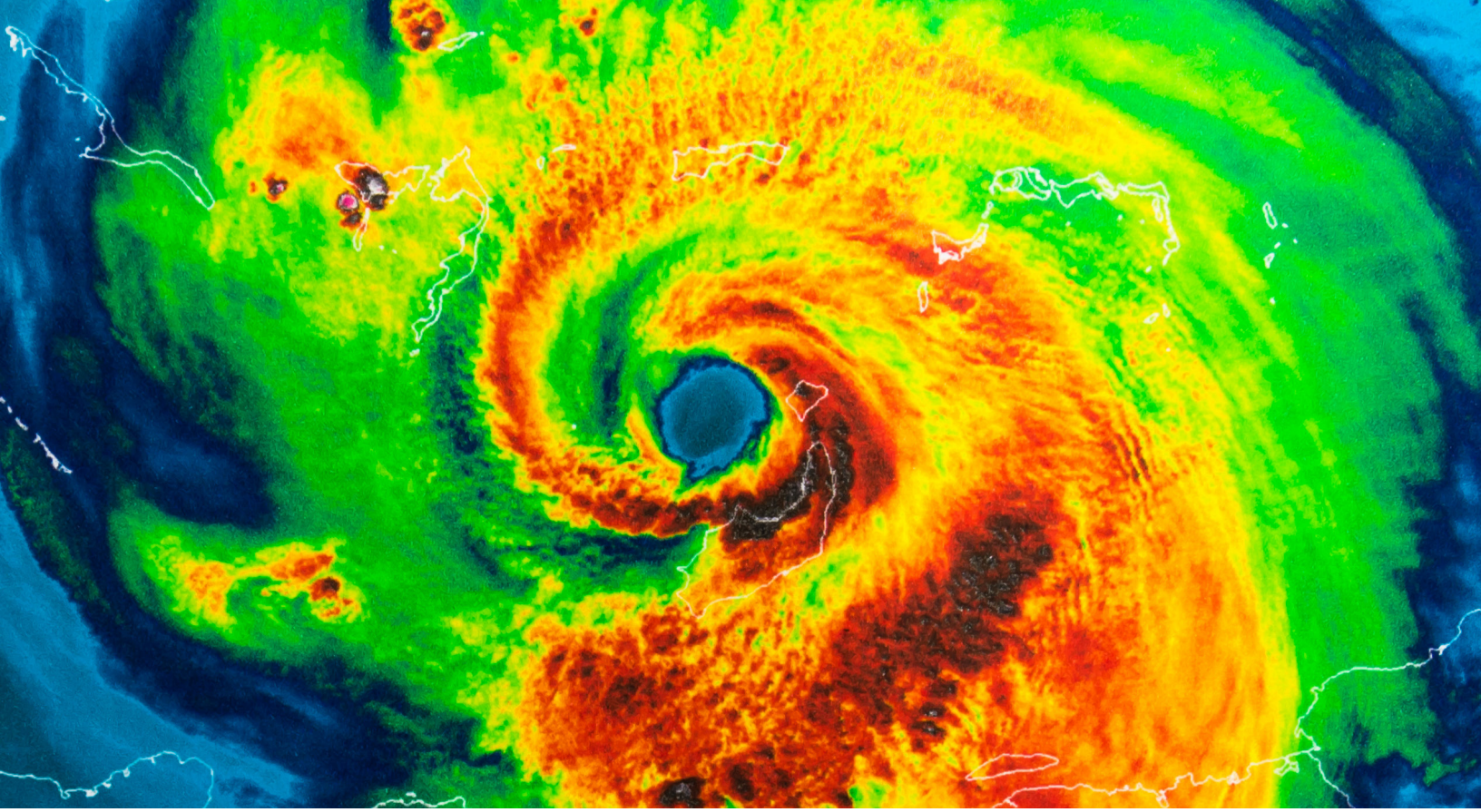
4 CONSTRUCTION TECHNOLOGIES THAT CAN AID DISASTER PLANNING AND RELIEF

MULTIVISTA

Table of Contents



INTRODUCTION

Advanced construction technology is revolutionizing the way construction leaders and real estate developers manage building projects. Now, visionary thinkers in the industry are realizing the value some of this technology offers for disaster preparedness and recovery.

Billion-dollar weather events are on the rise according to data collected by the National Oceanic and Atmospheric Administration (NOAA). In 2017, they report, "there were 16 weather and climate disaster events with losses exceeding $1 billion each across the United States. More notable than the high frequency of these events is the cumulative cost, which exceeds $300 billion in 2017 — a new U.S. annual record."

No one can fully prepare for the unexpected, but adequate planning can prevent significant loss and damages. In some instances, it can also save lives.

"Effective pre-disaster planning is an important process that allows a comprehensive and integrated understanding of community objectives," according to PreventionWeb, a leading knowledge platform for disaster risk reduction. Local governments compile extensive pre-disaster frameworks designed to bolster defenses against common (and, often, uncommon) threats to their citizens, infrastructure, and more.

For developers, being able to compile your own safety plan can prevent substantial damage to your building and prepare for when disasters do strike. In the aftermath of an event, the right tools can get you set on the path to recovery quicker, easier, and cheaper.

What can you do to protect your holdings from disasters? Here are four construction technologies that can help you plan for the worst.

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PHOTO AND IMMERSIVE VISUAL DOCUMENTATION

In the aftermath of Hurricane Sandy, damage caused by flooding and high winds took a major toll on the utility infrastructure in cities along the eastern seaboard. Thousands of New Yorkers were left without vital utilities for days and weeks, in large part due to flooded utility tunnels. The city deployed a team of electricians, plumbers, and technicians to work from building-to-building in the hardest hit areas. They reconnected, serviced, and tested thousands of utility systems by hand, often without access to knowledge about as-built conditions.

Being unable to access some tunnels and in-slab or covered utilities without exact knowledge of their position no doubt doubtless slowed the process by which power, water, and gas were restored to residents. If property owners had detailed photo documentation of as-built conditions, they could perform this vital work faster and with less potential for damage to the building itself.

As-built conditions often vary quite a bit from the original plans. Differences between the two can present major issues during a disaster. Search and rescue teams looking to access tunnels or shut off utilities can be stymied when they can't be sure exactly what tunnel they are accessing. In an emergency, providing them with accurate and up-to-date information ofn as-built conditions for your building can shave valuable minutes off and potentially save lives. It also makes rescuers safer in the process.

Furthermore, providing rescuers with information on concealed utility placement early removes the kind of emergency guesswork that can result in additional damage to your building.

Photo documentation is incredibly valuable when your partially-completed building is struck by a major disaster, too. Knowing what conditions on-the-ground were like pre-disaster gives builders a benchmark from which they can assess how much a project is set back and how much it will cost to get back up to speed. It also provides documentation of conditions prior to the disaster.

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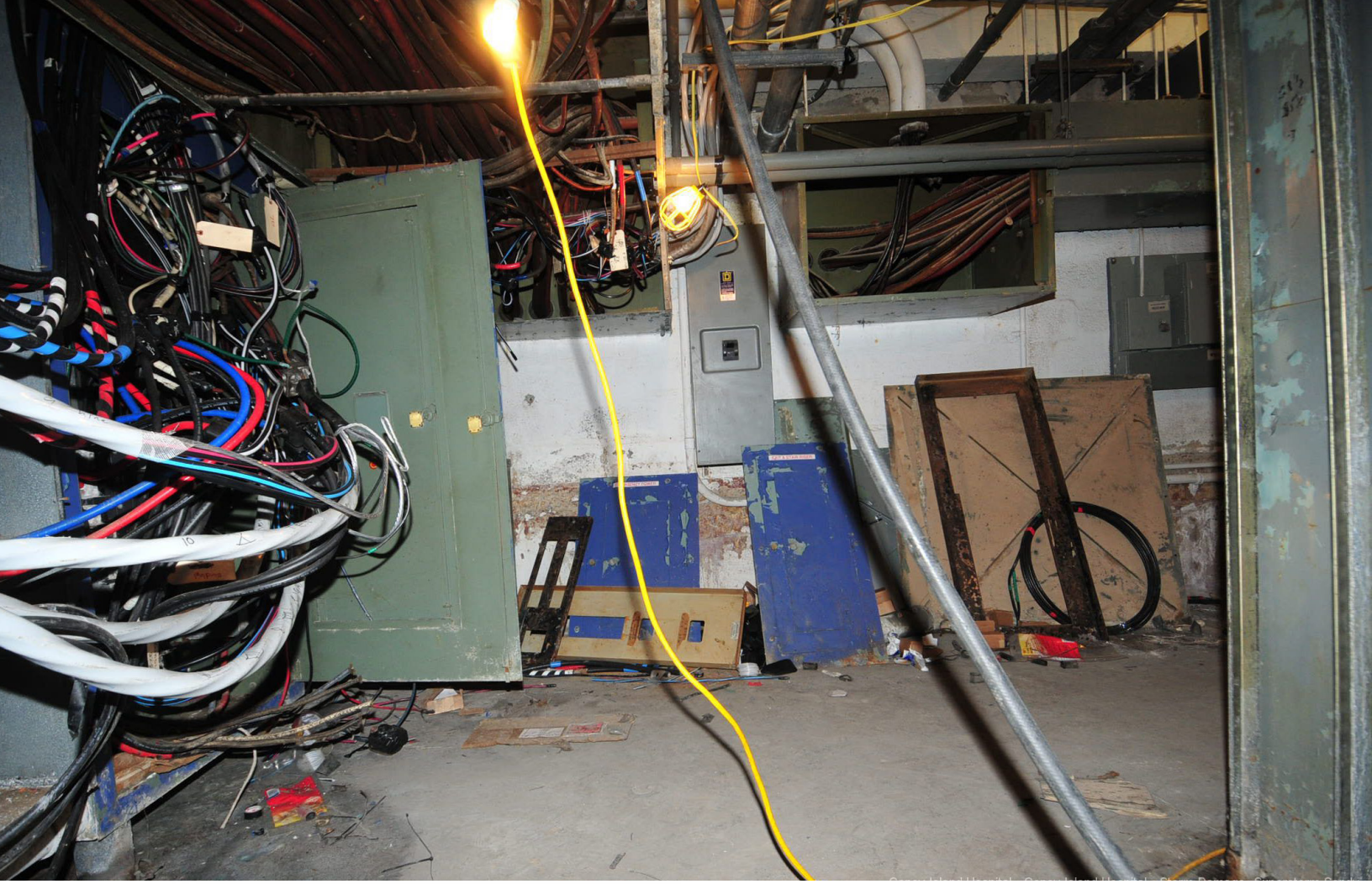

VIDEO DOCUMENTATION

Video documentation is especially valuable for disaster planning, as it offers detailed three-dimensional insights into potential evacuation routes, as well as on-the-ground views of potential hazards. Video walkthroughs allow search and rescue teams to explore the layout of a building before they set foot inside it, providing valuable insights that can expedite rescue operations and reduce risk to rescuers themselves.

When it comes time to rebuild, video offers a three-dimensional documentation of before-and-after disaster conditions that can supplement insurance claims. Video documentation can provide builders with the groundwork they need to start rebuilding, by providing information on previous as-built conditions so developers don't have to start again from scratch. Video documentation is a valuable communication tool for coordinating between subcontractors when rebuilding begins, too.

In the event of a structural failure, video documentation of the building process can provide insights into weaknesses that will need to be addressed before a building can be rebuilt. Thorough visual documentation can also offer proof of contractor negligence.

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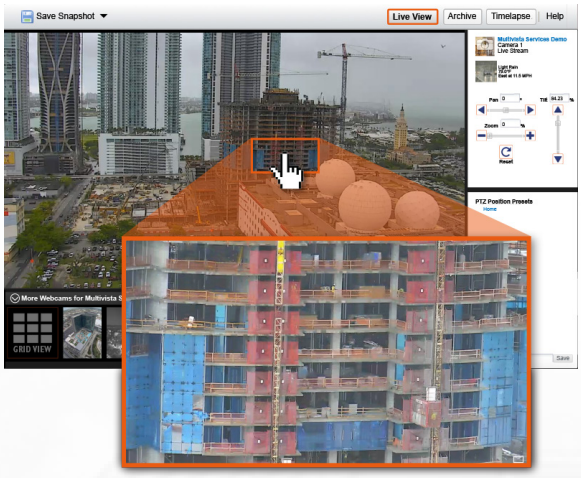
WEBCAMS



During a disaster, property owners and developers want to monitor any damage that may be occurring on the construction site. Contractors who don't have time to move valuable equipment and building supplies out of harm's way want to keep track of their machinery and materials.

Even when it's technically allowed, hanging around a partially-completed building during an event such as a hurricane or major flood is highly unsafe. In the event of a mandatory evacuation, it's not permitted whatsoever. Webcams offer a way to track on-the-ground conditions on your property or job site from a safe location. Knowing what's going on at your property during a disaster is valuable both for peace of mind and getting a leg up on post-disaster recovery.

Webcams are your detailed eye into the immediate aftermath of a disaster. They allow you to take stock of valuable equipment, which can be accounted for against your disaster plan to track for loss. Before you arrive, webcams provide an outline of potential hazards you will encounter when you return, as well as a view of general conditions on your property.

For completed buildings, webcams provide owners and managers the ability to monitor for post-disaster looting and other unnatural loss. Time lapse images or videos can easily demonstrate pre and post-event documentation for insurance claims.

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DRONES

Drones are already seeing widespread disaster relief implementation for humanitarian purposes. Virgin Unite writes that an unprecedented number of small and lightweight UAVs were launched, seeing use “in the Philippines after Typhoon Haiyan in 2013. They were used in Haiti following Hurricane Sandy in 2012. And more recently, they were flown in response to the massive flooding in the Balkans and after the earthquake in China.” These UAVs were used to provide a vital view-from-above perspective on damaged areas that proved to be critical for emergency response teams.

When developing a disaster contingency plan for your property, UAVs can provide you with a valuable multi-level view that takes potentials hazards into account from top to bottom (and, critically, from overhead).

In the immediate aftermath of an event, drones offer property owners and project managers an overhead view of a site before it’s safe for people. This can provide them with information on how to avoid hazards and make a cursory assessment of what damage they can expect.

In the case of smaller scale disasters, like fires that only affect a few floors on a skyscraper, drones offer rescuers and property managers the ability to assess the situation quickly from a safe distance.

CONCLUSION

When the unexpected happens, being prepared for anything can mean all the difference. When developing your emergency plan, use every tool you have on hand. As construction documentation technology advances, it will only become more important for property developers and owners, as well as first responders and relief agencies.

**The information collected in this E-Book should not be construed as legal advice or legal opinion regarding disaster preparedness or recovery. This resource is intended to serve as a tool providing practical advice and references to busy construction professionals and other readers.*

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