

# International Code Council Annual Business Meeting Global Forum 2015

## Improving Community Resilience Through Public-Private Partnerships: The \*B2B Program Strategy

**\*A BUILDING OCCUPANCY RESUMPTION PROGRAM (BORP)**



TM

# After the Loma Prieta EQ in 1989:

- **4** days after EQ before Mutual Aid/OES Inspectors started inspections
- **14** days for San Francisco & Mutual Aid inspectors to inspect all major buildings, & months to get to ALL
- Average **21** days for Owners to find & engage a Structural Engineer
- **Months** for follow-up decisions & actions on **360** Red-tagged buildings in S. F.



*"Some damaged commercial buildings turned up after months or even years! In a few cases, the owners had reports from private engineers indicating serious problems but neither owner nor engineer told the City."*

*– Laurence Kornfield, former Chief Building Inspector*

# Are building owners ready to be shut down for an indefinite period?

- Inspectors' priorities will be healthcare, schools and public buildings
- There is no guarantee of when the city's inspectors will come by to inspect a building
- There is no guarantee of how well a building will perform
- Even if a new building is designed and constructed to new building code, how long will it take to get it reopened?
- **If a building is fine, the owner wants a Green tag ASAP!**

**INSPECTED**  
LAWFUL OCCUPANCY PERMITTED

This structure has been inspected (as indicated below) and no apparent structural hazard has been found.

☐ Inspected Exterior Only  
☐ Inspected Exterior and Interior

Report any unsafe condition to local authorities; reinspection may be required.

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

Facility Name and Address \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Date \_\_\_\_\_  
Time \_\_\_\_\_

(Caution: Aftershocks since inspection may increase damage and risk.)

This facility was inspected under emergency conditions for: \_\_\_\_\_  
(Jurisdiction) \_\_\_\_\_

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

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

# A typical multi-story building

- 6 stories, steel frame, 1990's construction
- After a nearby significant EQ (say 6.7 mag.), resulting in MMI of VII
  - Sheet rock cracking throughout
  - Loss of power
  - Displaced ceiling tiles
  - Cracking visible throughout the exterior façade
  - Cracked and limited loss of exterior glass



*VII. Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken.*

# After an EQ, The wait for re-occupancy can be weeks and even months....

## For A Hypothetical **Yellow**-Tagged Building

**Weeks**

**1**

**2**

**3**

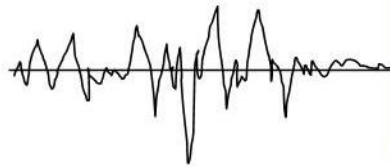
**4**

**5**

**6**

**7...more**

**CURRENT PRACTICE WITH CITY & OES INSPECTORS**



Initial Inspections &  
Posting by City  
Inspector

**When?, What Posting?  
Is Posting correct?**

Immediate Measures  
for Re-occupancy



**Find & hire a  
Structural Engineer**

Reclassifications &  
Re-occupancy

???

*How long will it take to legally  
re-occupy the building?*



# An idea generated in San Francisco after Loma Prieta.....

- Effort led by City DBI and Structural Engineers Association of Northern California
- Program launched in 1995 with first approved building in 1997
- To date, over 100 buildings have been approved
- Established in nearly a dozen
- jurisdictions



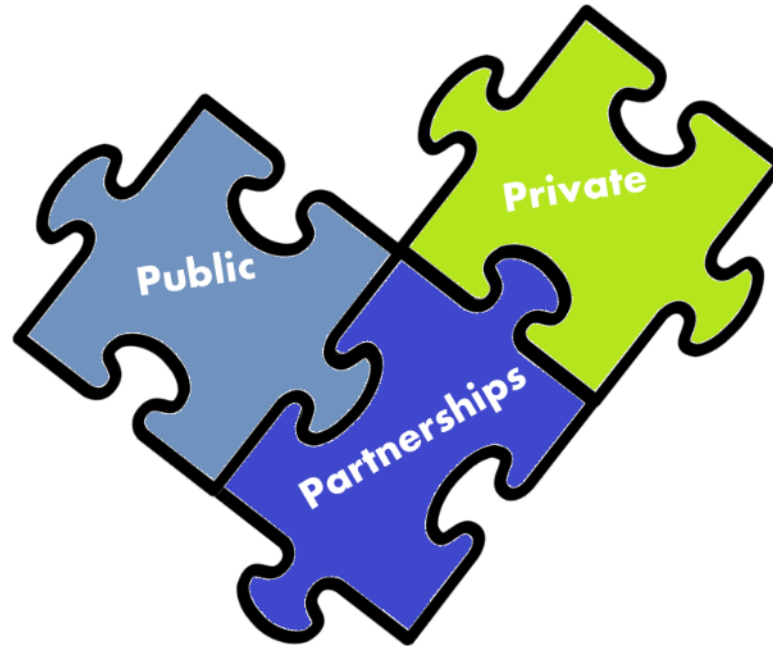
# ..... And now in Southern California

*"After experiencing the wide-spread effects that the Northridge Earthquake had on the entire Greater L. A. Basin Region, I am convinced that a pre-established private-public partnership is the most effective path to rapid recovery of individual business institutions."*

Stuart Tom, PE, CBO  
Chief Fire Marshall, City of Glendale

# B2B: A Public-Private Partnership

City Dept.  
of Building  
& Safety



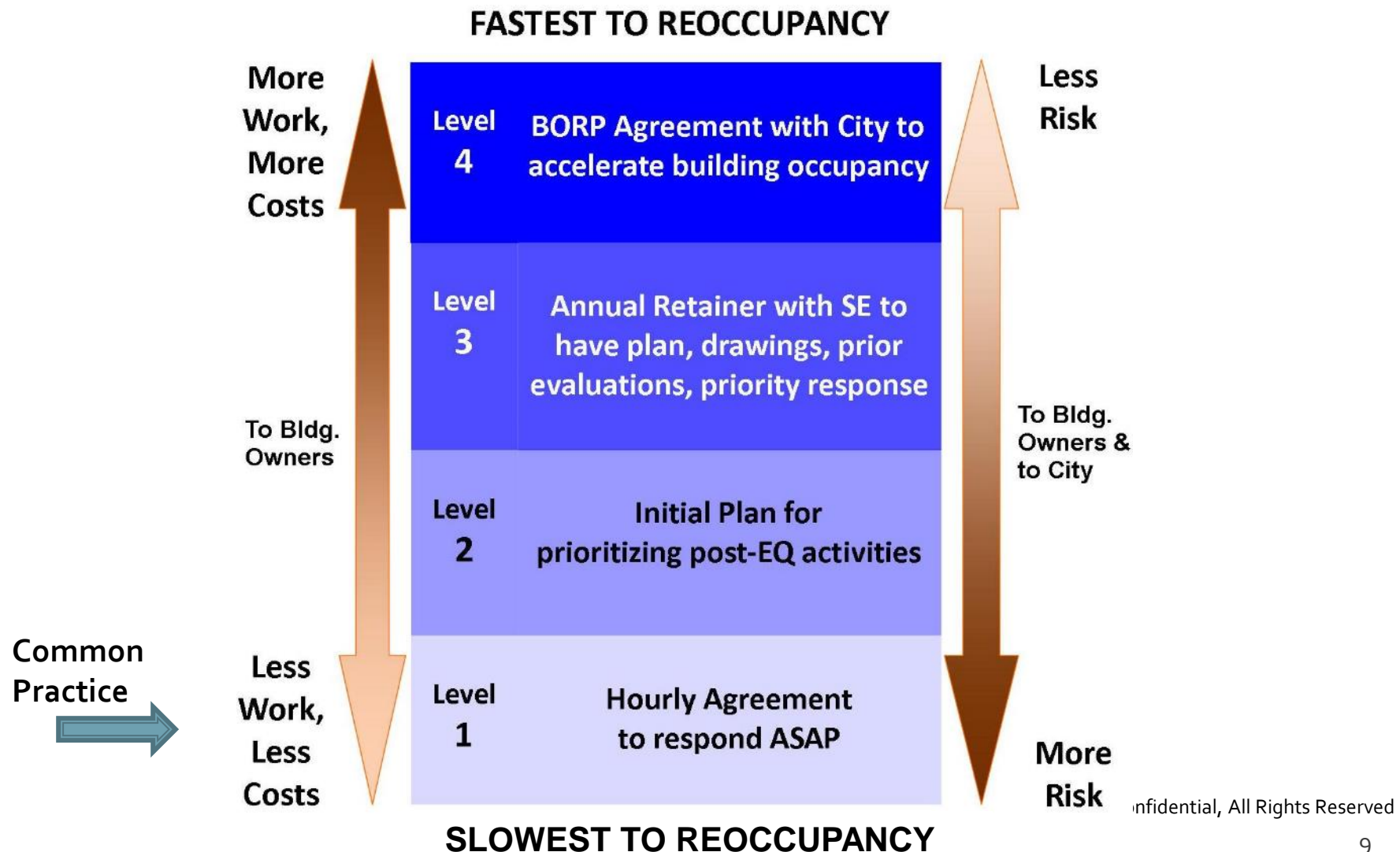
Building  
Owner &  
Consultant

Cost of program  
is covered by  
Owner fees

*Back to Business  
Program*



# An Owner's Options for Post-EQ Response Plan Levels



# A Comprehensive Plan (Level 4)

- Retain a Structural Engineering consultant
- Inventory & rapid evaluation of all buildings
- Select buildings to considering:

Rapid  
Evaluation  
Conclusions



- Safety
- Critical use
- Evacuation
- Shelter
- Others

Location Name	Location Number	Other Identifier	Location Type	Street Address	Structural System	Approx. Date Constr or Retrofit	Description	Building Vulnerability Level of Expected
<b>Main Lot Buildings</b>								
Exterior Sets				4000 Warner Boulevard	HWF			Low
Exterior Sets (Houses)				4000 Warner Boulevard	LWF			Moderate
Building 1	B1		Building	4000 Warner Boulevard	LWF	1930	2-story	Moderate
Building 2	B2		Building	4000 Warner Boulevard	LWF	1926	2-story	Moderate
Building 3	B3		Building	4000 Warner Boulevard	LWF	1926		Moderate
Building 5	B5		Building	4000 Warner Boulevard	LWF	1940		Moderate
Building 8	B8		Building	4000 Warner Boulevard	LWF	1960?		Moderate
Building 9	B9		Building	4000 Warner Boulevard	LWF			Moderate
Building 14	B14		Building	4000 Warner Boulevard	LWF	1926		Moderate
Building 15	B15		Building	4000 Warner Boulevard	LWF			Moderate
GDMX	WB1058	GDMX	Building	5432 W. 102nd St., Los Angeles	TU			High

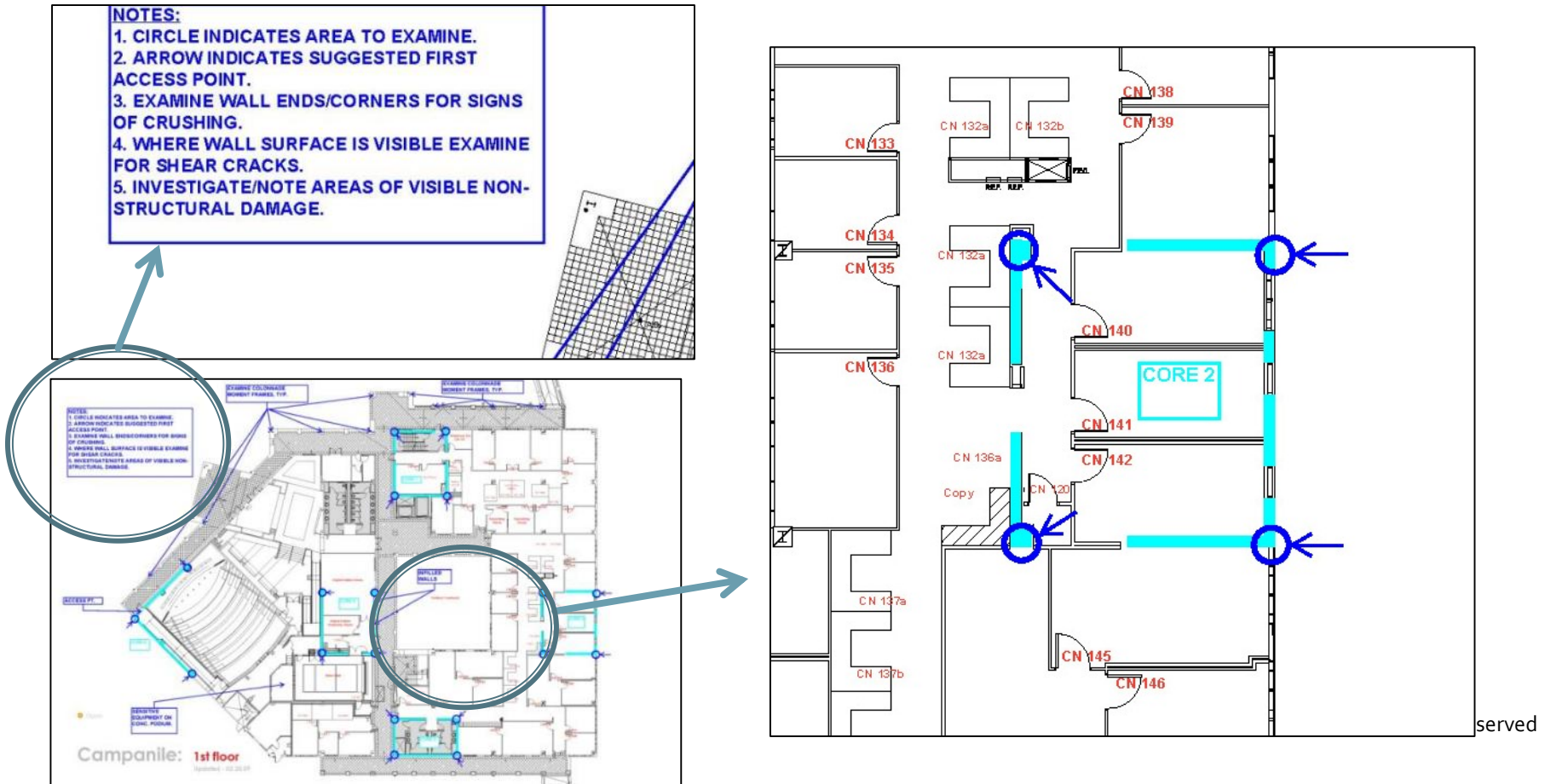
  

<b>Structural Systems</b>	<b>Building Vulnerability</b>
LWF - Light Wood Frame	High - more damage
HWF - Heavy Wood Frame	Moderate - some damage expected
M - Reinforced Masonry	Low - less damage to none expected
C - Reinforced Concrete	
TU - Tilt-Up Concrete Panels	
SS - Structural Steel Frame	
LSS - Light Structural Steel	
Temp - Portable/Trailer	
URM - Unreinforced Masonry	

- Tier 1 Seismic Evaluation of selected buildings

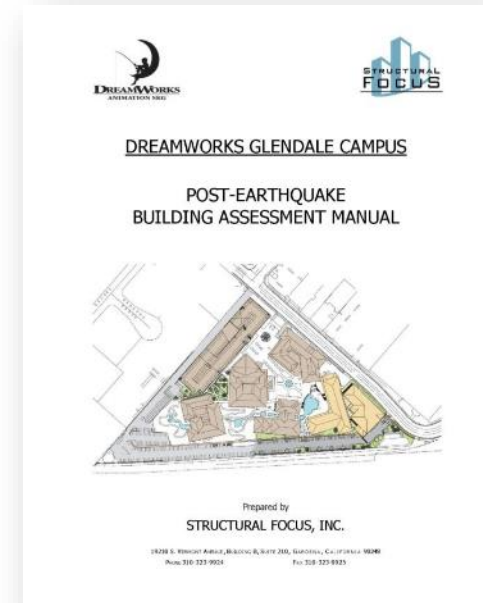
# Investigation Points within each building

- Prepare notebooks and reference materials for selected buildings



# A Comprehensive Plan (Level 4)

- Train key building owner staff:
  - Managers, Facilities, Floor Wardens, Building Mgrs., Security
- Establish communication paths
- Establish inspection triage procedures
- Establish access and authorizations
- Participate in disaster drills
- **Submit B2B Program applications for each building with designated Inspectors**
- Conduct annual updates



# Deputization & implementation

- Each Building is assigned a **specific pretrained & prequalified designated Inspector** (and back-ups) that will be automatically deputized in the event of a declared Emergency.
  - SAP training is required.
- Follows ATC-20 procedures
- Emergency provisions for shoring and repairs to planned in advance.
- Protocols for communications with City are established in advance.

# Inspections are more effective with a *B2B Program*

- A designated Engineer is committed to respond right away
- Already has studied the building – knows where the vulnerabilities are, as well as critical functions and exits
- Will not be overly conservative while posting
- Can help train owner's staff to be more effective
- B2B Program works even if communications are down
- Will not leave the building to inspect other buildings, will follow up with actions needed to reoccupy as soon as possible
- Will be there to re-inspect after an aftershock



# What about Liability?

- CA Code 8656: All of the **privileges and immunities from liability**, exemptions from laws, ordinances and rules; all pension, relief, disability, worker's compensation, and other benefits which apply to the activity of officers, agents, or employees of any political subdivision when performing their respective functions with the territorial limits of their respective political subdivisions, **shall apply to them to the same degree and extent while engaged in the performance of any of their functions and duties** extraterritorially under this chapter.
- CA Code 8657: (1) **Volunteers duly enrolled or registered with the Office of Emergency Services or any disaster council of any political subdivision**, or unregistered person duly impressed into service during a state of war emergency, a state of emergency, or a local emergency, in carrying out, complying with, or attempting to comply with, any order or regulation issued or promulgated pursuant to the provisions of this chapter or any local ordinance, or performance any of their authorized functions or duties...., **shall have the same degree of responsibility for their actions and enjoy the same immunities as officers and employees of the state and its political subdivision performing similar work for their respective entities.**

# What about Liability?

- The B2B Inspectors are subject to same legal provisions as City and SAP Inspectors
- Inspections are based on a prior detailed knowledge of the structure
- Approved B2B Inspectors are SAP trained (ATC-20) and are Licensed Professionals
- Results: **Inspection will be of higher quality than those by local Building Inspectors or by SAP Inspectors**

# Minimum requirements for B2B Application

- Emergency contact info
- Building Info: address, photos, floor plans, etc.
- Emergency Response information: emergency trigger info, access procedures, Inventory of available docs & equipment
- Emergency Inspection Procedures:
  - Inspection guidelines (ATC-20)
  - detailed instructions (where to look for damage, how to look, what to look for, etc.),
  - procedures following aftershocks
- Precertification of building
- Emergency Inspector Authorization
- Annual or Biennial Program Renewal

# B2B Reduces Danger

- Delays in inspection increase the likelihood of people re-entering an unsafe building
- Relieves the uncertainties associated with Inspectors unfamiliar with the buildings
- Minimizes the time period after an EQ and before Inspections can be performed

# B2B Reduces Damage

- Building assessments may lead to some pro-active retrofitting
- Inspectors will be more familiar with structures and better understand damage
- Program can include some damage assessment training of your staff
- Response is faster and actions can be taken faster to mitigate further damage

# B2B Reduces Downtime

*"The United States Geological Survey (USGS) estimates that the cost of damage due to actual ground shaking will be doubled by fire, and that total cost will be doubled again by business interruption. So shaking damage is 25% of the total cost while **Business Interruption is 50%.**"*

- Dr. Lucy Jones, Senior Science Advisor for the Natural Hazards Mission of the US Geological Survey



# B2b Reduces Downtime

## For A Hypothetical **Yellow**-Tagged Building



# B2B supports our Communities' Resilience

- Insures Citizens' SAFETY
- Keep major "Clients" happy
- Reduces the number of buildings that City is responsible for inspecting
- Reduces Business Interruption costs for Building Owners
- Maintains strong tax base for City

***The City has an obligation to help get buildings operating safely as soon as possible***

# B2B supports our Communities' Resilience

- May result in proactive retrofitting before EQ
- Increases City's resilience & should reduce overall recovery time
- **Increases citizens' confidence in City government**

# The Future?

- Establish a B2B Program at potential locations other types of disasters/emergencies where there is a regional impact & potentially low supply of regular City inspectors
- Include updated B2B processes in future ATC-20 documents
- Collect & analyze data to convince the actuaries that B2B reduces business continuity risks, and therefore reduce insurance premiums
- Incorporate technology – instrumentation, portability, reporting...
- Revisit provisions for emergency shoring and repair permits

# B2B: A P3 that inspires confidence

- **Owners** know that they have reduced their risks
- **Clients** know that the facility will be up and running sooner to service them
- **Tenants** feel safer and are confident because of their reduced business risks
- **Employees** feel safer and confident their jobs will be secure
- **Increases Citizens'** confidence in City government

# B2B: A P3 that inspires confidence



*"B2B creates confidence that officials are acting to get the city back to work, safety is increased and downtime is reduced."*

Laurence Kornfield,  
former Chief Building Inspector,  
City of San Francisco



# B2B Progam:

## A BUILDING OCCUPANCY RESUMPTION PROGRAM

Questions?



Resources:

[www.safeqinstitute.com](http://www.safeqinstitute.com)

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

<http://seaonc.org/building-occupancy-resumption-program>