

## THE RISK JOURNAL

A PUBLICATION FOR MMRMA MEMBERS

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## PROPERTY RISK MANAGEMENT, PART 3

## Addressing Water Intrusion and Resulting Property Damage

by Phil Kamm, Risk Control Consultant, and Cindy C. King, Director of Membership Services and Human Resources

ACCORDING TO A RECENT [www.clickorlando.com](https://www.clickorlando.com) report,<sup>1</sup> "While most Floridians associate hurricanes with howling winds strong enough to knock down trees and pummel buildings, water is actually the deadliest element of any storm." NOAA's National Weather Service Director Ken Graham continued, "90 percent of the fatalities in these tropical systems (are from) water."

Although Michigan does not experience hurricanes, many MMRMA members are all too familiar with the devastating impacts caused by flooding. A few years ago, much of the metro Detroit region experienced significant flooding that closed Detroit Metropolitan Airport and left streets impassable; many businesses closed.



**From 1996 to 2019, losses from flooding in the United States totaled \$150 billion per year.**

#### Dam failure wreaks havoc

In another example, on May 19, 2020, a 5-8 inch rainfall over 36-hours led to the collapse of the Edenville Dam in mid-Michigan.<sup>2</sup>

Homes were destroyed and roads were washed out by the dam failure. Emergency evacuations saw over 10,000 residents leaving their homes. Some public buildings were also damaged.

On the five-year anniversary of the event, cleanup and rebuilding is ongoing, and litigation remains active.

FEMA reports that 99% of the counties in the United States experienced at least one flood-

#### Cleanup and rebuilding continue five years after the collapse of the Edenville Dam.

ing event between 1996 and 2019. Over this timeline, there was an average yearly loss of \$150 billion due to flooding, and trillions of dollars in property losses.

#### Public entity obligations

We continue our series on member property exposures with a look at risks related to water intrusion and steps to guard against water damage and destruction.

Among the reasons for members to mitigate this and

other forms of property risk is the legal obligation to repair and maintain public buildings under the control of local governing authorities.

The Public Trust Doctrine exists to protect natural resources; the Drain Code sets requirements for drainage systems to control stormwater; and the Natural Resources and Environmental Protection Act governs matters including soil erosion, dredging, and constructing near inland lakes and wetlands.

Governmental agencies must comply with laws requiring public buildings to be main-

*continued on page 2*

<sup>1</sup> <https://www.clickorlando.com/weather/hurricane/2025/05/19/this-is-the-deadliest-aspect-of-any-hurricane-and-its-not-wind/>

<sup>2</sup> <https://www.mlive.com/news/saginaw-bay-city/2025/05/michigans-2020-flood-a-timeline-of-events-and-recovery-progress.html>

## Property Damage from Water Intrusion, continued from page 1

tained in a reasonably safe condition. Potential liability related to bodily injury or property damage could arise “if the governmental agency had actual... knowledge of the defect, and for a reasonable time after acquiring knowledge, failed to remedy the condition or to take action reasonably necessary to protect the public against the condition” (MCL–Section 691.1406).

Residents and business owners expect local governments to be responsible stewards of property and buildings supported by taxpayer dollars that provide the setting for valuable services and functions of benefit to the community.

### Material and labor costs

MMRMA member property damage and claims continue to occur across all areas of Michigan. Restoration expenses are also on the rise, affecting the cost of these claims. Water damage often requires costly repairs related to wood, drywall, insulation, electrical systems, and other materials. Specialized equipment owned by members may not be quickly and easily replaceable, affecting service delivery.

Water exposure can also result in environmental degradation, including soil erosion, spreading of pollutants, and the destruction of habitats, all of which can



**Simple measures such as installing proper gutters and downspouts can reduce the risk of water damage.**

have a lasting impact on the ability to rebuild in flooded lands. Local economies are often negatively impacted by flooding when buildings cannot be used for services relied upon by residents. What's more, fees and costs that generate revenue may be lost while a building is unusable.

### Other causes and outcomes

Extreme weather is not the only way in which water can damage or destroy public buildings. Water can enter buildings from plumbing and fixtures that fail or are not properly maintained. Water can also enter aging buildings if leaky roofs, windows, and foundations have not been updated or repaired. HVAC systems and related ventilation may also be to blame.

Water can also cause structural damage, and the resulting mold and mildew can

create health hazards for people working, living, or otherwise spending time inside affected buildings. Once established, mold and mildew become persistent and require costly procedures to mitigate. In public buildings, OSHA and other regulations must be followed to promote the safety of people who spend time in those spaces.

Property used and stored in buildings can also sustain damage or destruction due to water intrusion. Most public buildings contain significant furniture, work materials, computers, and other technological equipment.

Any damage or loss of these contents can be extremely costly in financial terms and are detrimental to the continuity of services customarily provided in those settings.

### Inspection, maintenance, and training are key

No one can control the weather, but there are steps members can take to protect their property from damage during major weather events.

**Once mold and mildew take hold, they are costly to remediate and pose significant health risks.**

Common maintenance practices such as weatherstripping, sealing cracks and joints, and maintaining proper ground slope can help guard against many weather-related water intrusions.

Members are encouraged to conduct ongoing, routine inspections of roofs, gutters and HVAC systems and to perform proper seasonal maintenance, such as winterizing spigots, insulating exposed plumbing, and monitoring freeze-thaw cycles.

Physically inspecting the outside perimeter of buildings and the surrounding land can be useful to identify areas in which water may enter the building through cracked foundations or from cresting river banks and lakes.

Simple measures can make a big difference, including installing appropriate gutters for the roof type, positioning downspouts every 20-30 feet, and directing the flow of water away from buildings by using downspout extensions

*continued on page 3*



### Water Intrusion Risks, *continued from page 2*

that direct water at least five feet from foundations.

To ensure the success of these endeavors, it is important to develop property maintenance policies and procedures and to train employees about these requirements and how to recognize water damage.

Ensure that employees know where shutoffs are located and train them on securing systems. Tabletop or reality-based exercises can help employees understand how to perform emergency shutoff procedures during a developing weather event or other type of water intrusion.

#### **Sensors and other equipment alerts**

Leak detection sensors, automatic shut-off valves, and other monitoring equipment—including cameras and SCADA (Supervisory Control and Data Acquisition) systems—can alert members when water may be entering a structure.

Backflow prevention devices can be installed on all sewer connections to guard against a reverse flow (or backflow)

when water surges, such as during heavy rains.

The State of Michigan now requires backflow preventers under Act 399, Part 14 of the Michigan Plumbing and Local Cross-Control Prevention Codes. In fact, many public entities are now inspecting not just their own properties but all homes in the community and are requiring hose bib backflow preventers on all outside spigots to enforce this law.

#### **Preparation, collaboration**

Beyond the basics are several forward-thinking strategies, including performing risk assessments and facility water intrusion audits, developing business continuity plans, deploying asset management software, developing capital improvement plans, and using GIS (Geographic Information System) data to prioritize buildings in high-risk flood zones.

Members might also consider constructing permeable surfaces and design features such as bioswales to reduce

*continued on page 4*

### **Water Intrusion Risk Management Checklist for Michigan Public Entities**

This sample checklist will help members develop their own checklists for mitigating water intrusion and complying with relevant standards, laws, and best practices. MMRMA is developing a model policy for publication later this year.

#### **Facility Assessment**

- > Conduct semiannual inspections for roof integrity and membrane wear
- > Perform quarterly HVAC drainage inspections and maintenance
- > Evaluate basement and below-grade wall sealing for water penetration
- > Inspect windows, doors, and expansion joints for water tightness
- > Confirm that all sump pumps are functional and tested monthly

#### **Planning and Documentation**

- > Update Flood Risk Maps using FEMA DFIRMs and Michigan DEGLE data
- > Maintain current Business Continuity Plan with flood and water damage annex
- > Document all preventive maintenance and repairs in asset management software
- > Verify critical infrastructure (such as IT servers, communications) are elevated or shielded

#### **Infrastructure Safeguards**

- > Ensure backflow preventers are installed and certified annually
- > Maintain stormwater drainage systems, including bioswales and retention basins
- > Evaluate opportunities for permeable pavement retrofits in parking and walkway areas
- > Winterize plumbing systems each fall (by November 15)

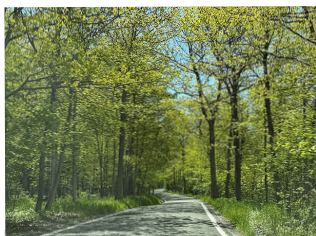
#### **Technology & Monitoring**

- > Install water leak detection systems in all high-value or critical service areas
- > Verify alarm and auto shut-off systems integrate with building management systems
- > Enable text/email alerts for off-hour or holiday monitoring

#### **Training & Response**

- > Provide annual training for facilities staff on emergency shut-off procedures
- > Conduct semiannual tabletop exercises on flood and leak response
- > Stock water intrusion emergency response kits (wet vacs, dehumidifiers, personal protective equipment)





*The section of M-119 skirting Lake Michigan from Cross Village to Harbor Springs is known as the "Tunnel of Trees" for the canopy that covers much of the narrow, winding road. This scenic roadway is one of the Michigan State Trunkline Highways, comprising more than 9,669 miles in all 83 counties. Roads range from 10-lane urban freeways to streets on Mackinac Island, where cars are forbidden.*

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## Let's Connect at the MMRMA Annual Meeting in August

**SUMMER IS ALMOST HERE**, which means that MMRMA will soon host our Annual Meeting on August 21–23 at the Grand Traverse Resort.

This year's event theme is *MMRMA: Let's Connect*, which highlights the networking opportunities that attendees find among the biggest benefits of attending. Training is another favorite feature, and this year's lineup is sure to repeat the trend:

### Miriam Kirmayer

Thursday's opening speaker, Miriam Kirmayer, will share her expertise and insights on how to create connections you can count on by fortifying friendships, nurturing networks, and connecting to a meaningful life. She says feeling connected is one of the most powerful predictors of our health, happiness, and success—but distance, technology, and other factors can get in the way of strong relationships.

### Jeff Kortess

Jeff Kortess is an employee recruitment and retention expert who will share his system for instilling positive supervisory and managerial behavior while driving positive results in your organization.



### Robin Shear

A self-professed "joy coach," Robin Shear says connection can be a rich source of joy, inspiring us with true stories of how real connections were made despite all odds, differences, and lack of resources.

### Shawne Duperon

At the Annual Business Meeting of the Board of Directors, featured speaker Shawne Duperon will discuss media mastery and other ways to elevate our skills and communicate more effectively. She will also share her insights about emotional intelligence and crisis communication.

Members can find more details and online registration on the member portal dashboard. Login at [mmrma.org/members/login](https://mmrma.org/members/login) or request access at [mmrma.org/member-sign-up/](https://mmrma.org/member-sign-up/).

## Water Intrusion Risks, continued from page 3

surface runoff and the likelihood that water will enter public buildings. We encourage members to contact municipalities in their region and across Michigan to exchange successful ways to mitigate water damage and other types of property risk.

Nearly all property owners have finite resources. Properly maintaining public structures is a cost-effective risk management mechanism for guarding against the potentially devastating and costly effects of water damage.



**RAP grants can be used to help purchase equipment to mitigate water intrusion risks.**

MMRMA members can apply for Risk Avoidance Program (RAP) grant funding for emergency generators, portable pumps, automatic water shutoff and water leak detection systems, and other solutions to mitigate property risk exposures, including water intrusion. Contact Membership Services with

questions about grants, property exposures, and other assistance in mitigating risk in your public entity.

*Please note that ChatGPT was used to generate some material in this article. The authors thoroughly reviewed and vetted all such content.*