

Understanding Building Codes
IN HISTORIC CONTEXTS
 23 October 2013
 IACC Conference | Wenatchee WA

NICHOLAS VANN, NCARB | State Historical Architect
 DEPARTMENT OF ARCHAEOLOGY AND HISTORIC PRESERVATION

Brief Overview

- Perceived and real obstacles in historic rehabilitation projects
- Where do historic buildings fit into the model codes?
- How are the obstacles overcome?

OBSTACLES
(perceived and real)

Historic buildings don't meet code.

CODE RELIEF for HISTORIC BUILDINGS
ADA / ACCESSIBILITY

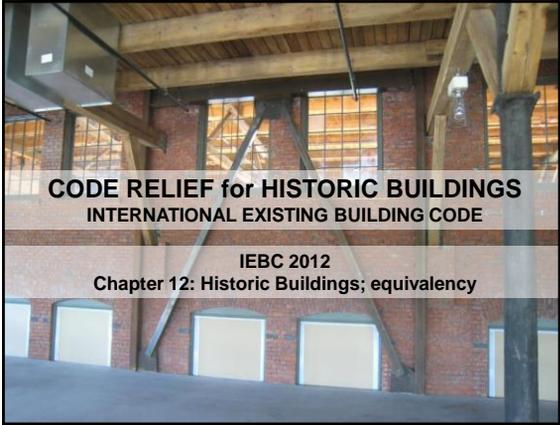
ADAAG (ADA ACCESSIBILITY GUIDELINES)
§4.1.7 Accessible Buildings: Historic Preservation

CODE RELIEF for HISTORIC BUILDINGS
ADA / Accessibility: Elevators

ADAAG 2004
§206.2.3 Multi-story buildings and facilities

CODE RELIEF for HISTORIC BUILDINGS
WA STATE ENERGY CODE (2013)

Chapter 51-11C WAC
§C101.4.2 Historic Buildings



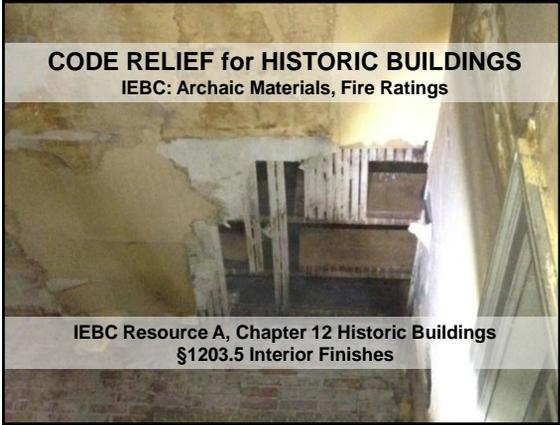
CODE RELIEF for HISTORIC BUILDINGS
INTERNATIONAL EXISTING BUILDING CODE

IEBC 2012
Chapter 12: Historic Buildings; equivalency



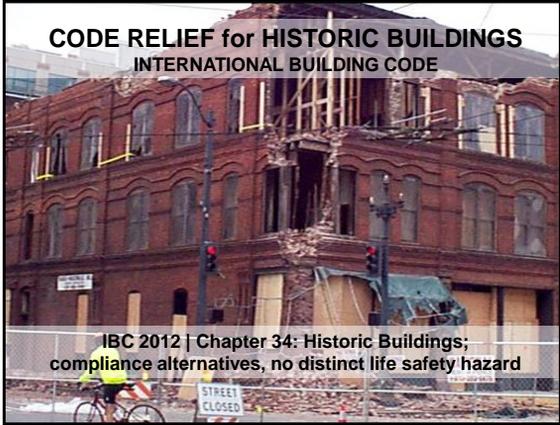
CODE RELIEF for HISTORIC BUILDINGS
IEBC: Sprinklers

Provide sprinklers in open areas or for materials not meeting fire rating requirements.



CODE RELIEF for HISTORIC BUILDINGS
IEBC: Archaic Materials, Fire Ratings

IEBC Resource A, Chapter 12 Historic Buildings
§1203.5 Interior Finishes



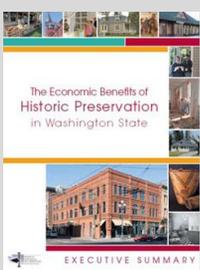
CODE RELIEF for HISTORIC BUILDINGS
INTERNATIONAL BUILDING CODE

IBC 2012 | Chapter 34: Historic Buildings;
compliance alternatives, no distinct life safety hazard



OBSTACLES
(perceived and real)

Historic rehabilitation is expensive.



ECONOMIC BENEFITS

- **Increase property values**
 - reuse vs. blight
- **Increase heritage tourism**
- **Historic tax credits**
 - Generate \$1.27 in Federal tax revenue per \$1 of credit
- **Job creation**
 - construction and permanent

For complete report, go to: <http://www.dahp.wa.gov/economic-benefits>



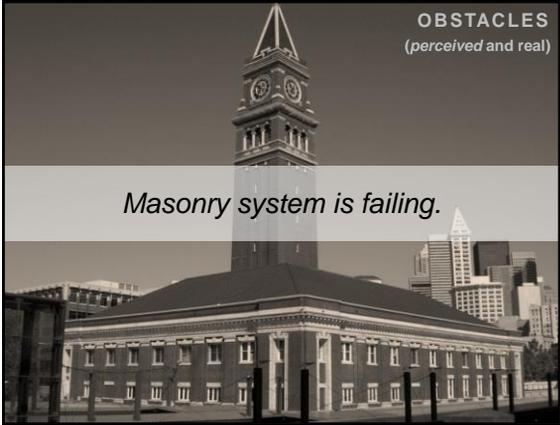
LEAKY WINDOWS: SOLUTION

- **Storm windows!** Interior works best in our climate. **Weatherstripping** helps, too.
- Don't blame the windows for air infiltration or leaking – most warm air will escape through the attic. Cold air enters through crawl spaces.
- Insulate attic and crawl spaces first! Then insulate around plumbing, electrical outlets, dryer vents, etc. Then maybe the walls. Then your neighbor's non-historic house. Then maybe your windows could be replaced in-kind. Maybe. But probably not.
- R-values.... (higher = better)
 - Single pane window: 1.0
 - Double pane replacement: up to 5.0
 - **Single pane w/ storm: 2.0**



OBSTACLES *(perceived and real)*

Masonry system is failing.



MOISTURE INTRUSION



MOISTURE INTRUSION: SOLUTION

- Proactive maintenance
- Keep exterior surfaces clean
- Don't use Portland Cement-based mortar mixes if your building dates pre-1930s
- Insulation may be causing the problem
- **Preservation Brief 39:** Controlling Unwanted Moisture
- **Preservation Brief 3:** Improving Energy Efficiency
- Weep holes help your building breathe!



PAINT FAILURE



OUCH, THAT HURTS!



PAINT FAILURE: SOLUTION

- Clean the substrate
- Test cleaning solutions on a small, unobtrusive area first
- Don't use heavy chemical cleaners
- Don't sandblast, machine grind, or pressure wash
- These can remove the fired face of the brick, which keeps moisture out and prevents structural failure
- Can lead to moisture intrusion
- **Preservation Brief 10:** Exterior Paint Problems



SEISMIC RETROFIT / URM

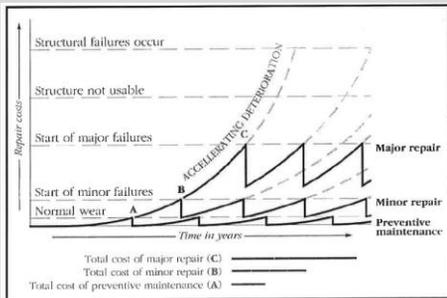


SEISMIC RETROFIT: SOLUTION

- Secure decorative elements – anchors, tiebacks, etc
- Strengthen floor to wall connection
- Tierods for masonry veneer walls
- Core drill for reinforcement in multi-wythe walls
- Proper mortar mixes for masonry
- Eccentricity? Soft story?
- Braced frame vs. moment frame
- Strengthen parapets



ACTIVE MAINTENANCE vs. DEFERRED MAINTENANCE



Questions?

NICHOLAS VANN, NCARB | State Historical Architect
 DEPARTMENT OF ARCHAEOLOGY AND HISTORIC PRESERVATION
 (360) 586-3079
 nicholas.vann@dahp.wa.gov

