

Not all flood events are related to hurricanes. Rivers, lakes, and even creeks can rise enough to damage properties. In the claim described in this case study, a homeowner reported damage to their manufactured home after heavy rains caused widespread flooding in Kentucky. The adjuster sought the damage scope from Donan's engineering team.

Overview

Following heavy rainfall, a policyholder reported that floodwater from a nearby river inundated their home up to 2 feet. The adjuster handling the claim turned to Donan's licensed engineers to inspect the house and determine the scope of the damage caused by the flood event. Using onsite observations and measurements, weather data, and a deep knowledge of flood forces, the engineer delivered a clear report with the answers necessary for the adjuster to make a fair and accurate claim resolution.

Challenges

1 Unknown Extent of Damage

Floods and other weather events may lead homeowners to notice damage and attribute it to the incident. Without verifying what was due to the event and what pre-existed it or was from another cause, carriers risk claims leakage by settling for unrelated damages.

2 Specialized Experts Needed

An expert unfamiliar with flood damage and FEMA standards cannot provide an accurate opinion. An assessment partner with a nationwide presence and a variety of property loss experts is key to avoiding inaccurate settlement decisions.

3 Comprehensive Reports Needed

Multiple forces may be at play with flood events, so understanding expert conclusions is essential to fair claims resolutions. Without clear, scientific reports, adjusters may not have what they need for confident next steps.

About Engineering

Donan's licensed forensic engineers are equipped to answer complex questions about property damage and make it simple. Our nationwide team is prepared to objectively investigate a variety of properties, whether it is residential or commercial, new construction or historic. Donan's engineering team, a part of Alpine Intel's suite of services, delivers actionable intelligence and conclusive insights detailing the cause of loss for any property concern or scope of damage.

The Donan Approach

Clients turn to Donan for actionable intelligence through forensic engineering investigations with fast cycle times and exceptional reports that answer the complex questions about property loss.

Background Information: The homeowner reported that the river branch about 25 feet from the house rose during the flood event and entered the house. Following the flooding, they removed the interior drywall and noticed that the CMU foundation piers were no longer plumb and that a tie-down strap was loose.

Weather Data: The nearest National Weather Service recording station, 28 miles northwest of the property, reported that a combined 8 inches of rain fell over the three-day period near the date of loss.

Inspection: Donan's engineer measured a high-water mark, which was made by water staining and a line of dirt and debris on the siding, at 64 inches above the ground. The house's first floor was 42 inches above the ground, meaning that floodwater reached 22 inches on the house's exterior.

On the interior, remediation efforts had already begun. The drywall, insulation, and floor coverings had been removed and therefore could not be assessed for water damage. However, the interior and exterior walls measured plumb; they were not laterally moved by the floodwater. A ZIPLEVEL® survey confirmed that the house's east side was 0.4 inches lower than its west side.

On the exterior, the engineer examined the CMU piers and found no evidence of scour, which is erosion caused by rapidly moving floodwaters around objects. When they measured the piers for plumbness, they found that a pier near the center of the east side, the southeast corner pier, and a pier under the porch leaned in various directions. Other piers and wood support posts were plumb.

When too much moisture gets into soil, the soil loses its ability to support weight. During flood events, this can lead to differential settlement, where a house's weight is no longer evenly distributed. The leaning CMU piers account for the level discrepancy on the interior floors.

The tie-down strap that the homeowner reported was loose was on the east side, and its anchor was on the ground. Other straps on the house were tight. Forces associated with floodwater could not have loosened the strap and deposited the anchor on the ground.

Conclusions

Property Type: Single-story, wood-framed house over a steel chassis with CMU support piers

Donan Forensic Engineering Conclusions:

- Water inundated the property at least 22 inches above the floor.
- No evidence of hydrodynamic or hydrostatic forces, such as lateral structural movement, was evident.
- The lack of scour or soil voids indicated the house was not damaged by frictional forces.
- Evidence of buoyant forces, such as floor or framing uplift, was not present on this structure.
- Flood-induced settlement from the oversaturated soil caused the house's CMU piers to lean.



The Donan Solution



Subject matter experts: Our forensic engineers are familiar with a variety of flood scopes and specialized procedures. Clients can expect consistency, quality, and conclusive findings as each investigation is performed to the highest standards by Donan's professional engineers.



Strict standards: Donan engineers leverage experience and expertise with weather data, observations, and testing based on the scientific method, ensuring precision and adherence to FEMA standards in managing flood claims.



Peer-reviewed reports: All Donan reports are peer reviewed for quality control and consistency by senior team members. Every peer reviewer has multiple years of forensic engineering experience, has completed hundreds of inspections, and has been approved by the technical engineering manager.