

City of Ashland Building Division Disaster Response and Facts

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Building Safety Division

- Community Development Department
 - Planning Division
 - Housing and Code Compliance
 - Building Division
 - Building: 3 Inspectors, 2 Counter Staff
- Director: Bill Molnar

Overview

- Disaster from Earthquake and Floods
 - Different Seismic classifications
 - Flood inundation areas
- 2011 Oregon Residential Specialty Code
 - Foundations and Soils
 - Light frame vs. Masonry
 - Nonstructural elements
 - What you can do to your older home
- 2010 Oregon Structural Specialty Code
 - T-bar Ceilings
 - Construction methods
- Building Division Response



Seismic Categories

- Seismic Design Category A: Minor Ground Shaking
- Seismic Design Category B: Moderate Ground Shaking
- Seismic Design Category C: Moderate to Severe Ground Shaking
- Seismic Design Category D: Severe to Destructive Ground shaking but not near a fault line
- Seismic Design Category E and F: Near Major Fault Lines, Violent Ground Shaking, Rock and Soils of no consequence.



Ashland Oregon

- Seismic Zone D-1
- Flood Hazard Maps Available at www.ashland.or.us
 - Bear Creek
 - Ashland Creek
 - Clay Creek
 - Hamilton Creek

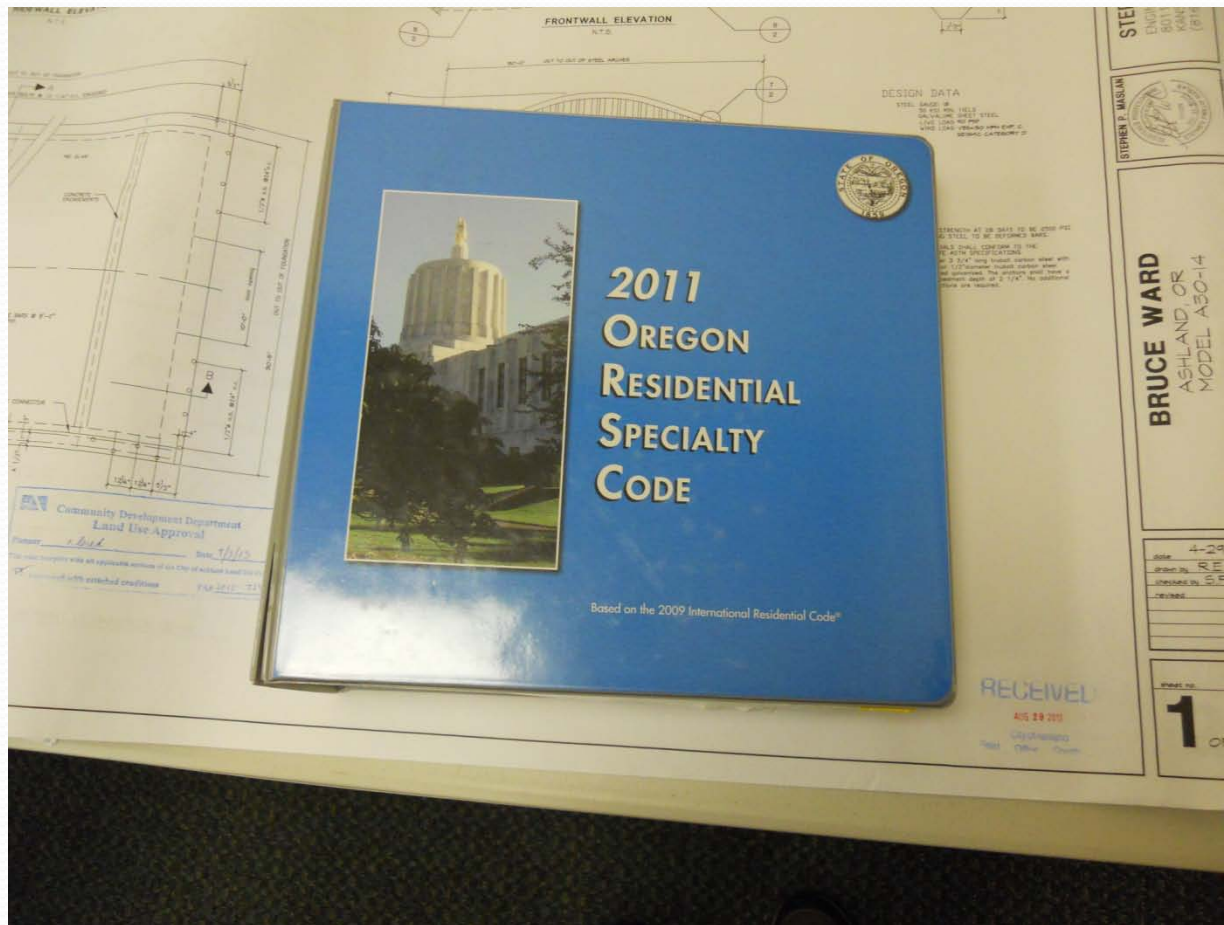


Earthquake Shake Table Tests

- <http://www.youtube.com/watch?v=kc652Zp5qWk>
- <http://www.youtube.com/watch?v=hSwjkG3nv1c>



Oregon Residential Specialty Code



Foundations

- Portland Commissioner Steve Novick offers an opinion: Bolt your House Down!
- Homes built before 1970
- Estimated Cost: \$3,000.00 to \$4,000.00



Ashland Housing Data

- 2011 US Census
 - 10,145 Housing Units
 - 7,327 Single Family Homes
- 4096 SFR's Built before 1970 or 55% of all single family homes likely are not bolted to their foundation.



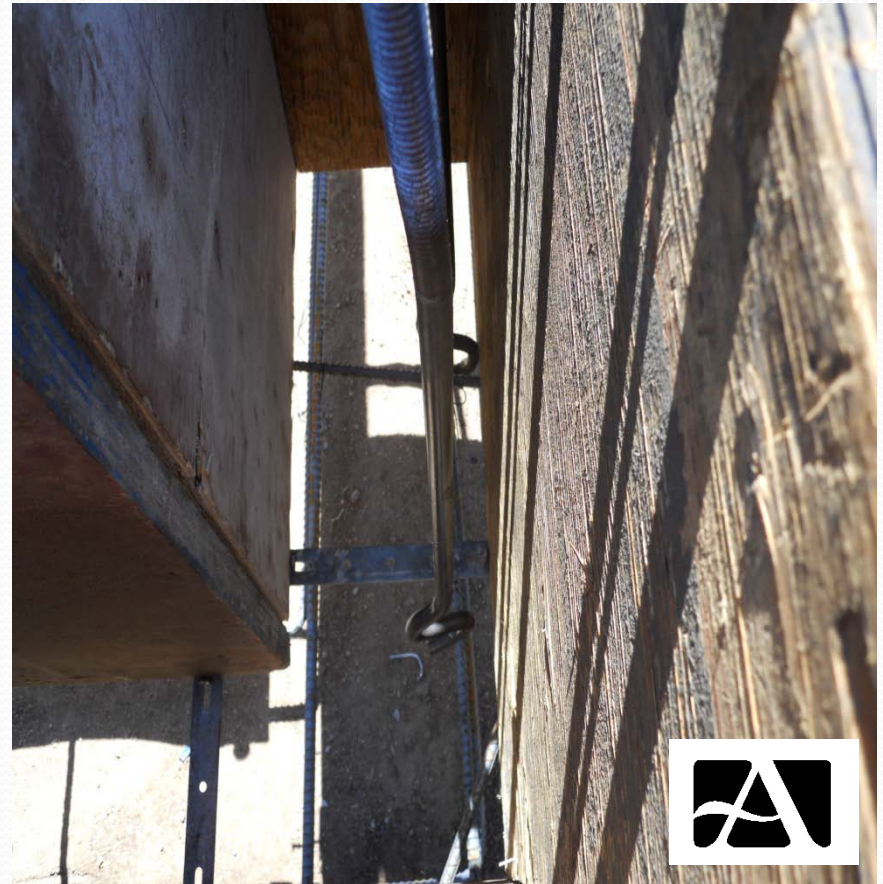
Typical Hold Down at wall/floor



Another Type of Hold Down



Hold Down Anchor Bolt at a Foundation Corner



Foundation Anchors

Note the 3" washer
below now
required by code.



Soils and Liquefaction

- Soil Liquefaction describes a phenomenon whereby a saturated or partially saturated soil substantially loses strength and stiffness in response to an applied stress, usually earthquake shaking or other sudden change in stress condition, causing it to behave like liquid.
- Geologic surveys required for most new homes and buildings
- Quiet Village, Mill Pond, Ashland Hillside



Niigata Japan, Earthquake, 1964



Building Construction

- Light Framing vs. Masonry
 - Wood Framed Structures perform better in an earthquake
 - Heavy materials such as concrete or masonry tend to fail unless reinforced
 - Unreinforced Masonry



Unreinforced Masonry



Buildings – Structural Damage



(COURTESY: KNS)

Nisqually, 2001

Non Structural Elements

- Commercial or industrial equipment:
 - Electrical Services
 - Machinery
 - Racking
- In the Home:
 - Refrigerators
 - File Cabinets
 - Book Cases
 - Furniture
 - Wall Decorations
 - Water Heaters



How can you prepare your own home?

- Secure heavy and tall items to the wall
- Secure home electronics
- Install cupboard locks
- Add straps to book cases
- Secure art work and mirrors to the wall
- Take 5 to Survive
 - 5 minute projects to help you survive
 - Web Page: <http://take5tosurvive.com/>



Fallen Bookcases

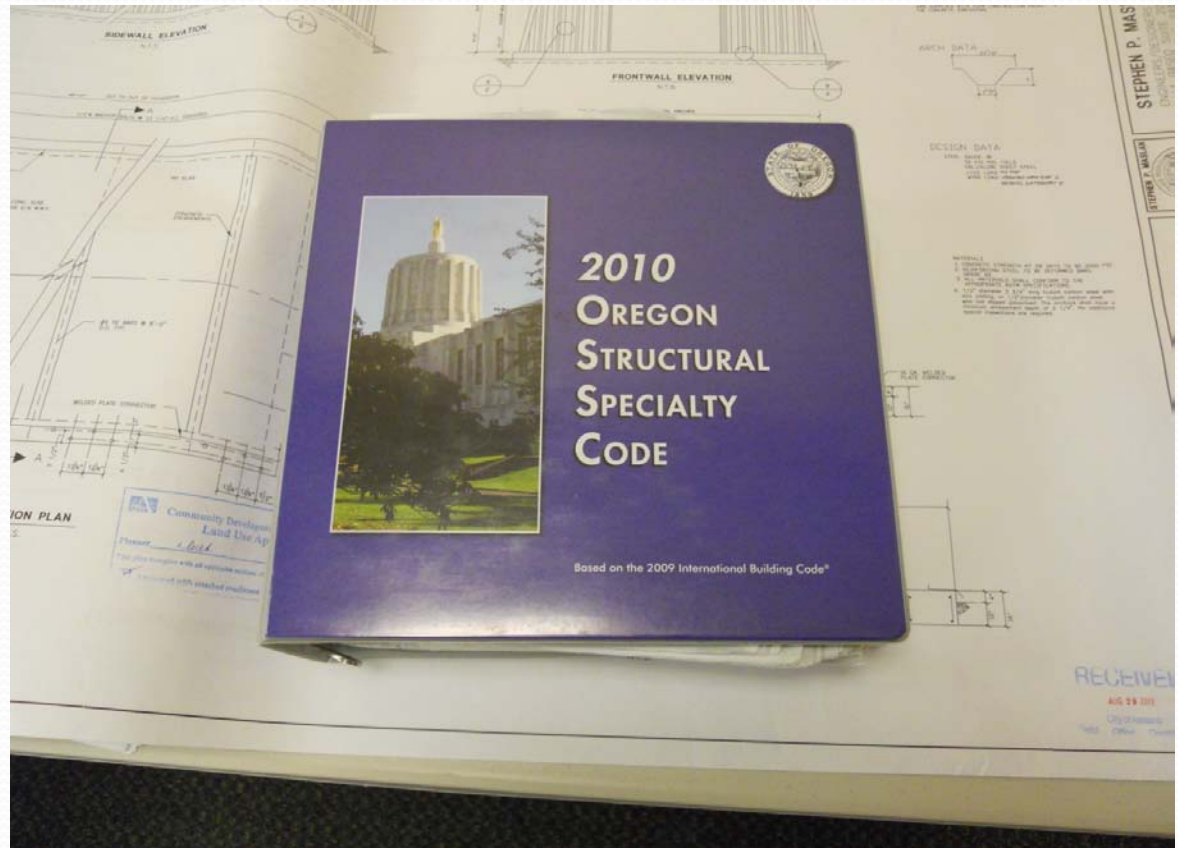


File Cabinets



OSSC, the commercial code

2010 edition

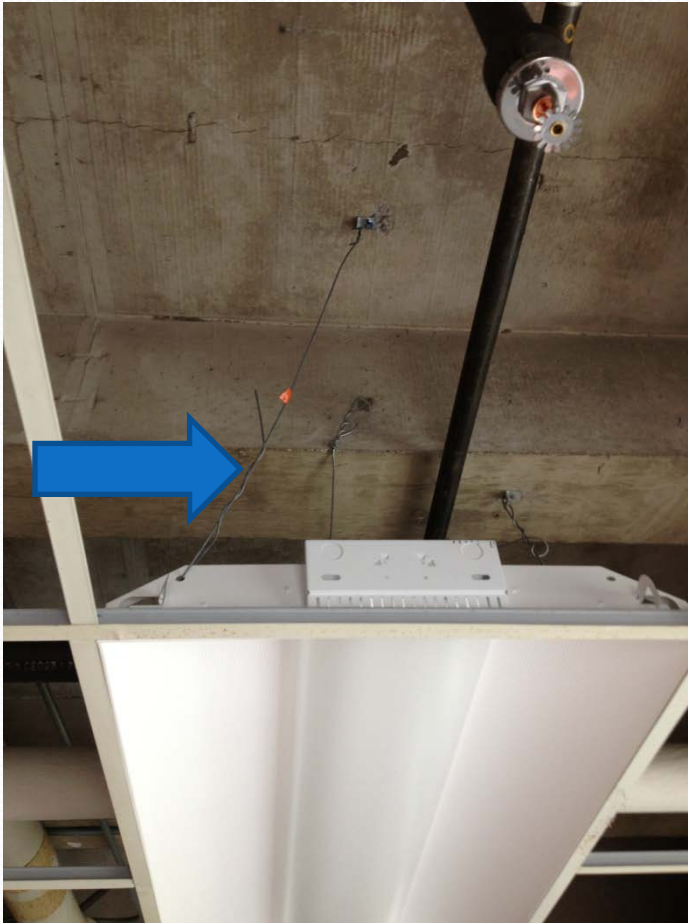


Oregon Structural Specialty Code

- Commercial Code
- Complicated nature
- Use of Rebar, steel
- Seismic retro fit of existing structures
 - Medford's Ordinance



Light Fixture at T-bar, note Earthquake support wires



Building Division Response, Post Disaster

- Oregon Law, ORS 455
 - Required Inspections
 - Right of Entry
 - ATC 20.1; ATC 45
 - Yellow
 - Green
 - Red
 - Assessment Forms



www.fema.gov

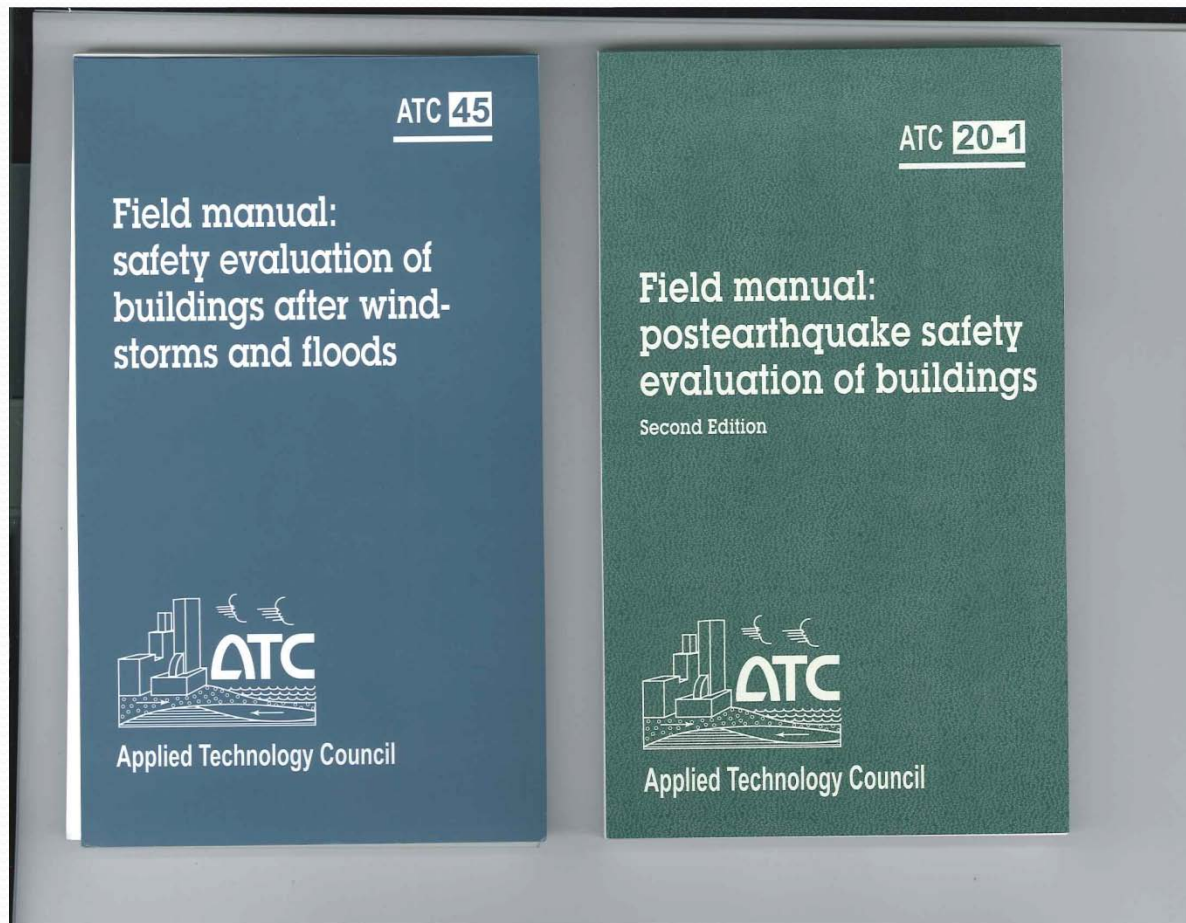


FEMA

Federal Emergency Management Agency



ATC 20-1 and 45 Field Manuals



ATC 20.1

- FEMA
- Rapid Assessment
 - Forms
 - Green Posting: OK to Occupy
 - Yellow Posting: Limited Access
 - Red Posting: No Access to the public



Green Posting

Unlimited
access to the
building or
home.



INSPECTED

LAWFUL OCCUPANCY PERMITTED

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

Date _____

Time _____

☐ Inspected Exterior Only

☐ Inspected Exterior and Interior

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

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

This facility was inspected under emergency conditions for:

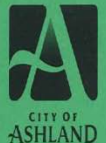
Inspector Comments:

(Jurisdiction)

Inspector ID/Agency

Facility Name and Address:

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



Yellow Posting

Limited
access to the
building or
home.



RESTRICTED USE

Caution: This structure has been inspected and found to be damaged as described below:

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

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**



Red Posting

Access
not
allowed!!



UNSAFE

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

This structure has been inspected, found to
be seriously damaged and is unsafe to
occupy, as described below:

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

Facility Name and Address:

Date _____

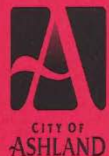
Time _____

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**



The next 4 slides provided by Clackamas County
Hazard Mitigation Coordinator, Mr. Jay Wilson

Oregon Law ORS 455

§ 455.448 Entry and inspection of earthquake-damaged structures

– warrant enforcement

§ 455.449 Unsafe condition resulting from earthquake damage

– abatement of nuisance

– rules



Source: www.eqr.co.nz



Oregon Law

Oregon's Administrative Rules

- **Post-Earthquake Damage Inspectors**
- **OAR 918-098-1600**
- **Purpose and Scope**
- The provisions of OAR 918-098-1600 to 918-098-1630 establish the background qualifications and the evaluation and testing criteria to be registered as a post-earthquake structural damage inspector.

Definitions

OAR 918-098-1610 Definitions

- (1) "**Building Inspector**" - either a general post-earthquake inspector or a limited post-earthquake inspector;
- (2) "**General Post-Earthquake Damage Inspector**" - perform post-earthquake damage and habitability assessments on all structures;
- (3) "**Limited Post-Earthquake Damage Inspector**" - perform post-earthquake damage and habitability assessments on detached one- and two-family dwellings, row houses and town-houses less than three stories in height and their accessory structures less than three stories in height.



Inspectors

OAR 918-098-1620 - Post EQ Damage Inspector Registration Requirements

Complete a division application form and complete a division approved Applied Technology Council (ATC) training course within three years of application.

- A. Registered as a **general** post-earthquake damage inspector - or;
- B. Registered as a **limited** post-earthquake damage inspector



Which Buildings will require Inspection?



Ashland Plaza?



All Affected Buildings!

- Order of Priority
 - Essential Facilities
 - Shelters
 - Homes
 - Businesses



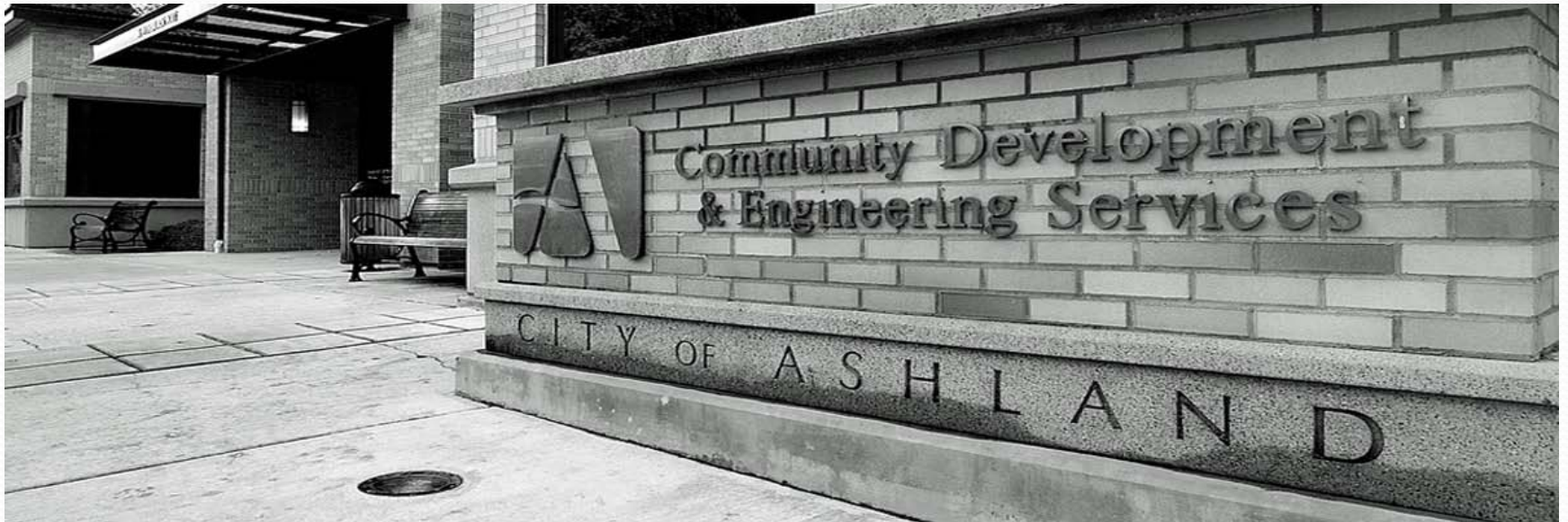
Essential Facilities



Fire Station #1



Community Development



Residential Homes



Ashland Residence



Obvious deflection of home on foundation



Kobe Japan, January 1995



In Summary

- The Building Code is constantly changing as we learn from past disasters.
- The City of Ashland and the Building Division is working hard to prepare for the unthinkable.
- But ultimately it will be up to you to take care of yourself for the first several days, take steps to be prepared!
- Thank you!

