

## Workshop M2

*Monday, October 9, 9:00 a.m.–noon and 1:30–4:30 p.m.*

# ***RISK MANAGEMENT FOR CONDOMINIUM PROJECTS***

## ***“Multi-Family Risk”***

Presented by



**Stanley R. Luhr**  
Founder & CEO  
Quality Built

Condominium projects present one of today's most perplexing construction risk management challenges. In this era of rampant urban revitalization, renovation projects have introduced new risks and new challenges for contractors and developers. This session will provide strategies for both the construction and nonconstruction phases of a condominium project, from writing the contracts to ensuring the quality of the work.

- Describes key risk exposures for both newly built and conversion projects.
- Outlines contractual strategies for limiting, allocating, and insuring project risks.
- Examines high-risk defects and provides key strategies for avoiding them.

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**Stanley R. Luhr**  
**Founder & CEO**  
**Quality Built**

Mr. Luhr is copresenter for Workshop M2, "Risk Management for Condominium Projects," on Monday. He is CEO and founder of Quality Built®, the nation's largest construction quality assurance firm serving over 2,000 active projects in 27 states. He is also President of Pacific Property Consultants, a third-party construction inspection firm he founded in 1984.

Mr. Luhr has served as a construction forensic expert on more than 2,800 construction defect cases, providing testimony in more than 90 trials and 500 depositions on projects as large as 1 million homes and \$2.3 billion in case value. In 1994 Mr. Luhr began accumulating this builder and product failure information into a computer-based information system that has become the hallmark of the Quality Built® program. His leadership in assessing construction quality has led to greatly improved housing quality across the country for most major builders who employ the Quality Built process.

Quality Built's history of success is documented in the statistics gathered from more than 278,560 homes in the Quality Built program since 1994.

Nearly every major insurance company in America has recognized Quality Built's patent-pending process as a significant risk management tool and several companies exclusively mandate the Quality Built program to their insured clients.

Mr. Luhr has lectured extensively at NAHB, PCBC, Benchmark, Mid-West Builders Conference, EEBA, Affordable Comfort, American Society for Quality World Congress, Urban Land Institute, IRMI, CFMA, ASHI, CREIA, NAHB Builder 20 Groups, and countless other builder training events nationwide.

## ***Notes***

This file is set up for duplexed printing. Therefore, there are pages that are intentionally left blank. If you print this file, we suggest that you set your printer to duplex.



# Multi-family Risk

26<sup>th</sup> IRMI Construction Risk Conference  
October 2006

Presented by: Stan Luhr, CEO  
Quality Built<sup>®</sup>

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Workshop M2



Painted Stucco

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## Construction's "7 Deadly Sins"



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## Construction's 7 Deadly Sins



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## A home “built to code”

- *The basement can flood*
- *Foundations can crack – floors can squeak*
- *Can be destroyed by hurricane/earthquake*
- *No air-conditioning*
- *Heating only in habitable rooms to 70 degrees*
- *Requires only one door to the outside*
- *Requires no parking, storage, laundry*

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## What is a Quality home?

*“A product that is safe, comfortable, durable and maintainable that exceeds our customers’ expectations of reasonable performance, service life and utility.”*

*– Quality Built*

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## Core Quality Objectives

### Safety

- Will it provide protection and security?
- Are there active and passive systems that will reduce fire spread?
- In an emergency, will I be able to get out quickly?
- Are stairs and rails properly installed to protect me?
- Will cabinets stay in place, even when overloaded?
- Are the windows large enough to escape in a fire?

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## Core Quality Objectives

### Durability

- Will this building keep out weather & wind?
- Will it be destroyed in a hurricane or earthquake?
- Will the walls and roof keep rainwater, ice and snow from damaging it?
- Will the paint last?

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## Core Quality Objectives

### Comfort

- Will the home be free of drafts, noise, vibration and smells?
- Will the upstairs be the same temperature as downstairs?
- Are the bedrooms shielded from street noise?

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## Core Quality Objectives

### Performance

- Will my energy bills be low?
- Will I get hot water in less than 30 seconds?
- Will my home be tight enough to eliminate drafts?
- Will the exhaust fans keep out odors and high humidity?
- Will my concrete survive de-icing chemicals?
- Will the roof flashings last as long as the roof shingles?
- Is the paint thick enough to last?
- Will the balcony deck support a large party?
- Is the garage large enough for my Suburban?

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## Core Quality Objectives

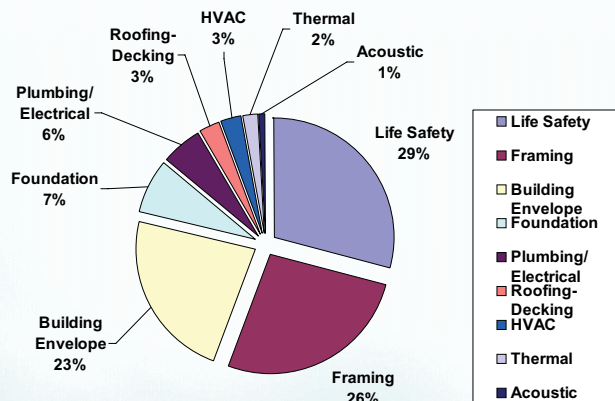
### Value

- Will my home be worth more than other homes when I eventually sell?
- Will the plumbing, electrical and other systems be built to allow for expansion or future demands?
- Can the roof be eventually replaced without damaging the siding?
- Are there hidden features of quality in this home that I never expected?
- Did I get everything that was promised by the builder, and then some?

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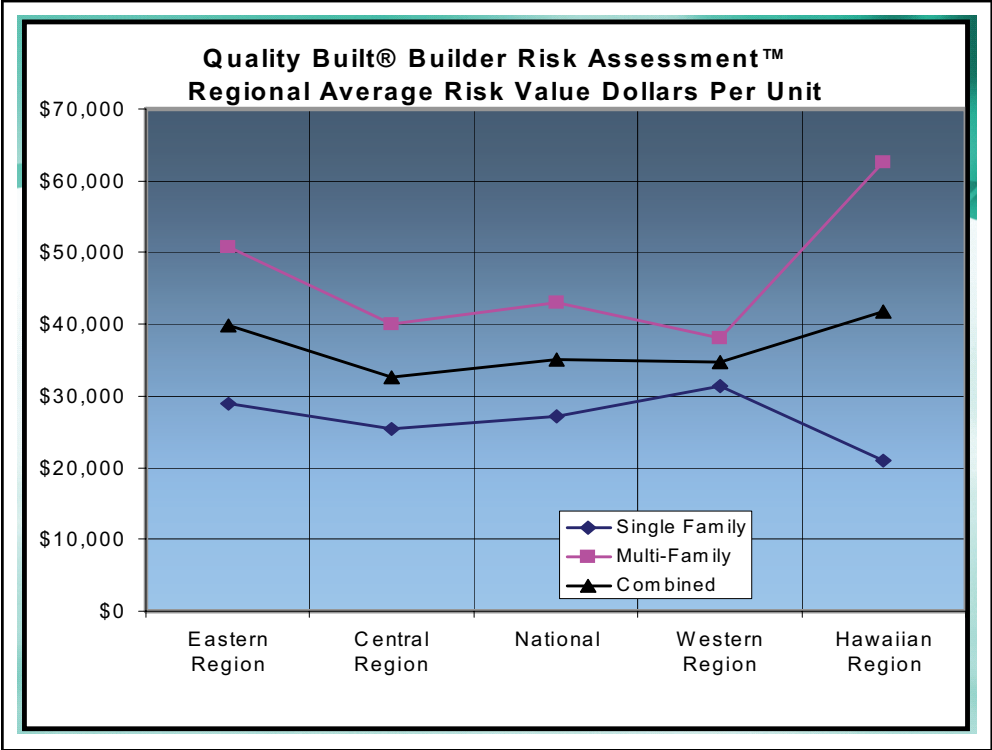
## Top 10 Construction Risks (Multi-family)



Source: QB 2005 Data Trends Survey

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# Thank You

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## Construction Issues

1. Below Grade Waterproofing
2. Podium Decks
3. Fenestration
4. Wall Cladding
5. Balconies

# Below Grade Waterproofing

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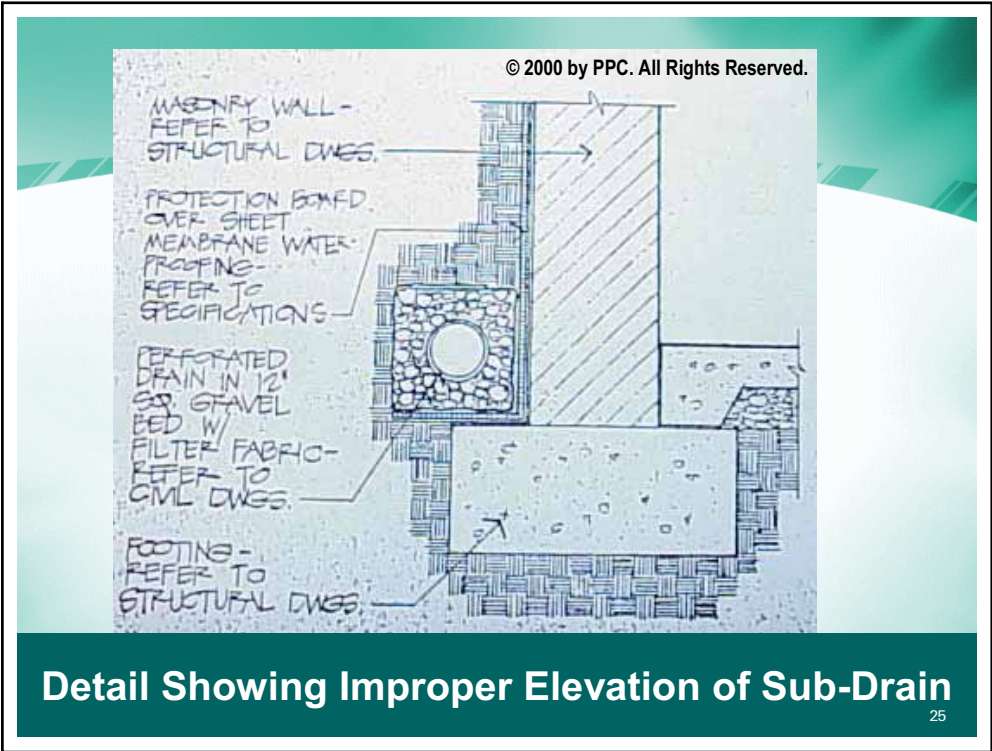






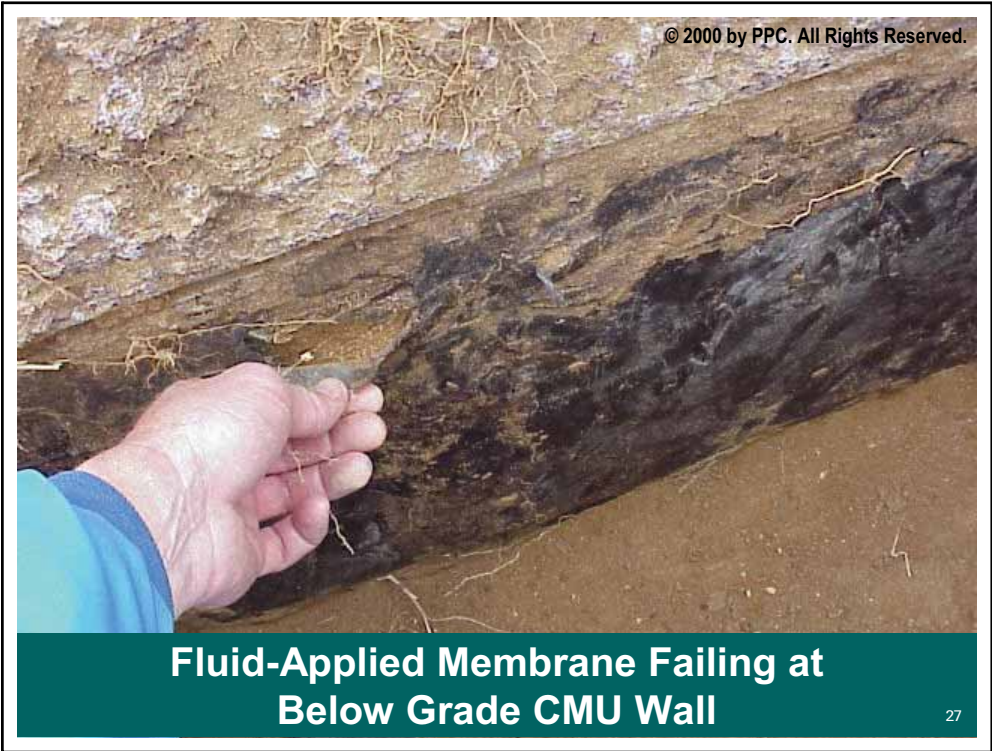
**Excavation of Paraseal Membrane**

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**Detail Showing Improper Elevation of Sub-Drain**

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## Below Grade Waterproofing

- Encapsulate wall to top of footing
- Terminate 2 inches above finish grade
- Protect from U.V. damage
- Avoid using Bentonite near landscapes
- Avoid painting below grade walls

# Podium Decks

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Podium Deck

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**Leakage Through Podium Membrane** 32



**Failed Membrane Termination** 33



**Delaminated Membrane at Flashing**

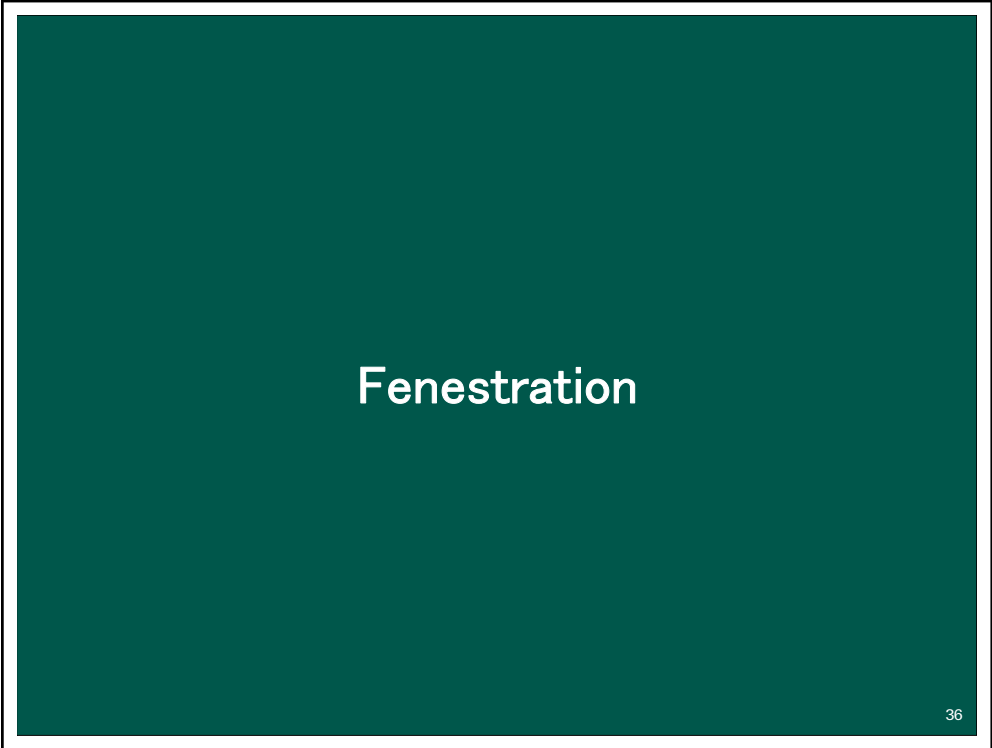
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## Podium Decks

- Protect from construction traffic
- Planter design & drainage is critical
- Double waterproof all fountains/pools
- Capture all planter drainage
- Install drainage mat under traffic decks

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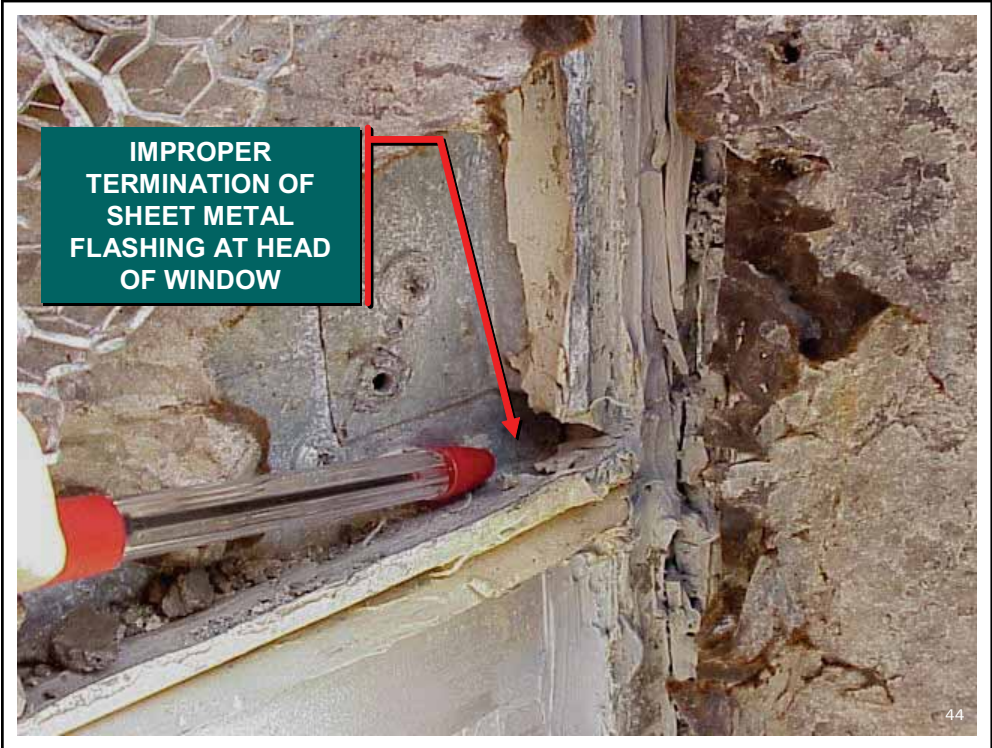
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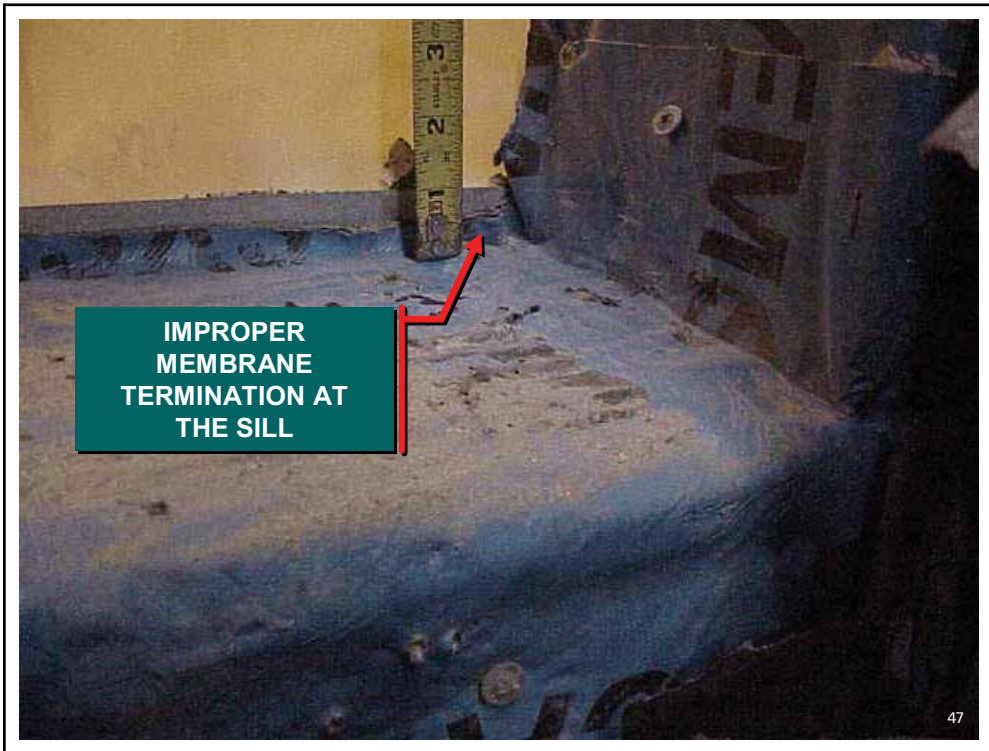
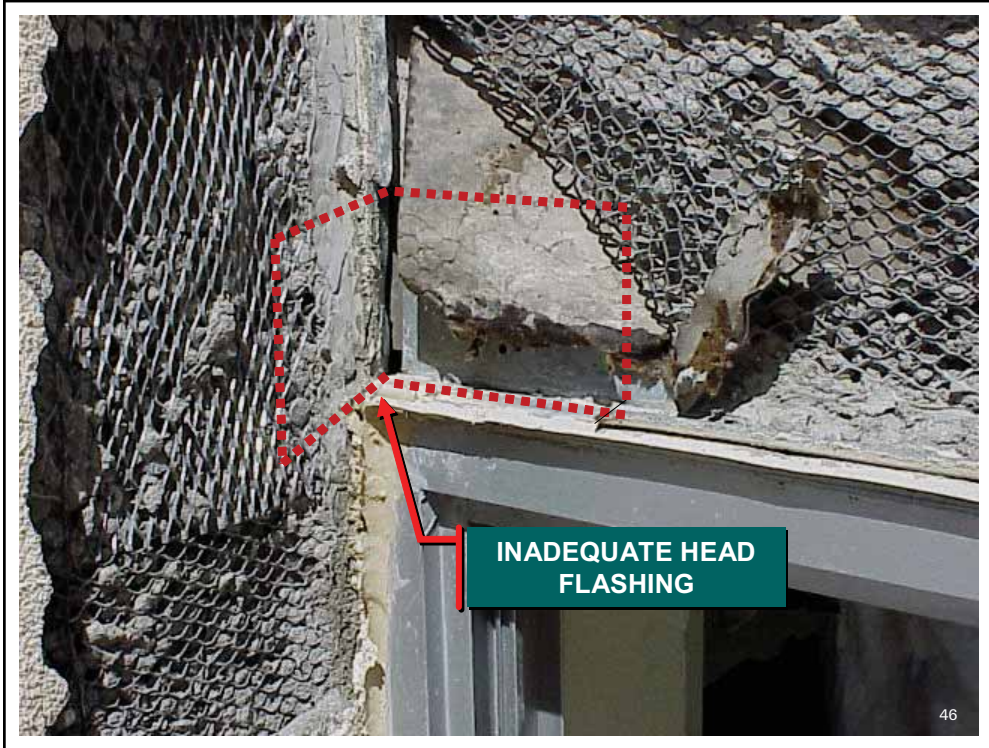


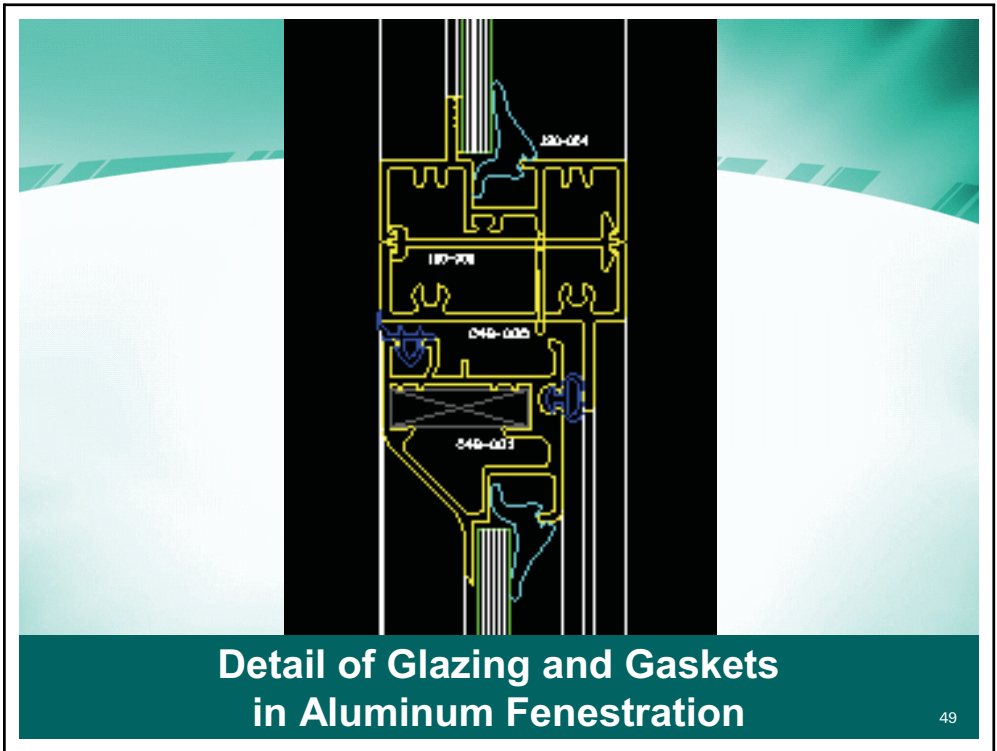
















**End dams require perfect sealant installation**

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## Fenestration

- Verify proper window exposure ratings
- Independently verify sill-sub sill interfaces
- Consider secondary recess protection
- Insist on full-scale mock-up testing
- Test windows, sealants and cladding together

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## Curtain wall-window inspection

- Visual inspection critical
- Inspect using approved scaffolding
- Sample 20-percent random interiors
- Look for sealant and gasket failures
- Perform water testing to suspect areas
- Don't assume anything
- Rule out common problems first
- Investigate inaccessible areas

# Wall Cladding

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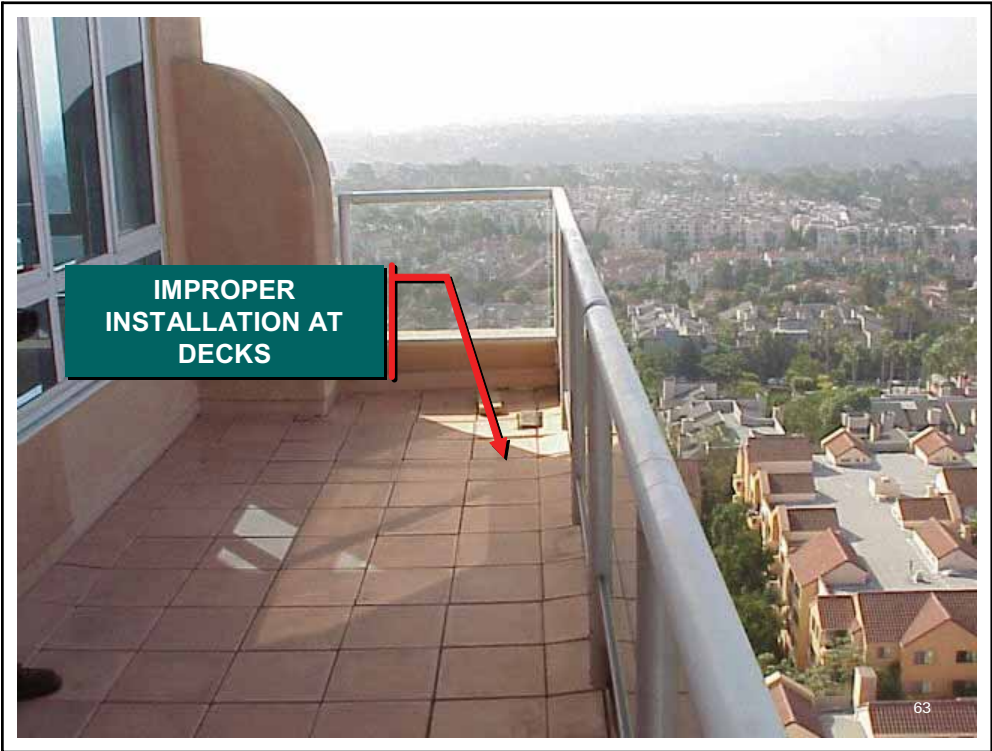


## Wall Cladding

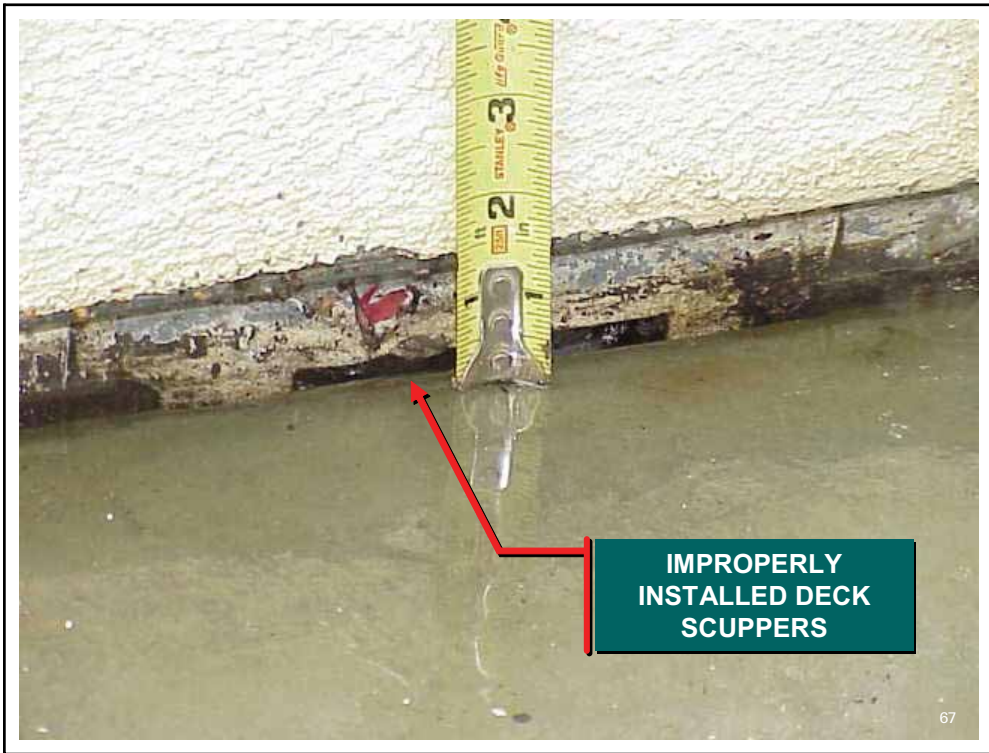
- Verify flashings are integrated to weather barrier
- Avoid use of exterior gypsum sheathing
- Design wall drainage to exit at each floor
- Backing is critical!

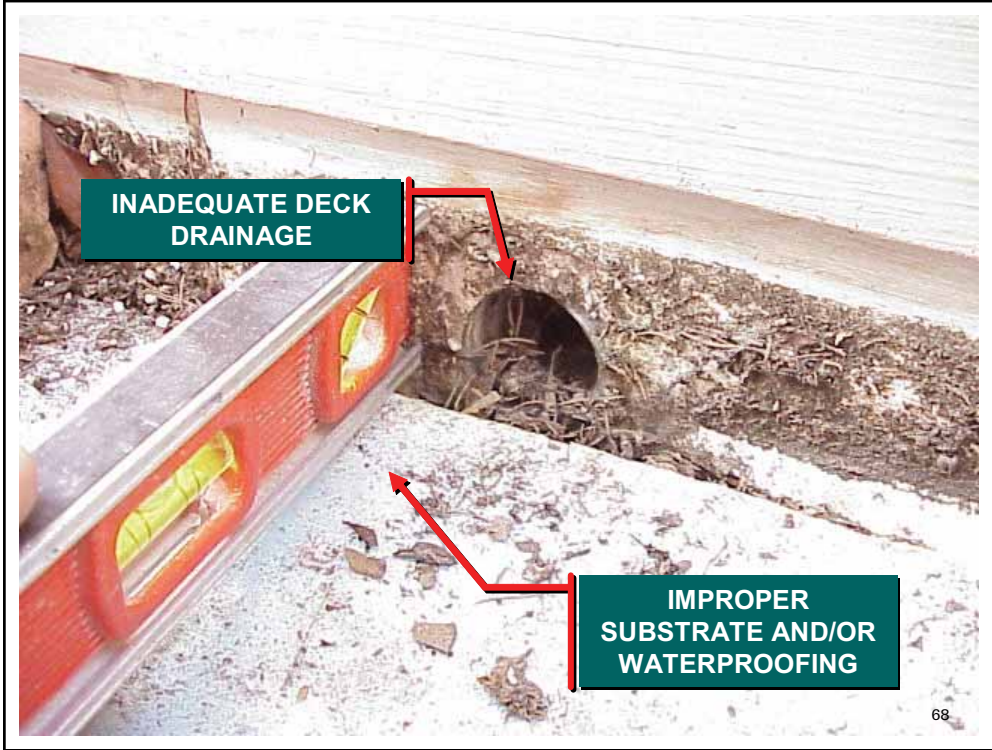
# Balconies

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## Balconies

- Exposed balconies are highest risk
- ADA compliant balconies are highest risk
- Exposed, ADA & slider sills are critical risk
- Membrane must envelope threshold base
- Don' t block drains with decking surface

# Roofing

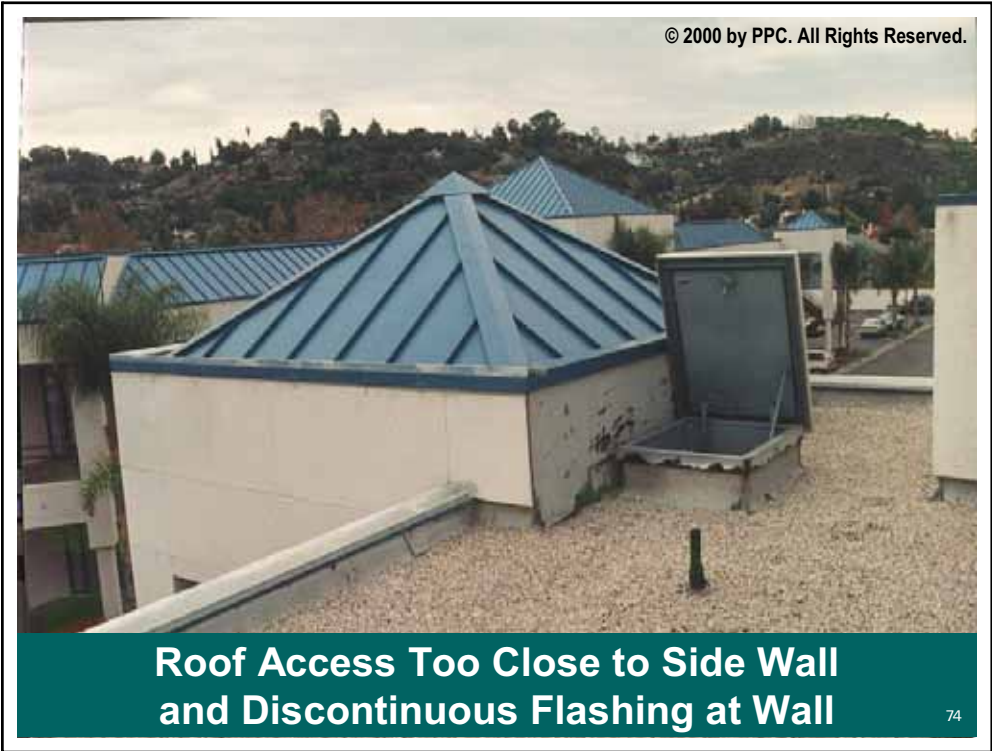
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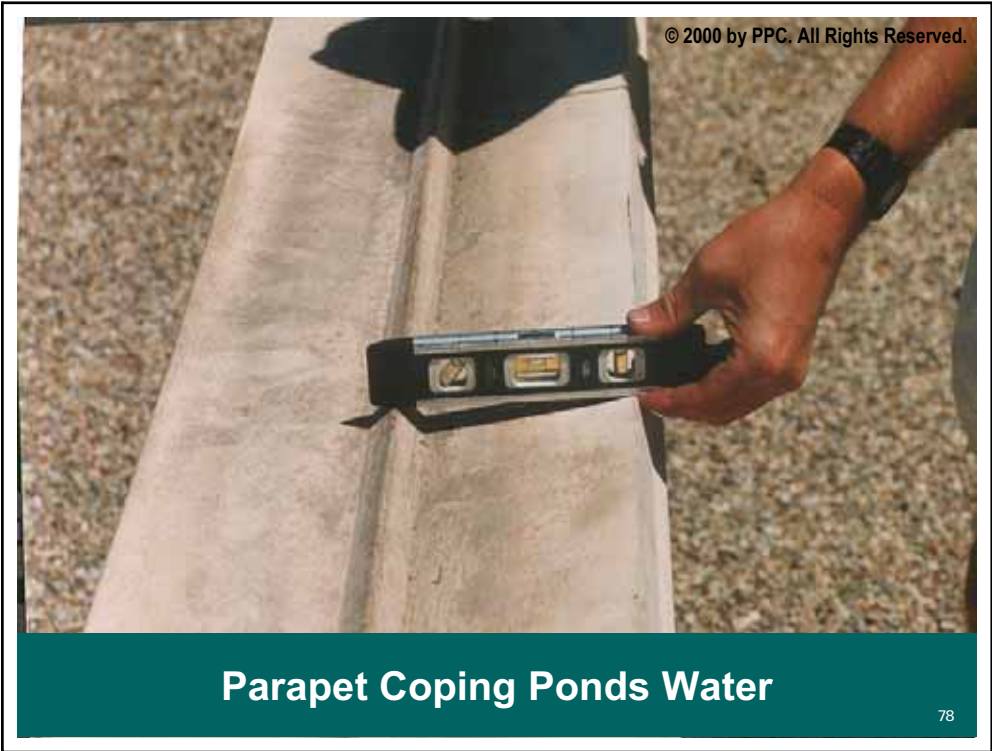


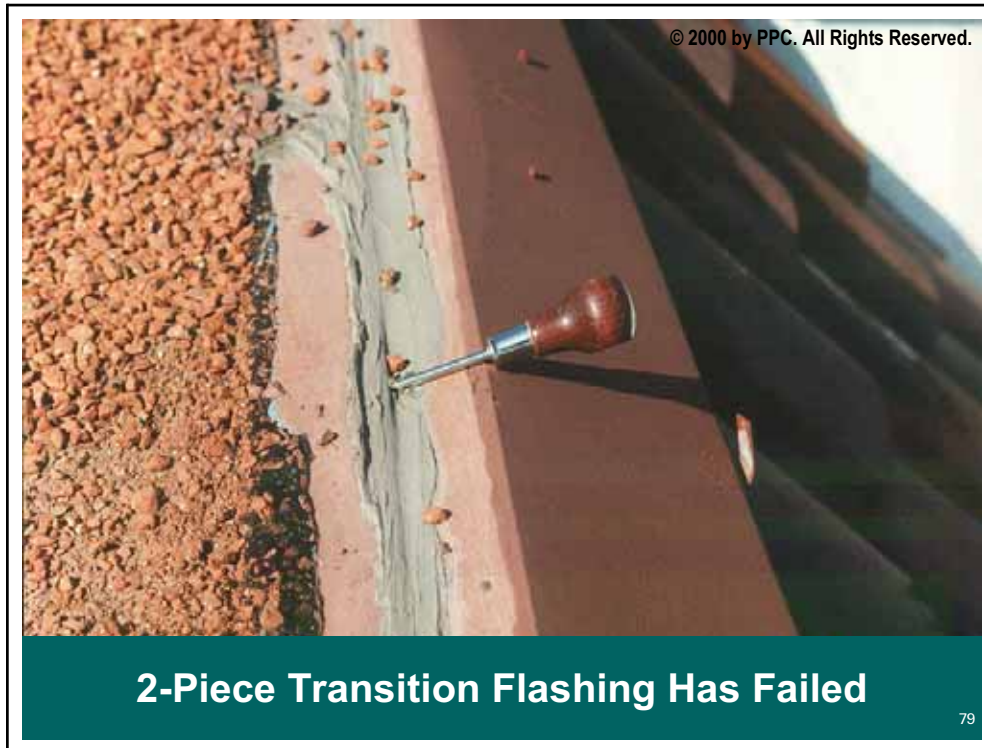
**Mechanical Equipment Low On Roof Causes  
Higher Roof Replacement/Repair Costs**

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## Roofing Inspection

- Inspect membrane quality
- Check penetrations
- Inspect for leaks around HVAC ducts
- Inspect parapets and coping for integrity and movement
- Inspect beneath roof where possible
- Advise intrusive tests for detailed inspections
- Don't guess
- Walk the entire roof
- Don't fall

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**Thank You**

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