

BUYER'S GUIDE

Flood Prevention Systems

Protect your building and your bottom line.



CONNECTED SENSORS



Is Water Damage Sinking Your Business?

Picture this: A vibrant multi-family residential community where families are thriving, residents are living harmoniously, and neighbors frequently gather in communal spaces. Suddenly, without warning, a burst pipe unleashes torrents of water, turning your vibrant hub of commerce into a watery disaster zone. The repercussions are staggering, from costly repairs that drain your financial resources to the upheaval of business operations, causing inconvenience to customers and staff alike. However, in the face of this unexpected calamity, building owners and property managers can be proactive architects of flood resilience.

In this buyer's guide, we illuminate the path to safeguarding your investment against the havoc of leaks and floods. We will explore the myriad benefits of flood prevention systems and delve into the crucial considerations underpinning your choice while considering your choices' tangible return on investment (ROI) and cost-effectiveness.

Understanding Flood Risk

Understanding the nuances of flood risks to your property is vital for making informed decisions about the type and scale of flood prevention measures needed. Here are common culprits of floods in buildings.

Plumbing Failures

Plumbing system failures, including burst pipes, faulty valves, and blocked drains, can lead to water leakage that accumulates and causes indoor flooding.

Appliance and Fixture Failures

Leaks from malfunctioning appliances like water heaters, dishwashers, washing machines, or fixtures such as faucets, toilets, and showerheads, can inundate your property.

Roof Leaks

Roof leaks, especially during heavy rainfall, can lead to water infiltration into your property, damaging interiors and structural components.

Foundation Issues

Cracks or weaknesses in a property's foundation permit water seepage into basements or crawl spaces.

Faulty Building Envelope

An improperly sealed building envelope, including windows, doors,

and walls, can allow water to penetrate the property's interior.

Aging Infrastructure

Older properties may have aging infrastructure, such as outdated plumbing systems and roofing materials, which are more prone to leaks.

Maintenance Neglect

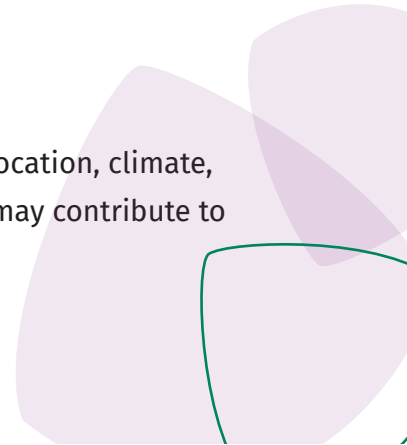
Neglecting routine maintenance, inspections, and repairs can exacerbate the risk of leaks that lead to indoor flooding.

Climate and Weather Events

External factors such as heavy rainfall, storms, or flash floods can overwhelm drainage systems and exacerbate indoor flooding risks.

Property-Specific Factors

Consider property-specific conditions like location, climate, and surroundings to understand how they may contribute to leak-related flood risks.



Key Components

- 1 Smart Flood Detection Sensor
- 2 Remote Shut-Off Valve: Main Distribution
- 3 Remote Shut-Off Valve: In-Suite
- 4 Smart Water Flow Meter
- 5 Automated Logic
- 6 AI-Driven Data Platform
- 7 Robust Network Infrastructure

What is a Flood Prevention System?

A flood prevention system is a crucial safeguard for your property, operating tirelessly to monitor potential water damage. Comprising a well-coordinated set of essential components, it works harmoniously to detect emerging water-related issues. When water is detected, it promptly triggers real-time notifications, facilitating swift and informed responses to mitigate potential risks. This proactive approach ensures the safety of your property and its occupants and substantially minimizes the financial and operational impact of water damage.

Smart Flood Detection Sensor

Flood Detection Sensors are the "eyes and ears" of your flood prevention system. They are strategically placed in areas prone to water leaks or flooding, such as basements, utility rooms, or under sinks. They continuously monitor for any signs of water intrusion, including leaks, drips, or rising water levels. When triggered, these sensors send immediate alerts to the system's control center, initiating rapid response protocols.



Water Sniffer

The Water Sniffer senses water precisely where it's needed, providing comprehensive coverage.

- ✓ Precise flood and leak detection
- ✓ Temperature, humidity, and barometric pressure sensors
- ✓ Easy-to-install
- ✓ Connects to AI-driven platform
- ✓ Long-range connectivity
- ✓ Up to 10-15 year battery life

Main Distribution Shut-off Valve

Remote Shut-Off Valves are critical to shutting off the water supply to your entire commercial building. It is typically installed at the main water inlet or distribution point. In the event of a detected leak or flood, the flood prevention system can remotely close this valve, cutting off the water source to prevent further water ingress and damage.



IloT Control System

This system comprises an IloT Controller Gateway and IloT Controller to efficiently manage and operate large-scale valve systems.

- ✓ Control up to 64 IloT Controllers
- ✓ Manage up to 6 endpoints with each IloT Controller
- ✓ Integrate with various valves, pumps, and BMS systems
- ✓ Effective valve control up to 30 meters away
- ✓ Leverage specific input channels for each endpoint
- ✓ Supports additional equipment for PLC communication

Insuite Shut-off Valve

Similar to the main distribution valve, these valves are installed within individual suites or units. They allow localized water shut-offs in specific areas affected by leaks or floods. The flood prevention system can remotely control these valves to isolate and contain water-related issues within particular zones, minimizing damage and disruption.



Mini Water Stopper

The Mini Water Stopper provides flow-based detection with automatic shutoff capabilities.

- ✓ Leak and burst protection when alongside a water meter
- ✓ 3 valve positions (Open, Closed, Reduced Flow)
- ✓ Flexible cloud connectivity
- ✓ Real-time notification and automatic shutoff
- ✓ Available in common residential pipe sizes

Smart Water Flow Meter

A Smart Water Flow Meter is an advanced device designed to measure and monitor water flow accurately. It provides real-time insights into water consumption, flow rates, and usage patterns. It enables users to remotely access and analyze data, detect leaks, and make informed decisions for efficient water management and risk mitigation.



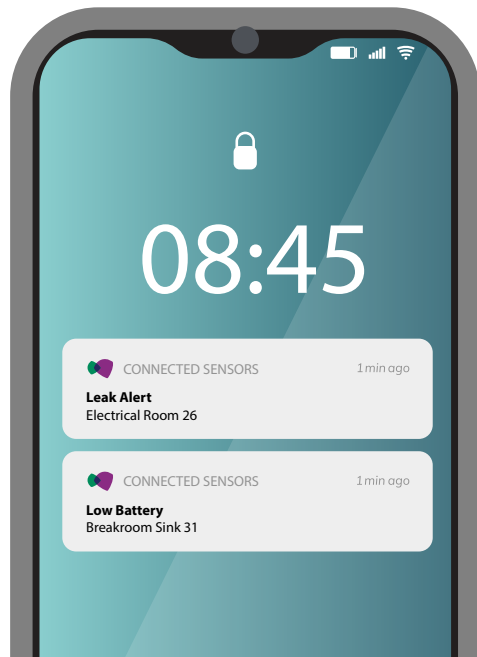
Water Monkey

The Water Monkey provides real-time insights into water consumption and leak detection.

- ✓ Compatible with most meter makes and models
- ✓ Integrates with existing infrastructure
- ✓ Easy to install - No wiring or pipe cutting
- ✓ Adaptive AI monitoring
- ✓ Real-time email, SMS, & telegram alerts
- ✓ Day, time, and volume threshold alerts

Automatic Logic

Automated logic refers to the flood prevention system's intelligent programming and decision-making capabilities. It involves algorithms and rules dictating how the system responds to sensor inputs and events. Automated logic ensures that the system can take immediate and appropriate actions, such as closing valves, sending alerts, or activating pumps, without human intervention when a potential flood threat is detected.



Connected Sensors Automatic Logic

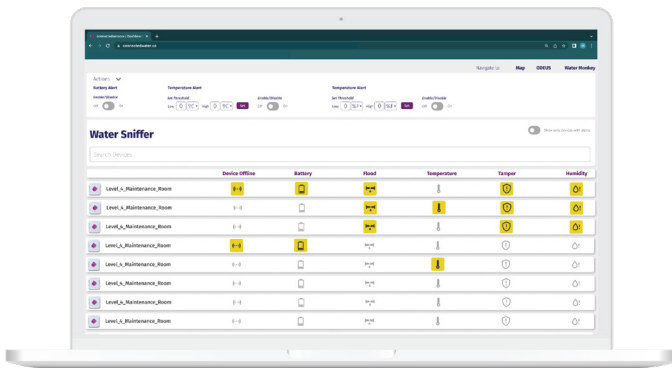
Respond to events before catastrophic damage occurs.

- ✓ Instant alerts
- ✓ Customizable thresholds
- ✓ Automatic water shut-off
- ✓ Automatic logging



AI-Driven Platform

An AI-driven data platform is a sophisticated software component that processes, analyzes, and interprets data from flood sensors, valves, and other system components. It employs artificial intelligence and machine learning algorithms to identify patterns, anomalies, and potential risks. This platform can provide predictive insights, helping property managers and owners make informed decisions to prevent floods and optimize system performance proactively.



Connected Sensors Dashboard

Round-the-clock monitoring and powerful analytics.

- ✓ Real-time monitoring
- ✓ Sensor mapping
- ✓ Historical data analysis
- ✓ Battery life monitoring

Robust Network Infrastructure

A robust network infrastructure forms the backbone of the flood prevention system. It includes networking hardware, such as gateways and antennas and communication protocols, to ensure seamless connectivity between all system components. A reliable network infrastructure is essential for real-time data transmission, remote control, and system reliability. Redundancy and failover mechanisms are incorporated to enhance system resilience.



LoRaWAN Gateway

An out-of-the-box IoT Gateway and robust antenna for powerful and reliable long-range connectivity.

- ✓ All-in-one: LoRa, CAT-M/NB, 2.4 GHz wireless, Bluetooth
- ✓ Omni-directional antenna
- ✓ 2x 100 Mbps Ethernet Ports
- ✓ 5V MicroUSB In
- ✓ Supports 8 different channels, Listen Before Talk (LBT), and spectral scan features

How Much Does a Flood Protection System Cost?

A flood prevention system is much like making a significant investment, akin to buying a vehicle or a home. In a market brimming with options, prices can range widely.

Imagine purchasing a car – you can start with a basic package at around \$20,000, but as you add all the extra features and options, the price can easily soar past \$40,000. Now, why do people often choose these extras when buying a vehicle? It's quite straightforward: they recognize the value of getting things right the first time, avoiding the need for costly modifications later. They seek quality, durability, and convenience, and these principles seamlessly apply to the realm of a Flood Prevention System.

Your Flood Prevention System isn't just a one-time purchase; it's an ongoing partner. It will tirelessly provide you with essential flood protection every minute of every day for as long as you can foresee. Therefore, ensuring

maximum value and minimal maintenance from your investment is paramount.

Regrettably, some companies prioritize the system's initial cost, hunting for the cheapest vendor, and in doing so, they often compromise on low maintenance, quality, and warranty. Such decisions can lead to regrets down the line, especially when you consider that, unlike cars, you cannot simply trade in your Flood Prevention System.

To simplify the system architecture and guide our clients effectively, we have categorized projects into three main segments: Retrofit Market, New Buildings, and Construction Phase.

Within each of these segments, we've created sub-categories – Good, Better, and Best – to help you discern where the true value lies.

Good: The "Good" flood protection solution provides basic safeguards to meet minimum objectives. While it offers a fundamental level of protection, it may not address all potential risks comprehensively.

Better: The "Better" solution offers an effective level of protection to meet risk mitigation objectives. It strikes a

balance between cost and coverage, providing enhanced flood resilience for your project.

Best: The "Best" flood protection solution offers comprehensive coverage and the highest level of protection available. It ensures the utmost security, peace of mind, and minimizes all potential flood-related risks.

What Option Works Best for You

Product	Building Type								
	Retrofit			New Building			Construction		
	Good	Better	Best	Good	Better	Best	Good	Better	Best
Water Sniffer	✓	✓	✓	✓	✓	✓	✓	✓	✓
Mini Water Stopper						✓			
WMS Duo			✓		✓	✓			✓
Water Monkey	✓	✓	✓	✓	✓	✓		✓	✓

Expected Hardware Cost “The System”

Based on the average cost of a Flood Prevention System for a 100-unit Multi-Residential Property over five years.

	Building Type								
	Retrofit			New Building			Construction		
	Good	Better	Best	Good	Better	Best	Good	Better	Best
Cost	\$50,000	\$80,000	\$150,000	\$80,000	\$150,000	\$225,000	\$30,000	\$50,000	\$90,000

How Installation Effects Cost

When someone inquires how much our Flood Prevention System costs, the extent of installation is also a key factor. For example, we offer our customers four different packages. Unlike most companies, we will do as much or as little as our customers would prefer to have us do. This flexibility leads to less stress and more savings for the customer.

The installation packages are as follows with their corresponding price ranges:

Option 1: Self-Install (DIY)

This package includes the system and features to be shipped directly to the property. With our self-install program, the property manager or building owner is responsible for all labour involved with the project, including deploying the sensors, setting up the gateways, commissioning the sensors on the platform, installing electrical outlets as required, installing valves as needed, etc.

Although installing a Flood Prevention System is not very

complex, it requires attention to detail, and there is a small margin for error. We recommend self-install for larger companies with facility managers and subject matter experts on staff who can be dedicated to installing such solutions.

The average company can expect to spend 5-10% of the system's value on a self-install, based on the scope of the project and the options that come with it.

Option 2: Pre-Configured Install

This package includes the system and features to be shipped directly to the property, the sensors to be preconfigured on top of our dashboard, and the valve & actuator locations to be labelled and ready for your mechanical contractor to price and install.

The property manager or building owner is responsible for the labour involved with the project, including deploying the sensors and gateways, contracting out the installation of electrical outlets as required, installing

valves as needed, etc.

*The average company can expect to **spend 10 – 15%** of the value of the system on a pre-configured install based on the scope of the project and the options that come with it.*

Option 3: Connected Sensors Tech Install

This package includes the system and features to be shipped directly to the property, the sensors to be preconfigured on top of our dashboard, the valve & actuators locations to be labelled and ready for your mechanical contractor to install, and the sensors, gateways and actuators (if applicable) to be installed by our team of experts or contractors.

The property manager or building owner is responsible for the labour and parts cost of 3rd party contractors, such as the electricians and the plumber for outlets and valves.

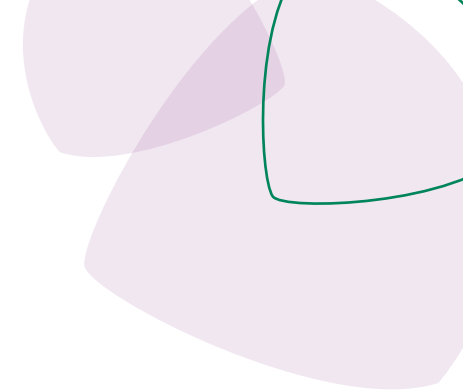
*The average company can expect to **spend 30 – 35%** of the system's value on a Connected Sensors Tech install, based on the scope of the project and the options that come with it.*

Option 4: Turn-Key Install

Many Property Managers would instead work with one company instead of many. We at Connected Sensors are one of the few companies that will offer our clients accurate “turnkey” installations. This package includes everything found in package #3 and the electrical and mechanical costs associated with the project.

*The average company can expect to **spend 35 – 45%** of the system's value on a Turn-Key install, based on the scope of the project and the options that come with it.*





What is the ROI of a Flood Prevention System?

There's no one-size-fits-all formula when calculating the return on investment (ROI) for a Flood Prevention System. Nevertheless, we'll shed light on the factors influencing the ROI of such an investment and why we firmly believe these systems are indispensable for sound water risk management.

We've broken down our analysis into two segments to provide a comprehensive view of the need for this investment. The first segment delves into insurance and risk, while the second explores operational advantages.

ROI of a Flood Prevention System

Insurance & Risk

In the realm of insurance and risk, let's start by assessing the likelihood of water-related losses within the built environment.

Consider this: a report from Canadian Underwriter suggests that condos face a more than 30% chance of making an insurance claim each year. While we encourage you to interpret this data through your lens, assuming that similar ratios apply to multi-residential rentals and commercial high-rises is reasonable. Furthermore, a study by the Canadian Institute of Actuaries reveals that water damage accounts for a staggering 48% of all claims in the built environment. Combining these statistics, one can infer that condos, high-rises, and possibly all high-rise buildings face a 14% chance of experiencing a water-related claim yearly or roughly once every seven years.

Now, let's assess the magnitude of this risk. When evaluating risk magnitude, several factors come into play:

Insurance Costs

A recent report in The Canadian Underwriter indicates that insurance costs have been on a relentless upward trajectory for 13 consecutive quarters. For property owners and managers, this means actively reducing risk to make your property more attractive to underwriters. Since water is the most common cause of loss within the built environment, implementing water risk mitigation becomes a cornerstone of sound governance. In some market segments, insurance costs have surged as much as 780%, making it financially unsustainable for landlords or condo boards.

Insurability

Property owners and managers face limited options when seeking insurance coverage in the current challenging insurance market. Some have even been denied coverage altogether. Distinguishing your risk profile can create capacity and give you a competitive edge.

ROI of a Flood Prevention System

Size of Loss

Water-related claims in the built environment often hover between \$150,000 to \$250,000. What's more concerning is that the costs associated with such losses have skyrocketed by 400% in the past decade. Employing technology, such as Flood Prevention Systems, to minimize the size of water losses can significantly reduce their impact.

Deductibles

Over recent years, deductibles for property insurance have ballooned from \$25,000 to \$250,000 and even \$500,000. Effectively, underwriters have shifted the risk of claims below the deductible threshold onto property owners and managers, making them self-insured until a claim surpasses the deductible payout. This scenario may never occur for those with high deductibles.

Operational Advantages

Flood Savings

Flood Prevention Systems help avoid costly damage and

downtime due to infrastructure repairs, the extensive cleanup, remediation, and restoration following incidents, and the removal of hazardous materials like asbestos. Additionally, these systems play a significant role in reducing water-related expenses and energy consumption.

Operational Continuity

Floods can disrupt daily operations, forcing you to temporarily halt production, close shop, or relocate. The financial toll of such interruptions can be staggering, not to mention the loss of customer trust and market position. Flood prevention systems are the backbone of operational continuity. They enable your business to weather the storm by keeping your doors open, employees working, and customers satisfied, contributing to revenue stability and long-term success.

Compliance

Local building codes and insurance policies often require specific flood prevention measures. Failing to meet these requirements can result in costly penalties, insurance disputes, or coverage denials. Flood

ROI of a Flood Prevention System

prevention systems assure compliance, ensuring your property meets all regulatory standards. This compliance safeguards your investment and fosters trust with insurance providers, potentially reducing the likelihood of disputes and streamlining claims processing.

Asset Protection

Your property is home to a substantial investment in assets, from building infrastructure to machinery to valuable merchandise. Floods can wreak havoc on these assets, causing irreparable damage and loss. Flood prevention systems shield your assets from water's destructive forces. By doing so, they preserve the integrity and value of your property and protect your investments, ultimately contributing to long-term financial stability.

Preventive Maintenance & Contractor Efficiency

Installing a smart flow monitoring device as part of your Flood Prevention System helps identify small leaks and maintenance issues, reducing the need for contractors

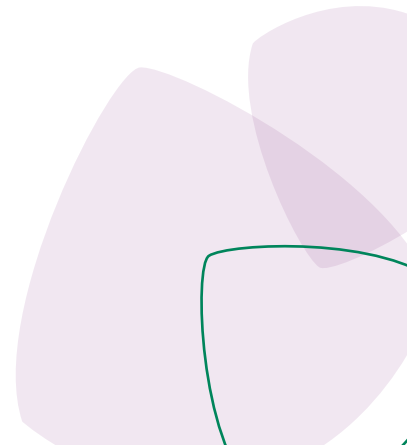
and generating operational savings. It also enables preventive maintenance scheduling.

Sustainability

Implementing a Flood Prevention System aligns with sustainability goals by significantly reducing water waste and damage, leading to a more environmentally responsible and resource-efficient approach to property management.

Peace of Mind

Peace of mind is priceless despite the many challenges of property ownership and management. Knowing that your flood prevention system is in place provides security and confidence. It allows you to focus on your core business activities, confident that your property is resilient in the face of flood threats.





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