


# BUILDING ENVELOPE CONSTRUCTION DEFECTS

**CONSTRUCTION CLAIMS TASK FORCE**

**BUILDING ENVELOPE  
CONSTRUCTION DEFECTS**

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presented by  
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**OVERVIEW**

- The Building Process and Construction Defects
- Industry Standards / Performance Guidelines
- Education & Training
- Quality Control
- Enforcement
- Maintenance



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**THE BUILDING PROCESS AND  
CONSTRUCTION DEFECTS**

**"THE MEANS TO CONSTRUCT ANY ONE BUILDING  
IS AN EXTREMELY COMPLEX PROCESS."**

- Every project is unique – every site is different
- Involves various types of materials and expertise
- Requires a long time schedule to complete
- Completed under extreme conditions (i.e. rain, wind, snow)
- Involves several people to coordinate and construct a project



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# BUILDING ENVELOPE CONSTRUCTION DEFECTS

## THE BUILDING PROCESS AND CONSTRUCTION DEFECTS

### WHY CONSTRUCTION DEFECTS OCCUR

- Defective building material or component
- Violation of building code at the time of construction
- Failure to meet design and specification requirements
- Failure to meet manufacturer requirements
- Failure to build according to accepted trade standards for good and workmanlike construction



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## THE BUILDING PROCESS AND CONSTRUCTION DEFECTS

### WHAT CONSTITUTES A CONSTRUCTION DEFECT?

- Construction task force should address and provide clear definition

#### BUILDING CODE

##### EXAMPLE: WEATHER BARRIER WRAP

Code violation does not result in performance failure

#### MANUFACTURER REQUIREMENT

##### EXAMPLE: SEALANT JOINT

Sealant joint is undersize, but does not result in performance failure



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## BUILDING PROCESS AND CONSTRUCTION DEFECTS

### SHARED RESPONSIBILITIES FOR CONSTRUCTION DEFECTS

- Owners and Developers
  - Inappropriate design and selection of materials
  - Select low bid – cut costs
  - Lack of recommended maintenance
- Architects and Engineers
  - Inappropriate design and selection of materials
  - Missing or improper construction detailing
  - Lack of project oversight
- General Contractors / Subcontractors
  - Poor coordination and work sequence
  - Poor supervision of work
  - No quality control program
  - Poor workmanship
  - Lack of skilled workers
- Manufacturers / Distributors / Industry Organizations
  - Material and system failures (i.e. LP siding, barrier EIFS)
  - Conflicting requirements
- Building Code Division
  - Inadequate plan review process
  - Inadequate inspection process



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# BUILDING ENVELOPE CONSTRUCTION DEFECTS

## INDUSTRY STANDARDS / PERFORMANCE GUIDELINES

### ESTABLISH CLEAR AND CONSISTANT STANDARDS

#### Flashing Example

- CODE - "Approved corrosive resistant flashing shall be provided in such a manner as to prevent entry of water or penetration of water into the building structural framing components"
  - SMACNA – Residential "Sheet Metal and Air-conditioning Contractors National Association" 2001
  - AAMA – "American Architectural Manufacturer's Association" 2000
  - "Northwest Wall and Ceiling Bureau Resource Guide" 2002



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## INDUSTRY STANDARDS / PERFORMANCE GUIDELINES

### DEVELOP PERFORMANCE GUIDELINES

- Areas that code and industry standards may not address
- Provide comprehensive measurement for minimum quality performance criteria

#### EXAMPLES

- "Residential Construction Performance Guidelines" by National Association of Home Builders
- "California Building Performance Guidelines for Residential Construction" by Building Standards Institute



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## EDUCATION & TRAINING

- Building Envelope Training and Certification
  - Requirement for licensing
  - Re-certification required
  - Certification may include different types of components and assemblies
  - Testing requirements should include practical demonstration
- Continuing Education Requirements



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# BUILDING ENVELOPE CONSTRUCTION DEFECTS

## QUALITY CONTROL

- Establish contractor quality control program & procedures
  - Pre-construction plan review
  - Mock-up
  - Performance water testing
  - Check list
  - Review manufacturer requirements prior to installation
  - 3<sup>rd</sup> party inspections
  - Project documentation
  - Manufacturer review for compliance (i.e. James-Hardie)



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## ENFORCEMENT

### **BUILDING PERMIT APPROVAL PROCESS**

- Building plans must address critical building envelope issues during plan review
  - Window wrap / window & door pans
  - Deck flashing
  - Roof diverters
- Building permit inspection requires separate “sign-off” on building envelope components
  - 3<sup>rd</sup> party inspection
  - Signed certificate of approval for final permit



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## ENFORCEMENT

### **INSURANCE INDUSTRY REQUIREMENTS**

- **SUBMIT QA / QC PLAN** for meeting building envelope performance requirement
- **SPOT INSPECTIONS** to verify compliance
- **AUDIT** of certifications and project documentation
- **ANNUAL REVIEW** to review compliance and adjust rates



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