# Table of Contents

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utilizing GIS Technology to Solve some of Property Claims Toughest Challenges</td>
<td>3</td>
</tr>
<tr>
<td>Wind vs. Water Damage Investigations</td>
<td>6</td>
</tr>
<tr>
<td>Commercial Roofing Damage: Investigations, and Adjusting Considerations</td>
<td>10</td>
</tr>
<tr>
<td>Curtain Wall Damage: Investigations and Adjusting Considerations</td>
<td>14</td>
</tr>
<tr>
<td>EIFS and Stucco Claims</td>
<td>20</td>
</tr>
<tr>
<td>Sinkhole Investigations for Property Claims</td>
<td>23</td>
</tr>
<tr>
<td>Structural Damage to Buildings Resulting from Sinkholes</td>
<td>27</td>
</tr>
<tr>
<td>The Basics of Moisture-Related Damage to Buildings</td>
<td>30</td>
</tr>
<tr>
<td>Design, Investigation, Restoration, and Reporting Considerations Related to Hail Damage</td>
<td>34</td>
</tr>
<tr>
<td>Investigating Contested Hail Damage Claims</td>
<td>39</td>
</tr>
<tr>
<td>Adjusting Mechanical System Losses</td>
<td>44</td>
</tr>
<tr>
<td>Building Codes and Enforcement in the United States</td>
<td>48</td>
</tr>
</tbody>
</table>
Utilizing GIS Technology to Solve some of Property Claims Toughest Challenges

Statement of Knowledge

Statement of knowledge, skills, and abilities the attendee is expected to obtain through this course:

Our claims investigation experience over the past 25 years shows that 70 to 80 percent of all property claims are the direct result of weather-related perils. Analysis of weather related claims typically requires cause and origin engineering investigations that attempt to calibrate the observed damage to the weather event. Sometimes this involves separating damage caused by different perils (wind vs water).
However, most engineering investigations are performed without the benefit of an integrated meteorological analysis of the different forces applied to the property during the storm, or of a geographic mapping analysis of key weather data available from FEMA, USGS and NOAA.

This presentation will identify how Geographic Information Systems, Global Mapping Software, and Big Data can be leveraged to not only expedite the claims investigation process, but to yield much more accurate analyses, with greater detail and visual proof of the conclusions.

**Learning Objectives**

The four learning objectives of this course are as follows:

1) The Increasing Need for both Speed and Certainty in Property Claim Investigations

2) What GIS and GMS are, and how they are currently being used in CAT Claim Investigations

3) What Big Data Information Can be accessed via GIS

4) How GIS/GMS/Big Data are being used to investigate:

   - Wind vs. Water Claims
   - FEMA Flood Mapping
   - Storm Surge Inundation
   - Power Outage Claims
   - Pre and Post Event Conditions
   - Tornado and Severe Storm Claims
   - Earthquake Damage Claims
Course Outline

I) **Introduction**  
5 Minutes  
The increasing need for speed and certainty in CAT Claim Investigations, and the role of GIS/GMS.

II) **The application of Geographic Information Systems Technology in Property Claims**  
10 Minutes  
a) What Is GIS?  
b) How is it used in CAT Claim Investigations?  
c) Getting Started  
d) Main GIS Database Sources

III) **Utilizing GIS / GMS to Investigate an entire Portfolio of Insured Properties: Address Geo-Coding**  
5 Minutes

IV) **Utilizing GIS / GMS to Investigate Individual Property Claims: Address-Level Analysis**  
60 minutes  
a) Wind vs. Water Claims  
b) FEMA Flood Zone Determinations  
c) Storm Surge Inundation & Sewer Back-up Claims  
d) Power Outage Claims  
e) Pre and Post Event Conditions Analysis  
f) Tornado and Severe Storm Analysis

V) **Summary & Conclusions:**  
5 Minutes  
How to Apply GIS/GMS Technology to CAT Claim Investigations for:  
a) Faster and Greater Access to weather, earthquake, and infrastructure data  
b) Better Analysis of the data through high resolution viewing platforms  
c) Better Reporting through more comprehensive data and visual proof of analysis and conclusions.

This course is Approved for 1 CEU Credit
Wind vs. Water Damage Investigations


Halliwell Engineering Associates, Inc.

Statement of Knowledge

Statement of knowledge, skills, and abilities the attendee is expected to obtain through this course:

This course, New Procedures for Wind vs. Water CAT Claim Investigations, is intended for an audience of Property Insurance Carriers, their Managers, Examiners, and Adjusters, as well as outside, Independent Adjusters. The course is developed at an intermediate level of complexity and difficulty for experienced Examiners and Adjusters.
Learning Objectives

The four learning objectives of this course are as follows:

1) Understand the way that Wind vs. Water Property Claims are investigated, analyzed, and adjusted, particularly following Hurricane Katrina and Ike.
2) Understand recent Legal Rulings on anti-concurrent causation language.
3) Discuss the in-depth engineering and meteorology required to provide appropriate determinations of how much wind and water forces each contributed to the property damage.
4) Understand other recent Legal Rulings, their implications regarding mass tort litigation, and the recommended procedures for managing multi-peril claims in this changing legal environment.

Course Outline

1) Introduction, Purpose and Objectives of this Presentation: New Strategies for Managing CAT Claims with Multiple Causes of Loss (10 Minutes)

   a) Multiple Peril CAT Claims
   b) Anti-Concurrent Causation Clauses
   c) Mass Tort Litigation
   d) The Corban Court Decision
   e) Concurrent Causation Analysis
II) Start-Up and Triage Phase Immediately Following the Storm: Engineering and Storm Data Development for Adjusting Large Scale Wind and Water Losses (50 Minutes)

a) Baseline Survey of Wind and Water Damage
   Damage Documentation
   Storm Damage Profiles
   Triage Damage Areas
   Baseline Damage Characteristics

b) Topographical Surveys of Damaged Areas
   Elevation Surveys
   Elevation Comparisons (Structures and Storm Surge)
   Elevation Certificates
   Elevation Overlays onto Pictometry
   The Need for Precise Elevation Data

c) Meteorological Analysis of Wind and Water Forces:
   What is Needed and Why

d) Hurricane Windfield Analysis
   Gradient Wind Speeds
   Wind Directions
   Wind Speed Timing

e) Storm Surge Analysis
   Storm Surge & Flooding Heights
   Wave Heights
   Storm Surge Timing

III) Adjusting Phase: 1 to 12 Months Following the Storm (40 Minutes)

a) Wind Damage Analysis
   Where Wind Damage Occurs
   Identifying Pushing vs. Pulling Forces
   Typical Wind Force Profiles
   Wind Force Damage Patterns
b) Water Damage Analysis
   Where Water Damage Occurs
   Hydrostatic Pressures
   Hydrodynamic Forces
   Breaking Wave Forces

c) Wind vs. Water Damage Comparisons

IV) **Litigation Phase: Typical Challenges to Wind vs. Water Causation Analyses** (2 to 4 Years Following the Storm) (10 Minutes)

   a) Wind vs. Water Timing
   b) All Damage Due to Wind
   c) Storm Surge Height
   d) Enhanced Fujita Scale Application
   e) Tornado

V) **Understanding Tornados in Hurricanes** (10 Minutes)

   a) How and Where Tornados Form
   b) Tornado Damage Signatures
   c) Tornado Wind Damage Patterns
   d) Level 2 and 3 Doppler Radar Analysis

VI) **Summary: Strategy to Minimize Litigation Exposure** (5 Minutes)

VII) **Follow-up / Questions and Answers** (5 Minutes)

This course is Approved for 2 CEU Credits
Commercial Roofing Damage: Investigations, and Adjusting Considerations

Statement of Knowledge

Statement of knowledge, skills, and abilities the attendee is expected to obtain through this course:

This course, Commercial Roofing Damage, Investigations and Adjusting Considerations, is intended for an audience of Commercial Property Insurance Carriers, their Managers, Examiners, and Adjusters.

The course is developed at an intermediate to high level of subject matter complexity for experienced Examiners and Adjusters (5 years minimum). It is designed to provide the attendees with an in-depth knowledge of commercial roofing design, construction, real-world service life(s), and damage analysis, as well as repair/replacement design considerations.
Learning Objectives

The five learning objectives of this course are as follows:

1) Understand the different types of commercial roofing, their components and their functional value in the service life of the roof.
2) Learn how and why roof damage occurs, and how to distinguish between normal degradation, premature deterioration, and storm damage.
3) Identify the mechanics of how and why wind forces can damage a commercial roof structure.
4) Know the key elements of Repair vs. Replacement decision making.
5) Recognize the necessary components for an investigative report to support a fair and rational claim resolution.

Course Outline

I) The Design Perspective: How Commercial Roofs Go Together  
(45 minutes)

   a) Roof Slopes  
   b) Structural Decks  
   c) Vapor Barriers  
   d) Insulation  
   e) Membranes (Roofing Systems)  
   f) Surfacing Materials  
   g) Drainage  
   h) Flashing  
   i) Roofing Design Guidelines, Standards and Codes
II) The Investigation Perspective: How and Why Roofs Come Apart
(45 minutes)

a) Natural Degradation
   1. Alligatoring
   2. Service Life Expectations vs. Experience
   3. The Impacts of Climate
   4. Steep vs. Low Sloped Roofs

b) Premature Deterioration of Commercial Roofing Systems: 4 Root Causes
   1. Improper Drainage
   2. Improper Flashing
   3. Improper Attachments
   4. Inadequate Surface Coating

c) Wind Damage Characteristics
   1. Understanding wind speed and forces
   2. Wind Velocity Pressure
   3. ASCE 7
   4. Push and Pull forces
   5. Visualizing wind force profiles on different roof shapes
   6. Wind Borne Debris
   7. Wind Driven Rain

d) The Building Structure
   1. Components and Cladding
   2. Connections
   3. MWFRS: Maximum Wind Force Resisting System
   4. Wind Damage Patterns: Expected Areas of Maximum Damage

III) The Restoration Perspective: Repair or Replace?
(45 Minutes)

a) Expected and Types of Wind Storm Damage
   1. Low Sloped Roofs
   2. Steep Sloped Roofs
b) Repair or Replacement: Based on Damage and Condition
   1. Scope of the Damage
   2. Condition of the Membrane, Insulation, and Structural Deck
   3. The Extent of Moisture Intrusion
   4. The Loss of Uplift Resistance
   5. Dead load Capacity of the Structural Deck
   6. Ballasted Single Ply Membrane Roofs
   7. Steep Sloped Roofs
   8. Roofing Tests: Their value and applicability to damage assessments

c) Repair or Replacement: Based on Building Code Requirements
   1. Legacy Building Codes
   2. 2004 International Building Code Requirements
   3. IBC Section 1510: Reroofing (Recovering vs. Replacement; Reinstallation of Materials)
   4. Florida Building Code Requirements are Unique

d) Repair or Replace: Based on Engineering Value Judgments

IV) The Engineer’s Damage and Restoration Report: What’s Important for Claims Resolution? (15 Minutes)

a) Different Report Format Options

b) On-Site Observations and Investigations

c) Engineering Analysis of the Meteorological Data, Observed Damage, Roofing System Conditions, Restoration Requirements and Building Code Impacts

d) Conclusions and Recommended Scope of Repair or Replacement

e) Estimated Cost of Restoration (Optional)

This course is Approved for 2 CEU Credits
Statement of Knowledge

Statement of knowledge, skills and abilities the attendee is expected to obtain through this course:

This course, Curtain Wall Damage, Investigations and Adjusting Considerations, is intended for an audience of Property Insurance Carriers, their Managers, Examiners, Adjusters as well as outside Independent Adjusters.

The course is developed at an intermediate level of complexity and difficulty for experienced Examiners and Adjusters. It is designed to provide the attendees with a requisite understanding of Curtain Wall Designs and Construction, building envelope damage investigations,
along with damage analysis, and repair / replacement decision considerations.

Learning Objectives

The four learning objectives of this course are as follows:

1) Understand the basic types of glass curtain wall designs and constructions.
2) Recognize the distinction between curtain wall deterioration and damage.
3) Identify the key steps to properly investigate curtain wall damage.
4) Understand the primary issues included in curtain wall repair vs. replacement analysis.

Course Outline

I) The Damaged Curtain Wall Challenge: Repair or Replacement? (15 minutes)

Three Primary Options for Restoration of Major Curtain Wall Damage:

a) Repair of damaged areas with Like Kind and Quality Materials
   1. Code Considerations
   2. Matching Issues
   3. Insured’s Challenges

b) Repair of damaged areas with New (Current) Code Compliant Design and Materials
   1. Matching Issues
   2. Technical Challenges
   3. Code Considerations
4. Expanding Scope

c) Replacement of Entire Curtain Wall with a New, Code-Compliant System
   1. Significant Cost Issues
   2. Scope Issues and System Upgrades
   3. Business Interruption Consequences

II) Curtain Walls Defined and Explained (15 minutes)

a) Curtain Walls Defined by their Structure/Assembly

b) Types
   1. Glazed
   2. Masonry / Stone Metal

c) Classifications
   1. By Assembly
   2. By Function
   3. By Materials
   4. By Configuration

d) Benefits: Why glass curtain walls are so popular

III) How Curtain Walls Work (15 minutes)

a) Evolution of Construction

b) Load Support

c) Accommodating Building Movement

d) Challenges and Problems
   1. Movement
   2. Loading Analysis
   3. Design Scope
   4. Façade Design Principles
IV) Investigating Damages/Determining Causation (30 Minutes)

a) Degradation of Materials
   1. Disparate Lifespan of Materials
   2. Service Life Expectations
   3. Factors Accelerating Degradation

b) Improper Maintenance
   1. Lack of Knowledge, Training
   2. Cost & Technique

c) Design Errors and Omissions
   1. Selection of Materials
   2. Improper Detailing/Connections
   3. Proper Drainage
   4. Not accommodating movement
   5. Over-reliance on Sealants

d) Faulty Fabrication
   1. In the Shop
   2. In the Field

e) Construction Defects
   1. Detailed Design left to Contractor
   2. Project Defining Methods
   3. Field Erection Quality

f) Extreme Weather Events
   1. Wind Storms
   2. Wind-Borne Debris
   3. ASCE 7 Design Loads
   4. IBC: Design Wind Speeds Have Increased

g) Damage patterns and Wind Load Analysis
   1. Plot Wind Speeds, Direction, Hour by Hour
   2. Damage Patterns vs. Wind Speed/Direction
   3. Urban Turbulence
4. ASCE Wind Pressure Load Analysis
5. Breeched Envelopes, Pressure Effects

h) Understanding the new (IBC) Code for Damaged Curtain Walls
1. Repairs Defined
2. Alterations Defined
3. Dangerous/Hazardous Conditions
4. Applications to Damaged Glass Curtain Walls
5. Like Kind/Quality or Compliance with Current Code?
6. Recent Rulings

V) Adjusting the Curtain Wall Loss (25 Minutes)

Three Options for Restoration
1. Repair Damaged Areas with Like Kind, Quality
2. Repair Damaged Areas with (Current) Code-Complaint Materials
3. Replace Entire Curtain Wall System

a) Code Considerations
1. Local Jurisdictions/IBC Modifications
2. IBC:
   Repair
   Alterations
   Dangerous/Hazardous Conditions
3. Code Compliance Requirements may differ for Mullions, Attachments, and Glazing
4. Other non-Event related defects revealed?

b) Technical Challenges
1. How Loads are Transferred from Curtain Wall to Main Structural Frame
2. Older Systems out of Manufacture
3. Splicing New into Existing System
4. Matching issues: Glazing and Mullions
c) Owner/Consultant Challenges
   1. Early meetings with Code Officials
   2. Responsible for Submission of Design, Permits
   3. Architect refuses to Design for Repair
   4. Effort to invoke “Dangerous/Hazardous Conditions” Interpenetrations
   5. Not matching

d) Recommended Adjusting Team Strategy
   1. Thoroughly Investigate Damage, Existing Conditions and other Existing Defects
   2. Analysis of Dangerous/Hazardous Conditions
   3. Meet with Code Officials early on for Acceptability of Like Repair Option
   4. Investigate other local Curtain Wall Damage, Repair Applications
   5. Develop Design/Building Scope of Work Far Enough to produce Not-To-Exceed Cost Estimate
   6. Include Collateral Damage Repairs; Dangerous Conditions, Re-Seal all glazing; interior damage repairs
   7. Include all special conditions costs, overhead and profit
   8. Submit as a Guaranteed Maximum Price

VI) Summary: Affirmative Investigation: Adjustment (10 Minutes)

   a) Compliance Investigations
   b) Surrounding Facility Comparisons
   c) Prove: Technically Feasible
   d) Prove: Code Acceptable
   e) Prove: GMP

This course is Approved for 2 CEU Credits
Statement of Knowledge

Statement of knowledge, skills and abilities the attendee is expected to obtain through this course:

This course, EIFS and Stucco Claims, is intended for an audience of Property Insurance Carriers, their Managers, Examiners, and Adjusters, as well as outside Independent Adjusters.

The course is developed at an intermediate level of complexity and difficulty for experienced Examiners and Adjusters. It is designed to provide attendees with the requisite understanding of EIFS and Stucco Systems, to understand the underlying problems that exist, and the investigative processes required to determine repair or replacement decisions and considerations.
Learning Objectives

The four learning objectives of this course are as follows:

1) Understand the different types of EIFS Systems and how you can tell them apart.
2) Recognize what constitutes a good investigative procedure.
3) Identify the key factors to determine the correct restoration scope.
4) Learns the primary issues associated with EIFS Systems repair vs. replacement

Course Outline

I) EIFS – Introduction and Overview of the Issues  (20 minutes)
   a) EIFS Defined (What is EIFS)
   b) EIFS Construction (How is EIFS Constructed)
   c) EIFS Benefits
   d) EIFS Problems

II) EIFS – A Brief History  (15 minutes)
   a) Product Development
   b) Problems Arise

III) EIFS – Problems Explained  (20 minutes)
   a) Legacy Barrier Walls Systems
   b) Drainage Wall Systems
   c) Why so Many Problems

IV) Stucco Claims  (20 minutes)
   a) Stucco Exterior Wall Finishes
b) Synthetic Stucco
c) EIFS
d) DAFS (Direct Applied Finish Systems)
e) EIFS or Stucco

V) EIFS Property Damage Claims (10 minutes)

a) Scope of Damage
b) Causation
c) Scope of Repair

VI) EIFS – Repair vs. Replacement (20 minutes)

a) Scope of Damage
b) Causation
c) Overall Condition
d) Code Consideration
e) Differing Opinions & Areas of Controversy

VII) EIFS – 3 Case Studies (20 minutes)

a) Significant EIFS damage with no apparent pre-existing water damage
b) Significant EIFS damage with underlying water intrusion
c) Significant EIFS damage with underlying water damage

VIII) EIFS – Preventing Problems (10 minutes)

a) Design
b) Construction
c) Maintenance
d) EIFS Manufactures
e) Consultant Contact Information

This course is Approved for 2 CEU Credits
Statement of Knowledge

Statement of knowledge, skills, and abilities that the attendee is expected to obtain through this course:

This course, Sinkhole Investigations for Property Claims, was developed for an audience of property insurance Carriers, Examiners, and Adjusters.

The course was developed at an intermediate level of complexity and difficulty for experienced Examiners and Adjusters. It is designed to provide the attendees with a requisite understanding of the underlying geotechnical nature and cause of sinkholes, the difference between
sinkholes and other forms of subsidence, the engineering methods used to investigate sinkholes, the methods used to remediate sinkholes, and the issues involved in successfully adjusting sinkhole property claims.

Learning Objectives

The Five Learning Objectives of this Course are as follows:

1) Understanding what Sinkholes are and how they occur;
2) Learning How to Investigate Sinkhole Property Claims
3) Becoming Familiar with Sinkhole Remediation Methods
4) Knowing the Correct Initial Response to a Sinkhole Claim
5) Understanding the Specific Issues involved in Adjusting a Sinkhole Claim

Course Outline

I) What are Sinkholes….and How Do They Occur? (40 Min)

a) Initial Definition of a Sinkhole
b) Loss of Surface Support
c) Cause of Loss of Underlying Support
d) Carbonate Bedrock
e) Effects of Acids and Bases
f) Beds, Bedding, and Fractures
g) Dissolution
h) Groundwater Effects
i) Pipes and Drains
j) The Bathtub Model of Subsidence
k) 3 Types of Sinkholes
l) Sinkhole Shapes
m) Karst Topography
n) Final Definition of a Sinkhole
o) Effects of Urbanization
p) When it is NOT A Sinkhole

II) Sinkhole Investigations (20 Min)

a) Sinkhole Time Frames
b) Sinkhole Symptoms & Clues
c) Relative Floor Surface Elevation Study
d) Subsurface Camera Survey
e) Test Pits
f) Dynamic Cone Penetrometer Soundings
g) Shallow Test Borings
h) Standard Penetration Test Borings
i) Ground Penetrating Radar
j) Investigation Plans

III) Sinkhole Remediation Methods (10 Min)

a) Remediation Strategies
b) Remediation Methods: Shallow Underpinning
c) Remediation Methods: Deep Underpinning
d) Remediation Methods: Injection Grouting
e) Remediation Methods: Chemical Grouting

IV) Sinkhole Damage & Response (10 Min)

a) Categories of Sinkhole Damage
b) Initial Response Methods
c) Repairs, Guarantees & Limitation

V) Adjusting Sinkhole Claims (10 Min)

a) Florida Sinkhole Legislation
b) Other State Mandates for Sinkhole Claims
c) Other Adjusting Issues
VI) Sinkhole Case Studies (20 Min)

  a) Lafayette County, FL
  b) Clearwater, FL
  c) Sumteville, FL
  d) Gainsville, FL
  e) Allentown, PA

VII) Summary / Sinkhole Investigations (10 Min)

This course is Approved for 2 CEU Credits
Statement of Knowledge

Statement of knowledge, skills, and abilities that the attendee is expected to obtain through this course:

This course, Structural Damage to Buildings Related to Sinkhole Activity, is intended for an audience of property insurance Carriers, Managers, Examiners, and Adjusters, as well as outside Independent Adjusters. The course is developed at an intermediate-to-advanced level of complexity/difficulty.
Learning Objectives

The six learning objectives of the course are as follows:

1) Understanding what is and what is not structural damage
2) Understanding the different definitions of structural damage, including those specific to sinkhole investigations
3) Learning the specifics of the definitions; comparing/contrasting
4) Examining building code requirements intended address/mitigate structural damage
5) Learning about structural damage-resistant alternatives to conventional building materials
6) Understanding how to best get questions answered regarding claims related to structural damage

Course Outline

I) Why discuss structural damage to buildings? (5 minutes)

II) What is damage? (10 - 15 minutes)
   a) Definition of damage
   b) Some general principles relating to damage
   c) Examples representing damage
   d) Examples not representing damage
   e) Types of issues
III) Specific examples of structural damage definitions (15 - 20 minutes)
   a) All too common
   b) Dictionary
   c) Existing building code
   d) Florida statutes
   e) Tennessee statutes

IV) Parsing the definitions (60 - 70 minutes)
    a) Florida statutes
    b) Tennessee statutes

V) Building code examples intended to limit structural damage to buildings (5 minutes)
    a) Design-related
    b) Construction-related
    c) Occupancy/maintenance-related
    d) Suggested code changes

VI) Structural damage-resistant alternatives to conventional building materials (5 minutes)

VII) Helping HEA to help you (5 - 10 minutes)
    a) Ask good questions
    b) Provide everything you can
    c) Get us up to speed; assist where possible
    d) Recognize limitations

VIII) Questions (5 - 10 minutes)

This course is Approved for 2 CEU Credits
The Basics of Moisture-Related Damage to Buildings

Statement of Knowledge

Statement of knowledge, skills, and abilities that the attendee is expected to obtain through this course:

This course, Basics of Moisture-Related Damage to Buildings, is intended for an audience of property insurance Carriers, Managers, Examiners, and Adjusters as well as outside, Independent Adjusters.

The course is developed at a basic-to-intermediate level of complexity/difficulty.
Learning Objectives

The six learning objectives of the course are as follows:

1) Understanding what is/is not moisture-related damage
2) Learning about the different sources of moisture-related damage
3) Identifying what characteristics are associated with shorter-term versus longer-term durations of exposure
4) Examining Building Code requirements intended address/mitigate moisture-related damage
5) Learning about moisture-resistant alternatives to conventional building materials
6) Understanding how to best get questions answered regarding claims with moisture-related damage

Course Outline

I) Why discuss moisture-related damage? (5 minutes)

II) What is damage? (10 minutes)

   a) Definition of damage
   b) Examples representing moisture-related damage
   c) Examples not representing moisture-related damage
   d) Types of issues
   e) Categories of moisture-related damage
   f) Examples of responses to moisture-related damage

III) Categories of sources (35 minutes)

   a) Rainwater
      1. Identification
2. Related causes
3. Discussion

b) Stormwater/groundwater
   1. Identification
   2. Related causes
   3. Discussion

c) Plumbing leaks
   1. Identification
   2. Related causes
   3. Discussion

d) Humidity/condensation
   1. Identification
   2. Related causes
   3. Discussion

e) Animal-related
   1. Identification
   2. Related causes
   3. Discussion

f) Fraud-related
   1. Identification
   2. Related causes
   3. Discussion

**IV) Duration discussion**  
(15 minutes)

a) Factors (potentially) affecting duration

b) Shorter term
   1. Identification
   2. Discussion
c) Longer term
   1. Identification
   2. Discussion

d) Very long term
   1. Identification
   2. Discussion

V) Building Code examples that address/mitigate moisture-related problems (15 minutes)

   a) Design-related
   b) Construction-related
   c) Occupancy/maintenance-related
   d) Suggested code changes

VI) Moisture-resistant alternatives to conventional building materials (10 minutes)

VII) Helping HEA to help you (10 minutes)

   a) Ask good questions
   b) Provide everything you can
   c) Get us up to speed; assist where possible
   d) Recognize limitations

VIII. Questions (5 - 10 minutes)

This course is Approved for 2 CEU Credits
Statement of Knowledge

The Design, Investigation, Restoration, and Reporting Considerations Related to Hail Damage course is intended for an audience of property insurance carriers, their managers, in-house examiners, adjusters as well as outside independent adjusters.

The course is developed at a basic-to-intermediate level of complexity/difficulty.
Learning Objectives

The learning objectives of the course are as follows:

1) Understanding why it is important to discuss hail-related damage

2) Examining the design perspective, including: manufacturing of several different roofing types; damage-resistant alternatives to conventional building materials; and relevant building code requirements (or lack thereof) related to roofing systems

3) Looking at the investigation perspective, including: what is/is not damage, and the types of damage, as well as other relevant considerations; the characteristics of hail, as well as reporting and detection; the specifics of hail damage, and relevant factors affecting damage probability, including case studies; and other related issues including mechanical and/or fraud-related damage

4) Discussing the restoration perspective, including: building code requirements related to repair/replacement considerations; other considerations related to repair/replacement; and the specifics of repair/replacements considerations, including a case study

5) Covering the reporting perspective, including: levels of certainty in conclusions; court findings related to a reported hail damage claim; and expediting resolution of the claim
Course Outline

Section 1 - Overview/why discuss hail damage? (10 minutes)
- Average claims loss per year versus average annual claims severity
- Top losses
- Increasing ages of buildings and roofing materials
- Cost of roofing replacement significantly increasing relative to inflation

Section 2 – The design perspective (26 minutes)

A. Manufacturing of several different roofing types
   - Composition shingle
   - Tile
   - Wood shingle
B. Damage-resistant alternatives to conventional building materials
   - Building code requirements for hail-resistant roofing?
   - Insurance discounts
C. Relevant building code requirements related to roof systems
   - Design-related
   - Construction-related
   - Occupancy/maintenance-related
   - Suggested changes

Section 3 – The investigation perspective (77 minutes)

A. Damage, types of damage, and other relevant considerations
   - Life expectancy; wear and tear; expected maintenance; defect; imperfect new condition
   - Severity of issues – cosmetic, functional, structural
B. Hail characteristics, including reporting and detection
   - Interesting facts about hail; selected terminology; hail formation
   - Size; shape; density; hardness
- CoCoRaHS; NCDC; dual-pol radar
- Case study #1

C. The specifics of hail damage and relevant factors affecting damage probability, including additional case studies
- Location of property; time of year
- Exposure of roof
- Direction of storm versus direction roof is facing
- Wind speed and roof pitch
- Type/age of roofing material; number of layers; construction of roof deck; location on roof
- Surface temperature of roofing
- BCEGS rating
- Case study #2 - #5

D. Other related issues (mechanical; fraud-related)
- Location on roof/pitch/proximity to vegetation; roofing type/age; roofing thickness/material type; object shape/force applied
- Case study #6
- Hail loss QC’s versus hail loss claims
- Damage locations/shape and comparison to actual hail damage
- Case study #7

**Section 4 – The restoration perspective (25 minutes)**

A. Building code requirements related to repair/replacement considerations
B. Other considerations related to repair/replacement
C. The specifics of repair/replacement considerations, including a case study
- Test areas
- Replacing/repairing isolated shingle tabs
- Hand-sealing
- Advice the insured may be receiving
- Case study #8

**Section 5 – The reporting perspective (12 minutes)**

A. Levels of certainty in conclusions
B. Brief review of court cases/findings related to an actual reported hail damage claim
C. Expediting resolution of the claim

Section 6 – Questions

This course is Approved for 3 CEU Credits
Statement of Knowledge

This course, Investigating Contested Hail Damage Claims, is intended for an audience of Commercial Property Insurance Carriers, their Managers, Examiners, and upper level Adjusters.

The course is developed at a high level of subject matter complexity for experienced Examiners and Adjusters (10 years minimum). It is designed to provide the attendees with a more advanced knowledge of roofing materials and exposed HVAC materials performance under hail exposure along with the laboratory
testing and weather information technologies used in the investigations of contested hail damage claims. In addition the course details the expert methods and procedures used in the investigation of and reporting on these claims.

Learning Objectives

The four learning objectives of this course are as follows:

1. Understanding the most commonly used roofing and rooftop mechanical equipment materials:
   - Their durability & susceptibility to hail damage and
   - Recognizing hail damage on typical roofing and rooftop mounted mechanical equipment materials
2. Learn about the physical characteristics of hail that are important to hail investigations.
3. Understand how meteorological investigations and laboratory analysis of sampled materials aids in conducting more accurate hail damage investigations.
4. Develop an understanding of the complete investigative process;
   - Inspection,
   - Investigation and research
   - Damage Classification,
   - Replacement & Repair Recommendations and
   - Report Development
Course Outline

1. **Roofing Materials: Durability & Susceptibility to Hail Damage**  (15 Minutes)
   - A. Material vulnerability Statistics
   - B. Classifying Durability : UL and FM Testing
   - C. Sloped Roofing Materials
   - D. Low Sloped Roofing Materials
   - E. Condensers and RTU’s
   - F. How Condensers Work
   - G. RTU coils & Fins
   - H. Miscellaneous Metals

2. **Hail Characteristics**  (10 Minutes)
   - A. The Formation of Hail in a Storm
   - B. Hail Size and Shape Characteristics
   - C. Hail Size and Damage Correlations
   - D. Effects of Wind Speed and Direction

3. **Hail Damage on Typical Roofing Materials**  (15 Minutes)
   - A. Identifying Hail Damage on Various Materials
   - B. Hail Damage vs. Other Causes of material Damage
   - C. Identifying Aged Hail Damage

4. **Hail Damage to Rooftop Mechanical Equipment**  (10 Minutes)
   - A. Factors Determining Hail Damage to Fins and Coils
   - B. Developing a Scope of Replacement and/or Repair
   - C. Documenting the Scope of Work
D. The importance of Refrigerant Types to the Repair or Replace Conclusion

5. **On-Site Investigations** (15 Minutes)
   A. Age / Condition of the System Prior To The Loss
   B. Identifying, Measuring and Recording Material Conditions
   C. Determining the Impacts To The Roofing Materials Water Shedding Abilities
   D. Determining Impacts to the remaining service life Of The Roof
   E. Determining Impacts to a Materials Appearance

6. **Meteorological Investigations** (10 Minutes)
   A. Historic Large Loss Events
   B. Radar Detection
   C. Conventional vs. Dual Polarization Radar (Dual-Pol)
   D. Conventional Radar
   E. Dual-Pol Radar

7. **Laboratory Analysis of Sampled Materials** (10 Minutes)
   A. Looking For A Negative
   B. What Can Testing Reveal
   C. Removing Samples From the Loss Site & Shipping to the Testing Lab-Procedures
   D. Typical Lab Protocols Used In Material Investigations-Descriptions and Costs

8. **Damage Classifications** (10 Minutes)
A. What is Damage?
B. Functional Damage
C. Cosmetic Damage
D. The Visibility Of Claimed Defects
E. Policy And Coverage Issues
F. Practical Analysis

9. **Report Development & Presentation**  
   (10 Minutes)
   A. Policy Language/ Definitions/Coverage Issues
   B. Defining Conditions
   C. Defining Damage
   D. The Correlation of Key Analyses:
      a) On Site Inspections and Observations
      b) Meteorological Analysis
      c) Laboratory Testing Of Materials
   E. Conclusions

10. **Replacement & Repair Recommendations**  
    (10 Minutes)
    A. The Questions Answered That Inform The Experts Recommendations

11. **Summary**  
    (5 Minutes)
    The Main Points Of Contested Hail Claims Investigations Revisited

This course is Approved for 2 CEU Credits
Statement of Knowledge

This course, Adjusting Mechanical System Losses is intended for an audience of property insurance Carriers, Managers, Examiners, and Adjusters as well as outside, Independent Adjusters.

The course is developed at advanced level of complexity/difficulty.
Learning Objectives

The five learning objectives of the course are as follows:

A) The Purpose, Type, Function and Components of Building Mechanical Systems including HVAC systems, plumbing/piping systems, fire suppression systems, and complex machines.

B) How cause and origin investigations are performed and the differences that exist when the Mechanical Systems themselves are the cause of the loss (Mechanical Systems failure), and when Mechanical Systems are damaged as a result of the loss from an outside event (i.e. flooding or fire).

C) How to identify the Scope of Damage, including temporary system requirements, permanent system requirements, and consideration of pre-existing conditions or damages.

D) How to identify a Scope of Remediation, including repair or replacement decisions, code upgrades, elective upgrades, and working with the Insured and their consultants.

E) How to prepare a Detailed Mechanical Systems Cost Estimate based on actual conditions and equipment (a major difference as compared to a general construction estimate). The detailed estimate will also include categorization of costs (loss related, elective upgrades, code upgrades) for coverage considerations.
Course Outline

MECHANICAL SYSTEMS EXPLAINED  
(20 minutes)

1. HVAC Systems
2. Plumbing and Piping
3. Fire Suppression
4. Machinery

INVESTIGATION OF MEP LOSSES

PART 1 – CAUSATION  
(20 minutes)

A. Losses where Mechanical Systems are the Cause
   1. Operations and Maintenance Deficiencies
   2. Design Errors or Omissions
   3. Installation Issues and Workmanship
   4. Manufacturer’s Defects
   5. Age-Related Causes

B. Losses where Mechanical Systems are Damaged by External Causes(s)
   1. Flooding
   2. Fire
   3. Other Causes (Hail, Vandalism, Theft, etc.)

PART 2 – SCOPE OF DAMAGE  
(20 minutes)

A. Identifying the Extent of Damage
B. Immediate Loss-Mitigation Actions
C. Segregating Loss-Related Damage from Pre-Existing

PART 3 – SCOPE OF REMEDIATION  
(20 minutes)

A. Repair or Replacement Decisions
B. Identifying Code Related Upgrades (code expertise)
C. Categorizing Code Upgrades, Owner’s Elective Upgrades, and Direct Loss-Related Upgrades
D. Working with the Insured and their Consultants

PART 4 – COST ESTIMATING (20 minutes)

A. How Mechanical Cost Estimating differs from General Construction
B. Estimates by Category (Loss, Code, Owner Elective)
C. Detail Oriented Estimating

KEY TAKE-AWAY IDEAS AND QUESTIONS (10 minutes)

This course is Approved for 2 CEU Credits
Building Codes and Enforcement in the United States (Where We Were, Where We Are and Where We Are Going)

Statement of Knowledge

The course “Building Codes and Enforcement in the United States… Where We Were, Where We Are, and Where We Are Going” is intended for an audience of property insurance carriers, their managers, in-house examiners, adjusters as well as outside independent adjusters.
The course is developed at a basic-to-intermediate level of complexity/difficulty.

**Learning Objectives**

**The learning objectives of the course are as follows:**

A) Covering why it is important to discuss building codes

B) Understanding the purpose of buildings and building Codes

C) Learning about the history of building codes

D) Discussing references and referenced standards

E) Obtaining familiarity with building code development

F) Examining adoption/enforcement of building codes

G) Comparing the I-codes and the FL codes

H) Looking at select recent changes to the FL codes

I) Understanding problems with building codes and Enforcement

J) Discussing the future of building codes and enforcement
Course Outline

Overview (2 minutes)

I. Why discuss building codes? (8 minutes)
   · historic significant events
   · concerns about building performance
   · frequency/severity of insurance claims

II. The purpose of buildings (5 minutes)
   · continually changing
   · many influences

III. What is the purpose of building codes? (15 minutes)
   · differing performance expectations
   · buildings can be hazardous
   · protection against numerous possible events

IV. Brief history of building codes (10 minutes)
   · earliest code(s)
   · recent, historic codes
   · the role of disasters
   · unifying the codes

V. References and referenced standards (10 minutes)
   · levels of references
   · types of references
   · the goal of referencing
   · determination of relevant, authoritative sources

VI. Development of building codes (10 minutes)
   · major players
• development process/cycle
• proposed changes

VII. Adoption/enforcement of building codes (10 minutes)
• importance
• discrepancies between the states
• recent improvements?
• Building Code Effectiveness Grading Schedule
• simplified model of site development process
• top building code violations

VIII. Comparison of the I codes & FL codes (5 minutes)
• first I-codes versus FL codes
• current I-codes versus FL codes

IX. Select recent changes to building codes (15 minutes)
• overview of current adoption
• selected changes

X. Problems with building codes/enforcement (5 minutes)
• the “unencumbered bureaucracy”
• cost
• questionable improvements
• restrictions
• administrative impediments

XI. The future of building codes/enforcement (5 minutes)

XII. Questions (5 minutes)

This course is Approved for 2 CEU Credits