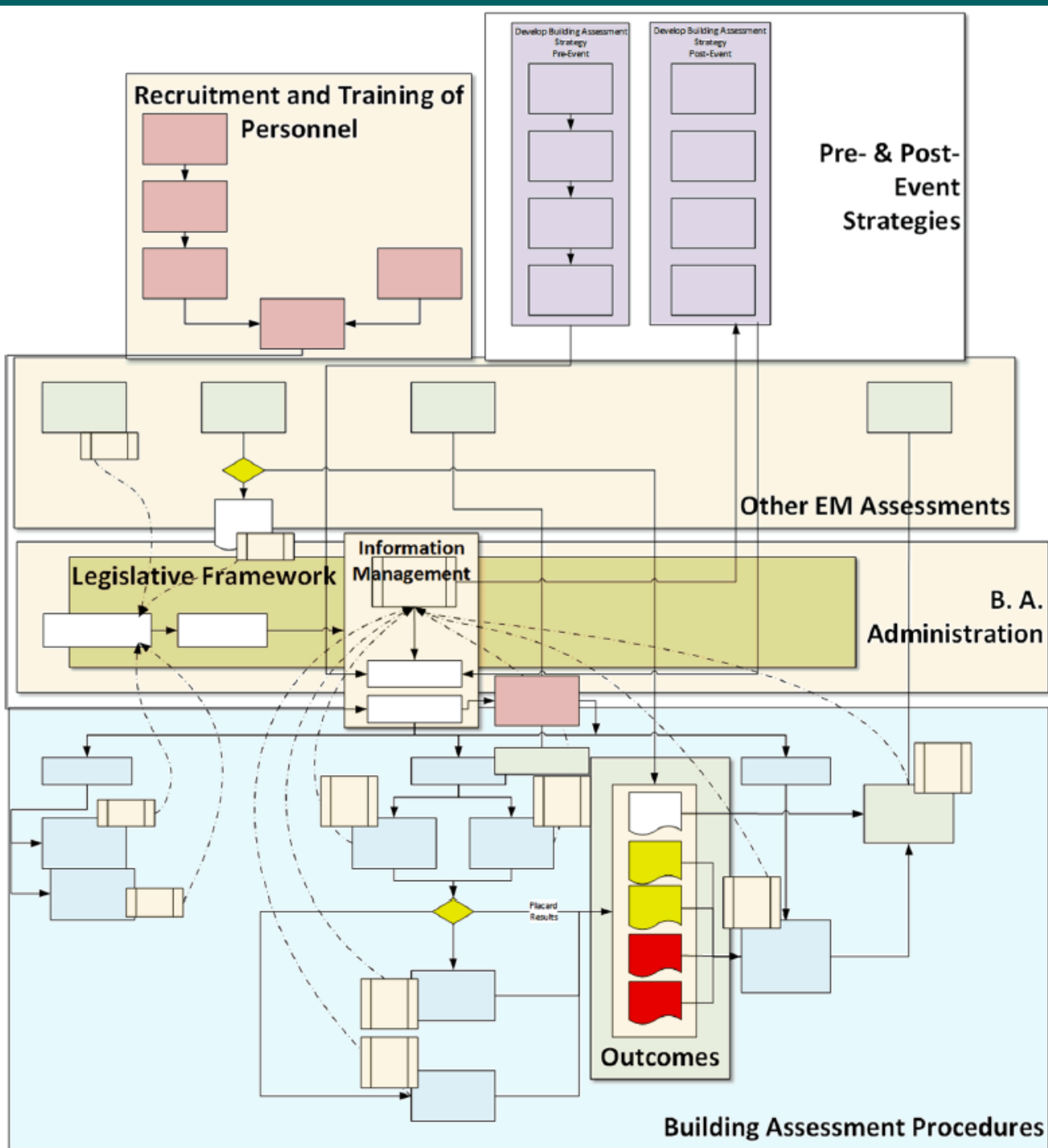
Gouvernement du Canada

Canada



# PDBA as a “System of Systems”





# Components:

- Recruitment & Training
- Pre/Post Event
- Strategies
- Other Assessments
- Legislative Framework
- Information
- Management
- Administration
- Assessment
- Procedures
- Outcomes

# Post Disaster Building Assessment

## Building Safety Indicators

Applied Technology Council (ATC)  
Earthquake Engineering Research Institute  
Engineers & Geoscientists BC  
Emerging Technology (e.g. PPR)

## Governance and Administration

Pre-Disaster Planning  
Program Direction  
Training & Certification  
Personnel Deployment  
Data Collection  
Situational Awareness  
Support & Mutual Aid  
Building Typology

## Program Management and Habitability

Authority to Enter  
Placard Authority & Change/Removal  
Team Assignment & Integration  
Habitability Standards  
Habitability Milestones  
Information Management  
Building Prioritization & Assessment Type

# Governance and Administration

- **BC Housing**
  - Establish and lead the Building Damage Assessment Branch at the PECC/PERRC. Manage Registry & Co-Chair Committee.
- **BC Post-Disaster Building Assessment Advisory Committee**
  - Advise, Recommend, Implement, Promote, Integrate
- **Working Groups**
  - Governance
  - Forms & Placards
  - Curriculum & Training

**British Columbia**  
**Post-Disaster Building Assessment (PDBA) Advisory Committee**  
**TERMS OF REFERENCE – Adopted 13 September 2018**

**BACKGROUND**  
In support of enhanced Post-Disaster Building Assessment (PDBA) in the province, BC Housing, Justice Institute of BC, Engineers and Geoscientists BC, and the Architectural Institute of BC partnered in a research project funded by the Department of National Defence to explore and develop a framework for post-disaster building assessment.

One of the outputs of this project was recognition of the importance of a broad stakeholder group that would further support and advance development of a provincial system.

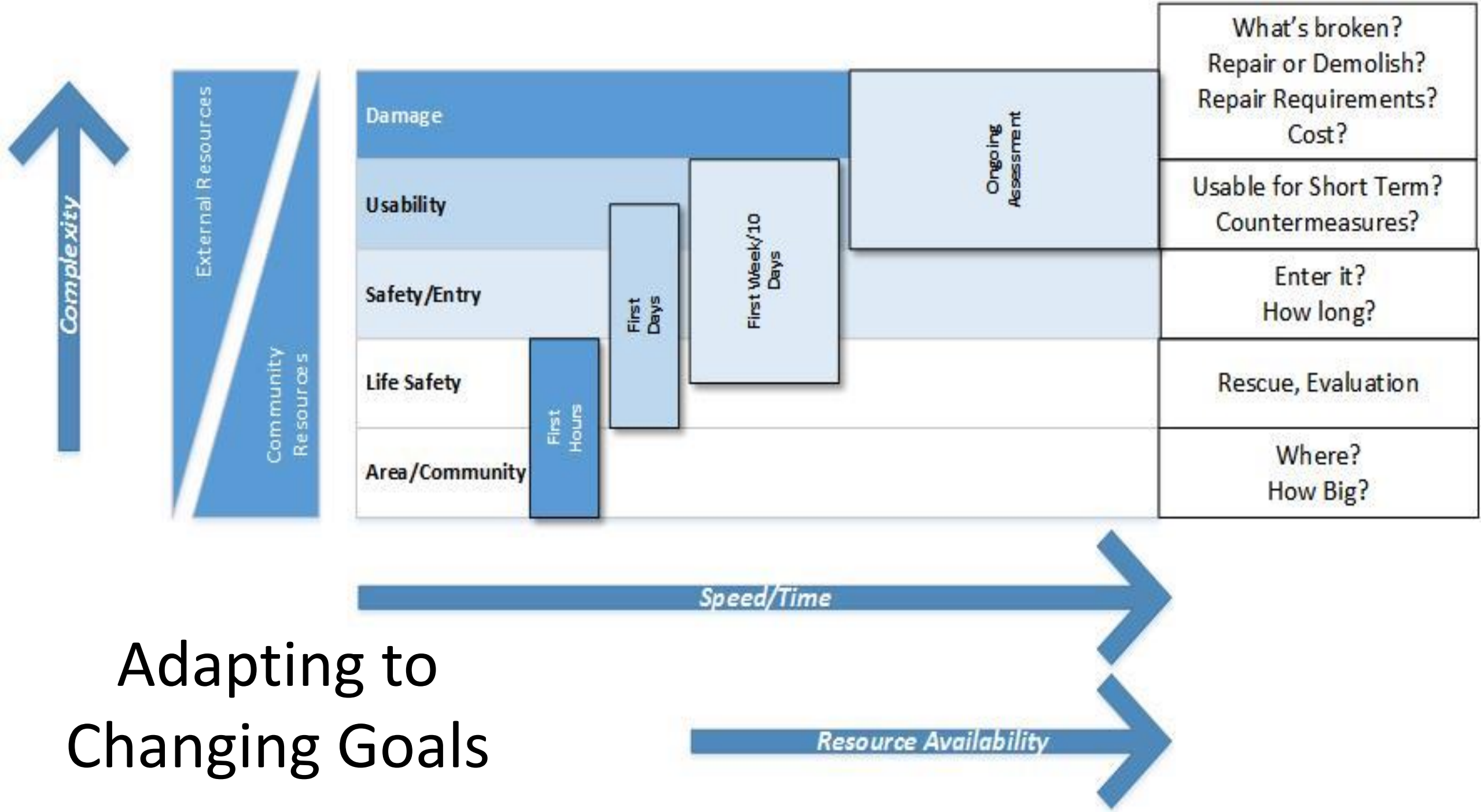
The Province of British Columbia “BC Earthquake Immediate Response Plan” (July 2015) identifies that the role of BC Housing in a catastrophic earthquake will be to:

- Establish and lead the Building Damage Assessment Branch at the PECC/PERRC
- Provide rapid damage assessment teams, prioritize and coordinate rapid damage assessment of provincial and other key facilities
- Provide rapid damage assessment training, assessment coordination, action plans, response/recovery priorities and authority to access and restrict access to government housing property

**MISSION**  
The mission of the committee will be to recommend, develop, and enhance standards, processes and guidelines for the effective implementation and the sustainable management of a post-disaster building assessment system for the province of British Columbia. The PDBA Advisory Committee has been formed to facilitate the ongoing coordination, and for sharing of stakeholders’ collective knowledge and resources in this area and to make this information available to stakeholders.

**MANDATE**  
In support of this mission, the committee will:

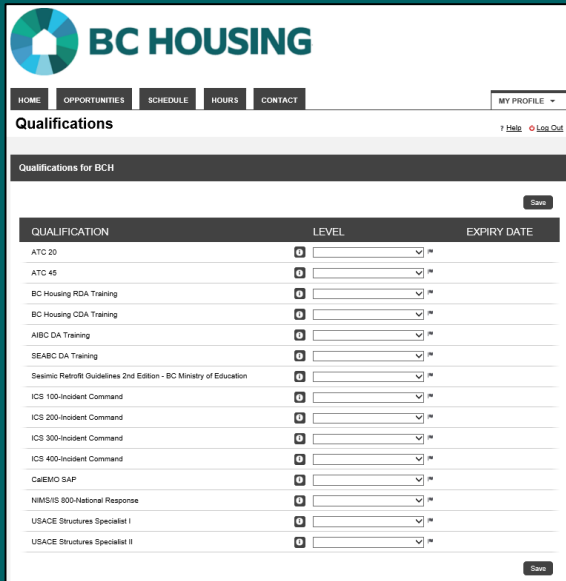
- provide advice on all matters within the Advisory Committee areas of responsibility to coordinate post-disaster building assessments,
- draw on the committee’s collective expertise to assist the Advisory Committee to identify new and emerging issues and opportunities in building assessment, and to strengthen the provincial PDBA framework.



Adapting to  
Changing Goals

# Personnel & Deployment

- Police and Fire
- Building Officials
- Engineers
- Architects
- Emergency Coordinators
- Facility Managers
- Housing Inspectors
- Construction Trades



BC HOUSING

HOME OPPORTUNITIES SCHEDULE HOURS CONTACT MY PROFILE

Qualifications [Help](#) [Log Out](#)

Qualifications for BCH [Save](#)

QUALIFICATION	LEVEL	EXPIRY DATE
ATC 20	0	<input type="checkbox"/>
ATC 45	0	<input type="checkbox"/>
BC Housing RDA Training	0	<input type="checkbox"/>
BC Housing CDA Training	0	<input type="checkbox"/>
AIRC DA Training	0	<input type="checkbox"/>
SEARC DA Training	0	<input type="checkbox"/>
Seismic Retrofit Guidelines 2nd Edition - BC Ministry of Education	0	<input type="checkbox"/>
ICS 100-Incident Command	0	<input type="checkbox"/>
ICS 200-Incident Command	0	<input type="checkbox"/>
ICS 300-Incident Command	0	<input type="checkbox"/>
ICS 400-Incident Command	0	<input type="checkbox"/>
CalEMSO SAP	0	<input type="checkbox"/>
NIMS/IS 900-National Response	0	<input type="checkbox"/>
USACE Structures Specialist I	0	<input type="checkbox"/>
USACE Structures Specialist II	0	<input type="checkbox"/>

[Save](#)



## BC Housing Building Assessor Registry

[Log in to your account](#)

Search

Search

Background or Credential

- [Architect \(1\)](#)
- [Building Official \(1\)](#)
- [Engineer or Geoscientist \(1\)](#)
- [Other Credential \(1\)](#)
- [Technologist \(1\)](#)

Thank you for your interest in registering as a Building Emergency Assessor with BC Housing. The purpose of the Building Assessor Registry (BAR) is to create and maintain a database of assessors who are trained to perform damage assessments and/or coordination of damage assessments. In an emergency, Assessors may be asked to deploy to assist in other communities based on their availability. Additional information on Post-Disaster Building Assessments, and Building Emergency Assessment in BC and the BAR can be found in the Document Library on the [BC Housing Website](#).



Please select the Background or Credential on the left which best describes your background or training.





**Neighbouring US States or Other Countries**



**Public Safety Canada**  
publicsafety.gc.ca

**Federal Organizations**

Example:  
Department of National Defense (Search-and-Rescue (SAR))  
Public Works Canada, etc.  
Organizations that can help do damage assessment

**Other Provinces**

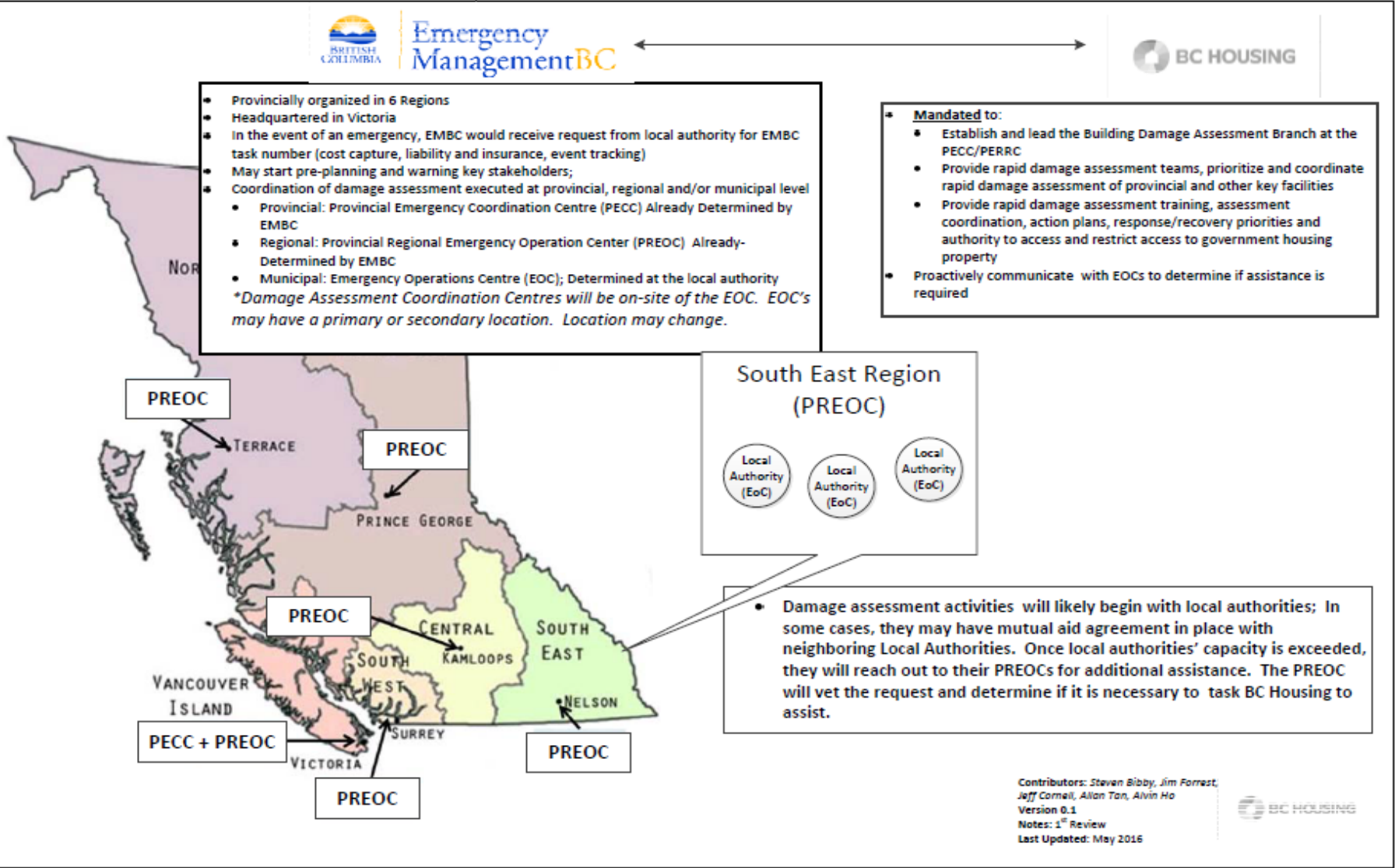


+ Other Provincial and Territorial emergency management organizations (EMOs)





- Provincially organized in 6 Regions
  - Headquartered in Victoria
  - In the event of an emergency, EMBC would receive request from local authority for EMBC task number (cost capture, liability and insurance, event tracking)
  - May start pre-planning and warning key stakeholders;
  - Coordination of damage assessment executed at provincial, regional and/or municipal level
    - Provincial: Provincial Emergency Coordination Centre (PECC) Already Determined by EMBC
    - Regional: Provincial Regional Emergency Operation Center (PREOC) Already-Determined by EMBC
    - Municipal: Emergency Operations Centre (EOC); Determined at the local authority
- \*Damage Assessment Coordination Centres will be on-site of the EOC. EOC's may have a primary or secondary location. Location may change.*

- Mandated to:**
- Establish and lead the Building Damage Assessment Branch at the PECC/PERRC
  - Provide rapid damage assessment teams, prioritize and coordinate rapid damage assessment of provincial and other key facilities
  - Provide rapid damage assessment training, assessment coordination, action plans, response/recovery priorities and authority to access and restrict access to government housing property
  - Proactively communicate with EOCs to determine if assistance is required

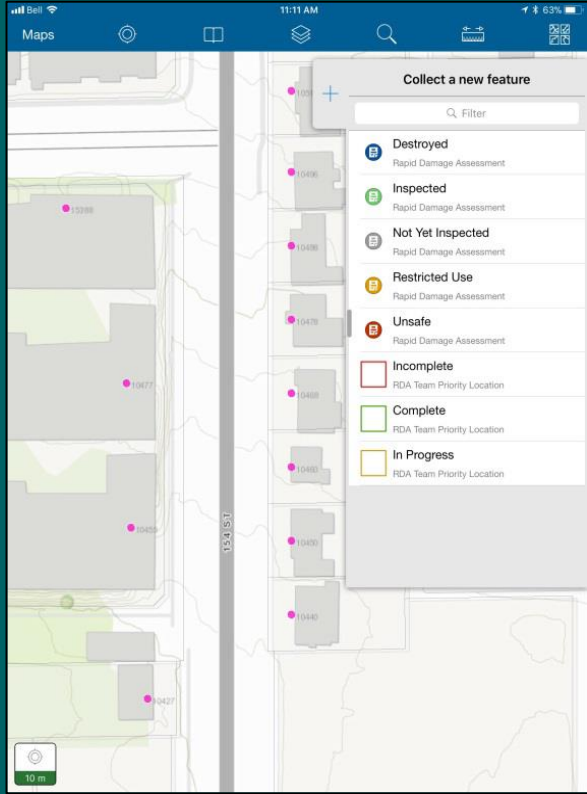


**South East Region (PREOC)**



- Damage assessment activities will likely begin with local authorities; In some cases, they may have mutual aid agreement in place with neighboring Local Authorities. Once local authorities' capacity is exceeded, they will reach out to their PREOCs for additional assistance. The PREOC will vet the request and determine if it is necessary to task BC Housing to assist.





Damage Assessment  
App/Form  
ESRI Collector  
**FIELD STAFF**  
Data Creators

# Information Management & Common Operating Picture



Dynamic/Interactive  
Web Map and Dashboards  
on Desktop  
for Clients/Decision Makers  
**DECISION MAKERS**  
Users of Data

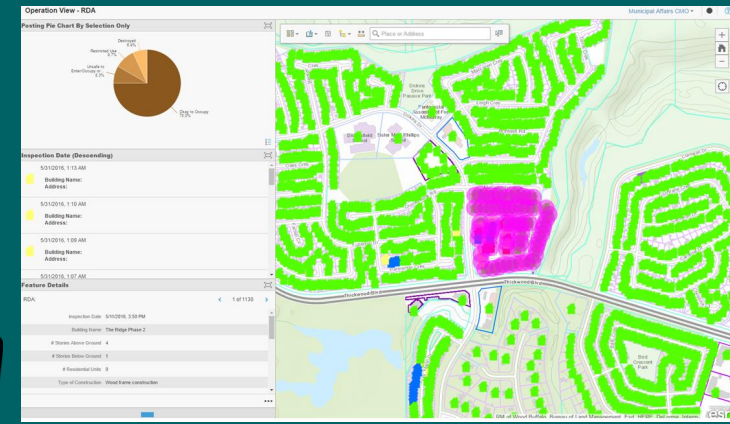
Multiuser, Editable,  
Central  
Spatial Database

**DATA REPOSITORY**



**GIS STAFF**

App, Map, Dashboard Creation/Maintenance,  
Damage Assessment Coordination



### Building Assessment Placard Colour (Posting)



Please select one bar to filter the map and click once more to remove filter.

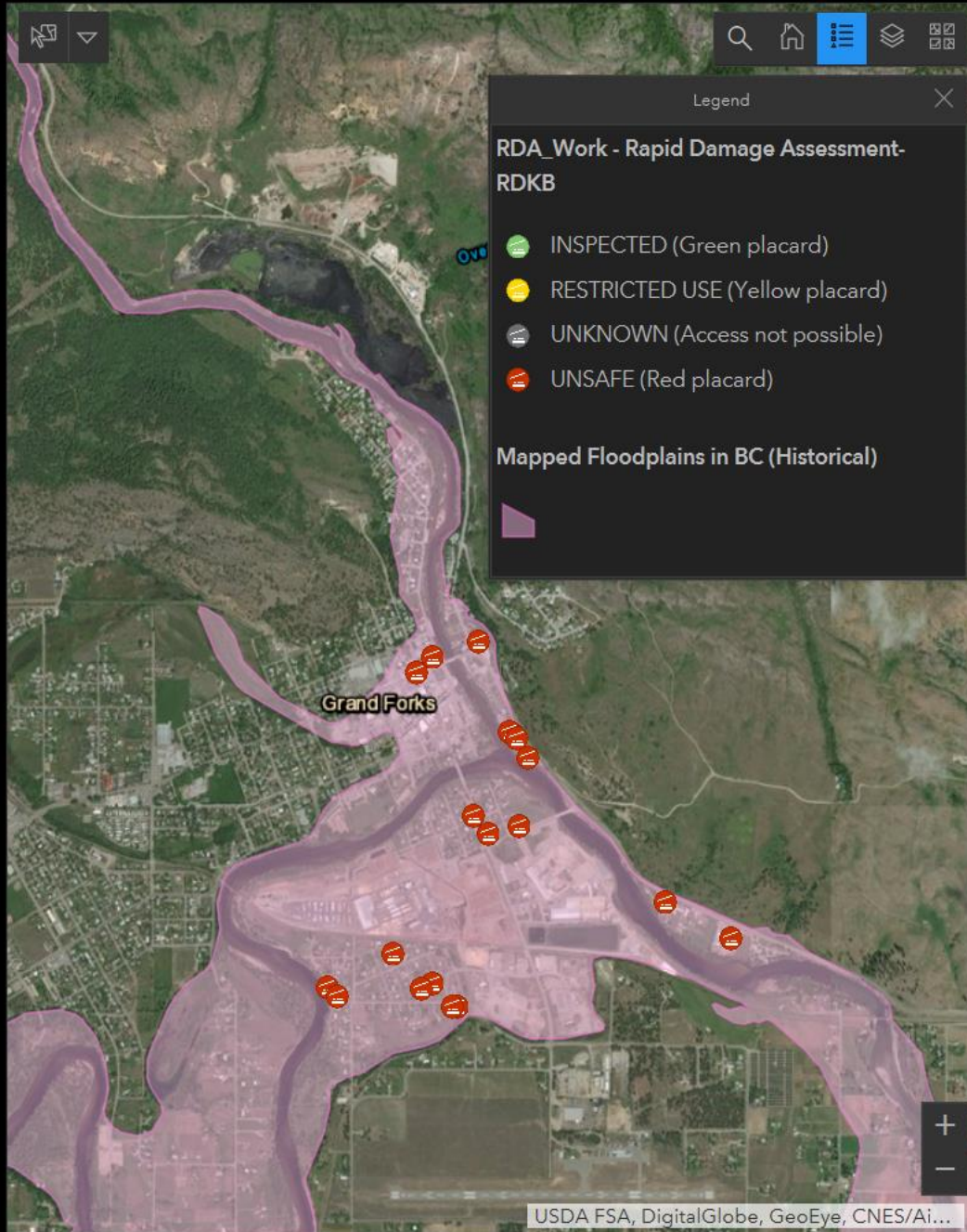
Last update: 5 minutes ago

### List of Building(s)

Within Map Extent.

- 7430 Granby
- Unit 9- 7151 Hwy 3
- Unit 10-7151 Highway 3
- 6435 9th ave
- 215 central ave
- 7433 riverside dr

List Details



### Structural Damage



Last update: 5 minutes ago

Structural Ground Fixture Proximity Risks

### Fall Hazards



Last update: 5 minutes ago

Fall Collapse Leaning

### Primary Occupancy



- Commercial
- Multi-residential
- Single family dwelling

Last update: 5 minutes ago

Primary Occupancy Construction Type

# Ongoing Challenges

- Ownership of PDBA processes
- Building taxonomies
- Assessment of specific types of buildings
- Fit of PDBA with EM & transition to recovery
- Placards (e.g., who can modify, change, remove, etc.)
- Overlap of PDBA with USAR and other rescue/response activities

## • Personnel

- Types of personnel involved in PDBA
- Desired credentials or certification
- Use of non-credentialed personnel in PDBA
- Recruitment of personnel for PDBA
- Prior training
- Just-in-time training and/or preparation for PDBA
- Liability for personnel involved in PDBA

## • BDSA Operations

- Overall management of PDBA
- Decision-making and priority determination
- Logistics and dispatching of PDBA teams
- Data collection
- Data reporting
- Data management
- Use of data in subsequent decision-making
- Use of technology in data management
- Team size and composition

# Unique or Ground Breaking?

- Assessment process includes SAR, EM, credentialed and non-credentialed personnel
- Captures the informal & ICS processes used for deployment, team selection/allocation
- Links and captures academic requirements and building typologies in a Canadian context
- First ever in Canada:
  - Provincial Registry of Assessors
  - Provincial Advisory Committee



**BRITISH COLUMBIA  
POST-DISASTER BUILDING  
ASSESSMENT FRAMEWORK  
AND RECOMMENDATIONS**



ENGINEERS &  
GEOSCIENTISTS  
BRITISH COLUMBIA



ARCHITECTURAL INSTITUTE  
OF BRITISH COLUMBIA

January 2019



# Questions?

Steven Bibby

Director, Security & Emergency Services

[sbibby@bchousing.org](mailto:sbibby@bchousing.org)

[www.bchousing.org](http://www.bchousing.org)



# Research and Development of the Framework

Steven Bibby

Director, Security & Emergency Services

[sbibby@bchousing.org](mailto:sbibby@bchousing.org)

[www.bchousing.org](http://www.bchousing.org)

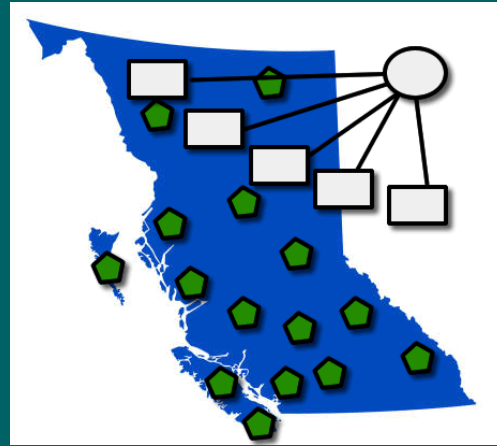


## BRITISH COLUMBIA POST-DISASTER BUILDING ASSESSMENT FRAMEWORK AND RECOMMENDATIONS



January 2019

# Research Goals



RESPONSIBILITY AUTHORITY	LA	LA	LA	LA/OWNER	OWNER
	AHJ	AHJ	AHJ	AHJ	AHJ
ASSESSMENT TYPE	Emergency Response			Return to Function	
	Area	Rapid ext only	Rapid ext/int	Detailed	Engineered
1 C1H		2	3	3	3
2 C1L		2	3	3	3
3 C1M		2	3	3	3
4 C2H		2	2	3	3
5 C2L		2	2	3	3
6 C2M		2	2	3	3
7 C3H		2	2	3	3
8 C3L		2	2	3	3
9 C3M		2	2	3	3
10 MH		1	1	1	2
11 PC1		2	2	3	3
12 PC2H		2	3	3	3
13 PC2L		2	2	3	3
14 PC2M		2	3	3	3
15 RM1L		2	2	3	3
16 RM1M		2	3	3	3

DEFINITIONS	
<b>Assessment Types</b>	
Area	large area assessment by car, drone, satellite, etc.
Rapid Exterior Only:	15mins± exterior assessment
Rapid Exterior & Interior:	15mins± ext/int assessment
Detailed:	2-4hour± detailed assessment
<b>Assessor Types</b>	
example of personnel	example of training
1 (non-credentialed) contractor, tradesperson, building manager	ATC 20/45 or equal
2 building official, architect, engineer of any kind	ATC 20/45 or equal
3 structural engineer	ATC 20/45 or equal
<b>Team Composition Notes</b>	

POST-DISASTER BUILDING ASSESSMENT  
DRAFT FRAMEWORK AND RECOMMENDATIONS  
STAKEHOLDER REVIEW WORKSHOP  
May 15, 2018

POST-DISASTER DAMAGE AND SAFETY ASSESSMENT OF THE BUILT ENVIRONMENT PROJECT  
CSP-2016-CP-2268

BC HOUSING JUSTICE INSTITUTE OF BRITISH COLUMBIA ENGINEERS & GEOSCIENTISTS ARCHITECTURAL INSTITUTE OF BRITISH COLUMBIA

Version 1.01

- Develop a provincial framework for Building Damage Safety Assessment
- Develop a community-level framework to engage and support
  - Professional (credentialed)
  - Public (non-credentialed)
- Establish a sustainable network
  - Resources
  - Tools
  - Support



# Project Data Sources

- Review of Literature
- Site visit to exemplar program
- Interviews with key informants and experts
- Stakeholder consultation and validation

**Façade damage assessment buildings in the 21st century**

This research paper discusses the challenges of assessing facade damage in modern buildings. It highlights the need for standardized methods and the role of digital tools in data collection and analysis. The paper includes a table of damage types and their associated risks.

Damage Type	Risk Level	Frequency
Cracks	High	Common
Spalling	Medium	Occasional
Delamination	Low	Rare

**British Columbia Building Damage Safety Assessment Research Project  
Canada | New Zealand Engagement Workshop**

Are you interested in engaging with practitioners around post-disaster building damage assessment programs?

**Background:** The British Columbia Building Damage Safety Assessment Research Project, is a Canadian research initiative led collaboratively by BC Housing (British Columbia's provincial housing agency), Justice Institute of British Columbia (a post-secondary public safety education, Association of Professional Engineers and Geoscientists of BC, and the Architectural Institute of British Columbia.

The objectives of the overall research program are to:

- (a) Develop a provincial framework for building damage and safety assessment through research, consultation and collaboration with stakeholders and practitioners.
- (b) Develop a community-level framework to empower professional (credentialed) and public (non-credentialed) personnel to engage in emergency planning and building damage and safety assessment.
- (c) Establish a sustainable network of stakeholder organizations to guide, believe, and sustain the resulting suite of processes, approaches, and resources.

This two year project is funded through the Canadian Safety and Security Program, a federal program of Defense Research and Development Canada's Centre for Security Science, in partnership with Public Safety Canada.

**Workshop Purpose:** The purpose of this engagement workshop is to share information around the initial findings of the research team and to advance the research by collecting information from emergency management and building safety personnel, around the development and implementation of post-disaster building damage assessment programs.

**Workshop Format:** The workshop will include an overview from the research team on their initial work including current practices in Canada and findings from around the world. Participants will also be engaged in the collection of information and views through small and large group discussions around some key research questions related to post-disaster building safety assessment programs.

Outcomes of the research project will be publicly available following completion of the project.

**Location:** TBD  
Christchurch, NZ

**Date/Time:** Wednesday, June 14, 2017 1:00 pm to 4:00 pm

**Target Audience:** This workshop is intended for practitioners who are involved in the emergency management or engineering, architectural or building fields, who are interested in sharing their views/perspectives around post-disaster building damage assessment systems.

**Further Info:** For further information on this workshop or the overall research project please contact [redacted] or [redacted]. To sign-up to attend, please contact [redacted].

**British Columbia Building Damage Safety Assessment (BDSA) Project  
Research Focus and Questions**

Thank you for your interest and support of the British Columbia Building Damage Safety Assessment research project. The purpose of this research is to develop a model for building damage and safety assessment for housing a disaster. The project includes a building damage and safety assessment program that will be used to assess the safety of buildings and allow people to remain in, or return to their homes and businesses as soon as possible.

Key research questions include:

- How can we improve the accuracy of our current building damage assessment programs?
- What are the key factors in determining the safety of a building?
- How can we improve the accuracy of our current building damage assessment programs?
- What are the key factors in determining the safety of a building?

**ResearchGate**

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/228382960>

**Damage assessment of expressway networks in Japan based on seismic monitoring**

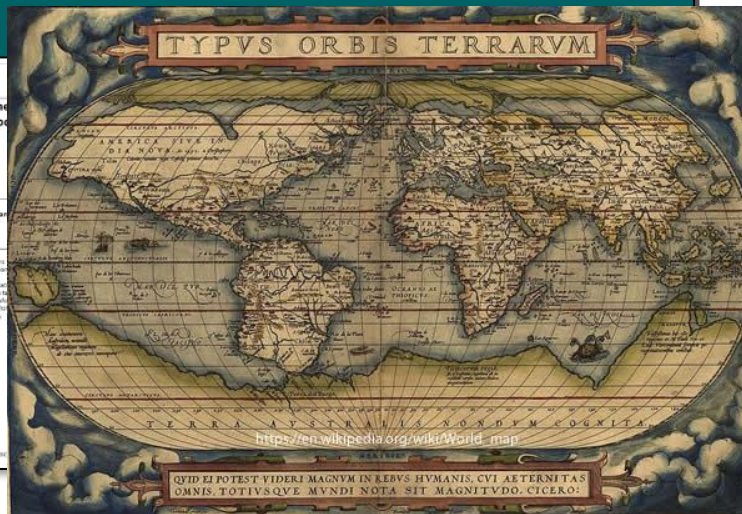
Article · January 2000

CITATIONS 38 READS 228

3 authors, including:  
F. Yamazaki  
Chiba University

**Rapid Damage Assessment Stakeholder Types and Interests**

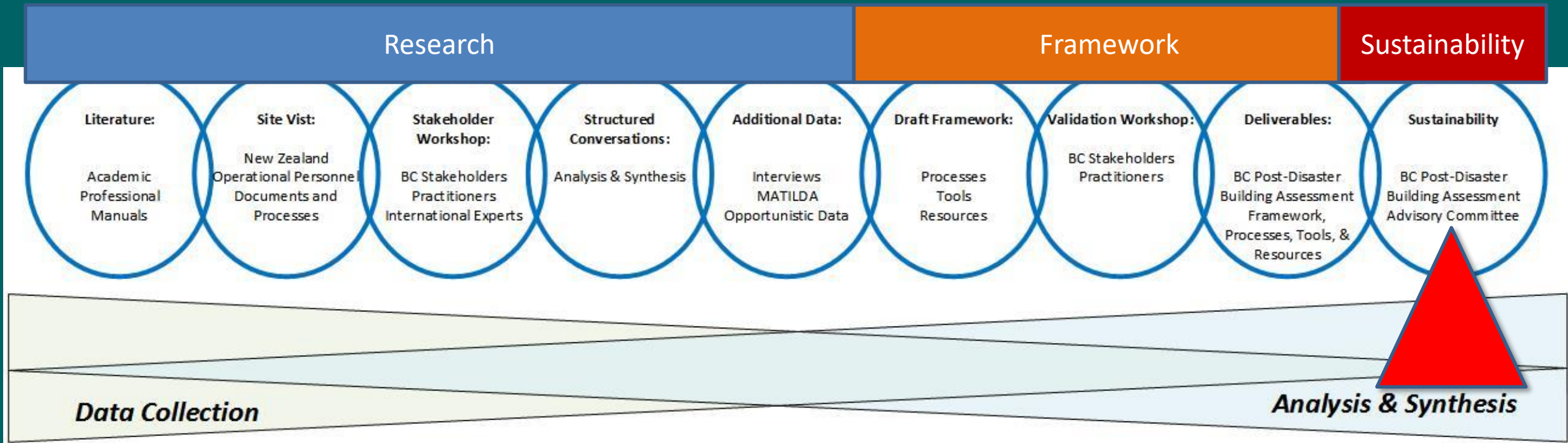
Land and Potential Critical Matter Owners and Subject Matter Experts	Subject Matter Experts Only	Damage Assessment Record Manager/ Owner	Damage Assessment Information & Producers/ Consumers
<p><b>Head to:</b> High Assessment of Assessment results</p> <p><b>Interests:</b> Disaster assessment of their own interests or they are competing for risk subject matter expertise. These organizations can act out of fear to damage assessment. Most of these organizations are not interested in damage assessment results but in collaboration and share resources / information.</p> <p><b>Other Interests:</b> Natural Resources Departments, Police, Fire, etc.</p>	<p><b>Individuals / Professions that will:</b> Perform Damage Assessment, Coordinate Damage Assessment</p> <p><b>Interests:</b> People and professions that can perform damage assessment and can bring their knowledge, skills and expertise to damage assessment. Some of these organizations have a mandate to support and enhance public safety. Recognize the link between their mandate and responsibility to assist with emergency response as a volunteer or be paid to do so. Risk transfer professionals - These people and professions are part of an integrated approach to damage assessment. However, they will want to stay engaged on further developments as they will be strongly impacted by their professional and capabilities.</p> <p><b>Organizations included but are not limited to:</b> Association of Professional Engineers and Geoscientists of BC (APESG) British Columbia Building Officials' Association of BC (BCBOA) Canadian Allied Forces Emergency Management BC (EMBC) Safety Assessment Program (SAP)</p>	<p><b>Organizations that will:</b> Leverage Damage Assessment results for property valuation, emergency response and recovery needs</p> <p><b>Interests:</b> Organizations with expertise in recording, maintaining and sharing property information. The organization has the tools/capabilities to record damage assessment. Need damage assessment information to assist various emergency response or record reconstruction efforts. The organization has a role to play in a network to share and integrate property information.</p>	<p><b>Organizations that need to:</b> Be informed of the processes of Damage Assessment</p> <p><b>Interests:</b> Response and Recovery Stakeholders, Emergency Management Organizations and outside of BC. Public / Private / Non-profit Organizations. Public awareness and support will be the results of damage assessment and the research. Emergency Management, ESI, and building owners/occupants.</p>



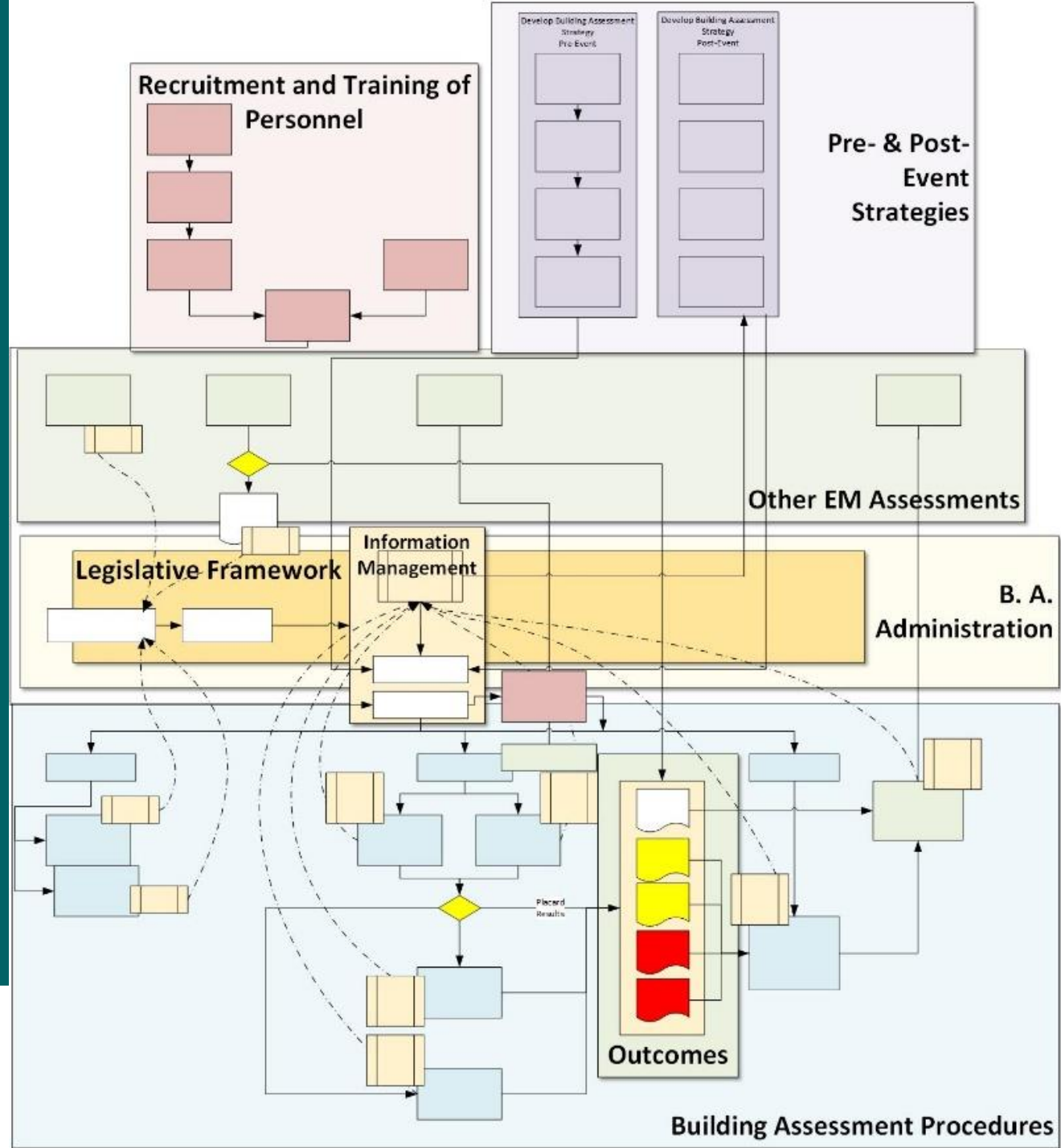
**FIELD GUIDE:  
RAPID POST  
DISASTER  
BUILDING USABILITY ASSESSMENT  
- EARTHQUAKES**



# Design and Work Plan

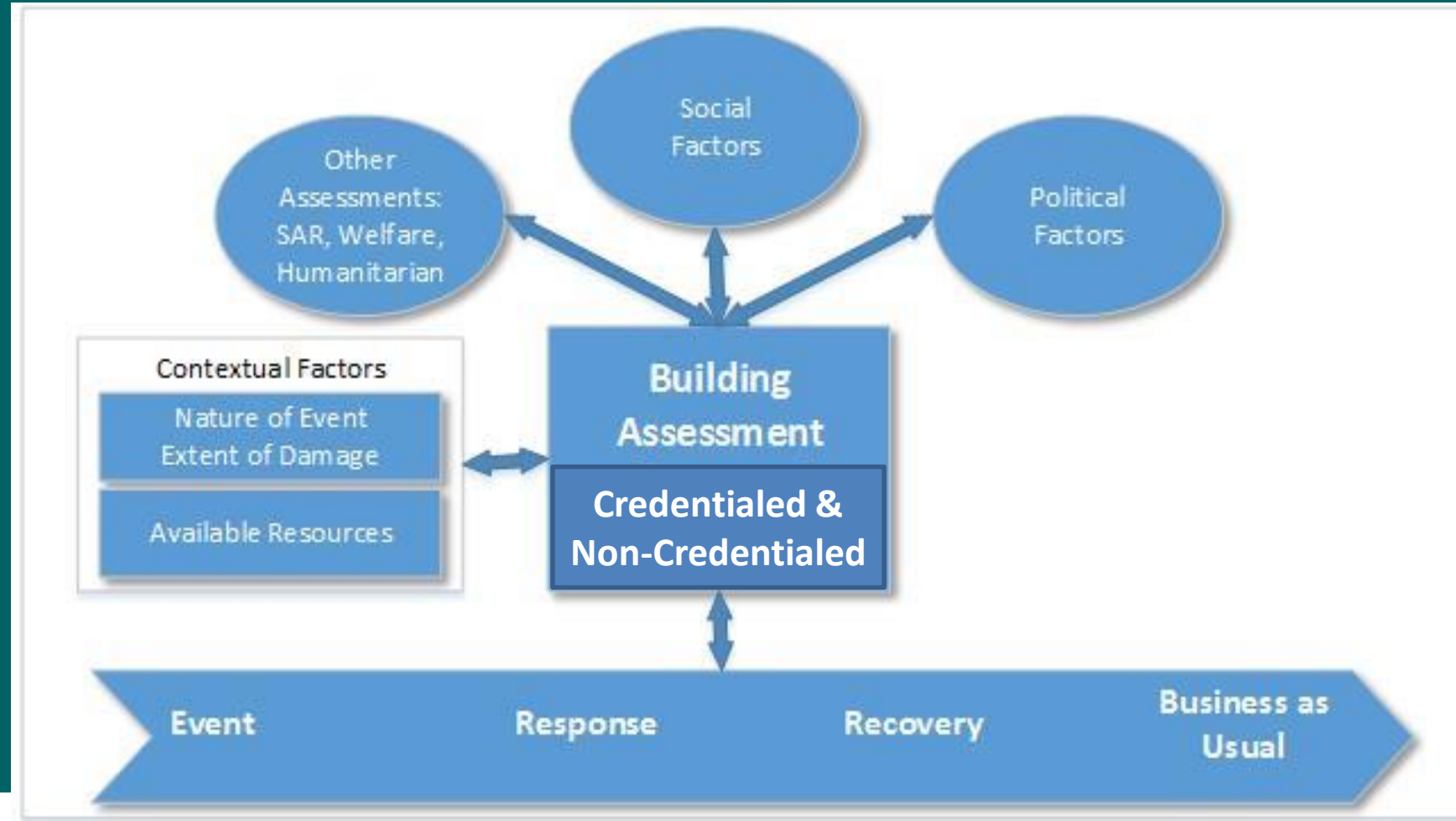


# Core Concepts: System of Systems



# Core Concepts: Contextual Process

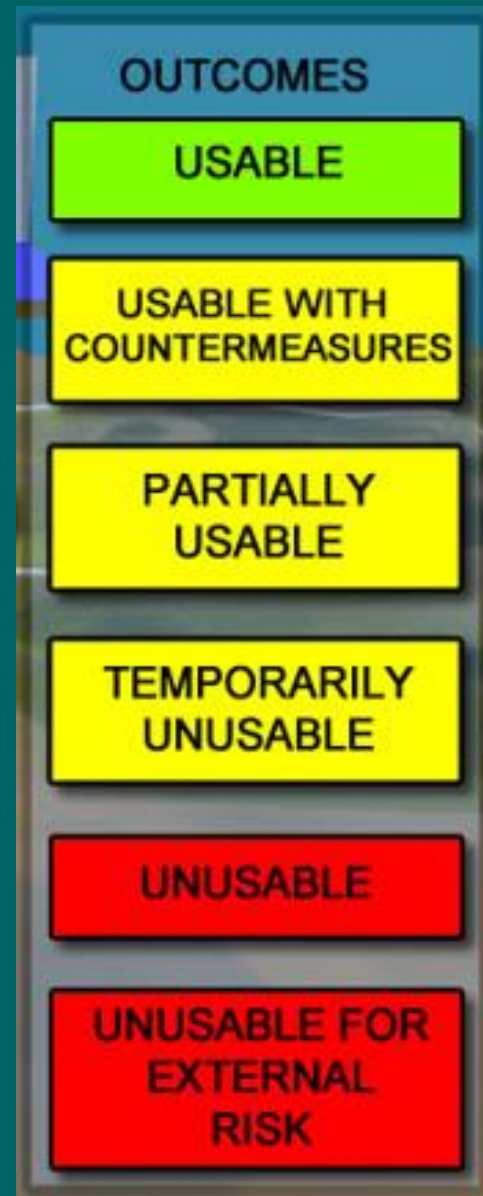
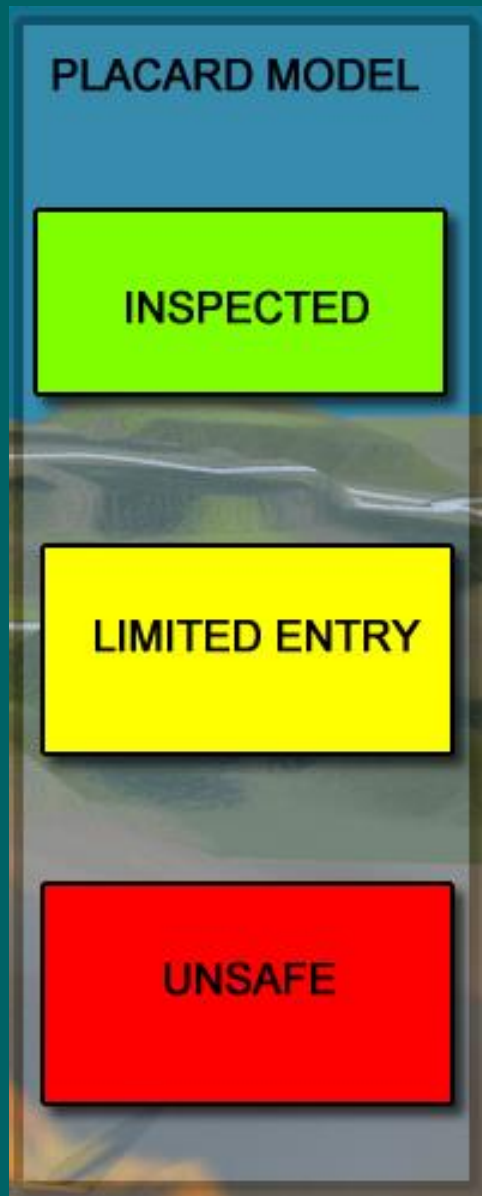
- An Event is a series of Events
- Dynamic Process that Changes across time
- Embedded Process
- Strong Recommendations on Personnel
- Contextual Implementation
- Simple Core Process with Nuanced Strategies



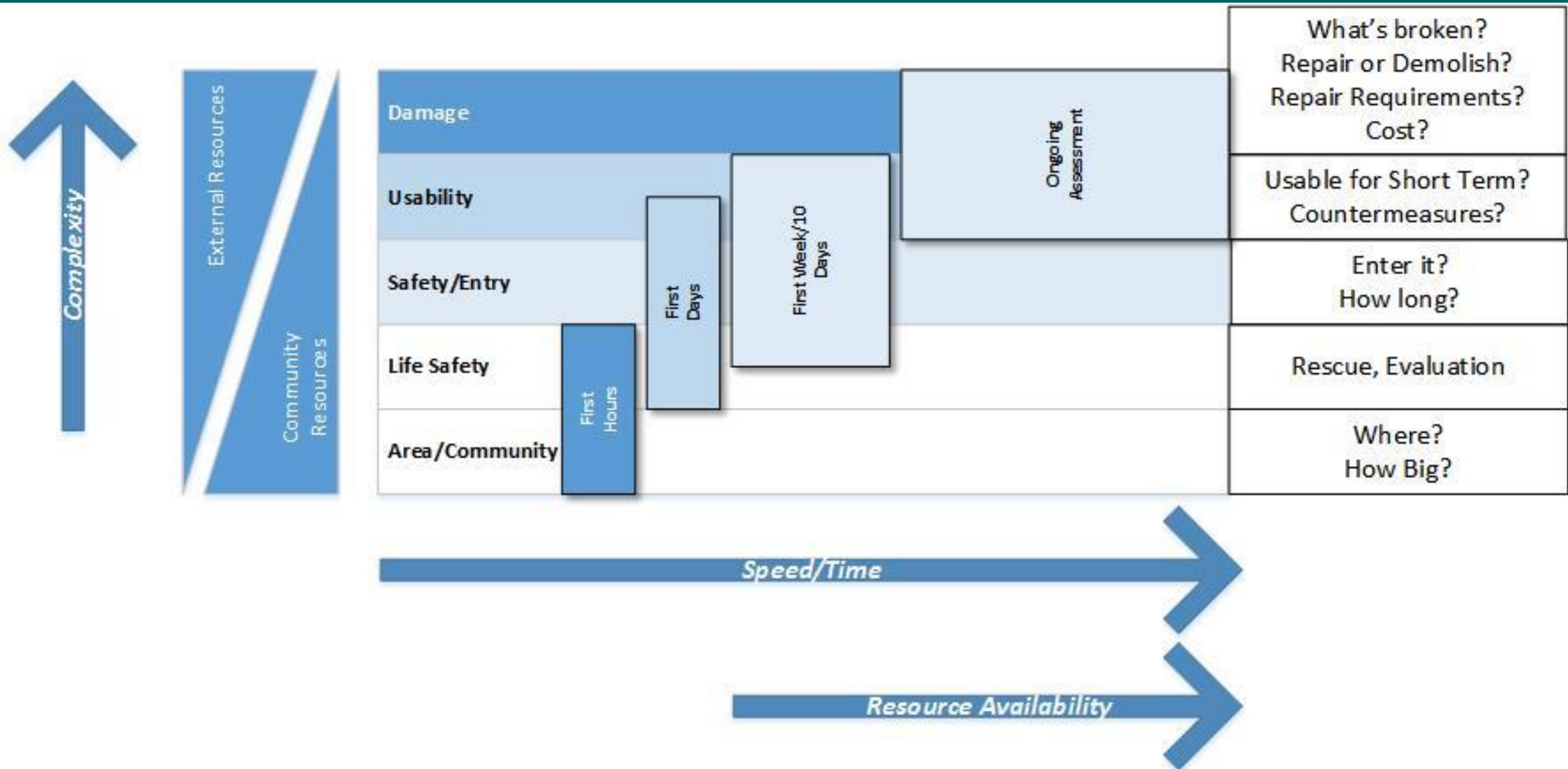
# Common Frameworks

	New Zealand 2010	New Zealand 2014	Italy 2011	Japan	ATC
<b>Area/ Windshield</b>	Overall Damage Survey	Rapid Impact Assessment			Rapid Evaluation
<b>Rapid BDSA</b>	Rapid Assessment Level 1	Residential Rapid Assessment	First Inspection	Quick Risk Inspection	Detailed Evaluation
		Rapid Building Usability Assessment Level 1			
<b>Detailed BDSA</b>	Rapid Assessment Level 2	Rapid Building Usability Assessment Level 2	Second Inspection	Damage Survey	
<b>Engineering</b>	Detailed Engineering	Detailed Building Damage Assessment	Engineering Evaluation		Engineering Evaluation

# Similarities and Differences



# Core Concepts: Changing Goals







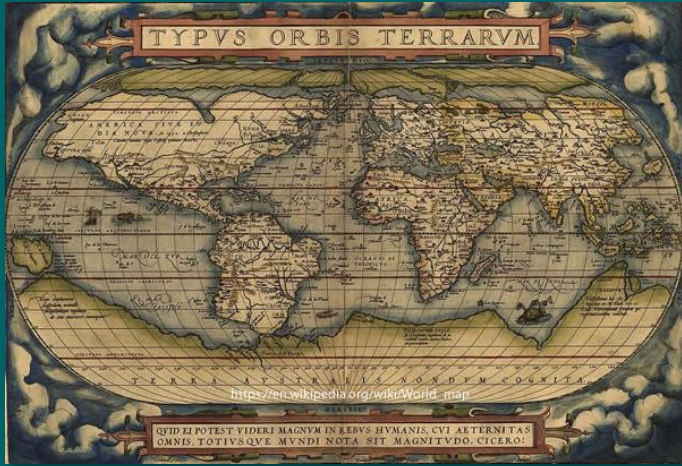


# PDBA as a 10 Step Program:

1. Identify Scope and Complexity of PDBA Requirements
2. Establish PDBA Leadership Group
3. Obtain Formal Commitment from Organization
4. Confirm/Establish Legal/Regulatory Mechanism
5. Develop Operational Plan, Procedures & Guidelines
6. Develop Assessment Personnel
7. Situational Awareness Capabilities
8. Program Support/Coordination Personnel
9. Equipment and Supplies
10. Address Recovery/Reconstruction PDBA Implications

(PDBA Framework and Recommendations: Appendix #1)

# Step 1



## BRITISH COLUMBIA POST-DISASTER BUILDING ASSESSMENT FRAMEWORK AND RECOMMENDATIONS



January 2019



## BRITISH COLUMBIA POST-DISASTER BUILDING ASSESSMENT FRAMEWORK AND RECOMMENDATIONS COMPANION DOCUMENT: RESOURCES AND REFERENCES



# Step 2

## British Columbia Post-Disaster Building Assessment (PDBA) Advisory Committee TERMS OF REFERENCE – 13 September 2018 - Draft

### BACKGROUND

In support of enhanced Post-Disaster Building Assessment (PDBA) in the province, BC Housing, Justice Institute of BC, Engineers and Geoscientists BC, and the Architectural Institute of BC partnered in a research project funded by the Department of National Defence to explore and develop a framework for post-disaster building assessment.

One of the outputs of this project was recognition of the importance of a broad stakeholder group that would further support and advance development of a provincial system. The PDBA Advisory Committee has been formed to facilitate the ongoing coordination, and for sharing of stakeholders' collective knowledge and resources in this area.

The Province of British Columbia "BC Earthquake Immediate Response Plan" (July 2015) identifies that the role of BC Housing in a catastrophic earthquake will be to:

- Establish and lead the Building Damage Assessment Branch at the PECC/PERC
- Provide rapid damage assessment teams, prioritize and coordinate rapid damage assessment of provincial and other key facilities
- Provide rapid damage assessment training, assessment coordination, action plans, response/recovery priorities and authority to access and restrict access to government housing property

### MISSION AND MANDATE

The mission of the committee will be to recommend, develop, and enhance standards, processes and guidelines for the effective implementation and the sustainable management of a post-disaster building assessment system for the province of British Columbia. In support of this mission, the committee will:

- provide advice on all matters within BC Housing areas of responsibility to coordinate post-disaster building assessments, and
- draw on the committee's collective expertise to assist BC Housing to identify new and emerging issues and opportunities in building assessment, and to strengthen the provincial PDBA framework.

### GOALS

- Develop and promote standards, processes and guidelines for a province-wide integrated PDBA system.
- Advise on the development, maintenance, training and exercising of PDBA systems, plans and procedures.
- Provide recommendations on cross government and cross organizational issues related to post-disaster building assessments.
- Promote integration and consistency between the Province's PDBA system, including all levels of government and non-government organizations.

# Step 3

## Rapid Damage Assessment Stakeholder Types and Interests

Critical and Potential Critical Infrastructure Owners and Subject Matter Experts	Subject Matter Experts Only	Damage Assessment Record Manager/ Owner	Damage Assessment Information & Process Consumers
<b>Organizations who need to:</b> <ul style="list-style-type: none"> <li>Perform Damage Assessment</li> <li>Coordinate Damage Assessment</li> <li>Leverage Damage Assessment results</li> </ul>	<b>Individuals / Professions that will:</b> <ul style="list-style-type: none"> <li>Perform Damage Assessment</li> <li>Coordinate Damage Assessment</li> </ul>	<b>Organizations that will:</b> <ul style="list-style-type: none"> <li>Leverage Damage Assessment results for property valuation, emergency response and recovery needs</li> </ul>	<b>Organizations need to:</b> <ul style="list-style-type: none"> <li>Be informed of the processes and results of Damage Assessment</li> </ul>

# Step 4

- Owner that must perform disaster assessment of their own resources
- All these organization may be competing for RDA subject matter experts
- RDA Strategic Partnership Risk – These organization can opt out of an integrated approach to damage assessment. Most of these organizations are not required to perform damage assessment on their best practices
- Local Government
  - Trans
  - BC H
  - Adv
  - Edu
  - Fore
  - Just
  - Liqu
  - Hea
  - Sha
  - BC H
  - Fort
  - Tele
  - BC H
  - BC T
  - Tran
  - Van
- People and professions that can perform damage assessment and can bring their knowledge, skills and expertise to damage assessment
- Several of these organizations have a mandate to assess and share property information
- Organization with expertise in recording, maintaining and sharing property information
- The organization has the tools/capability to record damage assessment
- Need damage assessment information quickly update property values or record construction permits
- The organization has a role or a mandate to share and integrate property information
- Response and Recovery Stakeholders
- Emergency Management Organizations inside

Type of Property Referenced	Personnel Referenced by Legislation	Legislation	Section	Summary	Limitations/Comments
11 Government Buildings	Integrated Workplace Solutions (formerly ARES and BCBC)	Emergency Program Management Regulation	Schedule 2, Duties of Ministers and Government Corporations	Assigns Shared Services BC (Integrated Workplace Solutions) responsibility to assess damage to government buildings.	
12 All Property	Fire Commissioner, Commissioner's Inspectors, and Local Assistants	Fire Services Act	Part 1, Sections 7, 9, 10, 21	Authorizes "peace officer" powers to Fire Commissioner, Commissioner's Inspectors and Local Assistants to at all times to: investigate fires; enter and examine and exclude persons from building or premises where or near where fire has occurred; and at all reasonable hours to: inspect and order remedies for fire hazards that may endanger life or property.	Fire has occurred or fire hazard suspected.
13 All Property	Medical Health Officers, Provincial Health Officers	Public Health Act	Part 4, Division 1 - Inspections, Sections 23, 24 & 25  Division 2 Order of the Minister - Quarantine  Division 4 Orders Respecting Health Hazards & Contraventions  Division 6 Enforcement of Orders	Authorizes Health Officers to enter a place at reasonable time with notice or without notice if not reasonably possible to the owner/occupier to: conduct inspection, issue quarantine orders, orders re infectious and hazardous agents and other health hazards.	
14 All Property	Medical Health Officers, Provincial Health Officers	Public Health Act	Part 5 - Emergency Powers  Part 9 - Regulations	Authorizes Health Officers in emergency events to act with limited or no notice to: conduct inspections, including private dwellings at any time without warrant.	

# Step 5

## Rapid Damage Assessment Form

**Inspection**  
 Inspector ID: \_\_\_\_\_ Inspection date: \_\_\_\_\_ (dd MM/yy) time: \_\_\_\_\_ (24 hour clock)  
 Agency: \_\_\_\_\_ Areas inspected:  Exterior Only  Exterior and interior

**Building Description**  
 Building Name: \_\_\_\_\_ Type of Construction:  Wood Frame  Masonry  
 Address: \_\_\_\_\_  Steel Frame  Other: \_\_\_\_\_  
 Concrete Frame

**Primary Occupancy**  
 Building contact phone: \_\_\_\_\_  Single Family Dwelling  Industrial  School  
 Number of storeys above ground: \_\_\_\_\_ below ground: \_\_\_\_\_  Multi-residential  Offices  Government  
 Number of residential units (multi-residential building): \_\_\_\_\_  Emergency Services  Commercial  Other: \_\_\_\_\_

**Evaluation**  
 Investigate the building and area around it for the conditions below and check the appropriate column. **Estimated Building Damage (excluding contents)**

Observed Conditions:	Minor/None	Moderate	Severe	Estimated Building Damage (excluding contents)
Collapse, partial collapse, or building off foundation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> None
Building or storey leaning / out of plumb	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> 1 - 10 %
Damage to primary structural members, racking of walls	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> 11 - 30 %
Falling hazards such as chimney, parapet, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> 31 - 60 %
Ground movement or slope failure, scour, erosion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> 61 - 99 %
Damaged / submerged fixtures or services, (electric / gas)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> 100 %
Proximity risks / other (specify): _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Number of residential units not habitable: \_\_\_\_\_  
 Comments: \_\_\_\_\_

**Posting**  
 Severe conditions endangering the overall building are grounds for an Unsafe posting. Localised Severe and overall Moderate conditions may allow a Restricted Use posting. Where required, ensure that RESTRICTED USE and UNSAFE placards are posted at all entrances.

INSPECTED (Green placard)  RESTRICTED USE (Yellow placard)  UNSAFE (Red placard)

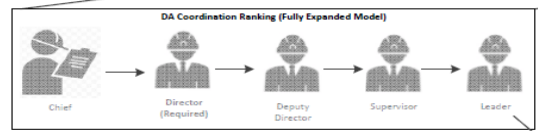
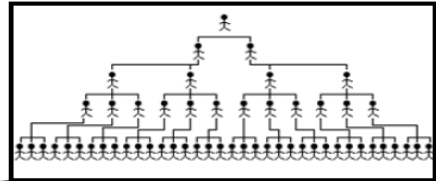
Record any use and entry restrictions exactly as printed on the YELLOW placard:

Do not enter or use the following areas: \_\_\_\_\_  
 Brief entry allowed for access to contents: \_\_\_\_\_  
 Do not use flooded/damaged appliances, devices or services (electric, gas) until recertified by a licensed contractor  
 Other restrictions: \_\_\_\_\_

**Further Actions** Check the boxes below only if further actions are needed.  
 Barricades needed in the following areas: \_\_\_\_\_  
 Detailed Evaluation recommended  Structural  Geotechnical  Other \_\_\_\_\_  
 Other recommendations: \_\_\_\_\_

# Step 6

## Damage Assessment Span of Control

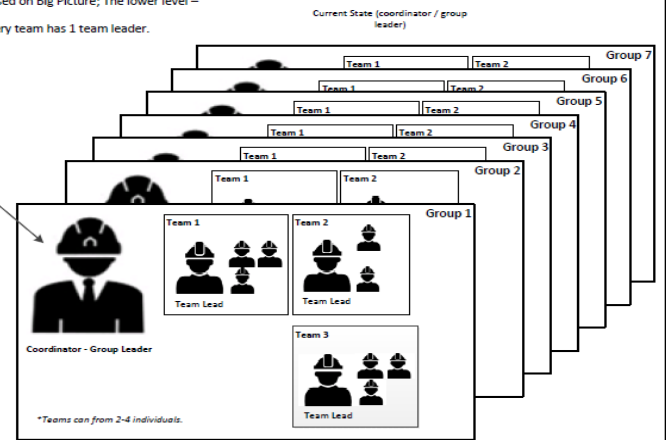


- With every level of escalation, the scope and impact of decision increase – less tactical detail more focus on the operational
- The higher level – focused on Big Picture; The lower level – focused on Details
- At the lowest level; Every team has 1 team leader.

**Damage Assessment Branch Chief**  
 Responsible for public messaging  
 Looking outward coordinating with the other branches of the EOC and coming up with the damage assessment strategy / policy

**Advanced Planning (future looking)**  
 Damage assessment fits into advanced planning as well as operations branches. The DA coordination ranking could be utilized within each branch.

- Current State - Coordination responsibilities include:
- Resources Capacity Management – What is needed need vs. what is actually allocated
  - Time management (ex. Briefing / communications)
  - Dealing with logistics for a given damaged area of operations (ex. Responsible for a particular geographic area)
  - Operational planning (on the grounds; current operational period)



**INSPECTED**  
 NO RESTRICTION OF USE OR OCCUPANCY

Facility name and address: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

This structure has been inspected for life safety purposes only and no apparent safety hazard was observed that would restrict use or occupancy.

Inspected Exterior Only  Inspected Exterior and Interior

Inspector Comments: \_\_\_\_\_

A more comprehensive inspection may reveal safety hazards. Report any unsafe condition to local authorities; reinspection may be required.

This facility was inspected under emergency conditions for: \_\_\_\_\_ (Date/Time)

Inspector ID / Agency: \_\_\_\_\_

**RESTRICTED USE**

Facility name and address: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

**Caution:** This structure has been inspected for life safety purposes only and found to be damaged as described below.

Entry, occupancy, and lawful use are restricted as indicated below:

Do not enter or use the following areas: \_\_\_\_\_  
 Brief entry allowed for access to contents: \_\_\_\_\_  
 Do not use flooded/damaged appliances, devices or services (electrical, gas) until recertified by a licensed contractor  
 Other restrictions: \_\_\_\_\_

This facility was inspected under emergency conditions for: \_\_\_\_\_ (Date/Time)

Inspector ID / Agency: \_\_\_\_\_

Do Not Remove, Alter, or Cover this Placard until Authorized by Governing Authority or Licensed contractor

**UNSAFE**  
 DO NOT ENTER OR OCCUPY  
 (THIS PLACARD IS NOT A DEMOLITION ORDER)

Facility name and address: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

This structure has been inspected for life safety purposes only and found to be seriously damaged and to require deconstruction as described below.

Do not enter, except as specifically authorized in writing by the authority having jurisdiction. Entry may result in death or injury.

This facility was inspected under emergency conditions for: \_\_\_\_\_ (Date/Time)

Inspector ID / Agency: \_\_\_\_\_

Do Not Remove, Alter, or Cover this Placard until Authorized by Governing Authority

Field Manual

Rapid Damage Assessment

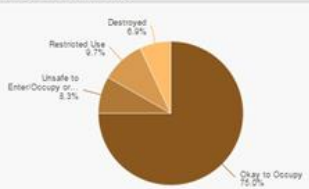
BC HOUSING



# Step 7

### Operation View - RDA

**Posting Pie Chart By Selection Only**



**Inspection Date (Descending)**

- 5/31/2016, 1:13 AM  
Building Name:  
Address:
- 5/31/2016, 1:10 AM  
Building Name:  
Address:
- 5/31/2016, 1:09 AM  
Building Name:  
Address:
- 5/31/2016, 1:07 AM  
Building Name:  
Address:

**Feature Details**

RDA: < 1 of 1130 >

Inspection Date: 5/11/2016, 3:50 PM

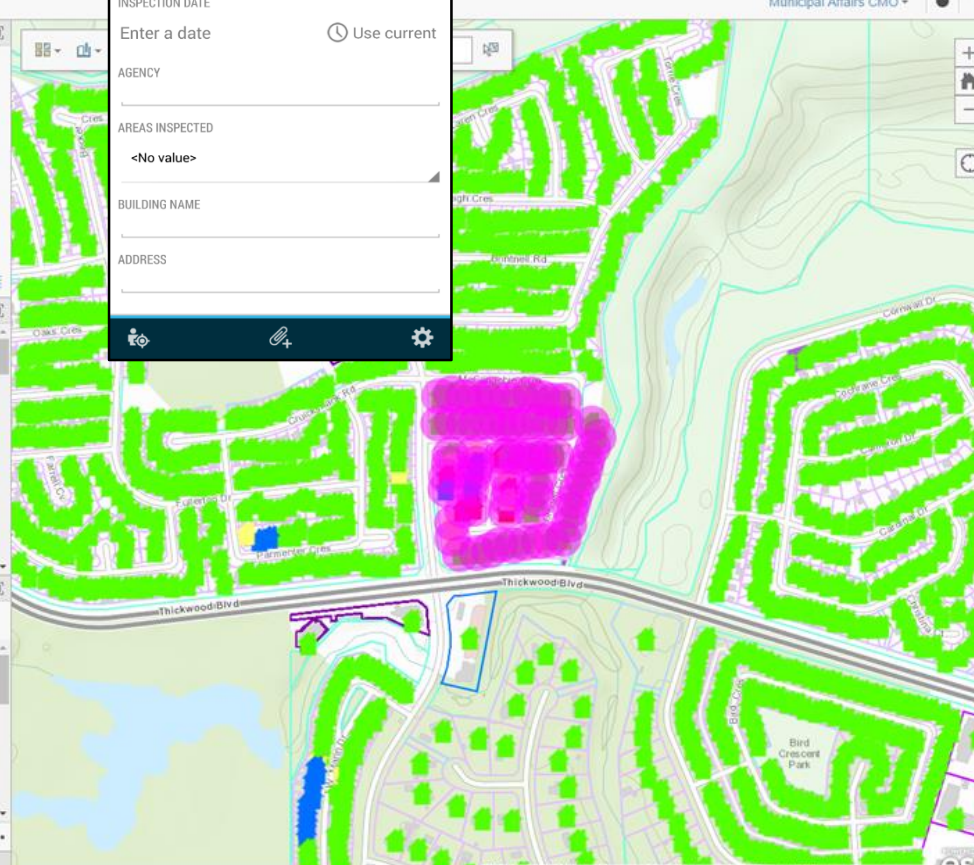
Building Name: The Ridge Phase 2

# Stories Above Ground: 4

# Stories Below Ground: 1

# Residential Units: 0

Type of Construction: Wood frame construction



**RDA:**  
long:-123.160976 lat:49.225479

INSPECTOR ID

INSPECTION DATE  
Enter a date Use current


AGENCY

AREAS INSPECTED  
<No value>

BUILDING NAME

ADDRESS

# Step 8



## BC Housing Building Assessor Registry

[Log in to your account](#)

**Search**

**Search**


▼ Background or Credential

- [Architect \(1\)](#)
- [Building Official \(1\)](#)
- [Engineer or Geoscientist \(1\)](#)
- [Other Credential \(1\)](#)
- [Technologist \(1\)](#)

Thank you for your interest in registering as a Building Emergency Assessor with BC Housing. The purpose of the Building Assessor Registry (BAR) is to create and maintain a database of assessors who are trained to perform damage assessments and/or coordination of damage assessments. In an emergency, Assessors may be asked to deploy to assist in other communities based on their availability. Additional information on Post-Disaster Building Assessments, and Building Emergency Assessment in BC and the BAR can be found in the Document Library on the [BC Housing Website](#).



Please select the Background or Credential on the left which best describes your background or training.



HOME OPPORTUNITIES SCHEDULE HOURS CONTACT MY PROFILE

### Qualifications

7 Help Log Out

Qualifications for BCH

QUALIFICATION	LEVEL	EXPIRY DATE
ATC 20	0 <input type="text"/> <input type="checkbox"/>	<input type="checkbox"/>
ATC 45	0 <input type="text"/> <input type="checkbox"/>	<input type="checkbox"/>
BC Housing RDA Training	0 <input type="text"/> <input type="checkbox"/>	<input type="checkbox"/>
BC Housing CDA Training	0 <input type="text"/> <input type="checkbox"/>	<input type="checkbox"/>
AIBC DA Training	0 <input type="text"/> <input type="checkbox"/>	<input type="checkbox"/>
SEABC DA Training	0 <input type="text"/> <input type="checkbox"/>	<input type="checkbox"/>
Sesmic Retrofit Guidelines 2nd Edition - BC Ministry of Education	0 <input type="text"/> <input type="checkbox"/>	<input type="checkbox"/>
ICS 100-Incident Command	0 <input type="text"/> <input type="checkbox"/>	<input type="checkbox"/>
ICS 200-Incident Command	0 <input type="text"/> <input type="checkbox"/>	<input type="checkbox"/>
ICS 300-Incident Command	0 <input type="text"/> <input type="checkbox"/>	<input type="checkbox"/>
ICS 400-Incident Command	0 <input type="text"/> <input type="checkbox"/>	<input type="checkbox"/>
CaEMO SAP	0 <input type="text"/> <input type="checkbox"/>	<input type="checkbox"/>
NIMS/IS 800-National Response	0 <input type="text"/> <input type="checkbox"/>	<input type="checkbox"/>
USACE Structures Specialist I	0 <input type="text"/> <input type="checkbox"/>	<input type="checkbox"/>
USACE Structures Specialist II	0 <input type="text"/> <input type="checkbox"/>	<input type="checkbox"/>

**Save**

# Step 9



# Step 10



## Emergency Lodging Design Guidelines

