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CPCU SOCIETY

Coping with Ice Dams

a research project by the CPCU Society's Connecticut Chapter

Editor's note: *The winter of 1995-1996 left many homes in Connecticut suffering from water damage due to ice dams building up on the roofs and water seeping under otherwise undamaged shingles and damaging interior ceilings, walls, windows, and floors. While few of these claims were individually catastrophic in terms of size or impact on the insured, they presented several challenges that the CPCU Society's Connecticut Chapter sought to determine through a research project. We will share excerpts from their research project in a two-part series. This issue of* Underwriting Trends *will explore the research objectives, background of ice dams, and their findings. In Part II of the series, we'll review their conclusions. Our thanks go to the Connecticut Chapter.*

Research Objectives

The objectives of the research were the following:

- To see how homeowners mitigated damage from ice dams.
- For those homeowners that had damage and filed claims: to assess how satisfied they were with the claim service.
- To see what actions, if any, were taken to prevent a reoccurrence of damage.
- To determine if there were any physical factors that could be related to ice damage.

Background

An ice dam is an amassing of ice at the lower edge of a sloped roof that expands to form a ridge running along the lower edge of the roof. Ice dams form in cold weather when there is a layer of snow on the roof. Heat either from poorly insulated attics or warming weather causes the snow pack on the roof to begin to melt. The water released by the melting snow begins to run down the roof. Since the lower edges of the roof extend out from the house they are not warmed by any escaping heat and tend to be colder. When the water reaches these lower edges it re-freezes and begins to form a ridge of ice. Repeated cycles of warmer conditions (causes the snow to melt) followed by colder, freezing weather results in a continued accumulation of ice at the lower edge of a sloped roof. Eventually the ice dam becomes sufficiently massive that most of the water released by the melting snow pack is trapped behind it. The trapped pool of water is then forced under the roofing material and into the house where it may become a torrent of water flowing through ceilings and/or down walls causing significant damage.

Three things are required for an ice dam to form: snow, heat to melt the snow, and cold to refreeze the melted snow back into solid ice.[1]

The creation and development of ice dams are accelerated when the temperatures follow a pattern of rising just above freezing then dropping back below freezing. If temperatures stay above freezing, the snow and ice dam melt and the roof is cleared. When temperatures stay below freezing, the snow does not melt very much and little, if any water is flowing and ice dams do not form. It is the rapid cycling of temperatures above and below freezing that causes the problem. Additional snowfall feeds the process providing additional sources of water.

During Connecticut's winter of 1995-1996, there was a continued cycling of temperatures above and below freezing accompanied by frequent snowfall. As a result, the near perfect conditions for ice dams existed.

Sampling Design

Since the question under consideration dealt with the experiences of Connecticut homeowners with ice dams, the research committee chose to survey all of the homes within selected geographic areas likely to have had such problems. In-person interviews using prepared survey forms were the method of contacting the homeowners. Information obtained from sources such as local police and fire departments as well as first-hand knowledge of committee members, was the method used to identify neighborhoods to survey. The committee developed the survey, and it was then shared with the marketing research department of The Hartford Group for its input

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and suggestions. The survey was then tested on a small group of homeowners to assure that it was understandable and easy to administer.

Survey Administration

Volunteers from the CPCU Society's Connecticut Chapter went door-to-door in the identified neighborhoods. After the survey was completed, each volunteer provided the homeowner with a copy of *Natural Hazard Mitigation Insights,* a publication of the Insurance Institute for Property Loss Reduction (IIPR)[2] that described ice dams, their cause and what actions the homeowner might take to prevent or minimize future damages.

Findings

Of the 63 homes surveyed, 24 (38 percent) experienced damage during the winter of 1995-1996 that was attributable to ice buildup on their roof.

Homeowners that Reported Damage

- The respondents reported a number of different types of damage, the most common (17 of 24) were damage to the paint on the ceilings and the paint/ wallpaper on the walls (16 of 24). Few reported any form of structural damage. (See Figure 1.)
- Fourteen of the 24 respondents took some sort of action while the water was seeping in to limit the damage. Most commonly, the homeowners sought to eliminate the source of the ice dam by shoveling snow off their roofs and/or hammering the ice dam that had formed.
- In one-third of the cases, the insurance company sent a representative out to the homeowners within a week. With another third of the claims, the representative took longer than a week to investigate the claim but did so before spring. In the remaining cases, the insurers' representatives waited until spring or never came out.

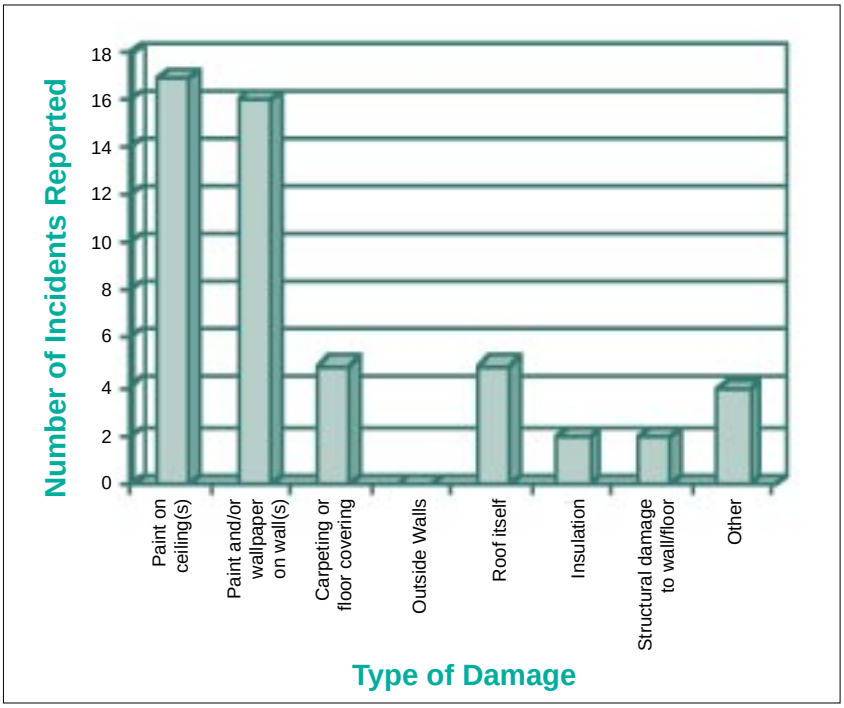
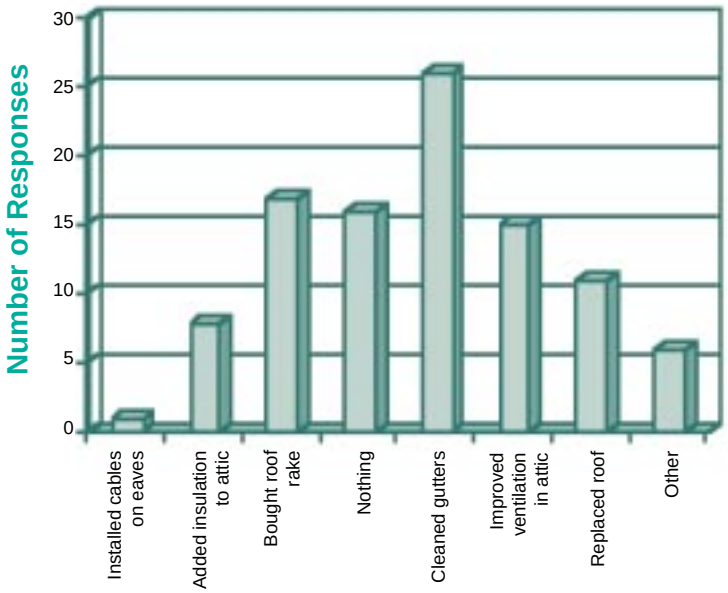


Figure 1

- Claims were most often (67 percent) settled by the insurance company making a single payment to the homeowner.
- Half of the claims required more than a week to settle, but the homeowners received payment prior to the spring. In two of the cases the claims were resolved within a week, while in three cases the settlement did not occur until after the end of the winter.
- Of the 15 homeowners that reported making repairs, five did so promptly, four waited until spring, and six waited until summer. Six of the respondents that reported damage did not make any repairs. Only one homeowner filed a claim but did not make any repairs.
- The reasons for not making the repairs sooner included being unable to find anyone to make the necessary repairs any earlier (5 of 12) or that the homeowners wanted to wait until they felt their home was safe from future damage (5 of 12). Two of the homeowners were forced to wait because their insurance carrier delayed making the payments.

Figure 2

Activities Done by Homeowners to Prevent Ice Dams
(multiple responses allowed)



Reported Condition of Roof and Flashing in Fall of 1995

- The repairs were usually (10 of 16) done by a contractor that the homeowner selected. Four of the homeowners did the work themselves. In two cases the insurance company selected the contractor to complete the repairs.
- The majority (7 of 12) of the homeowners were very satisfied with the way their claims were handled.

All Homeowners Surveyed

- When the homeowners were asked if they had done anything to prevent ice dams, the most common response was that they cleaned their gutters (26 responses) with the next most common response being the purchase of a roof rake (17). One-third of the homeowners did nothing. (See Figure 2)
- Most (85 percent) of the homeowners surveyed felt that they understood what causes ice dams to occur and that they knew how to prevent or minimize future damage.
- When asked if the homeowners had large trees around their houses, 77 percent said yes.
- Almost all (90 percent) of the homeowners stated that they had cleaned their gutters in the fall of 1995.
- Most (84 percent) of the homeowners believed that their roof and flashings were in good or excellent shape in the fall of 1995.
- Most homeowners (85 percent) reported the presence of icicles forming off of their roofs during the winter of 1995-1996. Five percent did not know.

Homeowner Experiences during the Winter of 1994-1995

- Only a few (8 percent) of the homeowners surveyed reported any damage to their homes due to ice buildup on their roof during the previous winter (1994-1995). This contrasted with the 38 percent that reported damage during the winter of 1995-1996.

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- When asked if they recalled icicles forming on their roof during the previous winter (1994-1995), 50 percent of the homeowners surveyed replied that they did. During the winter of 1995-1996 significantly more (85) of the homeowners reported icicles forming.

Characteristics of the Homes

Note: Neighborhoods were selected based on expectations of high incidents of damage due to ice dams. These neighborhoods were comprised of mostly older homes.

- Fifty-eight out of the 60 homes surveyed were more than 20 years old.
- Most (48 percent) of the homes had newer roofs.
- Sixty percent of the homeowners surveyed had resided at their current address for more than 10 years.
- When asked how they would characterize the pitch of their roof, most (70 percent) considered it to be moderate.
- Thirty-seven of the homeowners surveyed reported more than one roof gable. Twenty-six reported just a single gable.
- In order to determine the orientation of the house and roof, we asked the homeowners what direction their front door faced. The responses were about even.

Characteristics of Claimants versus Non-Claimants

- Among respondents with damage, those who filed claims had experienced wall and ceiling damage that was similar to that of non-claimants. When damage was to the floor or the roof itself, people were more inclined to file claims; four out of five with carpet or floor damage filed claims; and all five with roof damage filed claims.
- When it came to action to mitigate damage, the claimants and non-claimants had taken nearly the same set of actions. For both groups, the most common steps were to shovel the snow from the roof and to hammer the ice dams.

In our next issue, we'll examine the conclusions of this study. ■

Endnotes

1. *Preventing Ice Dams,* University of Massachusetts, Building Materials and Wood Technology.
2. *Natural Hazard Mitigation Insights,* a publication of the Insurance Institute for Property Loss Reduction. "Ice Dams," No. 6., January 1997. ISSN 1089-6058.

How to Control Premium Leakage

by Daniel Finnegan, Ph.D.

***Daniel Finnegan, Ph.D.**, is president of Quality Planning Corporation located in San Francisco. He has had more than 15 years of professional consulting experience in the design and implementation of financial control and management systems within both the insurance industry and the federal government.*

Quality Planning Corporation is a consulting firm specializing in information and decision integrity systems for the insurance industry.

Compared with other financial institutions, insurance companies have limited contact with their customers. Banks and securities firms, for example, have recurring—in some cases, weekly or even daily—opportunities for customer interaction.

Property and casualty insurance carriers, however, have few defining moments of customer contact—when the policy is sold, when it renews, when a claim is reported, when a claim is adjusted. Of these, only one—renewal—recurs at regular intervals, and two—claim report and adjusting—are rare events for the typical customer.

"For the average P&C carrier, a 2 percent increase in premium income will increase profits 40 percent."

How a company collects, manages, and uses information at each of these defining moments determines the integrity of the resulting decisions and has a significant impact on profitability.

In this article, for the sake of brevity, I concentrate on one example of defining moments—the point of sale in personal auto lines. The concept to be remembered throughout is that the core principles apply equally across P&C lines and points of contact.

Insurance customers are not always forthright. Personal auto applicants may, for example, misreport annual mileage, usage, geographic location, principal drivers, and so forth to avoid high premiums. This results in costly rating errors and losses in excess of premium when the driver is involved in an accident.

The results of some of the underwriting audits we have conducted for different auto carriers illustrate the magnitude of the problem:

- Annual mileage underreporting error rates ranged from 25 to 60 percent.
- Based on accident claims involving young drivers, we found the rate of unreported youthful drivers ranged from 20 to 30 percent, resulting in average premium losses of almost 50 percent on these policies.
- Garaging location was misreported in 10 to 14 percent of applications reviewed, resulting in average rating errors as high as 30 percent and net total premium losses of 3 to 4 percent.
- Policyholders who have changes in rating factors that are likely to increase their premium are less likely to respond to annual policy renewal surveys than policyholders without any such changes.
- Less than 40 percent of accidents are reported to police and departments of motor vehicles, which increases vulnerability to insuring drivers who have not reported at-fault accidents.

Lost premium percentages, of course, vary by carrier, jurisdiction, types of coverage, and book of business. The one constant is that failures of information and decision integrity significantly undermine profitability and competitive position.

Conversely, competitive position and profitability are greatly enhanced through information and decision integrity.

Just what sort of opportunity are we talking about here? Let's calculate it based on the following. In the property and casualty insurance industry, the average profit is about 5 percent of premium. Assuming a fixed book of business, the average insurer can increase its profits 40 percent with just a 2 percent increase in premium income. One of our clients devoted major efforts to information and data integrity and achieved a 10 percent income gain without any associated rate increase.

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How to Control Premium Leakage

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A Strategy for Ensuring Integrity

There are three keys to information and decision integrity:

- systematic attention to detail
- managing participant incentives
- skillful use of information technology

Systematic Attention to Detail

Every year, more than 90 million P&C policies are written or renewed. Between 25 and 50 separate data elements are collected for each applicant, on most policies. Five to 15 items are generally collected on renewals. The sales and underwriting processes are repetitive but not sufficiently systematic. How you collect rating data can have a substantial impact on total premium you collect and the degree of risk you assume. By systematizing that process you can achieve gains in total premium ranging from 3 to 12 percent without any increase in rates.

"The first question on most auto policy applications is 'What is your name?' The question is simple and straightforward. It is hard to imagine how such a question could be improved."

Small gains in information and decisions that recur thousands and thousands of times provide opportunities for substantial gains in profitability. For example, the phrasing used in application interviews directly impacts the quality of information obtained. The first question on most auto policy applications is "What is your name?" The question is simple and straightforward. It is hard to imagine how such a question could be improved.

Our research, however, has shown that asking, "What is your name as it appears on your driver's license?" yields far superior results. This wording improves matches with Department of Motor Vehicle records, eliminates much of the confusion arising from variable name order used by many ethnic groups, and provides a single reference point for verifying coverage following an accident. In response to this question, most applicants will show their licenses to the sales agent, thus permitting license verification and name spelling consistency.

Nearly every question on an insurance application benefits from similar careful attention to detail.

"Given the right incentives, sales agents get the right information."

Managing Incentives

Decision and information integrity is dependent on the incentives of all participants—sales agents, managers, customers, and even senior executives.

How you incent sales agents influences the business they write. For example, when sales agents are compensated largely on their new business production volume, rating integrity declines while sales volume increases.

To reduce quoted premium in a competitive market, agents may ask the mileage question as "You drive less than 7,500 miles a year don't you?" Significant premium loss results. When one carrier included rating accuracy—as determined by independent audits of new business—as part of its sales agent compensation plan, it achieved more than an 80 percent decline in mileage reporting errors. Given the right incentives, sales agents get the right information.

There are also effective incentives to

improve the integrity of information provided by new applicants for auto insurance. When collecting driving records and accident histories, we recommend phrasing such as:

> When I turn in your application, our system automatically looks at your history with DMV and other insurance companies for any tickets, accidents, or claims you have had. Unfortunately, the computer may not tell the whole story. So I need you to tell me about any tickets, accidents, or claims you have had so we can get your side of the story down.

Implicit in this wording is the assumption that the carrier will automatically know about all accidents, tickets, and claims. The details are the only open issues. The question makes it clear that a full report is in the applicant's interest. Similar wordings have produced significantly greater disclosure of claims and accidents than the more standard language.

Skillful Use of Information Technology

The massive investment the P&C industry has made in information technology should be better mobilized in the service of information and decision integrity. In a recently published white paper, we listed more than 100 automated data sources useful in the verification of claim information.[1] A similar array of sources can be tapped for sales and underwriting.

The problem of underreported annual mileage, for example, can be greatly reduced by information technology. We have developed computer programs that estimate commute distances and identify rating errors by geographically analyzing home and work addresses.

When annual mileage is calculated using successive odometer readings obtained from renewal questionnaires, rating accuracy improves significantly. Some states collect odometer readings during periodic smog or safety checks and make the data available, thus providing a means of verifying reported mileage. Verification of odometer readings when an application is taken, when a policy renews, when a claim is processed, and through available public records, creates a closed loop that makes misreporting annual mileage nearly impossible.

"By verifying odometer readings when you take an application, renew a policy, process a claim, and by utilizing available public records, it is possible to create a closed loop that makes it nearly impossible for your customers to misreport annual mileage."

Most auto carriers can achieve an immediate, significant premium gain on their current book of business through the automated analysis and verification of rating data. Statistical audit procedures identify policies that are likely to have rating errors. One carrier experienced gains in premium ranging from $50 to $200 dollars per policy by correcting rating errors identified in such an audit.

Powerful decision and information integrity systems result from careful attention to how questions are worded, what behaviors are rewarded, and how information technology is used. ■

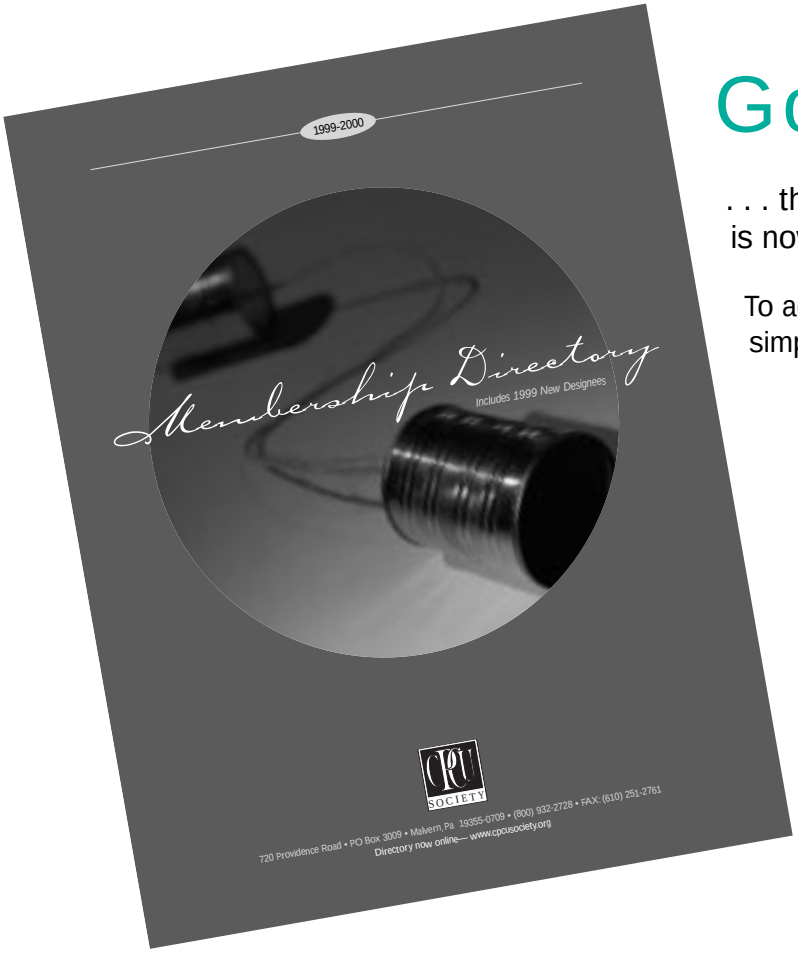
Endnote

1. "Using Technology to Fight Insurance Fraud," by Daniel Finnegan, Ph.D., and Joan Marsh, Quality Planning Corporation, 1996.

Professional Tips: Destroying a Myth

How many of you believe the following statement to be true? Raise your right hand if you do. When the underwriter or insured selects the ISO ⅓, ¼, or ⅙ monthly limitation factor for Business Income, the longest period of time that the insured could recover for Loss of Income would be three, four, or six months respectively.

How did you do? If your hand is up, you need to read further. If your hand is down, you either got tired or you know the truth. The truth is that the above monthly limitations only specify the amount that the insured can recover in any 30 consecutive day period beginning after the Period of Restoration. What this means is that the insured could have a 10 month Business Income Loss and recover the full amount as long as no 30 consecutive day period exceeds one-third of the limit of insurance and limit is adequate. A real advantage of knowing how this works is that now an insured who doesn't want to reveal confidential financial information or worry about a coinsurance penalty can buy adequate Business Income coverage yet pay substantially less than using a straight no coinsurance option. This new knowledge also gives underwriters greater flexibility in suggesting better ways to work with their customers. ■



Good News . . .

. . . the CPCU Society's *Membership Directory* is now online!

To access this interactive directory, simply

- visit the Society's web site at www.cpcusociety.org
- enter through "Member and Chapter Services," and
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If you would like to receive a paper copy of the directory, which includes a listing of section members by individual section, please contact the Member Resource Center at (800) 932-2728.

The Truth About EIFS

Stephan E. Klamke

Editor's Note
The CPCU Society neither agrees or disagrees with the content of this article, but many of you may be affected by the outcome. CPCU welcomes any comments.

Stephan E. Klamke *is executive director of the EIFS Industry Members Association of Morrow, GA, the official voice of the EIFS industry.*

For almost 30 years, Exterior Insulation and Finish Systems (EIFS) have found a receptive home among builders, architects, and remodelers in the United States.

EIFS, which resemble stucco, are multi-layered systems that function much like layers of clothing on a cold winter day. Each layer helps protect a home from the elements. But it is the innermost layer—most often a polystyrene insulation board—that is the key to EIFS' energy efficiency and design flexibility. The insulating panels typically are made of polystyrene foam and can be shaped into quoins, cornices, crown moldings, or frieze boards, thus giving architects design freedom unavailable with other siding materials.

Yet, despite their track record in both the commercial and residential markets, EIFS have come under scrutiny in response to reports of moisture damage to homes in various locations around the country. Maryland Casualty Co., a leading underwriter of residential construction on the East Coast, has gone so far as to stop providing liability coverage for residential and commercial construction involving EIFS in the wake of a class action suit filed against a number of EIFS manufacturers in North Carolina.

The concern about moisture intrusion prompted the EIFS industry to develop a new generation of cladding products known as "EIFS with drainage." These claddings are designed to give builders and buyers of new EIFS homes an extra measure of confidence that the homes will be free of excessive moisture. The EIFS with drainage option is particularly welcome in wet, coastal areas where steady, wind-driven rain can wreak havoc on any home, regardless of the cladding used, if the exterior envelope is not adequately protected.

Despite the moisture-intrusion debate, EIFS sales in North America continue to increase at a rate of 4 to 7 percent a year, with sales approaching $400 million a year. EIFS account for less than 2 percent of the total cladding market in residential construction, but 23 percent of the cladding market in commercial and institutional construction.

If these products are problematic, the insurance industry should be able to point to a claims history dating back to at least the mid-1980s. In fact, the first class action suits weren't filed until the mid '90s.

"Yet, despite their track record in both the commercial and residential markets, EIFS have come under scrutiny in response to reports of moisture damage to homes in various locations around the country."

All EIFS are barrier systems that prevent moisture from penetrating the exterior of a home or building and mold from forming in the wall system. To single out EIFS when there's a moisture or mold problem without reviewing the integrity of the entire building envelope/watershed, assumes that each product in the building envelope operates independently. In fact, there is a symbiotic relationship between watershed components, such as the roof, flashings, sealants,

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The Truth About EIFS

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gutters, downspouts, water diverters, and siding.

A shingle roof, for example, is a barrier system with no internal means of drainage, and therefore, is no less immune to moisture damage than EIFS or other products used in residential construction. As with any penetration on either horizontal or vertical surfaces, proper and adequate flashings and sealants are necessary to maintain the integrity of the barrier.

There are tens of thousands of homes and commercial and institutional buildings clad with EIFS. The vast majority of these structures are moisture- and mold-free because the EIF system was installed properly. Inspections of EIFS homes that have experienced moisture damage confirm a general pattern of disregard for general construction practices, building code standards, and manufacturers' specifications.

In most instances of moisture intrusion, the damage is minor, often less than 5 percent of the total wall surface, and can be repaired easily and inexpensively. Yet, owners of these properties sometimes opt to needlessly replace their siding, often at exorbitant prices.

Recently, the EIFS industry has taken steps to prevent moisture-related problems by offering professional training to home builders, applicators, and municipal building officials and by helping educate the public through a new web site (www.eifsfacts.com). In addition, EIFS with drainage are offered as alternatives to traditional barrier systems in residential construction, partly in response to recent building code changes in North Carolina and Georgia.

The addition of the drainable option does not diminish the industry's confidence in and commitment to conventional EIFS. The decision on whether to use EIFS with drainage should include factors such as a home's architectural features, its geographical location, and the amount of rainfall and humidity found in the local area.

These products have enjoyed tremendous success over the years, thanks to their unique characteristics and an awareness by builders and contractors for the need to seal, caulk, and flash around windows and other critical moisture entry points. With so much at stake, a growing number of building professionals now recognize that there's no substitute for good design, detailing, and building practices to prevent moisture intrusion. ■

The CPCU Society Presents a Live Satellite Broadcast . . .

February 1, 2000

1 - 4 p.m. (EST)

Panel I—Identification of M&A Loss Exposures

This panel will identify and quantify such exposures as environmental hazards, exposure-based products liability, unreserved liabilities for cash flow program, exposures from discontinued operations, captive insurance solvency issues, post-retirement benefit obligations, liabilities arising from a defined benefit pension plan, and unfunded nonqualified plans.

Panel II—Treatment of M&A Loss Exposures

This panel will consider ways to manage loss exposures that could arise, including such techniques as proper due diligence prior to the merger or acquisition, avoidance of deals that "don't make economic sense," adjustment of the terms of the deal to reflect potential liabilities, commercial insurance, and alternative risk financing techniques.

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Editorial

by Diane G. Baker, CPCU, ARP

It's hard to believe . . . 1999 is nearly over, and we are racing head-on into the infamous Year 2000—whether we are ready or not! This is our final issue for 1999 and we have a variety of articles that I hope you find interesting.

I am pleased to introduce you to your new editor, Rick Becker, CPCU, CLU, ChFC. He is a 20-year veteran with Nationwide Insurance and has held numerous positions around the country. He has also served as chapter president for both the CPCU Society's Blue Ridge and Alamo Chapters. Rick has been a member of the national Underwriting Section Committee for six years.

I have enjoyed my three-year tenure, and I want to thank all of you again who contributed with your time and articles. Please join me in welcoming Rick.

Diane G. Baker, CPCU, ARP, *is a personal lines director at Allstate Insurance in Northbrook, IL. A graduate of UNC-Chapel Hill, she earned her CPCU in 1989, and actively served in the Central Indiana Chapter.*

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