

# Earthquake and Mine Subsidence:



DIFFERENT PERILS —  
SEPARATE INSURANCE  
COVERAGE



ILLINOIS MINE  
SUBSIDENCE  
INSURANCE FUND

# Earthquake and Mine Subsidence: Different Perils — Separate Insurance Coverage

Earthquakes and mine subsidence are two very different types of geological events that occur in Illinois. Although both can cause severe damage to structures, there are distinct observable differences in the damage caused by each.

Insurance coverage for both perils is available from Illinois insurers; however each is a separate coverage, with separate premium charged. The Illinois Insurance Code specifically excludes earthquake in its definition of mine subsidence:

*(215 ILCS 5/Art. XXXVIII A/802.1) Sec. 802.1. Definitions*

*(f) "Mine Subsidence" does not include lateral or vertical ground movement caused by earthquake, landslide, volcanic eruption, soil conditions, soil erosion, soil freezing and thawing, improperly compacted soil, construction defects, roots of trees and shrubs or collapse of storm and sewer drains and rapid transit tunnels.*

This brochure is intended to help property owners understand the difference in damage caused by these events and the availability of separate insurance coverage for each, should their properties be at risk.

# Earthquakes in Illinois

Earthquakes in Illinois are common occurrences. On average, 2-5 earthquakes are detected in Illinois each year, and can occur anywhere in the state. The New Madrid Seismic Zone is the most active seismic area in the United States east of the Rocky Mountains. It is comprised of three faults whose earthquakes can and have affected Illinois, Missouri, Arkansas, Tennessee and Kentucky. The largest series of earthquakes felt in the contiguous United States occurred in this region in late 1811 and early 1812. Within five months, a major earthquake occurred along each of the three faults with magnitudes estimated at 7.5 and higher, and affecting 1 million square miles. With the dramatic increase in population in the Midwest, a similar earthquake along these fault lines could have disastrous results, causing damage to critical infrastructure, such as roads, bridges, utility systems and emergency response networks and facilities.

Over the past 40 years there have been 3 damaging earthquakes in Illinois. Following an April, 2008 earthquake near Mount Carmel with tremors reaching as far as 450 miles away, the Illinois Seismic Safety Task Force (ISSTF) was formed by Governor Pat Quinn to assess earthquake preparedness in the state. The ISSTF Report concluded that “the earthquake threat to Illinois is real, as documented by both historical evidence and ongoing research, and the potential damage will be significant in terms of human and fiscal impact.” The ISSTF emphasized “the necessity that consumers and business owners be aware of the earthquake risk in Illinois in order to take full advantage of available mitigation techniques.” The ISSTF concluded that “earthquake insurance can be a useful risk mitigation tool in many circumstances and that consumers and business owners should be made more aware of its availability and possible benefits.”

## EXAMPLES OF EARTHQUAKE DAMAGE



Chimney damage from earthquake shaking caused this chimney to sway back and forth. This type of damage is found on old chimneys with soft, deteriorated mortar. Chimneys with strong intact mortar sometimes break off at the roof line.



Parapet wall and part of chimney is shaken down with bricks landing on adjacent building's roof.



This shows the effects of earthquake shaking on an old brick bearing wall building — the chimney is down, and the top of the wall has caved into the building.

Earthquake damage results from shaking caused by surface waves. Damage can take many forms, depending on the severity of the earthquake. Light earthquake damage is usually first visible in the structure built above the basement or foundation, or *superstructure* — most likely cracks in plaster or wallboard. Moderate damage will be evidenced at the higher points of a structure, specifically to unreinforced building components such as chimneys, parapets, cornices and ornamentation. It is quite possible for an earthquake to cause such damage while leaving the foundation intact. Severe damage could result in partial or total collapse of structures.

**FOR MORE INFORMATION ABOUT EARTHQUAKES AND HOW TO ASSESS YOUR RISKS, CONTACT THE ISGS AT:**

ILLINOIS STATE GEOLOGICAL SURVEY

615 E. Peabody

Champaign, IL 61820

(217) 333-4747

*info@isgs.illinois.edu*

Or visit the Illinois Earthquake Information section of the United States Geological Survey at:

*www.usgs.gov*

**For information on obtaining earthquake insurance,  
contact your insurance agent or company directly.**

# Mine Subsidence in Illinois

Underground mining began in Illinois nearly 200 years ago, and has been quite extensive. Over the years, mining for coal, fluorspar, lead, limestone and zinc has been conducted in at least 72 counties. For many years mining was not tightly regulated, and rapidly developed beneath sparsely populated land. As cities and towns expanded over or near old, abandoned mines, subsidence damage to buildings became a more widespread problem. In a 2008 study, the Illinois State Geological Survey (ISGS) concluded that approximately 201,000 acres of urban and built-up lands may be in close proximity to underground mines and an estimated 333,000 housing units have possible exposure to mine subsidence. In 2010, the ISGS developed a valuable online tool to help property owners assess mine subsidence risk by simply entering a specific address. The tool can be accessed from the ISGS website at: <http://www.isgs.illinois.edu/viewers/coal-mines.shtml>. The ISGS also maintains the state's largest collection of mine maps, and organizes them by county. Many of these maps have been digitized and are available on the ISGS website at: <http://www.isgs.illinois.edu/maps-data-pub/coal-maps.shtml>. Please note that the accuracy and completeness of the coal mine viewer and mine maps vary, depending on the availability and quality of source material. Little or no information is available for many older mines because mining activity was not regulated until the late 1800's.

Mine subsidence is lateral or vertical ground movement caused by a failure initiated at the mine level that can directly damage residential and commercial buildings. A property need not lie directly over a mine to be affected by mine subsidence.

Mine subsidence damage originates at the foundation level, working its way up through a structure. It is caused by tension and/or compression of the ground surface resulting from bending or lowering of the ground surface due to failure at the mine level. If there is no evidence of foundation damage typically associated with a mine subsidence event, the damage is almost certainly not the result of mine subsidence.

## EXAMPLES OF MINE SUBSIDENCE DAMAGE



Figure 1



Figure 2

These structures are located in or near the edge of the event, or slope zone. Horizontal pulling of the foundation can cause dramatic vertical breaks in the foundation walls and footing (Figure 1), and mortar joint step cracks in the brick veneer (Figure 2). Both of the structures shown are being pulled towards the center of the mine subsidence event.



Horizontal pulling of the foundation causes mortar joint step cracks, vertical breaks in the foundation walls, and separations in the footings.



This poured concrete basement wall is being compressed, (near the center of the mine subsidence sag) or being pushed inward, causing a sizable crack extending along the foundation wall.

Following the April 2008 earthquake centered near Mount Carmel, the Illinois Mine Subsidence Insurance Fund received a significant number of claim reports from primary insurers. During claim investigations, it became apparent that while homeowners had incurred property damage, very few had earthquake insurance. None of those claims were determined to have been caused by an active mine subsidence.

Should a property owner report a possible mine subsidence claim following a future earthquake event, the property owner will be required to provide photos of the damage along with dates when the damage first appeared. More detailed information on what is required will be provided to the property owner by their primary insurer shortly after the claim is submitted.

For more information about mine subsidence, visit the Illinois Mine Subsidence Insurance Fund website at: [www.imsif.com](http://www.imsif.com) or call (618) 300-6160.

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This publication was created by the Illinois Mine Subsidence Insurance Fund (IMSIF). To obtain copies of this or any IMSIF publication, contact Jessica Varacalli at [jvaracalli@imsif.com](mailto:jvaracalli@imsif.com) or (618) 300-6160.

**Other Publications:**

- *SHOULD I PURCHASE MINE SUBSIDENCE INSURANCE?*
- *BUYING OR SELLING A HOME IN MINE SUBSIDENCE AREAS*
- *MINE SUBSIDENCE CLAIM INVESTIGATION PROCESS*



## MISSION STATEMENT

*The Illinois Mine Subsidence Insurance Fund is a taxable enterprise created by Statute to operate as a private solution to a public problem. The purpose of the Fund is to assure financial resources are available to owners of the property damaged by mine subsidence. The Fund fills a gap in the insurance market for the benefit of Illinois property owners at risk of experiencing mine subsidence damage.*

*The Fund does this by providing reinsurance to insurance companies for damage caused by mine subsidence, conducting geotechnical investigations to determine if mine subsidence caused the damage, supporting and sponsoring mine subsidence related research and initiatives consistent with the public interest, and educating the public and industry about mine subsidence and related issues.*



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