Increasing Your Property Value Recognizing Leaks and Problems

CAA Seminar – Increasing Your Property Value

March 23, 2004

ALLANA BUICK & BERS
Making Buildings Perform Better

Increasing Your Property Value Maintenance and Repair Strategies

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Best Practice

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Karim P. Allana, PE, RRC, RWC

- **Education:** B.S., Civil Engineering, Santa Clara University
- **Registration:** P.E., Civil Engineering, California, Washington, Nevada, and Hawaii
- **Certification:** Registered Roof Consultant (RRC), Roof Consultants Institute, and Registered Waterproofing Consultant (RWC)
- **Overview:**
  - CEO and Senior Principal at Allana Buick & Bers.
  - Former Turner Construction Employee (Project Engineering and Superintendent)
  - Over 37 years experience providing superior technical standards in all aspects of building technology and energy efficiency.
  - Principal consultant in forensic investigations of building assemblies, failure analysis, evaluation and design of building infrastructure and building envelope evaluation and design.
  - Expert in all aspects of building envelope technology.
  - Completed numerous new construction, addition, rehabilitation, remodel and modernization projects for public and private sector clients.
  - Specialization in siding, roofing, cement plaster, wood, water intrusion damage, window assemblies, storefronts, below grade waterproofing, energy efficiency, solar engineering and complex building envelope and mechanical assemblies.

ABBAE Firm Overview

- Allana Buick & Bers (ABBAE) is an Architectural Engineering firm specializing in Building Envelope Systems
- ABBAE is one of the 5 largest building envelope consultants in the country
- ABBAE has over 33 years of experience & over 12,500 projects
- ABBAE is also a leading Forensic Defect firm with hundreds of forensic projects (litigation)
- Locations – 16 offices across California, Nevada, North Carolina, Oklahoma, Oregon, Texas, Virginia, Washington, Colorado and Hawaii

Staff & In-House Expertise

- Licensed Professional Engineers – Civil, Structural, and Mechanical
- Registered Architects
- Building Enclosure Commissioning Process Providers (BECxPs)
- Registered Building Envelope Consultant (RBEC)
- Registered Roofing Consultants (RRCs)
- Registered Waterproofing Consultants (RWCs)
- Registered Exterior Wall Consultant (REWCs)
- Registered Roof Observers (RROs)
- Certified Exterior Insulation and Finish System (EIFS) inspectors
- Curtain Wall Specialists
- ICC Certified Building Inspectors
- Quality Assurance Monitors
- Water Testing Experts
- Leak Investigation and Diagnosis Experts
- Infrared Imaging and Nuclear Moisture Scanning Experts

ABBAE Building Expertise

- Building Envelope Systems
  - Roofing Systems
    - High-Slope/Low-Slope Roofs
    - Green/Garden Roofs
    - Drainage Systems
    - Pedestrian Plazas
  - Exterior Wall Systems
    - Wall Cladding/Siding/GFRC/pre-cast
    - EIFS/cement plaster/stucco
    - Sheet Metal Flashings
  - Windows and Glazing Systems
    - Punched Windows
    - Curtain Wall/Window Wall Systems
    - Sliding Glass Doors
    - Skylights

- Building Envelope Systems (cont'd)
  - Roofing & Waterproofing Systems
    - Deck/Balcony/Lanai Waterproofing
    - Podium Waterproofing
    - Pool/Spa Deck Waterproofing
    - Above-Grade/Below-Grade Waterproofing
    - All types of low and steep sloped roofing
  - Commissioning BECx
    - OPR/BOD/Commissioning Plan
- Mechanical/HVAC Systems
  - HVAC design
  - Plumbing systems
  - Commissioning and testing

ABBAE Core Services

- Consulting and third-party peer review services
- Engineer of record for building envelope systems
- Contract administration services
- Inspection services (usually direct with owner)
- Air and water performance testing
- Mock-up design, observation, and testing
- Building assessments and forensic investigations
- Litigation support and expert witness services
- Educational seminars with AIA credits

Agenda

- ROOFING AND WATERPROOFING OVERVIEW
- Recognizing Leaks In:
  - Roofs
  - Windows
  - Stucco
  - Sidings
  - Plazas
  - Below Grade
- Strategies for Selection of Roofing Systems
  - Selection Matrix
  - Different types of roof systems and structures
  - Economic Analysis
  - Contractor Selection
- Maintenance and Repair Strategies

Roofing and Waterproofing Overview

- Engineered Solutions Create the Highest Value
- Recognizing Problems Early = Cost Avoidance

Recognizing Leaks

- Roofs
- Windows
- Stucco
- Siding
- Plazas
- Patios
- Below Grade

Recognizing Leaks and Distress

- Water Stains
- Where to look
- What to look for
- Signs of Leaks
- Signs of Distress

Look for stains, no matter how minor or small

Investigate, roof leak or HVAC condensation?

Leak detection…carpet tack strip tells the story

Leak detection…

Signs of leaks, small stains often damage is much greater

Wood to wood contact traps water and promotes decay

Wood trim over wood column + sprinklers

Wood bands over wood beams + landscaping on deck…….bad idea!

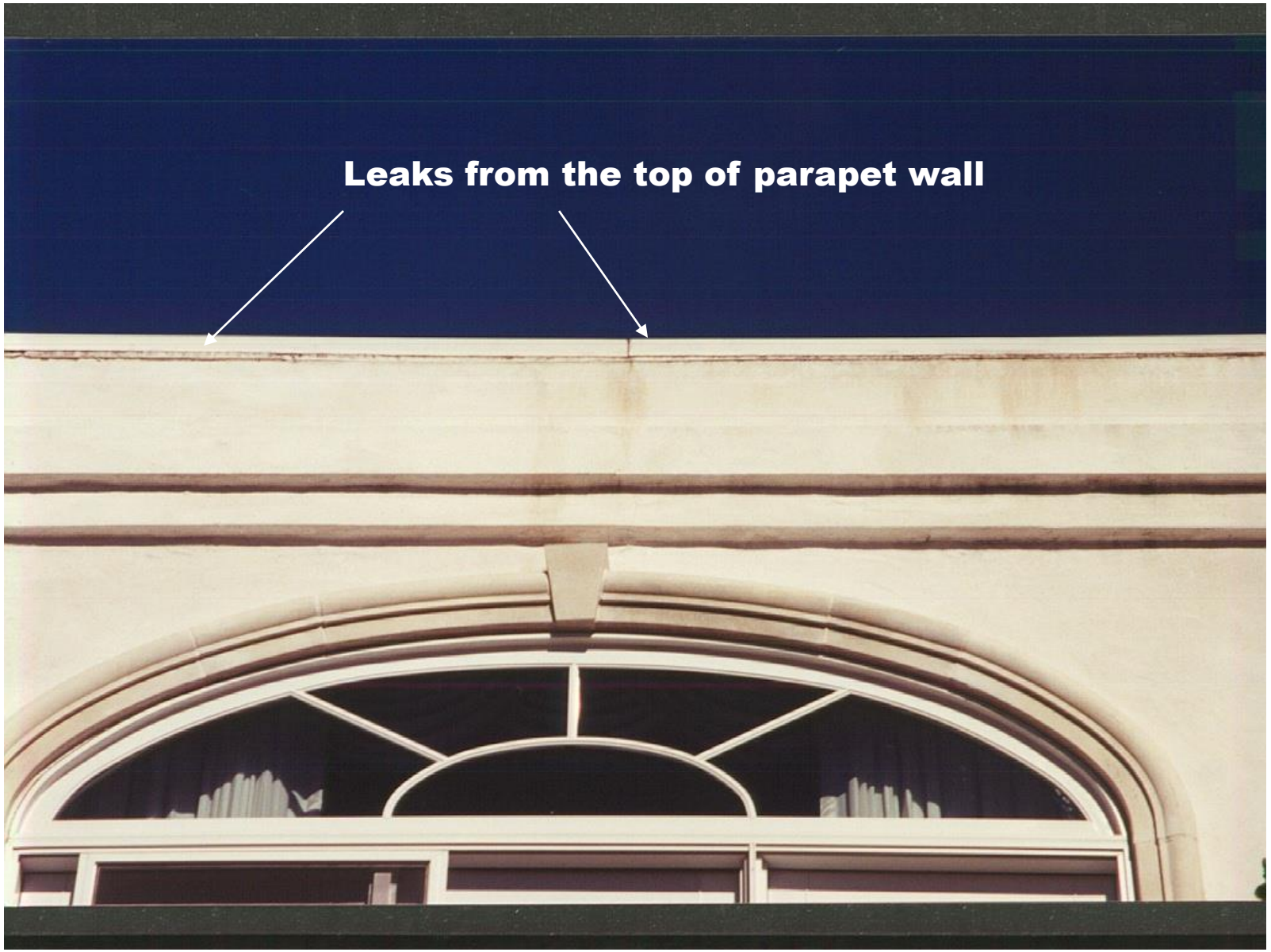
Tile roof leak investigation

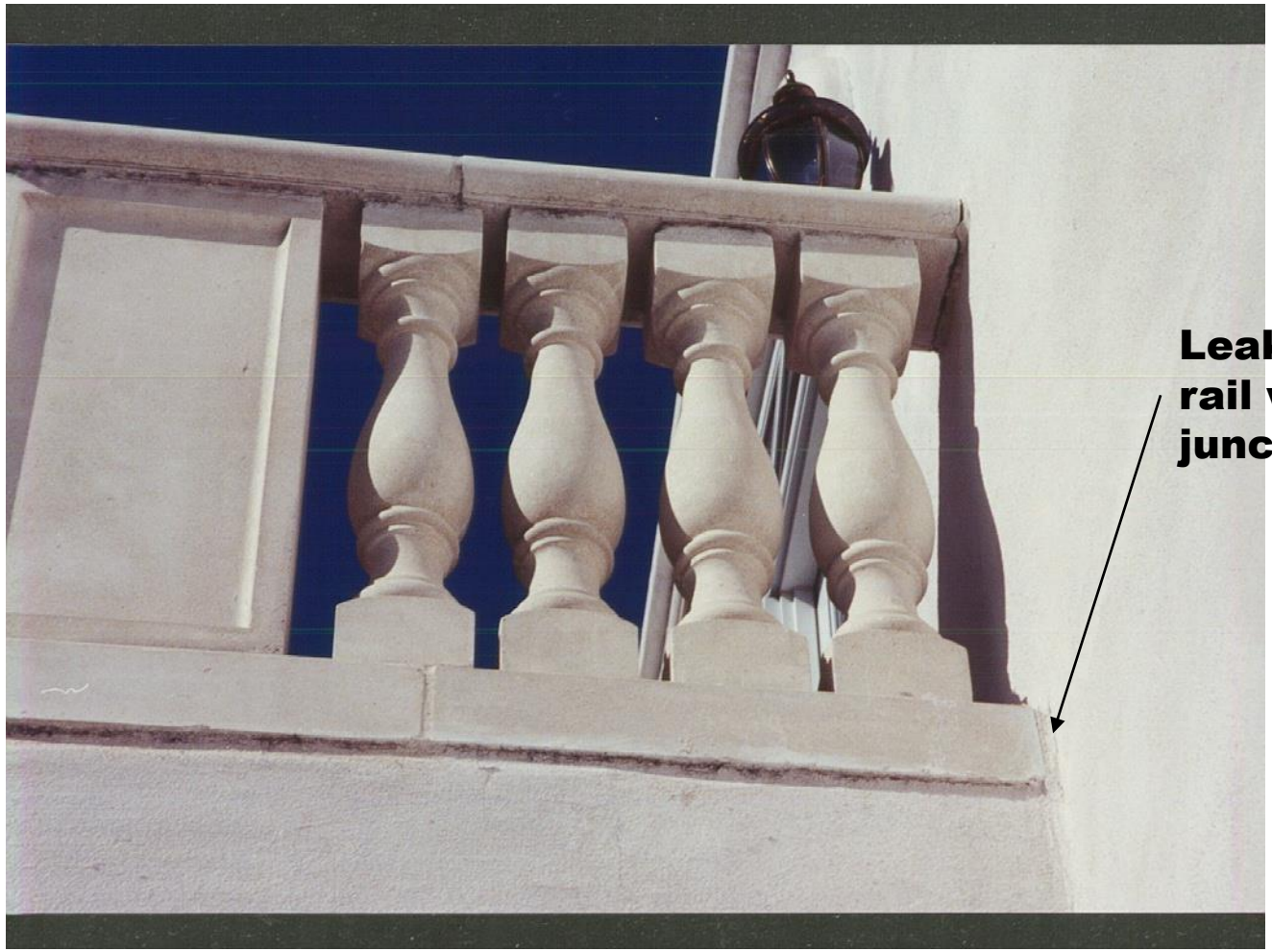
Cracked tiles, improper running bond pattern caused the leaks

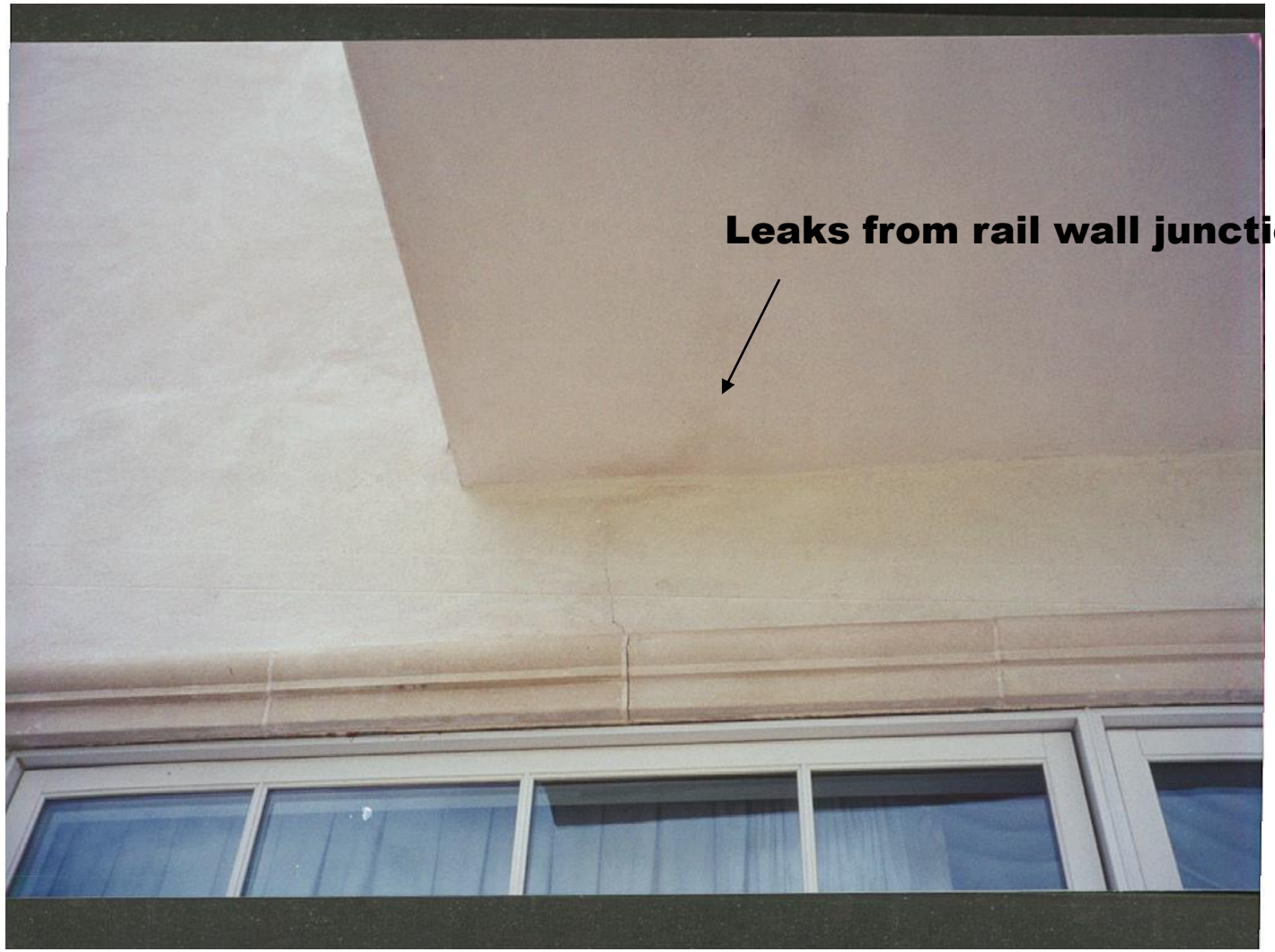
Look for water stains or unusual cracks in cement plaster

Typical window frames in cement plaster allow water intrusion. Seal edges of window and exterior plaster

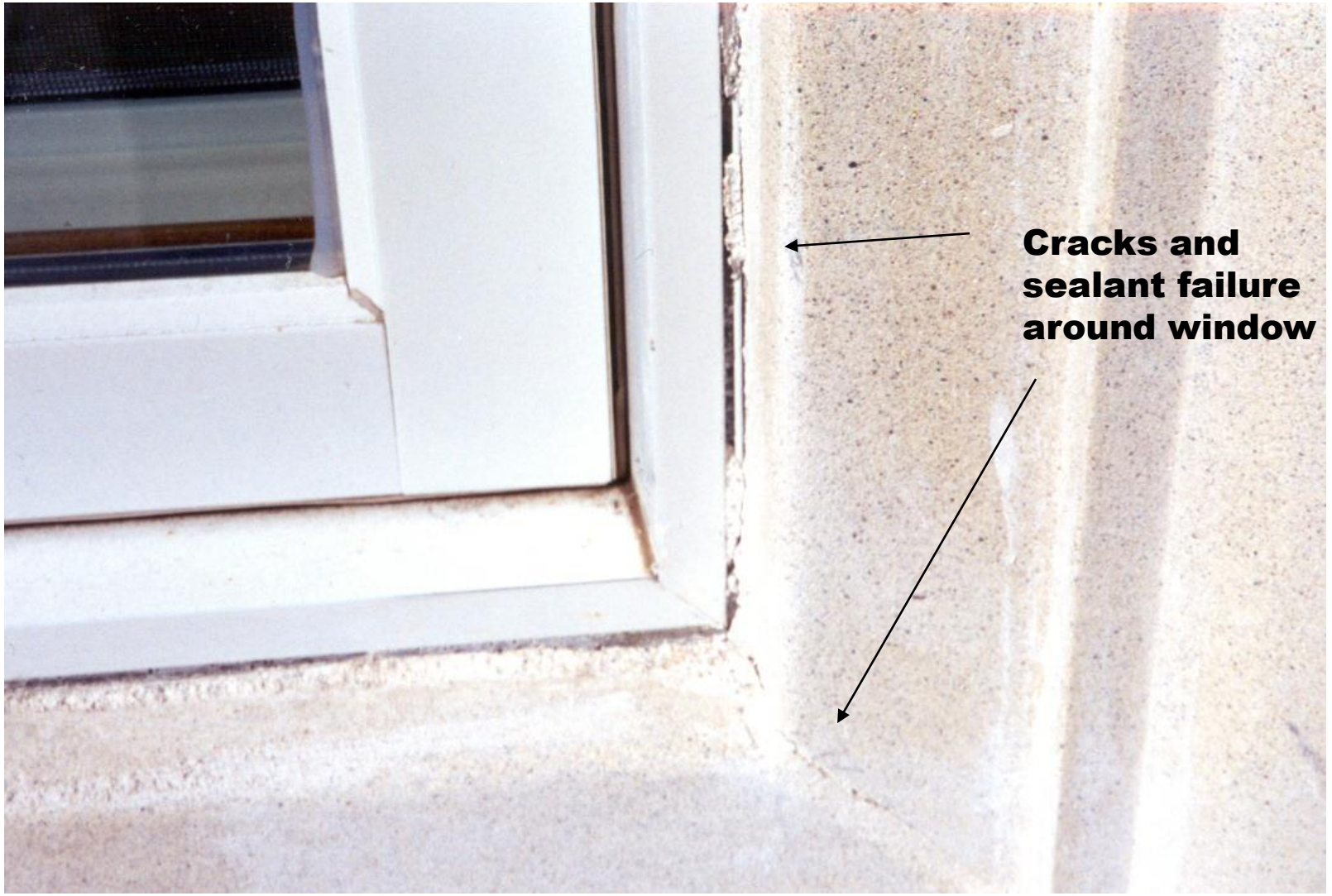
Stucco stain, discoloration







This innocent looking leak caused a lot of damage



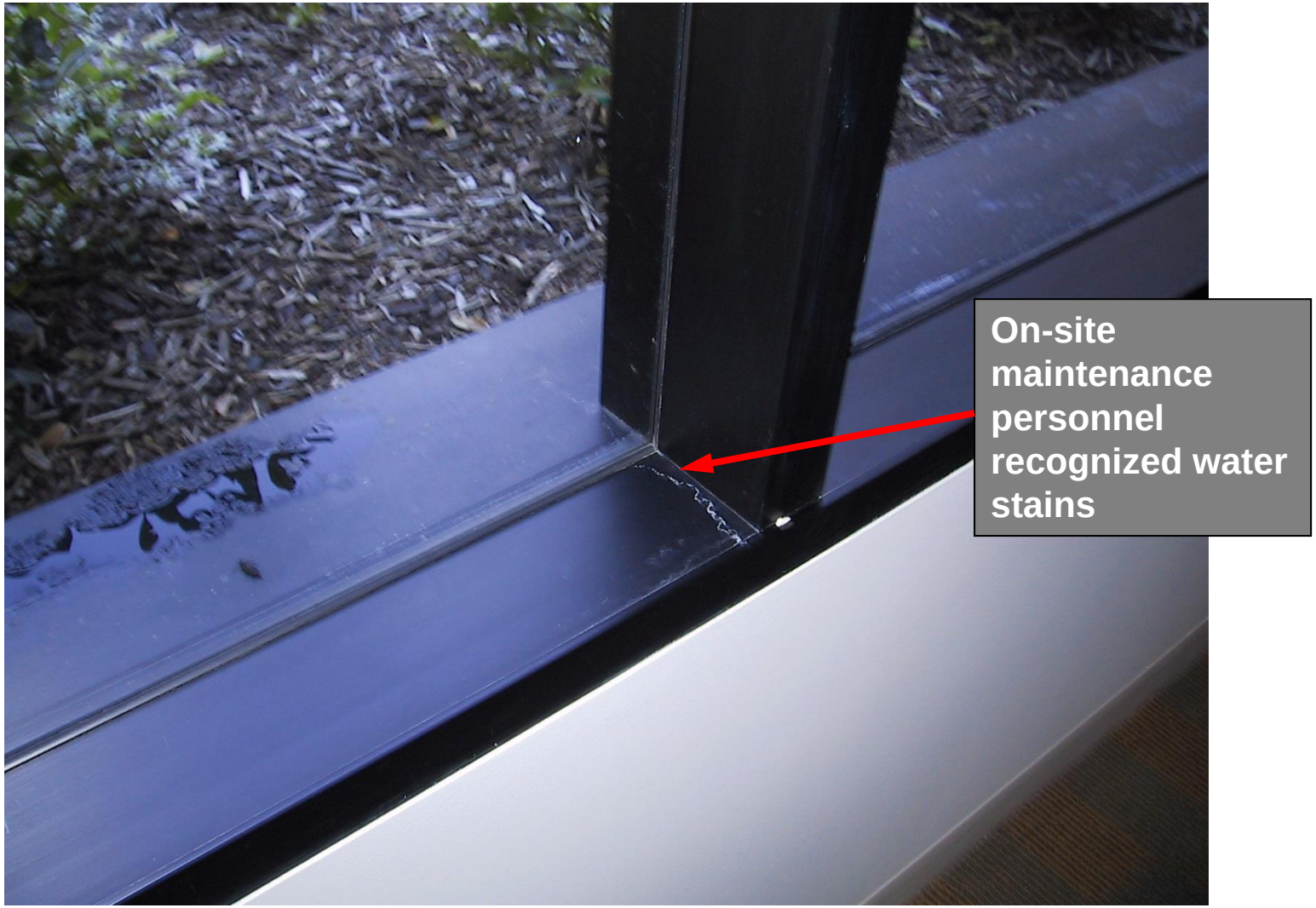
Exterior Insulation and Foam System (EIFS)

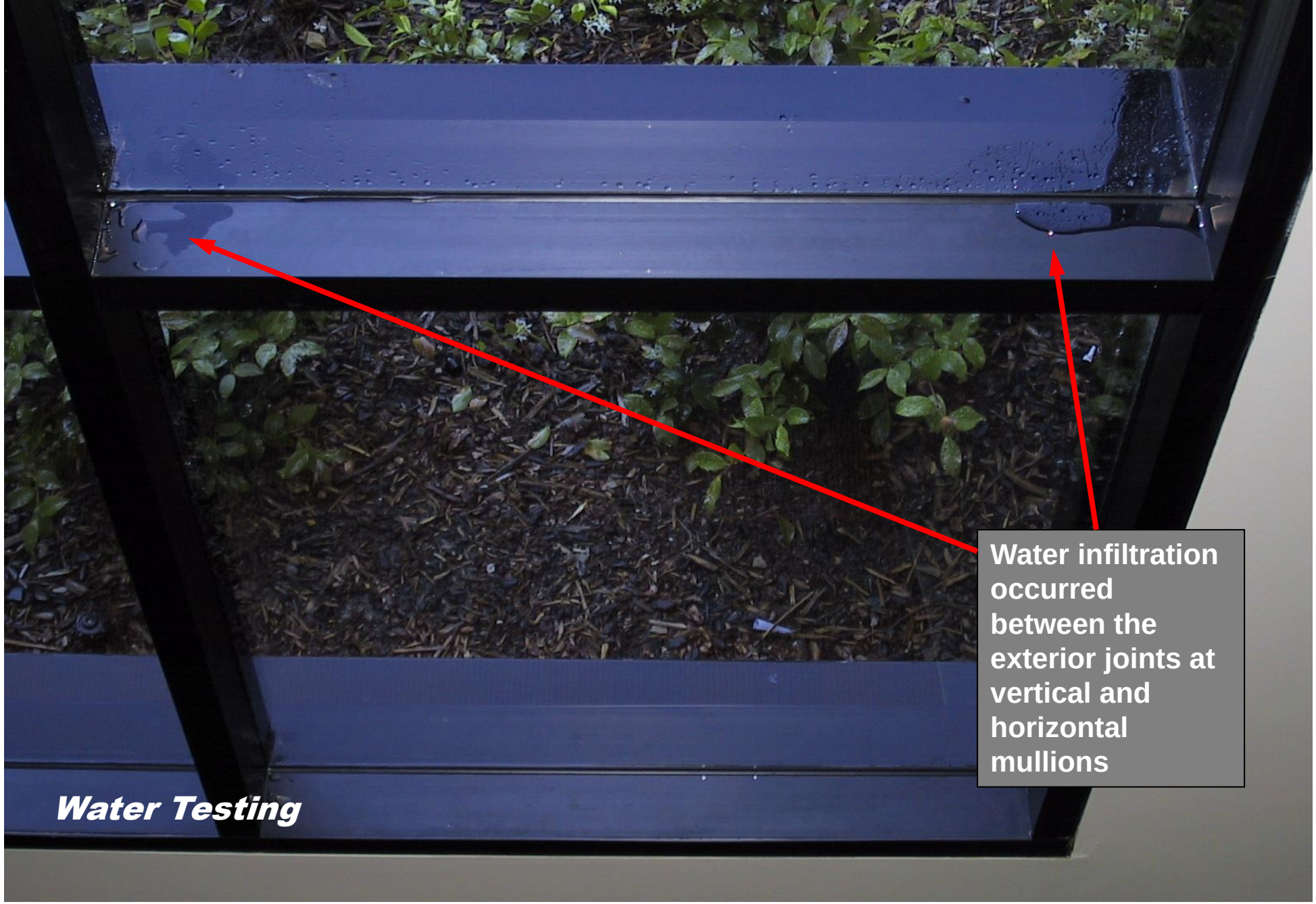
EIFS cornice, low slope, algae, and split

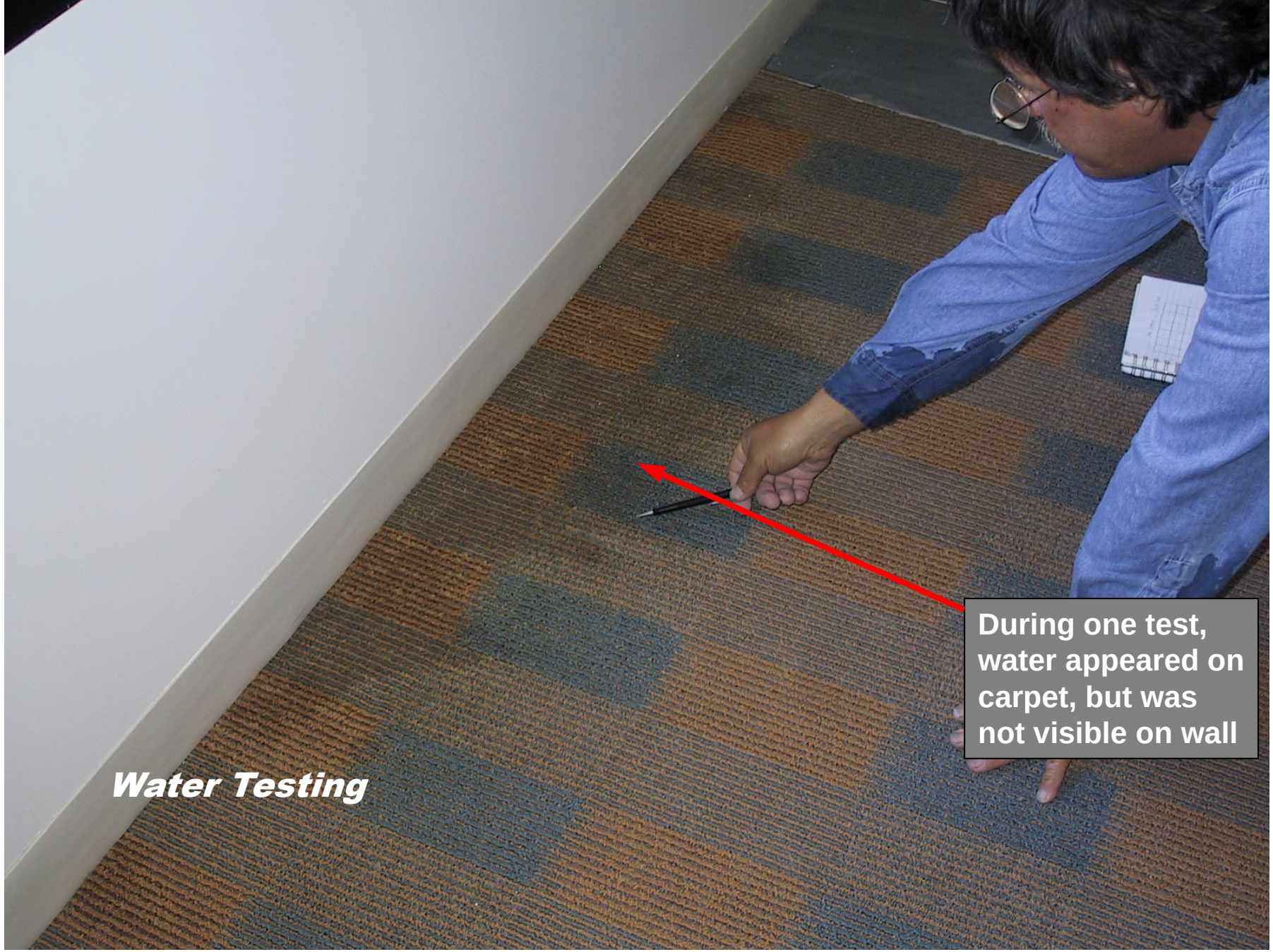
EIFS cornice (lack of slope) allowed this water intrusion

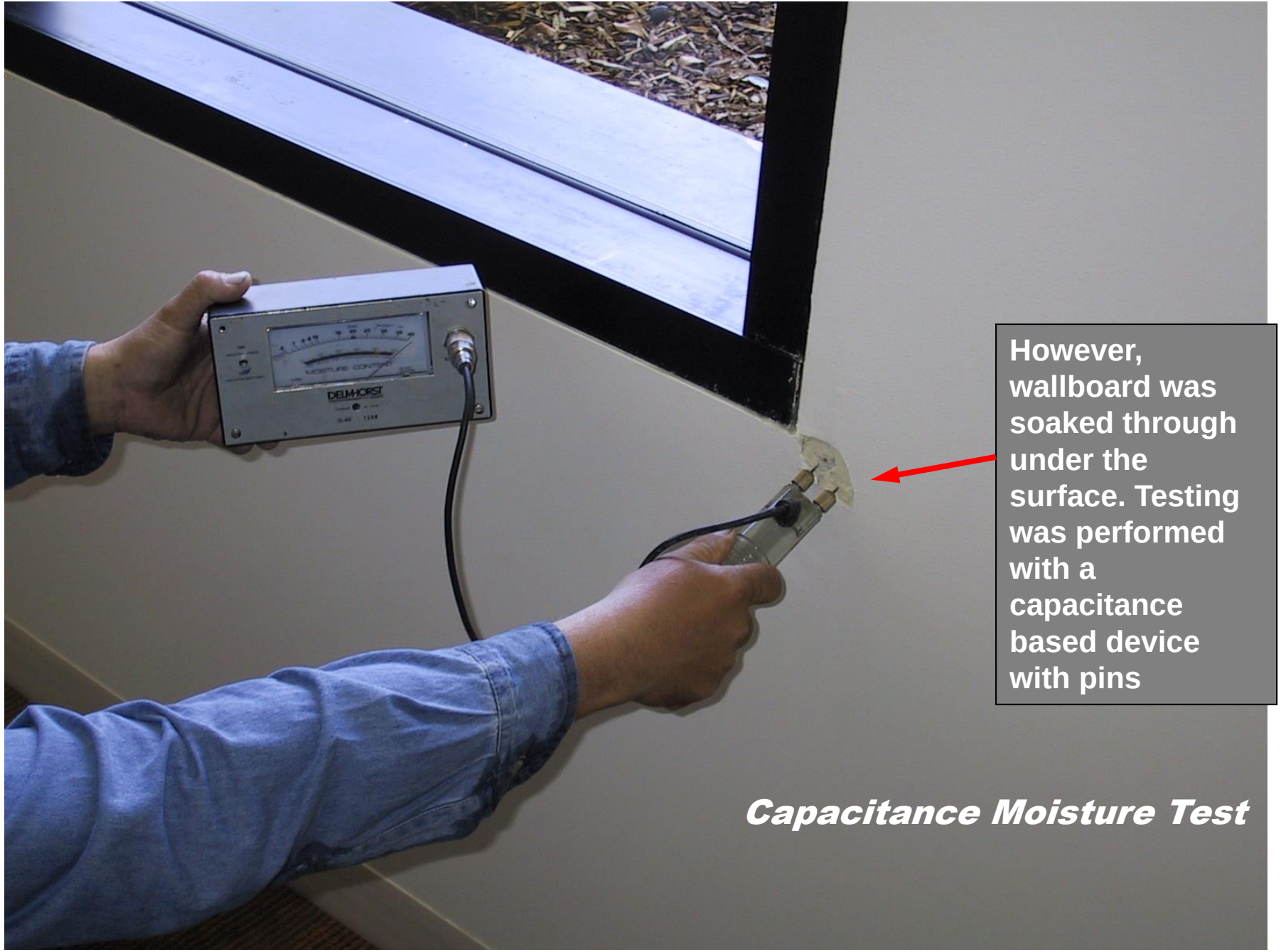
All window to exterior cladding needs to be closely inspected, especially EIFS. Seal dependent on sealant

Gypsum wall board holds water, promotes mold growth, and corrodes fasteners









Nuclear troxler testing equipment

LEFT: Taking measurements

RIGHT: Test cut to corroborate result, saturated insulation

Starting and Implementing Roofing and Waterproofing Maintenance

END OF SECTION