



Architect's Guide to Business Continuity

Guidance for reducing firm disruption

- Business Continuity Planning is preparation—of people, premises, technology, information, supply chains, stakeholders, and reputation—for adverse events so the firm can continue to provide services, generate revenue, and reduce the negative consequences of business interruption



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The 2021 update includes a refined Business Continuity Planning Process that includes a resource inventory, business impact analysis, recovery strategies and solutions, risk assessment, and risk treatment plan, updated worksheets, new interactive workbooks and case studies, and additional checklist items in the guide's section on preparing for and responding to a disruption.



Acknowledgements

The American Institute of Architects (AIA) recognizes that buildings and communities are subjected to destructive forces from natural and human-caused hazards. Architects and their businesses must also be resilient to disasters and disruption in order to protect themselves and service clients. The AIA would like to recognize the expertise and generosity of the following individuals that contributed to the creation of this Guide:

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“The AIA supports policies, programs, and practices that promote adaptable and resilient buildings and communities. Buildings and communities are subjected to destructive forces from natural and human-caused hazards such as fire, earthquakes, flooding, sea level rise, tornadoes, tsunamis, severe weather, and even intentional attack. The forces affecting the built environment are evolving with climate change, environmental degradation, population growth, and migration; this alters long term conditions and demands design innovation. Architects design environments that reduce harm and property damage, adapt to evolving conditions, and more readily, effectively and efficiently recover from adverse events. Additionally, the AIA supports member training and active involvement in disaster assistance efforts, providing valuable insights and aid to communities before, during, and after a destructive event.”

–AIA Resilience and Adaptation Position Statement, approved December 2017

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Contents

5 Introduction

- 6 Why business continuity matters
- 7 What is business continuity planning?
- 8 The business case for business continuity planning
- 10 How to use this guide
 - 10 Overview
 - 12 Who to engage
 - 12 Process approach
- 13 Analyzing risk
 - 13 Understanding hazards
 - 17 Understanding disruptions

18 The Business Continuity Planning Process

- 19 Inventory, prioritize, strategize, assess, mitigate
 - 20 Step 1: Resource inventory
 - 24 Step 2: Business impact analysis
 - 30 Step 3: Recovery strategies & solutions
 - 34 Step 4: Risk assessment
 - 38 Step 5: Risk treatment plan

- 42 Review: Plan maintenance

43 Prepare for and respond to disruption

- 44 Prepare: Mitigating risk
 - 45 Contracts & Legal Management
 - 46 Design Project Management
 - 49 Facilities Management
 - 52 Financial Management
 - 55 Human Resources
 - 58 Information Technology
- 62 Triage: Responding to a disruption
 - 63 In the event of: Extreme weather
 - 70 In the event of: Cyberattack
 - 72 In the event of: Key team member vacancy

73 Reference material

- 74 Definitions & concepts
- 76 Resources

77 Appendix

- 78 Printable worksheets

○ **Introduction**

Why business continuity matters

Imagine your office is inundated with 4 feet of water or endures 80 seconds of seismic shaking, damaging interior conditions and crippling lifeline utilities. Or imagine you open an email and suddenly your project, accounting, and contract files are held hostage and inaccessible. What would happen if your most integral team member or firm leader suddenly dies, and you lose irreplaceable institutional knowledge? What if a global pandemic requires all employees to self-isolate away from the office? Each of these is a type of disaster, and each represents an actual disruption that a design firm previously experienced. The question is, could work continue?

AIA found that for too many firms, a plan was not in place to mitigate such disruption. In the [2020](#)

[AIA Business of Architecture firm survey report](#), only 15% of firms with 1-9 employees and less than half (42%) of midsize firms of 10-49 employees reported having a business continuity plan. Even for large firms (50 or more employees), there is still a notable number without a plan--less than two thirds (64%) report having one. This Guide incorporates lessons learned from previously impacted firms, builds on best practices, and integrates business aspects unique to the building industry profession to help firms remain open and profitable in the face of disruption, be aware of vulnerabilities in their business, and expand firm resilient design services.

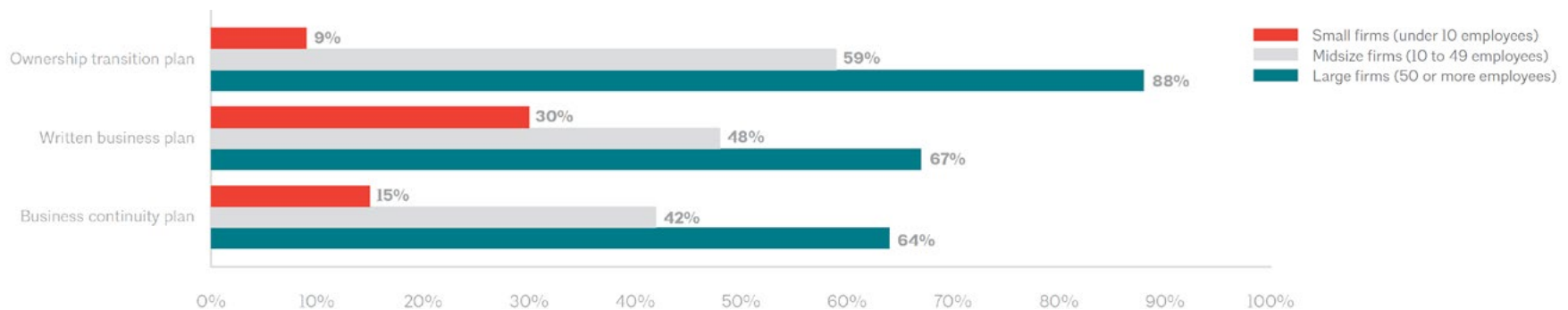
The practice of architecture exists in a complex, unpredictable, and inherently risky environment. To survive and thrive in this world, firms need to draw upon their foresight, strategic planning, and creativity to prepare, react, and quickly adapt to a wide range of disruptive, business-altering events.

Disruption takes a variety of forms: mental anguish, displacement, temporary accommodations, lost revenue, unexpected operational costs, and mountains

of paperwork. And those are the effects for the fortunate and the prepared. Many businesses never reopen following disasters, and sole practitioners and small firms may be disproportionately impacted. Factors that impact the likelihood of business recovery, in addition to the cost of repairs, include revenue lost due to closure, compromised operations, or clients in the impacted area who are unable to continue with their projects. The Federal Reserve studied the impact of 2017's record-breaking natural disasters on small businesses and found that 35% lost more than \$25,000 in revenues;¹ for a small business, this amount can make the difference between recovering or not.

Natural disasters are far from the only threat. Architecture firms are also at risk from everyday threats such as the sudden loss of a team member, an extended power outage, or a cybersecurity breach. According to the National Cyber Security Alliance, 60% of hacked small and midsize businesses go out of business within six months of the breach.² So what is a firm to do? **Create a business continuity plan.**

Percent of firms with types of plans in place.



¹ 2017 Small Business Credit Survey: Report on Disaster-Affected Firms,” 2018. <https://www.fedsmallbusiness.org/survey/2018/report-on-disaster-affected-firms>
² Galvin, Joe. “60 Percent of Small Businesses Fold Within 6 Months of a Cyberattack. Here’s How to Protect Yourself,” Inc., 2018. <https://www.inc.com/joe-galvin/60-percent-of-small-businesses-fold-within-6-months-of-a-cyber-attack-heres-how-to-protect-yourself.html>

What is business continuity planning?

A business continuity plan documents information that guides an organization to respond to a disruption and resume, recover, and restore the delivery of products and services.³

Business continuity planning provides a framework for organizational resilience in response to disruptions. Regardless of size, every firm has the ability to think strategically, efficiently, and effectively to reduce the impact of potential disruptions.



Business continuity planning provides a framework for organizational resilience in response to disruptions such as:

- ◉ **Public utility mishap:** The city was working on the street outside our office. They burst a water main, which flooded our office basement but did not flood our workspace. Job files, resource books, corporate files, tax filings, accounting records, software disks, backup tapes, and drawing archives were destroyed.
–Firm owner
- ◉ **Sudden loss of key employee:** Our office/financial manager passed away unexpectedly. All aspects of our business were affected, from payroll to billing, HR, and day-to-day office activities.
–Firm owner
- ◉ **Extreme weather event:** A hurricane with twenty-eight feet of storm surge and Category 3 winds devastated the entire coast. Our house was five weeks old but was still standing. Our office, on the other hand: gone. We gutted the house, polished the floors, and moved back in seven weeks later, the day the power was restored. There was no available commercial space, so we used our dining room. While communication lines were down we went to the library for Wi-Fi.
–Firm owner
- ◉ **Cyberattack:** We had no idea the attack even happened until we came in the next day and found our entire system was locked. The cyberattack was so stealthy it took weeks to figure out what happened. We finally identified a virus embedded in an email file from our attorney.
–AIA chapter executive director
- ◉ **Unexpected team member vacancy:** When my business partner announced he was moving and leaving the business, we had about 10 projects in the design phase and five in the construction phase, and we had three employees. My former partner had been managing roughly half of those projects. I became the principal in charge of 15 projects, including three projects that were vastly over budget. The experience was overwhelming in many ways, and I was completely unprepared for the scenario.
–Firm owner
- ◉ **Embezzlement:** During an extended illness of our long-term bookkeeper/office manager, irregularities in accounting were discovered. After investigating these discrepancies, it was determined that the bookkeeper had been diverting a portion of incoming wire transfers into an account we didn't know we had and forging checks made out to themselves for "bonuses" and reimbursement. When I finally learned of this, our operating account didn't have enough money to cover payroll. It was a tough couple of months to cover operating expenses and get adequate cash flow back into the firm.
–Firm owner
- ◉ **Infrastructure failure:** The phone company and 200 of their subsidiaries unexpectedly went bankrupt. I lost nearly every contact number and email address.
–Firm owner

³ Business Continuity ISO 22300, International Organization for Standardization, 2019

The business case for business continuity planning

Business continuity is good for your business as it reduces your likely losses, reinforces your firm stability to your clients, and enables you to add value to your clients' discussion on business continuity as well. In short, business continuity planning and the financial safety net it provides isn't simply a nicety or a good idea; it's vital to your business, your clients, and your community.

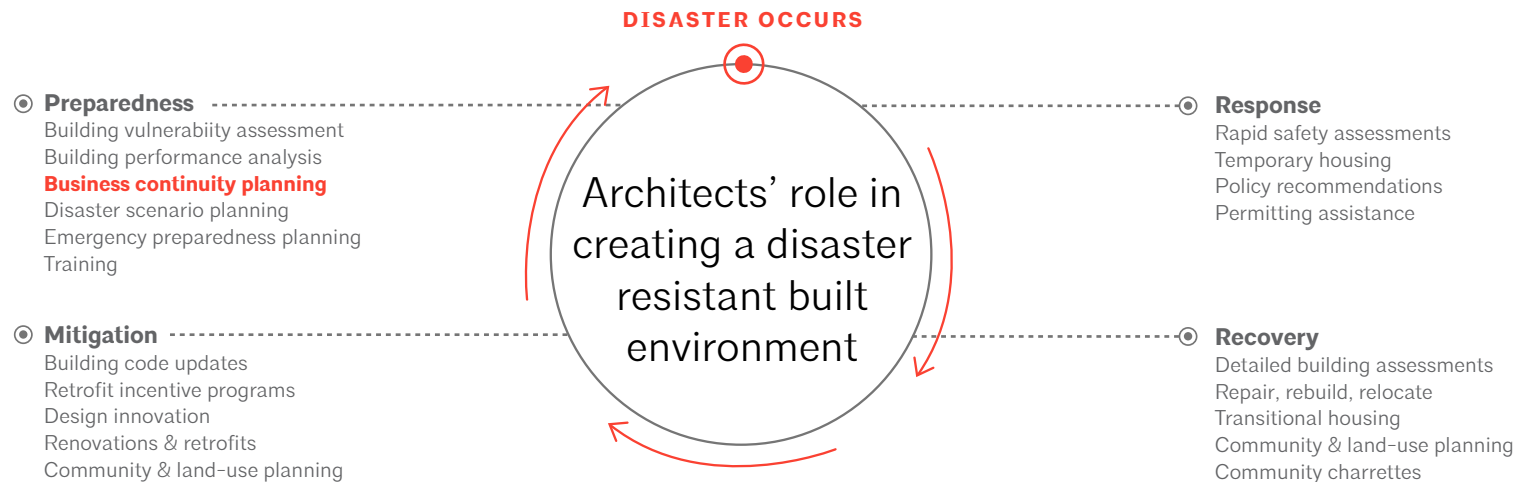
Firm benefits. Business continuity planning may be a contractual requirement stipulated by certain

companies or the government. Beyond reducing the impacts of a disruption and ensuring contract compliance, business continuity planning can create savings and opportunities. Demonstrating the firm has in place a business continuity plan may reduce a firm's business interruption insurance premium. And firms that remain open after a disaster have the capacity to provide post-disaster building assessments, repairs, and hazard mitigation retrofits for current, past, or new clients. Furthermore, firms may benefit from a more agile workforce. Employees who engage in business continuity planning can more readily navigate daily small-scale disruptions, evaluate risk, and identify mitigation measures.

Client benefits. A business continuity plan assures clients that their firm has analyzed their threats and capabilities, and planned for the unexpected. Additionally, the process of developing a business continuity plan better positions architects to advise clients on business continuity needs

and the associated design implications. These services may include site evaluation for building vulnerability assessments, facility feasibility studies, and design services for shelter in place and rapid recovery to promote business continuity goals. For more on these topics, explore the [Resilience & Adaptation Certificate Series](#). In particular, Course 8: Professional Risk and the Business Case for Resilience, describes how business continuity planning can inform the design process.

Community benefits. Communities also depend on design firms remaining open during disaster response, particularly when the firm has critical knowledge regarding the design, construction, or operations of damaged structures, or if the firm has post-disaster temporary housing or shelter solution experience. Firms that remain open can also provide volunteer assistance to overwhelmed local building departments and community recovery activities.



Architects' role in creating a disaster resistant built environment
 Within the Emergency Response Cycle of Preparedness, Mitigation, Response and Recovery, business continuity planning falls under Preparedness. Source: *AIA Disaster Assistance Handbook 3rd Ed.*



Making lemonade

How a Gulf Coast firm survived—and thrived despite—a historic hurricane

Courtesy of: Mark Ripple, FAIA, Eskew Dumez Ripple

THE EVENT: Hurricane Katrina

On Friday, August 26, 2005, the employees in our office were looking forward to the firm barbecue and pool party on Sunday. We were celebrating the end of summer and feeling satisfied that the firm was improving on both the design and financial side after struggling in 2002 with financial mishaps and work slowdown. We were keeping an eye on a hurricane in the Gulf named Katrina, but it was projected to hit east of New Orleans, and we are on the less intense western side, so weren't overly concerned about our office on the 31st floor on the west side of downtown.

By Saturday morning Katrina's path had shifted west and the storm was becoming more intense. The projections were looking scary and we began evacuation plans; our barbecue was canceled. By Monday morning, our city was flooded, more than half of our employees were homeless, and we realized we were in the middle of a major disaster.

POST-DISRUPTION: Information gathering, paperwork, and coping strategies

Cell phone communication was down, so our leadership team used personal email accounts to contact each other, setting up a conference call. There were more unknowns than knowns that week, but we moved forward with our best guess about what would happen. Assignments were handed out and we hit the ground running; within two weeks of Katrina we had completed the following tasks:

- **Workload:** Ascertained which clients were placing projects on hold and which were continuing.
- **New work:** Contacted our network to let them know we were ready, willing, and *able* to start working.
- **Infrastructure:** Sought and furnished a temporary office space, set up a network of computers with project and firm information (thanks to an eventful and rather heroic journey into the still flooded city to our 31st floor offices to retrieve our server—yes, it's quite difficult to carry an entire server down 31 flights in an unairconditioned stairwell with no light).
- **Employees:** Found out where displaced employees were temporarily staying, who could work remotely, who needed a place to stay, and who was needed immediately to get us back to work.
- **Business:** Insurance claim initiated, applied for SBA loan, opened a temporary line of credit, collected outstanding receivable balances to support interim cash needs, and developed a plan to continue to pay employees and run the firm.

Three months later we were back in our office and had fully engaged all employees wanting to return, while temporarily employing staff from our peer firms for a large FEMA project we were engaged to complete. We had secured commissions to assist in recovery planning as well as several fast-track projects to get clients back in buildings and working.

LESSONS LEARNED

- **Infrastructure:** Nimble, insured, and flexible.
- **Culture:** Empowered employees, sense of responsibility as a team.
- **Lateral leadership:** Decisions can be made at all levels that will benefit the entire team.
- **Transparency:** Entire team knows where we are going and how we plan to get there so we can all help when we need to move quickly.

[Learn more](#)

How to use this guide

Overview

Based on ISO 22301: 2019⁴, this guide is designed to lead architecture and design firms through the Business Continuity Planning Process. It includes five steps to create a business continuity plan, accompanying worksheets to document your process, recommendations for preparing for and responding to a disruption, and reference materials. Large firms over 50 employees or with multiple office and client locations may benefit from additional detail than that shown in the worksheets.

The Business Continuity Planning Process: Inventory, prioritize, strategize, assess, mitigate. In steps 1–3 firms prepare for disaster recovery by inventorying resource dependencies, prioritizing activities, and strategizing solutions to regain functionality should a disruption occur.

Steps 4 and 5 facilitate risk awareness and risk reduction through a risk assessment and identification of mitigation strategies. By executing the risk treatment plan actions in step 5, firms can reduce the risk of disruption. Should disruption occur, the firm will be well prepared to overcome the disruption using the strategies and solutions identified in step 3.

Each step in the Business Continuity Planning Process includes:

- A statement of purpose
- An overview with examples and terminology
- Reference material required or recommended to complete the worksheets
- Instructions

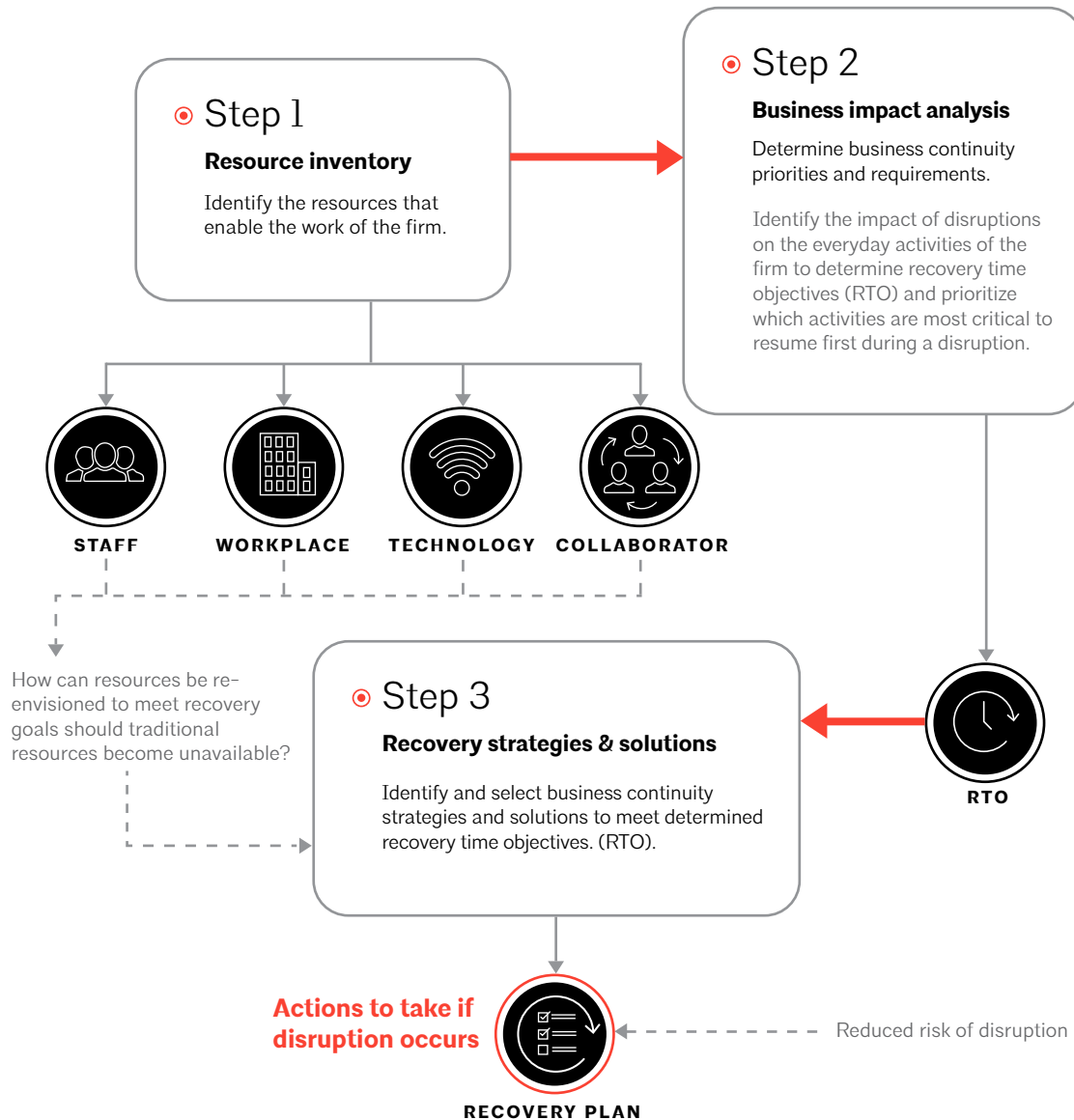
Once all steps are complete, follow the risk reduction strategies in step 5 risk treatment plan to reduce damaging impacts prior to disruption. Should a disruption occur, refer to the recovery strategies & solutions identified in step 3 to facilitate recovery.

Annual revisiting of the Business Continuity Planning Process (steps 1–5) to update information will reduce confusion and ensure that the business continuity plan is a reliable resource. Should a disruption occur, the business continuity worksheets associated with each step should be updated based on actual experience.

⁴ *Architect's Guide to Business Continuity* presents a process based on one or more industry standards and best practices intended to guide the design firm owner. Though ISO 22301:2019 terminology is referenced throughout the guide as a convenience and to facilitate the ability to learn more; references do not imply completing *Architect's Guide to Business Continuity* satisfies ISO 22301:2019 standards. *International Standard ISO 22301:2019 Security and resilience – Business continuity management systems – requirements* can be downloaded at <https://www.iso.org/standard/75106.html>

Business Continuity Planning Process

Steps 1-3: Prepare for recovery



Steps 4-5: Reduce risk



Prepare: Mitigating risk. Where otherwise infeasible to mitigate a risk, firms can better position themselves through preparedness. The “Prepare: Mitigating risk” section of this guide recommends preparedness tasks for a wide range of firm functions.

Triage: Responding to a disruption. Sometimes a hazard strikes before completing the Business Continuity Planning Process (steps 1–5) or the impacts exceed that which is anticipated. The “Triage: Responding to a disruption” section of this guide recommends steps that can be taken immediately after an extreme weather event, cyberattack, or sudden loss of a key team member. This section is helpful to reference when developing strategies and solutions in step 3 of the Business Continuity Planning Process.

Who to engage

Business continuity affects all facets of your firm, from human resources and information technology to facility management, office administration, and project management. To capture and catalog prospective impacts to every aspect of a firm, build a diverse team to develop the firm’s business continuity plan. For sole practitioners, the team might consist of the firm owner, an IT consultant, and your insurance agent. For small firms, the team might be the firm partners, office administrator, IT consultant, and a project architect. For others, the team might be larger and include representatives from each office as well as employees and leaders representing information technology, human resources, general counsel, and project management.

Business continuity planning is like a resilient system that includes interdependencies. While it’s important

to have someone lead the Business Continuity Planning Process (steps 1–5) and coordinate each section with the team, you can inform and confirm the plan with stakeholder input. Consider including input from not only employees, but also consultants, clients, and others who may further define the capabilities and demands on your firm.

Process approach

The small firms that applied the guide and tested this process spent 5–10 hours completing the Business Continuity Planning Process worksheets (steps 1–5). Depending on the scale of your firm’s operations, consider breaking down this process into smaller monthly and weekly steps as proposed below. You might also consider establishing a work group within your local AIA chapter to share ideas and offer support while working through the Business Continuity Planning Process.

Month 1: Complete step 1 Resource inventory	Month 2: Complete step 2 Business impact analysis	Month 3: Complete step 3 Recovery strategies & solutions	Month 4: Complete step 4 Risk assessment	Month 5: Complete step 5 Risk treatment plan
<p>Week 1: Complete worksheet 1a: Staff inventory</p> <p>Week 2: Complete worksheet 1b: Workplace inventory</p> <p>Week 3: Complete worksheet 1c: Technology (hardware) Inventory & worksheet 1d: Technology (software) inventory</p> <p>Week 4: Complete worksheet 1e: Vendor inventory & worksheet 1f: Project team inventory</p>	<p>Week 1: Identify key firm activities</p> <p>Week 2: Complete worksheet 2 for Design project management activities</p> <p>Week 3: Complete worksheet 2 for Marketing & business development, Financial management, and Contracts & legal management activities</p> <p>Week 4: Complete worksheet 2 for Human resources, Technology, and Facilities management activities</p>	<p>Week 1: Complete RTO = Same day worksheets</p> <p>Week 2: Complete RTO = Next day worksheets</p> <p>Week 3: Complete RTO = This week worksheets</p> <p>Week 4: Complete RTO = Next week & RTO = 2+ weeks worksheets</p>	<p>Week 1: Collect authoritative plans</p> <p>Week 2: Discuss authoritative plan findings with collaborators such as your insurance agent</p> <p>Week 3: Complete worksheet 4 Hazard column to capture all possible hazards</p> <p>Week 4: Complete worksheet 4 Mitigation likelihood, consequence, Resources, Mitigation, and Residual risk columns</p>	<p>Week 1: Complete Hazard and Residual risk columns</p> <p>Week 2: Begin with hazards with highest residual risk; go across each row to complete Risk Treatment and all Action Plan columns</p> <p>Week 3: Move on to hazards with intermediate level residual risk; complete Risk Treatment column, and all Action Plan columns</p> <p>Week 4: Finish remaining hazards with lowest residual risk; complete Risk Treatment column and all Action Plan columns</p>

Analyzing risk

Key term

Hazard: A potential source of danger caused by a naturally occurring or human-induced process or event with the potential to create loss

Understanding hazards

Organizations and firms are primarily faced with three types of hazards: environmental hazards, hazards instigated by individuals or groups (anthropogenic hazards), and hazards related to systemic failures. Today, environmental hazards are often top of mind, given the growing prevalence of global weather events and the increasing impact of climate change. However, the awareness of anthropogenic, or human-influenced hazards, is often higher in firms that have experienced impactful events such as 9/11, cyberattacks hijacking firm data or impacting credit reporting, or the sudden loss of key team members. Systemic failures, though, are likely the most common and least considered category. These include threats to whole communities and infrastructure, particularly the inherent fragility of centralized power grids and internet services.

When identifying hazards, it's important to also consider hazards that appear geographically remote, as these may impact supply chains or the sequence of business operations. For example, on some projects, approximately one-third of the work could be the responsibility of consultants. A disruption in producing or receiving consultant work would significantly impact the firm's ability to deliver work to the client.

Additionally, keep in mind that many environmental hazard events induce or trigger secondary hazard events, or what are commonly referred to as cascading effects. These vary by location and are to be taken into consideration during planning efforts. Secondary hazards can range in scale from major disruptions themselves or nuisances that exacerbate damage—such as power outages caused by windstorms or mudslides following floods and wildfires.

Other examples of acute secondary hazards include fires caused by downed power lines or ruptured gas pipes because of an earthquake. The potable water supply system, either within the building or within the community, may also be damaged after an initial hazard event. This has far-reaching consequences, from loss of the fire suppression system, to interior

water damage, to the inability to use the sanitary system. Environmental hazard events often result in the release of hazardous materials from dislodged containers, excessive mold growth, garbage spills, debris, and displaced disease-carrying vermin. Power outages should be expected from even a minor hazard event.

Secondary hazards aren't always at the building or property site; some are adjacent buildings with collapse or fall hazards. Upstream contamination of water supply or the flooding that occurs due to a sudden heavy snowmelt are two more examples of secondary hazard events. An architect's ability to foresee and visualize the impacts of secondary hazard events on business continuity will enable them to focus risk mitigation strategies.



Cascading effects

Secondary hazards vary by location. In this example, the initial event or primary hazard (far-left column) triggers secondary hazards shown as medium probability (light grey) or high probability (dark grey). Source: *Office of Emergency Management, City of Seattle.*

Secondary Hazard \ Primary Hazard	Earthquakes	Landslides	Volcano Hazards	Tsunami and Seiches	Disease Outbreaks	Civil Disorder	Terrorism	Mass Shootings	Transportation Incidents	Fires	HazMat Incidents	Infrastructure Failures	Power Outages	Excessive Heat Events	Flooding	Snow, Ice and Extreme Cold	Water Shortages	Windstorms	
Earthquakes																			
Landslides																			
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Rising from the Ashes

How a small firm navigated the secondary impacts of a nearby fire

Courtesy of Brian Poppe, AIA | HKP Architects



Before and after

THE EVENT: Small fire, big impacts

It was a Sunday night in September 2017 when someone started a fire in the recycling bin located within the entry alcove on the west end of our building. Our building was once the Skagit County Courthouse, a historic two-story brick masonry building in the heart of downtown Mount Vernon, Washington. Thankfully, within 30 minutes firefighters doused the flames with foam, avoiding water damage to our late 1800s-era building. Per their protocol, the firefighters investigated the building inside and out, opening doors and windows along the way, which ultimately allowed smoke and soot to permeate the building.

Thanks to the quick work of the firefighters, very little actual fire damage occurred. A few overhead interior beams were charred, along with the wood chair rail, the wood door, and framing around the floor joists. The entry became inaccessible due to damage to the door and glazing. The electrical panel, located in the entry alcove, was also fried. The adjacent buildings were affected only by smoke damage. The “footprint” of the fire was relatively contained.

Our firm rented office space on the second floor of the building, generally untouched by the fire but not from the cascading impacts:

- **Power:** The electrical panel that fed our portion of the building was located in the entry alcove. The fire destroyed the panel, causing a three-month power outage.
- **Smoke and soot:** As the firefighters opened doors and windows throughout the building to air it out, smoke and soot followed. The historic building had no

ducts or HVAC system, but due to the stack effect the smoke and soot billowed into our second-floor office area, covering our office to the extent that moving a pen the following morning revealed a reverse shadow on the pad of paper on which it was left.

POST-DISRUPTION: The long road to a clean, functioning office

- **Cleaning:** Both the building owner’s insurance company and our own business interruption insurance provided a cleaning crew to begin to remove the soot. The process was labor-intensive to say the least: Every surface, including every page of our materials library, had to be wiped down with a smoke sponge by hand. The process took four months. Recognizing the corrosive nature of soot and the limitations of smoke sponges, our insurance company opted in some cases to purchase new equipment (e.g., computers) rather than attempt to clean the existing equipment.
- **Smoke mitigation:** Cleaning the building extended to cleaning the actual structure. The existing plaster walls and ceilings were stripped to their studs, and a smoke-sealing primer was applied prior to installing new wall finish materials.
- **Archiving:** We had occupied the building for 65 years and stored numerous paper records in the office. We recognized that had the fire been worse, those documents would have been lost forever. We opted to digitally scan all of our archive material, including 35mm slides. Our insurance covered roughly 90% of this cost.
- **Restoration:** We had a fine-art restoration rider on our insurance policy and were able to apply that to the offsite restoration of our physical architectural models, some of which had significant historical value.
- **Business income loss:** The good news was that our insurance policy included business income loss. The bad news was that the policy was not clear about the exact documents required to support a claim. We looked to our own income records, while the insurance company looked to a forensic accounting firm. The gap in our financial expectations was over 300%. Ultimately, the county tax revenue records for professional services for our client base—along with growth projections—enabled us to reach an agreement with our insurance company. That process took nearly a year. None of the time spent justifying our claim was reimbursed or included in the settlement amount.



- **Infrastructure:** After two weeks, the server was restored, which provided some ability to work from home. However, at the time we were not set up to effectively work remotely long-term. Fortunately, unlike the west end of the building, the east end still had power after the fire and had vacant workspaces. As the cleaning crew worked, we began moving our cleaned furniture to the east end of the building where we could resume work. While the east end was made functional, it was still not ideal working conditions: Air scrubber fans were running constantly at 70–80 decibels while cleaning continued throughout the building.

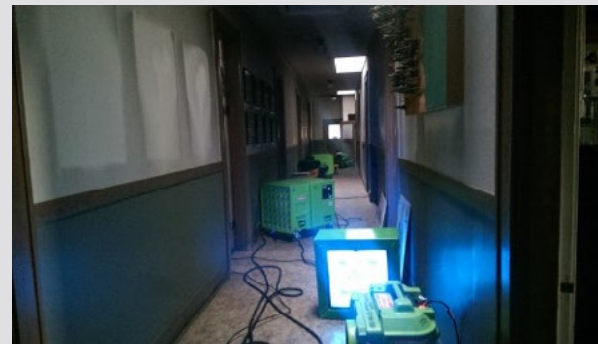
LESSONS LEARNED

- **Know your insurance policy—and processes for settling a claim:** Nimble, insured, and flexible.
- **Take time to understand the real impacts:** You know your business best. Take the proper time to account for all losses, physical damages, repairs, and potential lost income—and then work with your insurance agent to advocate for the firm.
- **Keep detailed records:** Typically, your insurer will look at your financial records over several years to determine an income history. These include net income and normal operating expenses incurred, including payroll. In addition to locating and organizing records from before the disruption, keep detailed records of:
 - Ongoing business activity and transactions, if any, while you recover from the loss.
 - Expenses associated with operating in a temporary location.
 - Ongoing expenses that you must pay even if your business is closed, such as utility costs.
 - Changes in your utilization rates and any projects or clients lost so you can show real financial and operational impacts during recovery.
- **Be prepared to work from home:** Create systems that allow your firm to function with or without a central physical office. The COVID-19 pandemic has helped us transition to more regularly work from home, but at the time of our fire we were not set up to work remotely.
- **Have a backup plan:** Create digital archives—and redundancies—that preserve and protect your files, and maintain them offsite.

- **Take care of yourself and your people:** You and your employees may experience psychological impacts in the time following a disruption. We gave some of our employees “hazard pay” for the extraordinary circumstances under which they continued to work. Make sure your people are doing OK, and reward them for continuing the business income stream while the recovery is underway.



Electrical panel post-fire



Ozone generators and air-scrubbing fans the morning after the fire (inverse soot “shadows” on the wall)



Types of hazards*

◉ Environmental hazards

- Avalanche
- Coastal erosion
- Drought****
- Earthquake
- Extreme temperature (heat or cold)
- Flood**
- Ground saturation
- Hailstorm
- Heavy rainfall
- High winds
- Hurricane
- Ice storm
- Landslide**
- Liquefaction
- Snowstorm
- Storm surge***
- Subsidence**
- Termites
- Tornado
- Tsunami/seiche
- Volcanic eruption
- Wildfire****

◉ Anthropogenic hazards

- Active shooter
- Arson-caused fire
- Bomb or bioweapon threat or actual attack
- Civil unrest (local or global)
- Cyberattacks
- Environmental pollution
- Explosion (e.g., gas line)
- Hazardous materials/chemical spills
- Terrorism
- War

◉ Systemic failures

- Disruption in public transit/road closures****
- Electromagnetic pulse (EMP) due to solar flares
- Electronic data loss
- Groundwater contamination***
- Infectious disease epidemic/pandemic
- Infrastructure failure
- Internet/cell service disruption
- Interruptions to site utilities: power, water, wastewater, communications****
- Order of civil authority
- Permanent/temporary loss of key team member
- Recession
- Unanticipated building dysfunction
- Vendor or consultant supply chain disruption

*This list of examples is not exhaustive of all potential hazards.

**The frequency of heavy precipitation events is increasing with climate change. More importantly, the amount of rainfall that occurs during a heavy precipitation event is increasing. Over time, flash flooding, general flooding, subsidence, and landslide risk will increase.

***Climate change impacts include sea-level rise. This increases the risk of storm surge, "sunny day" flooding (e.g., regular high tide flooding), and saltwater intrusion into groundwater.

****Climate change impacts include more extreme maximum and minimum temperatures, such that wildfires and drought are increasing. High heat impacts include human morbidity and mortality, materials buckling (e.g., roads, rail lines), and interrupted electricity transmission.

Key term

Vulnerability. The degree to which a system is susceptible to, and unable to cope with, adverse effects.

Risk. The potential for an unwanted outcome resulting from an incident, event, or occurrence, as determined by its likelihood and the associated consequences.

Understanding disruptions

Hazards can be thought of as short-term events that temporarily interrupt typical operations (operational disruptions) and higher-impact events that challenge the core business (core business disruptions).

Operational disruptions reduce the firm's ability to conduct its work. These range from common limited-duration disruptions, such as a power or internet failure, to longer-duration disruptions, such as powerful storms that disable the power grid or the sudden loss of a key team member critical to winning or delivering work.

Core business disruptions⁵ fundamentally change the nature of the firm's practice or disrupt critical business functions. These types of disruptions stem from more catastrophic events such as those businesses located on the New Jersey coast during Superstorm Sandy, those burned in the California wildfires, or buildings carried off their foundations from the St. Louis floods. The global pandemic brought on by COVID-19 created the awareness that not all core business disruptions result from natural disasters but could be related to an *order of civil authority* that temporarily closes the doors. Others include significant market shifts such as the 2008 housing crisis that impacted firms that specialize in residential projects or anthropogenic hazards, such as a cyberattack, that disable functionality.

⁵ *Leadership in Times of Crisis: A Toolkit for Economic Recovery and Resiliency* (International Economic Development Council, 2015), 285-304.



Business impacts: Tips for identifying disruptions


Most lease agreements give the landlord an extended period of time to make a decision on what to do and how to proceed in dealing with damage resulting from an extreme weather event or other hazard event. This may include a waiting period until the insurance company has disbursed funds for the repair of the building. This period may take as long as 60 to 120 days, during which access to the building may be denied and as such create disastrous results for firms that rely on their leased space.



Business impacts from a distance: An example of supply chain disruption

A major manufacturer located in the southeast of the United States had an interesting challenge in terms of business continuity planning. While its facilities were located well inland and away from coastal storm surges, its dependencies on systems that were in those high-risk flood zones were not. In lieu of looking at its local facilities and quickly surmising that they were relatively low risk, the manufacturer analyzed its supply chain to determine exposures throughout the lifecycle of their business operations.

By assessing supply chain risk in addition to facility risks, the manufacturer realized it was in fact terribly exposed to hurricanes, given its shipping operations. As an international supplier with a dependency on bidirectional availability of materials, any interruption in the supply chain could stall local operations for days or weeks. Therefore, the hurricane risk to its shipping partners became its own risk as well, although its actual facilities were so far from the coast. Recognizing this hazard, in turn, made the manufacturer realize the potential exposure to an important impact: operational cost escalation. In response, the manufacturer had to assess its appetite for such vulnerability and determine whether to have a backup strategy, such as alternative shipping operations and/or additional on-site component storage, should that supply chain disruption occur.

-  As a design firm hired by the manufacturer, we were compelled to create the environment for a conversation about hazard risk and business impacts. This type of conversation is valuable for our projects as well as within our own offices.

–Firm leader

- **The Business
Continuity Planning
Process**

Inventory, prioritize, strategize, assess, mitigate

The Business Continuity Planning Process follows five steps to arrive at strategies and solutions for recovery and risk reduction. Each step is accompanied by a worksheet with examples. The completed worksheets serve as your firm's basic business continuity plan. For an interactive worksheet experience, download the business continuity planning process Excel workbooks from aia.org/Business-Continuity.



Documenting your business continuity plan:

The worksheets provided in this guide, and the corresponding interactive workbooks, are offered as one method of documenting your business continuity plan. Each firm, and therefore each plan, is different. You may find an alternative approach to documentation will work better for your unique needs. However you decide to document your work, the following five steps will help your firm identify dependencies, adaptive capacity, vulnerability, and risk tolerance.

Remember: Your business continuity plan will be most successful when co-created with employees, building managers, insurance providers, consultants, and others.

Step 1 Resource inventory

Worksheet 1A:

Staff inventory

Worksheet 1B:

Workplace inventory

Worksheet 1C: Technology (hardware) inventory

Worksheet 1D: Technology (software) inventory

Worksheet 1E:

Vendor inventory

Worksheet 1F:

Project team inventory

Step 2 Business impact analysis

Worksheet 2: Business impact analysis

Step 3 Recovery strategies & solutions

Worksheet 3A:
RTO = Same day

Worksheet 3B:
RTO = Next day

Worksheet 3C:
RTO = This week

Worksheet 3D:
RTO = Next week

Worksheet 3E:
RTO = 2+ weeks

Step 4 Risk assessment

Worksheet 4:
Risk assessment

Step 5 Risk treatment plan

Worksheet 5:
Risk treatment plan

◉ Step 1:

Resource inventory

Purpose. Identify the resources that enable the work of the firm. Record employee roles and responsibilities, workspace(s), technology platforms, vendors, and key collaborators, including clients and consultants.

Overview. Understanding your firm's resource set is the basis of business continuity planning. Before assessing risks and impacts, document the resources your firm depends on: your leadership, staff, workspace(s), technology, and collaborators.

Reference material. Resource inventory information may be sourced from existing employee rosters, reports, vendor contracts, or software systems. Collect and review using the method that works best for your firm. The worksheets offered in this step are just one way to conduct a resource inventory.

Instructions

1. **Worksheet 1a:** List each job title/employee and associated contact information, responsibilities, and competencies.
2. **Worksheet 1b:** Identify the workspaces that enable your staff to complete their work. Is there a central office? Do employees telework from home or other locations? Consider the workspaces that are most critical and, if unavailable, would inhibit the continuity of work.
3. **Worksheet 1c+d:** Document the technology platforms that facilitate firm operations as well as those that offer protection or redundancy (e.g., backups). Include hardware, software, and required internet connection/equipment.
4. **Worksheet 1e+f:** List each of your collaborators: clients, consultants, product reps, their contact information, and affiliated projects. Also include vendors that facilitate the work of the firm, such as internet and utility companies, IT or HR support (if contracted), etc.

Worksheet 1a: Staff inventory

Role	Name	Phone #	Email	Key responsibilities	Additional competencies	Responsibilities during a disruption
Principal	Kim	555-555-5551	Kim@companyname.domain	Ownership/President. Business development, project management.	HR, finance	<p>Team leader: Determine if disruption warrants a formal response, alert all teams of response status, coordinate across teams. Initiate a legal review of contractual obligations and potential pitfalls due to the disruption.</p> <p>Communications lead: Communicate response status to employees and external collaborators; primary liaison to interested parties, authorities, and/or the media.</p>
Project Architect	Michele	555-555-5552	Michele@companyname.domain	Project Architect, project management, recruiting.	Graphics, BIM standards	<p>Operations lead: Identify critical operational needs by conducting a Project Status Assessment; re-assign staff tasks, technology platforms, and collaborators as required.</p>
Accounting & purchasing	Chad	555-555-5553	Chad@companyname.domain	Accounting, billing and purchasing. Payroll oversight, receivable and payable, license manager.	N/A	<p>Maintain timely continuity of payments (external and internal), and workspace accommodations.</p>

Worksheet 1b: Workplace inventory

Location	Frequency of use	Infrastructure
Main office 15 S. Lexington Street Warren, OH 44481	Daily, high need and access	Main location for records, technology, invoicing, client record and server. Individual project notes and progress information. Printers and plotters and reference material.
Work from home	Multiple times a week	Limited material or equipment. Laptops and e-readers only.
Sister-firm ⁶ : Lakeside Design 879 Erie St Suite 5 Cleveland, OH 44101	Only if main office and work-from-home site is unavailable	Plotter, 4 workstations, access to reference material including materials library.

The example illustrated here is for reference only and should not be used to replace a firm's customized inputs.

⁶ See "Prepare for remote work" checklist for more information on identifying a sister-firm or sister-office.

Worksheet 1c: Technology (hardware) inventory

Location	Desc.	Qty	Lease or purchased	If leased, renewal terms	Capacity (storage/speed)	Year purchased	Anticipated replacement month/year	Loaded software	Importance	Redundancy
Main Office	Server room, single server with uninterruptible power supply (UPS), VPN access and firewall. Data only.	1	Purchased	N/A	Disc: 2Terabite Ram: 32 GB Processor: 4 CPUs	2019	May 2022	Windows server	High	Backup off-site to cloud. Six-month physical backup to hard drive. Server redundant hot-swappable power supply with RAID configuration.
Main Office	Desktop computers. Limited operator information with data stored on server.	5	Purchased	N/A	16GB ram 500 GB	2017	October 2021	Windows office suite, Revit Adobe creative suite Quickbooks	Medium	None
Main Office	Laptops. Misc. Local operator storage with VPN access.	5	Purchased	N/A	16GB ram 500 GB	2020	June 2023	Windows office suite, Revit Adobe creative suite Quickbooks	Medium	Emails backup off site. Mail, email Office 365. Extra laptops in office for access.
Main Office	Plotter. Local copies only	1	Purchased	N/A	N/A	2018	January 2022	Windows	Low	Copiers and printers, none.
Main Office	E-tablets	2	Purchased	N/A	8 GB ram 100 GB	2020	October 2023	Windows	Medium	Individual team project notes. Data transferred to cloud backup and to desktops.
Main Office	Modem & router & firewall	1	Purchased	N/A	64 connections for router	2020	July 2025	Cisco	High	None

The example illustrated here is for reference only and should not be used to replace a firm's customized inputs.

Worksheet Id: Technology (software) inventory

Name	Subscription or purchased	# of subscriptions used /# available	Firm function or activity supported	Hardware requirements	Importance	Redundancy
QuickBooks	subscription	1/2	Financial management	8GB RAM	High	Download to computers. Backed up with main server to offsite cloud storage.
Microsoft Office suite	subscription	8/10	All	4GB RAM	High	Download to computers. Backed up with main server to offsite cloud storage.
Revit	subscription	5/6	Design project management	32GB RAM	High	Download to computers. Backed up with main server to offsite cloud storage.
Adobe creative suite	subscription	1/2	Design project management and Marketing & Business Development	4GB RAM	High	Download to computers. Backed up with main server to offsite cloud storage.

Worksheet Ie: Vendor inventory

Service	Company	POC Name	Phone number(s)	Email(s)	Alternate POC	Phone number(s)	Email(s)
IT Support	Tech Guys	Gus	555-555-5554	Gus@companyname.domain	Jim	555-555-5510	Jim@companyname.domain
Janitorial company	Squeeky Clean	Jane	555-555-5555	Janek@companyname.domain	Dean	555-555-5511	Dean@companyname.domain
Insurance	GotUCovered	Zach	555-555-5556	Zach@companyname.domain	Lisa	555-555-5512	Lisa@companyname.domain

Worksheet If: Project team inventory

Service	Company	POC name	Phone number(s)	Email(s)	Alternate POC	Phone number(s)	Email(s)
Project name: Main Street High School							
Client	Monarch City	Thomas	555-555-5557	Thomas@companyname.domain	Barbara	555-555-5513	Barbara@companyname.domain
Mechanical Engineer	MEPeople	Marge	555-555-5558	Marge@companyname.domain	Matt	555-555-5514	Matt@companyname.domain
School Board Chair	David Rollins	David	555-555-5559	Dave@companyname.domain	Jenna	555-555-5515	Jenna@companyname.domain

The example illustrated here is for reference only and should not be used to replace a firm's customized inputs.

Step 2:

Business impact analysis⁷

Purpose. Determine business continuity priorities and requirements. Identify business activities and analyze the impact of a disruption—regardless of the type of disruption—on those business activities to determine the most critical activities to maintain or quickly restore. Critical business activities, whether they are performed in or out of house should be addressed so both staff and collaborator dependencies can be anticipated. The outcome of the business impact analysis is a statement and justification of business continuity requirements.

Overview. Use this worksheet to identify the activities most critical to business continuity. Begin by identifying everyday activities (see sample list in the “Reference Material” section of this step). If a disruption were to occur, hindering the execution of a business activity, how much time would the firm have before negative ramifications are felt? Consider the financial, legal, brand, and operational impacts if those business activities are interrupted.

Reference material. Resource inventory information may be sourced from existing employee rosters, reports, vendor contracts, or software systems. Collect and review using the method that works best for your firm. The worksheets offered in this step are just one way to conduct a resource inventory.

● **Example:** During the COVID-19 pandemic, construction material shortages led to an increased number of substitution submittals during construction administration that necessitated

additional evaluations and review time by the architect. The operational impact of substitution requests was compounded by financial and legal impacts: In some cases, the additional time led to an extended schedule beyond what was stipulated in the contract, and/or the design team didn't have the contractual protections in place to enable a fee increase for the additional time.

● **Example:** A town four hours away from a firm's office suffers a major flood event. The office is unaffected, but the site of a current design project is within the declared disaster area. Permits for repairs are prioritized, delaying the approval of the project's construction permit (operational impact) and subsequently delaying the schedule (financial impact) which could result in legal action if the hazard event is not named in the contract's force majeure clause (legal impact).

When exploring potential financial, legal, brand, and operational impacts, consider both direct and indirect impacts.

● **Example:** During a heat wave, office HVAC equipment may not be able to meet the cooling load, which could lead to untenable working conditions; the office closes and work time is lost—directly impacting firm revenue (financial impact). Additionally, hourly employees will take a larger financial loss during office closures and lost work time. This could indirectly impact firm operations (operational impact) or reputation (brand impact) if hourly employees leave due to frequent office closures.

Key terms

Brand impact: Reputational consequences, such as damaged credibility of the firm, reduced confidence level of clients and partners, or loss of future marketing pursuits.

Business impact analysis⁸: Process of analyzing the impact over time of a disruption on the organization. The outcome is a statement and justification of business continuity requirements.

Financial impact: Monetary consequences, such as revenue loss, loss of contracts, late payments, increased operational costs (e.g., rent, insurance, etc.), or reduced ability to make payroll or payments to consultants, vendors, or partners.

Legal impact: Contractual or legal consequences, such as breach of contract.

Maximum tolerable period of disruption (MTPD)⁹: Timeframe within which the impacts of not resuming activities would become unacceptable to the organization.

Operational impact: Functional consequences, such as an inaccessible project or office site, loss or lack of access to technology (e.g., server, computers, printers, software, data, cloud, etc.), or sudden reduction in staff.

Recovery time objective (RTO)¹⁰: Prioritized time frame for resuming disrupted activities at a specified minimum acceptable capacity. This time frame should be less than the MTPD.

⁷ For more information on the Business Impact Analysis, see section 8.2 of ISO Standard 22301 2019.

⁸ Business continuity ISO 22300, International Organization for Standardization, 2019.

⁹ Ibid

¹⁰ Ibid

Reference material: The following is an example list of activities, organized by firm function, for use in completing worksheet 2: Business impact analysis.

Example activities, organized by firm function						
Contracts & legal management	Design project management	Facilities management	Financial management	Human resources	Marketing & business development	Technology
Contract review	Agency approvals/ regulation coordination Authorize Certificates for Payment As-builts Change orders Code analysis Commissioning Drawings Estimates Feasibility studies Inspections Issue Certificate of Substantial Completion Life cycle analysis O+M facilities training & handoff Post-occupancy evaluation Programming RFIs Site analysis Site visits Space planning Spec writing Submittals	Contracting w/ janitorial staff, landscapers, security, etc. Orchestrating building maintenance projects (if facility is owned) and/or office renovation projects	Payroll Payment Invoicing Insurance	Insurance/benefits Salary changes Job description changes Professional development Employee advancement Recruitment	Outreach (press releases, cold calls) Marketing material Proposal writing	Cloud backups Managing office technology and files Software updates Equipment leases Software leases

Worksheet 2: Business impact analysis

A FIRM FUNCTION

Identify the firm function. There will be one *worksheet 2: Business impact analysis* per firm functional area.

B ACTIVITY INVENTORY

Identify key activities that the firm must perform. What are the associated regular tasks? There may be multiple activities per firm function. Include the activity name as well as a brief description of the activity, including its confines and overlaps with other activities. The description will help avoid confusion when these worksheets are referenced after a disruption.

C ANALYSIS

1. Identify direct and indirect impacts of not being able to perform a business activity: What are the financial, legal, brand, and operational impacts?

2. Determine the recovery time objective (RTO) and associated drivers. The RTO should be less than the maximum tolerable period of disruption (MTPD). For drivers, describe the influencing factors.

A	<input type="checkbox"/> Contracts & agreements <input type="checkbox"/> Human resources	<input type="checkbox"/> Design project management <input type="checkbox"/> Marketing & business development	<input type="checkbox"/> Facilities management <input type="checkbox"/> Technology	<input checked="" type="checkbox"/> Financial management <input type="checkbox"/> Other _____
B	ACTIVITY NAME: <i>Short title to identify the activity</i>	<i>Make payment</i>	ACTIVITY DESCRIPTION: <i>Short description to identify the activity</i>	<i>This activity initiates payments to external vendors such as consultants.</i>
C	FINANCIAL IMPACT <input type="checkbox"/> High: Disruption could bankrupt the firm <input checked="" type="checkbox"/> Medium: Disruption may require firm to rely on reserves in order to meet goals <input type="checkbox"/> Low: Disruption may reduce amount of on-hand capital	LEGAL IMPACT <input type="checkbox"/> High: Disruption could cause a claim against the firm or result in penalties due to violation of law <input checked="" type="checkbox"/> Medium: Disruption is less likely to result in a claim or lawsuit <input type="checkbox"/> Low: Disruption is unlikely to result in a claim or lawsuit	BRAND IMPACT <input type="checkbox"/> High: Firm loses current and future clients <input type="checkbox"/> Medium: Firm's trust and capability could be seriously questioned by current and future clients <input checked="" type="checkbox"/> Low: Firm's services are perceived to be normal	OPERATIONAL IMPACT <input type="checkbox"/> High: Disruption could significantly impact the majority of required firm operations <input checked="" type="checkbox"/> Medium: Disruption could limit many, but not all, required firm operations <input type="checkbox"/> Low: Required operations are minimally disrupted
	RECOVERY TIME OBJECTIVE: <i>When must critical work be resumed for this activity after a disruption (and before the MTPD)</i> <input type="checkbox"/> Same day <input type="checkbox"/> Next Day <input checked="" type="checkbox"/> This week <input type="checkbox"/> Next week <input type="checkbox"/> 2+ weeks	RECOVERY TIME DRIVERS: <i>What is driving the recovery time objective?</i> <i>If not paid in a timely manner, consultants may stop work or be less likely to work with the firm in the future. Furthermore, payment timelines are contractually stipulated and thus a delay in payment could be a breach in contract.</i>		

The example illustrated here is for reference only and should not be used to replace a firm's customized inputs.

<p>A</p>	<input type="checkbox"/> Contracts & agreements <input type="checkbox"/> Human resources	<input type="checkbox"/> Design project management <input checked="" type="checkbox"/> Marketing & business development	<input type="checkbox"/> Facilities management <input type="checkbox"/> Technology	<input type="checkbox"/> Financial management <input type="checkbox"/> Other _____
<p>B</p>	<p>ACTIVITY NAME: <i>Short title to identify the activity</i></p>	<p><i>Proposal writing</i></p>	<p>ACTIVITY DESCRIPTION: <i>Short description to identify the activity</i></p>	<p><i>This activity responds to RFPs (request for proposals) and RFQs (request for qualifications)</i></p>
<p>C</p>	<p>FINANCIAL IMPACT</p> <input type="checkbox"/> High: Disruption could bankrupt the firm <input checked="" type="checkbox"/> Medium: Disruption may require firm to rely on reserves in order to meet goals <input type="checkbox"/> Low: Disruption may reduce amount of on-hand capital	<p>LEGAL IMPACT</p> <input type="checkbox"/> High: Disruption could cause a claim against the firm or result in penalties due to violation of law <input type="checkbox"/> Medium: Disruption is less likely to result in a claim or lawsuit <input checked="" type="checkbox"/> Low: Disruption is unlikely to result in a claim or lawsuit	<p>BRAND IMPACT</p> <input type="checkbox"/> High: Firm loses current and future clients <input checked="" type="checkbox"/> Medium: Firm's trust and capability could be seriously questioned by current and future clients <input type="checkbox"/> Low: Firm's services are perceived to be normal	<p>OPERATIONAL IMPACT</p> <input type="checkbox"/> High: Disruption could significantly impact the majority of required firm operations <input type="checkbox"/> Medium: Disruption could limit many, but not all, required firm operations <input checked="" type="checkbox"/> Low: Required operations are minimally disrupted
	<p>RECOVERY TIME OBJECTIVE: <i>When must critical work be resumed for this activity after a disruption (and before the MTPD)</i></p> <input type="checkbox"/> Same day <input type="checkbox"/> Next Day <input checked="" type="checkbox"/> This week <input type="checkbox"/> Next week <input type="checkbox"/> 2+ weeks	<p>RECOVERY TIME DRIVERS: <i>What is driving the recovery time objective?</i></p> <p><i>During a short-term disruption, obtaining new work would not be the highest priority of the firm. During a long-term disruption, obtaining new work is critical. Different ways of interacting and meeting new clients may be necessary.</i></p>		

The example illustrated here is for reference only and should not be used to replace a firm's customized inputs.

A	<input type="checkbox"/> Contracts & agreements <input type="checkbox"/> Human resources	<input checked="" type="checkbox"/> Design project management <input type="checkbox"/> Marketing & business development	<input type="checkbox"/> Facilities management <input type="checkbox"/> Technology	<input type="checkbox"/> Financial management <input type="checkbox"/> Other _____
B	ACTIVITY NAME: <i>Short title to identify the activity</i>	<i>Agency approvals</i>		ACTIVITY DESCRIPTION: <i>Short description to identify the activity</i> <i>Obtaining needed project permits and approvals from various agencies unique to the project's jurisdiction</i>
C	FINANCIAL IMPACT <input type="checkbox"/> High: Disruption could bankrupt the firm <input checked="" type="checkbox"/> Medium: Disruption may require firm to rely on reserves in order to meet goals <input type="checkbox"/> Low: Disruption may reduce amount of on-hand capital	LEGAL IMPACT <input checked="" type="checkbox"/> High: Disruption could cause a claim against the firm or result in penalties due to violation of law <input type="checkbox"/> Medium: Disruption is less likely to result in a claim or lawsuit <input type="checkbox"/> Low: Disruption is unlikely to result in a claim or lawsuit	BRAND IMPACT <input type="checkbox"/> High: Firm loses current and future clients <input checked="" type="checkbox"/> Medium: Firm's trust and capability could be seriously questioned by current and future clients <input type="checkbox"/> Low: Firm's services are perceived to be normal	OPERATIONAL IMPACT <input checked="" type="checkbox"/> High: Disruption could significantly impact the majority of required firm operations <input type="checkbox"/> Medium: Disruption could limit many, but not all, required firm operations <input type="checkbox"/> Low: Required operations are minimally disrupted
	RECOVERY TIME OBJECTIVE: <i>When must critical work be resumed for this activity after a disruption (and before the MTPD)</i> <input type="checkbox"/> Same day <input type="checkbox"/> Next Day <input checked="" type="checkbox"/> This week <input type="checkbox"/> Next week <input type="checkbox"/> 2+ weeks	RECOVERY TIME DRIVERS: <i>What is driving the recovery time objective?</i> <i>Agencies typically have set review schedules and full workloads, limiting project approval windows. A delay of regulatory approvals delays the project.</i>		

The example illustrated here is for reference only and should not be used to replace a firm's customized inputs.

<p>A</p>	<input type="checkbox"/> Contracts & agreements <input type="checkbox"/> Human resources	<input checked="" type="checkbox"/> Design project management <input type="checkbox"/> Marketing & business development	<input type="checkbox"/> Facilities management <input type="checkbox"/> Technology	<input type="checkbox"/> Financial management <input type="checkbox"/> Other _____
<p>B</p>	<p>ACTIVITY NAME: <i>Short title to identify the activity</i></p>	<p><i>Spec writing</i></p>	<p>ACTIVITY DESCRIPTION: <i>Short description to identify the activity</i></p>	<p><i>Development of project specifications</i></p>
<p>C</p>	<p>FINANCIAL IMPACT</p> <input type="checkbox"/> High: Disruption could bankrupt the firm <input checked="" type="checkbox"/> Medium: Disruption may require firm to rely on reserves in order to meet goals <input type="checkbox"/> Low: Disruption may reduce amount of on-hand capital	<p>LEGAL IMPACT</p> <input type="checkbox"/> High: Disruption could cause a claim against the firm or result in penalties due to violation of law <input checked="" type="checkbox"/> Medium: Disruption is less likely to result in a claim or lawsuit <input type="checkbox"/> Low: Disruption is unlikely to result in a claim or lawsuit	<p>BRAND IMPACT</p> <input type="checkbox"/> High: Firm loses current and future clients <input checked="" type="checkbox"/> Medium: Firm's trust and capability could be seriously questioned by current and future clients <input type="checkbox"/> Low: Firm's services are perceived to be normal	<p>OPERATIONAL IMPACT</p> <input checked="" type="checkbox"/> High: Disruption could significantly impact the majority of required firm operations <input type="checkbox"/> Medium: Disruption could limit many, but not all, required firm operations <input type="checkbox"/> Low: Required operations are minimally disrupted
	<p>RECOVERY TIME OBJECTIVE: <i>When must critical work be resumed for this activity after a disruption (and before the MTPD)</i></p> <input type="checkbox"/> Same day <input type="checkbox"/> Next Day <input checked="" type="checkbox"/> This week <input type="checkbox"/> Next week <input type="checkbox"/> 2+ weeks	<p>RECOVERY TIME DRIVERS: <i>What is driving the recovery time objective?</i></p> <p><i>Bid packages cannot be complete without project specifications.</i></p>		

The example illustrated here is for reference only and should not be used to replace a firm's customized inputs.

Step 3:

Recovery strategies & solutions^{II}

Purpose. Identify and select business continuity strategies and solutions to meet determined recovery time objectives (RTO).

Overview. When disruption strikes, knowing which business activity to focus on—and how—will facilitate a more successful and efficient recovery. In step 2: Business impact analysis, financial, legal, brand, and operational impacts were evaluated to prioritize firm activities and establish associated recovery time objectives. Based on the recovery time objectives identified in step 2, develop operational alternatives when key resources (staff, workplace, technology, or collaborator) become unavailable during a disruption.

Staff: What would you do if a key staff member was unavailable?

- *Example: Transfer the activity to another internal staff member.*
- *Example: Hire a consultant to complete the activity.*
- *Example: Decide that the activity can be suspended for a specific amount of time with limited negative impact.*

Workplace: What would you do if a specific workplace or site was unavailable?

- *Example: If the activity is not site-dependent, work could continue at home or at an alternative facility.*
- *Example: If the activity is site-dependent, the activity may have to be temporarily suspended.*

Technology: What would you do if a critical piece of technology (hardware or software) was unavailable?

- *Example: Complete the activity manually.*
- *Example: Use alternative technology (different piece of hardware/software) to complete the task.*
- *Example: Decide that the activity can be suspended for a specific amount of time with limited negative impact.*

Collaborator: What would you do if an external consultant, partner, or vendor couldn't deliver?

- *Example: Reassign the activity to a different vendor, partner, or consultant.*
- *Example: Reassign the activity to an internal team member.*

- *Example: Decide that the activity can be suspended for a specific amount of time with limited negative impact.*

When identifying strategies and solutions for alternative staffing, work locations, technology, and collaborators, consider how long each strategy or solution can be maintained (see “Duration” section of worksheet 3) and what additional information is needed to ensure the chosen solution will be successful (see prompts in the “Solution” section of worksheet 3).

Remember

This step focuses on developing strategies and solutions to enable critical business activities to continue, *regardless of the nature of the disruption*. Hazard event scenarios and their unique impacts will be examined in step 4: Risk assessment.

^{II} For more information on Strategies and Solutions, see section 8.3 of ISO Standard 22301 2019.

Worksheet 3a: Recovery time objective = Same day

A VIABLE STRATEGIES

Start with all activities that have SAME DAY RECOVERY TIME OBJECTIVE (RTO), from step 2. For each activity select the most viable strategies for the resumption of each required resource (staff, workplace, technology, collaborator) within the RTO.

B STRATEGY DURATION

How long is each strategy viable? Can you suspend the activity for a number of days, weeks or months? Provide the estimated duration that a selected strategy can be sustained. Is it able to be sustained for days (D), weeks (W), or for months (M)?

C SOLUTIONS/ADDITIONAL PLANNING

Describe the solution details that allow an activity to continue within the identified RTO by answering the prompts. Remember to provide sufficient details to enable the solutions to be executed by someone not familiar with the activity.

A FIRM FUNCTION: *Design project management*

PROCESS: *Agency approvals*

STAFF Strategies to accommodate this activity should the current staff who normally perform the activity become unavailable.				WORKPLACE Strategies that accommodate this activity should the current workplace(s) become unavailable.				TECHNOLOGY Strategies to accommodate this activity should the current technology become unavailable.				COLLABORATOR Strategies that accommodate this activity should the current vendor/partner/consultant service providers become unavailable.			
(D) days, (W) weeks, (M) months				(D) days, (W) weeks, (M) months				(D) days, (W) weeks, (M) months				(D) days, (W) weeks, (M) months			
D	W	M		D	W	M		D	W	M		D	W	M	
<input checked="" type="checkbox"/>			Transfer work internally			<input checked="" type="checkbox"/>	Work from home			<input checked="" type="checkbox"/>	Manual workaround				<input type="checkbox"/> Alternate supplier/partner
<input type="checkbox"/>			Transfer work externally			<input type="checkbox"/>	Alternate facility			<input type="checkbox"/>	Leverage alternate system				<input type="checkbox"/> Perform internally
<input type="checkbox"/>			Suspend activity			<input type="checkbox"/>	Suspend activity			<input type="checkbox"/>	Suspend activity				<input checked="" type="checkbox"/> Suspend activity
<input type="checkbox"/>			Other:	<input type="checkbox"/>			Other:	<input type="checkbox"/>			Other:	<input type="checkbox"/>			Other:
C Use the following to help define your solution:															
Who will the work be transferred to (internal and external), and what is their contact information? How do they know what work they are to perform and when? Who will be directing and monitoring the work? Under what conditions will it be necessary to suspend this activity, and who makes this determination? Would this activity be forced to stop if any individual staff member became unavailable?				Are staff adequately equipped to work from home for months? Under what conditions will it be necessary to work from home and who makes this determination? What preparations are required for this transition? Is there anything that must be picked up from the office or offsite storage location to transition to work from home? How will work be coordinated if co-located?				What hardware, systems, and applications are used to perform this activity? Who has the authority to institute a manual process for this activity? Under what conditions will it be necessary to obtain an alternate system or resource? Are the procedures documented and well understood by staff?				Who performs this activity normally? Under what conditions will it be necessary to suspend this activity and who makes this determination? Is there a list of potential alternate partners and their capabilities? What is the process to make the necessary supplier/partner changes?			
<i>Staff members are cross-trained on the activity of acquiring agency approvals. If the primary staff member were unavailable, responsibility would shift internally at the direction of [the principal].</i>				<i>All design staff can work from home and do so on a regular basis. They will need their laptops, electricity and internet, and server access at a minimum. Should the office become unavailable, [the principal] or a senior partner will notify the staff to bring home their laptops and work from home.</i>				<i>If the county's online submission system was unavailable materials could be printed and delivered as hard copies instead so long as the firm had the ability to print the drawings either in house or through a vendor.</i>				<i>Only the county department of regulatory affairs can review and provide approval.</i>			

The example illustrated here is for reference only and should not be used to replace a firm's customized inputs.

Worksheet 3c: Recovery time objective = This week

A VIABLE STRATEGIES

Identify all activities that have THIS WEEK RECOVERY TIME OBJECTIVE (RTO), from step 2. For each activity select the most viable strategies for the resumption of each required resource (staff, workplace, technology, collaborator) within the RTO.

B STRATEGY DURATION

How long is each strategy viable? Can you suspend the activity for a number of days, weeks or months? Provide the estimated duration that a selected strategy can be sustained. Is it able to be sustained for days (D), weeks (W), or for months (M)?

C SOLUTIONS/ADDITIONAL PLANNING

Describe the solution details that allow an activity to continue within the identified RTO by answering the prompts. Remember to provide sufficient details to enable the solutions to be executed by someone not familiar with the activity.

A FIRM FUNCTION: *Financial Management*

PROCESS: *Make payment*

STAFF Strategies to accommodate this activity should the current staff who normally perform the activity become unavailable.				WORKPLACE Strategies that accommodate this activity should the current workplace(s) become unavailable.				TECHNOLOGY Strategies to accommodate this activity should the current technology become unavailable.				COLLABORATOR Strategies that accommodate this activity should the current vendor/partner/consultant service providers become unavailable.			
(D) days, (W) weeks, (M) months				(D) days, (W) weeks, (M) months				(D) days, (W) weeks, (M) months				(D) days, (W) weeks, (M) months			
D	W	M		D	W	M		D	W	M		D	W	M	
<input checked="" type="checkbox"/>			X	<input checked="" type="checkbox"/>			X	<input checked="" type="checkbox"/>			X	<input checked="" type="checkbox"/>			X
<input checked="" type="checkbox"/>			X	<input type="checkbox"/>				<input type="checkbox"/>				<input type="checkbox"/>			
<input checked="" type="checkbox"/>			X	<input type="checkbox"/>				<input type="checkbox"/>				<input checked="" type="checkbox"/>			X
<input type="checkbox"/>				<input type="checkbox"/>				<input checked="" type="checkbox"/>			X	<input type="checkbox"/>			
C Use the following to help define your solution:				C Use the following to help define your solution:				C Use the following to help define your solution:				C Use the following to help define your solution:			
Who will the work be transferred to (internal and external), and what is their contact information? How do they know what work they are to perform and when? Who will be directing and monitoring the work? Under what conditions will it be necessary to suspend this activity, and who makes this determination? Would this activity be forced to stop if any individual staff member became unavailable?				Are staff adequately equipped to work from home for months? Under what conditions will it be necessary to work from home and who makes this determination? What preparations are required for this transition? Is there anything that must be picked up from the office or offsite storage location to transition to work from home? How will work be coordinated if co-located?				What hardware, systems, and applications are used to perform this activity? Who has the authority to institute a manual process for this activity? Under what conditions will it be necessary to obtain an alternate system or resource? Are the procedures documented and well understood by staff?				Who performs this activity normally? Under what conditions will it be necessary to suspend this activity and who makes this determination? Is there a list of potential alternate partners and their capabilities? What is the process to make the necessary supplier/partner changes?			
<i>The Make Payment activity can withstand a disruption of up to 3 days and then will need to be transferred to someone else in the firm who has previously been granted access to the appropriate systems. If necessary, our bank can generate a payment via verbal approval by someone on the approved list.</i>				<i>All accounting staff can work from home and do so on a regular basis. They will need their laptop, electricity, and internet access at a minimum. Should the office become unavailable, [the principal] or a senior partner will notify the heads of each department to work from home. Bank fob and check stock will need to be picked up from the secured area in the office.</i>				<i>In the event the bank payment system is unavailable, our bank can generate a payment via verbal approval by someone on the approved list. After that, payments can be made manually by check or alternatively via the bank bill-pay system.</i>				<i>The primary vendor for the Payment activity is our bank. If the bank is unable to provide payment services, we would be able to hold off on making payments for up to 3 days. After that, we would need to proceed with an alternate banking provider. The head of Accounting has identified a list of potential alternative banks based on the potential banks identified when we changed banks in 2017. This list is maintained in the accounting folder.</i>			

The example illustrated here is for reference only and should not be used to replace a firm's customized inputs.

Worksheet 3c: Recovery time objective = This week

A VIABLE STRATEGIES

Identify all activities that have THIS WEEK RECOVERY TIME OBJECTIVE (RTO), from step 2. For each activity select the most viable strategies for the resumption of each required resource (staff, workplace, technology, collaborator) within the RTO.

B STRATEGY DURATION

How long is each strategy viable? Can you suspend the activity for a number of days, weeks or months? Provide the estimated duration that a selected strategy can be sustained. Is it able to be sustained for days (D), weeks (W), or for months (M)?

C SOLUTIONS/ADDITIONAL PLANNING

Describe the solution details that allow an activity to continue within the identified RTO by answering the prompts. Remember to provide sufficient details to enable the solutions to be executed by someone not familiar with the activity.

A FIRM FUNCTION: Design project management

PROCESS: Spec writing

STAFF	WORKPLACE	TECHNOLOGY	COLLABORATOR
Strategies to accommodate this activity should the current staff who normally perform the activity become unavailable.	Strategies that accommodate this activity should the current workplace(s) become unavailable.	Strategies to accommodate this activity should the current technology become unavailable.	Strategies that accommodate this activity should the current vendor/partner/consultant service providers become unavailable.
<p>B (D) days, (W) weeks, (M) months</p>			
<p><input checked="" type="checkbox"/> Transfer work internally</p> <p><input checked="" type="checkbox"/> Transfer work externally</p> <p><input type="checkbox"/> Suspend activity</p> <p><input type="checkbox"/> Other:</p>	<p><input checked="" type="checkbox"/> Work from home</p> <p><input type="checkbox"/> Alternate facility</p> <p><input type="checkbox"/> Suspend activity</p> <p><input type="checkbox"/> Other:</p>	<p><input checked="" type="checkbox"/> Manual workaround</p> <p><input checked="" type="checkbox"/> Leverage alternate system</p> <p><input type="checkbox"/> Suspend activity</p> <p><input type="checkbox"/> Other:</p>	<p><input checked="" type="checkbox"/> Alternate supplier/partner</p> <p><input type="checkbox"/> Perform internally</p> <p><input type="checkbox"/> Suspend activity</p> <p><input type="checkbox"/> Other:</p>
<p>C Use the following to help define your solution:</p>			
<p>Who will the work be transferred to (internal and external), and what is their contact information? How do they know what work they are to perform and when? Who will be directing and monitoring the work? Under what conditions will it be necessary to suspend this activity, and who makes this determination? Would this activity be forced to stop if any individual staff member became unavailable?</p>	<p>Are staff adequately equipped to work from home for months? Under what conditions will it be necessary to work from home and who makes this determination? What preparations are required for this transition? Is there anything that must be picked up from the office or offsite storage location to transition to work from home? How will work be coordinated if co-located?</p>	<p>What hardware, systems, and applications are used to perform this activity? Who has the authority to institute a manual process for this activity? Under what conditions will it be necessary to obtain an alternate system or resource? Are the procedures documented and well understood by staff?</p>	<p>Who performs this activity normally? Under what conditions will it be necessary to suspend this activity and who makes this determination? Is there a list of potential alternate partners and their capabilities? What is the process to make the necessary supplier/partner changes?</p>
<p><i>The firm has at least one additional staff member trained in spec writing. Unless there is a contractual obligation date to deliver the specifications the same or next day, prioritize specification activities to align with project deadlines, starting next week. If this takes too much of the available staff person(s) time, hire an external spec writer. This decision is at the discretion of [the principal].</i></p>	<p><i>All staff can work from home and do so on a regular basis. They will need their laptop, electricity and internet, and server access at a minimum. Should the office become unavailable, [the principal] or a senior partner will notify staff to work from home. In order to make WFH successful, template and past project specifications are backed up in the cloud and a subscription to Master Spec is maintained. Pdf specifications of past products are also in the cloud for reference.</i></p>	<p><i>If Master Spec or other digital template is not available, a manual workaround is possible for a week or two in extreme situations by marking up a physical copy of a similar project spec, or recent version of the specific project spec. If the technology disruption is specific to the firm, the manual markup can be sent to an external word processor or spec writer. If the technology issue is specific to Master Spec, a subscription to eSpec can be renewed and leveraged indefinitely at the direction of [the principal].</i></p>	<p><i>Currently, specifications are done in-house. Specifications can be produced by an external spec writing service indefinitely if they can be charged to the project. Our sister-firm, Lakeside Design, has a spec writer we could leverage. We need to qualify a list of local and remote spec writers for contract work and add to step 1.</i></p>

The example illustrated here is for reference only and should not be used to replace a firm's customized inputs.

Worksheet 3e: Recovery time objective = 2+ weeks

A VIABLE STRATEGIES

Identify all activities that have 2+ WEEKS RECOVERY TIME OBJECTIVE (RTO), from step 2. For each activity select the most viable strategies for the resumption of each required resource (staff, workplace, technology, collaborator) within the RTO.

B STRATEGY DURATION

How long is each strategy viable? Can you suspend the activity for a number of days, weeks or months? Provide the estimated duration that a selected strategy can be sustained. Is it able to be sustained for days (D), weeks (W), or for months (M)?

C SOLUTIONS/ADDITIONAL PLANNING

Describe the solution details that allow an activity to continue within the identified RTO by answering the prompts. Remember to provide sufficient details to enable the solutions to be executed by someone not familiar with the activity.

A FIRM FUNCTION: Marketing & Business Development

PROCESS: Proposal writing

STAFF				WORKPLACE				TECHNOLOGY				COLLABORATOR			
Strategies to accommodate this activity should the current staff who normally perform the activity become unavailable.				Strategies that accommodate this activity should the current workplace(s) become unavailable.				Strategies to accommodate this activity should the current technology become unavailable.				Strategies that accommodate this activity should the current vendor/partner/consultant service providers become unavailable.			
B (D) days, (W) weeks, (M) months															
	D	W	M		D	W	M		D	W	M		D	W	M
<input checked="" type="checkbox"/>			X	<input checked="" type="checkbox"/>			X	<input type="checkbox"/>				<input checked="" type="checkbox"/>			X
<input type="checkbox"/>				<input type="checkbox"/>				<input checked="" type="checkbox"/>		X		<input type="checkbox"/>			
<input checked="" type="checkbox"/>		X		<input type="checkbox"/>				<input type="checkbox"/>				<input checked="" type="checkbox"/>		X	
<input type="checkbox"/>				<input type="checkbox"/>				<input checked="" type="checkbox"/>		X		<input type="checkbox"/>			
C Use the following to help define your solution:															
Who will the work be transferred to (internal and external), and what is their contact information? How do they know what work they are to perform and when? Who will be directing and monitoring the work? Under what conditions will it be necessary to suspend this activity, and who makes this determination? Would this activity be forced to stop if any individual staff member became unavailable?				Are staff adequately equipped to work from home for months? Under what conditions will it be necessary to work from home and who makes this determination? What preparations are required for this transition? Is there anything that must be picked up from the office or offsite storage location to transition to work from home? How will work be coordinated if co-located?				What hardware, systems, and applications are used to perform this activity? Who has the authority to institute a manual process for this activity? Under what conditions will it be necessary to obtain an alternate system or resource? Are the procedures documented and well understood by staff?				Who performs this activity normally? Under what conditions will it be necessary to suspend this activity and who makes this determination? Is there a list of potential alternate partners and their capabilities? What is the process to make the necessary supplier/partner changes?			
A single staff member is currently responsible for writing proposals. If this person was unavailable, we would temporarily suspend proposal writing until a new internal team member could be trained by [a principal]. [The principal] would identify alternative staff members.				All staff can work from home and do so on a regular basis. They will need their laptops, electricity, internet, and server access at a minimum. Should the office become unavailable, [the principal] or a senior partner will notify staff to work from home.				Proposals are developed using InDesign. Microsoft Word and/or Photoshop could be used as an alternative. A manual—handwritten—workaround is feasible but not time-efficient and unlikely to win work. If the proposal includes a partner, work could be transferred externally to the partner to complete.				Proposals are written in-house. Proposals that require a partnership would have to be put on hold, or an alternative partner or consultant would need to be identified at the time of disruption.			

The example illustrated here is for reference only and should not be used to replace a firm's customized inputs.

Step 4:

Risk assessment¹²

Purpose. Identify the risks of disruption.

Overview. Look to local and regional hazard assessments (see “Reference material” below) to identify the types of hazard events that might impact the firm’s ability to conduct business. Hazards—environmental, anthropogenic, and systemic—include not just high-likelihood events, but also low-likelihood events with high consequences. Consider the range of hazards along with the likelihood and consequence (risk). Additionally, assess functional interdependencies and the potential to be impacted by secondary hazards and unintended consequences. For example, a flood that impacts a district electrical substation may put your office on backup power and shut down your elevators. Remember to consider anthropogenic (e.g., active shooter) and environmental (e.g., hurricane) hazards as well as systemic failures (e.g., market closure). It may be beneficial to consult advisors, such as your insurance broker, local universities or research institutes, or a risk management /business continuity consultant to gain additional perspective.

Risk may differ between your office and your project sites. However, both could impact your business. Consider hazards in your immediate (office) area as well as the region(s) in which your projects are located, particularly if your projects are in vulnerable areas with known hazards. For firms with multiple locations, conduct a similar assessment for each office location. Synthesize the results of each

assessment to prepare a firm-level risk profile. A firm-level risk profile allows you to see the potential for compounding impacts and illuminates where redundant systems could offer risk reduction.

Reference material. Authoritative plans are needed to complete this step. States are required to provide hazard mitigation plans to be eligible for disaster relief funding. Those plans are a good place to start. Counties and cities often develop local hazard mitigation plans as well as climate adaptation plans or disaster recovery plans. Such plans typically include a risk assessment that describes the hazards and may or may not reference future conditions such as climate change impacts. Plans typically list and rank hazards according to risk: a function of the likelihood (or probability) and consequence (or magnitude) of the hazard event, and a summary of the vulnerability to be addressed. Frequently, city and county plans have more detailed local information. To complete this step, reference authoritative plans such as:

- **Your state, county, and/or city hazard mitigation plan.** Typically, these plans are available on your state/county/city emergency management website. This [interactive FEMA portal](#) provides links to state-level hazard mitigation plans.
- **Your state, county and/or city climate assessment or resilience/adaptation plan.** If available, these plans are sometimes embedded in a sustainability plan.

- **National plans.** If more local climate assessment or resilience/adaptation plans are not available, the [National Climate Assessment](#) provides regional level climate risks.
- **Local or site-based studies.** You may have or may choose to seek site-specific hazard data to better understand your unique risk.

Additional hazard risk analysis resources are available in the “Reference material” section.

Key term

Interdependencies: The state of being dependent upon one another. For example, utilities and infrastructure systems that directly service the property or impact the operations of the building’s function may represent a dependency for business continuity.

¹² For more information on the Risk Assessment, see section 8.2 of ISO Standard 22301 2019 and ISO Standard 31000.

Worksheet 4: Risk assessment

A LIST HAZARDS

Which hazards could affect your office or project locations?

B ASSESS IMPACT

Likelihood: Based on your reference material, consider how likely it is that each hazard will impact your firm. Is the hazard a probable occurrence (highly likely), greater than 50% chance of annual occurrence (likely), less than 50% chance of annual occurrence (possible), or an improbable occurrence (unlikely)? Draw from the state hazard mitigation plan or local hazard mitigation, resilience, or vulnerability assessments for likelihood (also called “probability”). This is not for you to determine, but for you to reference.

Risk: Which hazards pose the highest risk? Risk is based on the likelihood and consequence of the hazard. High-likelihood, low-consequence events may not be a high risk, though low-likelihood, high-consequence events might be a medium or high risk. Here you’ll need to determine, in consult with your insurers and local experts, the extent to which the hazard might impact you.

Consequence: Would the hazard event have a major, moderate, minor, or negligible impact on your firm?

Resources: What critical resources could become unavailable during the hazard event? Here you’ll need to consider the resources that you’ll lose, or lose access to, that will impact your business.

Hazard mitigation¹³: What mitigation measures have you implemented for your firm? Perhaps you selected an office outside of the flood plain or instituted regular technology backups. These answers provide an indication of how prepared you might be to withstand the impacts of the hazard event.

C ASSESS RESIDUAL RISK

Consider that any mitigation measures already in place could minimize the residual risk.

A HAZARD Potential source of danger	B LIKELIHOOD Probability of hazard event on an annual occurrence	RISK Before any mitigation measures	CONSEQUENCE Severity of hazard event	RESOURCES Unavailable during the hazard event	MITIGATION Measures currently in place	C RESIDUAL RISK Remaining risk considering mitigation measures
Hurricane	<input checked="" type="checkbox"/> Highly likely <input type="checkbox"/> Likely <input type="checkbox"/> Possible <input type="checkbox"/> Unlikely	<input checked="" type="checkbox"/> 5 – high <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 – low	<input type="checkbox"/> Major <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Minor <input type="checkbox"/> Negligible	<input checked="" type="checkbox"/> Staff <input checked="" type="checkbox"/> Workplace <input checked="" type="checkbox"/> Technology <input checked="" type="checkbox"/> Collaborator	<input type="checkbox"/> None <input type="checkbox"/> Some <input checked="" type="checkbox"/> A lot (<i>office located outside the floodplain, technology backups in place</i>)	<input type="checkbox"/> 5 – high <input checked="" type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 – low
Pandemic	<input type="checkbox"/> Highly likely <input type="checkbox"/> Likely <input checked="" type="checkbox"/> Possible <input type="checkbox"/> Unlikely	<input type="checkbox"/> 5 – high <input type="checkbox"/> 4 <input checked="" type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 – low	<input checked="" type="checkbox"/> Major <input type="checkbox"/> Moderate <input type="checkbox"/> Minor <input type="checkbox"/> Negligible	<input checked="" type="checkbox"/> Staff <input checked="" type="checkbox"/> Workplace <input type="checkbox"/> Technology <input type="checkbox"/> Collaborator	<input type="checkbox"/> None <input checked="" type="checkbox"/> Some (<i>telework</i>) <input type="checkbox"/> A lot	<input type="checkbox"/> 5 – high <input type="checkbox"/> 4 <input checked="" type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 – low

The example illustrated here is for reference only and should not be used to replace a firm’s customized inputs.

¹³ While purchasing insurance mitigates your financial risk to a degree, insurance will not reduce the physical impacts of a hazard event. Check your policies to be clear about your coverage, limitations, and exclusions.

A HAZARD Potential source of danger	B LIKELIHOOD Probability of hazard event on an annual occurrence	RISK Before any mitigation measures	CONSEQUENCE Severity of hazard event	RESOURCES Unavailable during the hazard event	MITIGATION Measures currently in place	C RESIDUAL RISK Remaining risk considering mitigation measures
<i>Extreme heat</i>	<input checked="" type="checkbox"/> Highly likely <input type="checkbox"/> Likely <input type="checkbox"/> Possible <input type="checkbox"/> Unlikely	<input checked="" type="checkbox"/> 5 – high <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 – low	<input checked="" type="checkbox"/> Major <input type="checkbox"/> Moderate <input type="checkbox"/> Minor <input type="checkbox"/> Negligible	<input checked="" type="checkbox"/> Staff <input checked="" type="checkbox"/> Workplace <input checked="" type="checkbox"/> Technology <input checked="" type="checkbox"/> Collaborator	<input checked="" type="checkbox"/> None <input type="checkbox"/> Some <input type="checkbox"/> A lot	<input checked="" type="checkbox"/> 5 – high <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 – low
<i>Loss of a key employee</i>	<input type="checkbox"/> Highly likely <input type="checkbox"/> Likely <input checked="" type="checkbox"/> Possible <input type="checkbox"/> Unlikely	<input type="checkbox"/> 5 – high <input checked="" type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 – low	<input type="checkbox"/> Major <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Minor <input type="checkbox"/> Negligible	<input checked="" type="checkbox"/> Staff <input type="checkbox"/> Workplace <input type="checkbox"/> Technology <input type="checkbox"/> Collaborator	<input type="checkbox"/> None <input checked="" type="checkbox"/> Some <i>(succession plan in progress)</i> <input type="checkbox"/> A lot	<input type="checkbox"/> 5 – high <input type="checkbox"/> 4 <input checked="" type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 – low
<i>Power loss</i>	<input checked="" type="checkbox"/> Highly likely <input type="checkbox"/> Likely <input type="checkbox"/> Possible <input type="checkbox"/> Unlikely	<input checked="" type="checkbox"/> 5 – high <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 – low	<input type="checkbox"/> Major <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Minor <input type="checkbox"/> Negligible	<input type="checkbox"/> Staff <input checked="" type="checkbox"/> Workplace <input checked="" type="checkbox"/> Technology <input type="checkbox"/> Collaborator	<input checked="" type="checkbox"/> None <input type="checkbox"/> Some <input type="checkbox"/> A lot	<input checked="" type="checkbox"/> 5 – high <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 – low
<i>Cyberattack</i>	<input type="checkbox"/> Highly likely <input checked="" type="checkbox"/> Likely <input type="checkbox"/> Possible <input type="checkbox"/> Unlikely	<input checked="" type="checkbox"/> 5 – high <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 – low	<input checked="" type="checkbox"/> Major <input type="checkbox"/> Moderate <input type="checkbox"/> Minor <input type="checkbox"/> Negligible	<input type="checkbox"/> Staff <input type="checkbox"/> Workplace <input checked="" type="checkbox"/> Technology <input type="checkbox"/> Collaborator	<input type="checkbox"/> None <i>(technology backups in place)</i> <input checked="" type="checkbox"/> Some <input type="checkbox"/> A lot	<input type="checkbox"/> 5 – high <input checked="" type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 – low
<i>Winter storm</i>	<input type="checkbox"/> Highly likely <input type="checkbox"/> Likely <input checked="" type="checkbox"/> Possible <input type="checkbox"/> Unlikely	<input checked="" type="checkbox"/> 5 – high <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 – low	<input checked="" type="checkbox"/> Major <input type="checkbox"/> Moderate <input type="checkbox"/> Minor <input type="checkbox"/> Negligible	<input checked="" type="checkbox"/> Staff <input checked="" type="checkbox"/> Workplace <input checked="" type="checkbox"/> Technology <input checked="" type="checkbox"/> Collaborator	<input checked="" type="checkbox"/> None <input type="checkbox"/> Some <input type="checkbox"/> A lot	<input checked="" type="checkbox"/> 5 – high <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 – low

The example illustrated here is for reference only and should not be used to replace a firm's customized inputs.

Step 5:

Risk treatment plan¹⁴

Purpose. Determine which risks require treatment.

Overview. With increased risk awareness, it's time to develop an action plan to reduce risks. Step 4 identified which hazard events could disrupt the firm's most critical resources (column B). Step 5 identifies actions to reduce those risks. These actions become the risk treatment plan.

The risk treatment plan worksheet carries forward risks identified in step 4 and asks you to determine your risk tolerance. Will you avoid, mitigate, transfer, or accept the risk?

Avoid: Avoid the identified risk.

● *Example: Only rent office space or take on projects in an area without risk of the identified hazard (e.g., outside of the 500-year floodplain).*

Mitigate: Implement measures to reduce impacts.

● *Example: Only rent office space or take on projects in a location where the identified hazard is less likely or less impactful (e.g., outside the 100-year floodplain and/or in buildings with flood mitigation attributes such as an elevated structure/utilities, wet floodproofing, etc., or only take on projects outside the 100-year floodplain).*

Transfer: Transfer burden of identified risk.

● *Example: Acquire insurance specific to the identified hazard(s) in a location (e.g., flood insurance).*

Accept: Accept risk.

● *Example: Accept that a location may experience a hazard event (e.g., flooding).*

In the risk treatment plan, define and prioritize actions necessary to address the risks. This includes identifying responsible person(s) and collaborators who will implement the action(s) and determine the time frames and costs of each action. Consider how these risk reduction actions relate to other planned investments. Evaluate how each action affects the budget for the firm and consider how the identified action may relate to—or enhance—ongoing or planned investments in firm technology, equipment, retrofits, or other upgrades. Are there actions that can be rolled into an ongoing or planned investment? Which actions address the most critical risks? If the financial resources for a critical action are not available at this time, look for an alternative or temporary approach that, while not ideal, might still reduce immediate vulnerability.

Reference material. The “Prepare: Mitigating risk” section of this guide includes preparedness recommendations for the following firm functional areas:

- Contracts & legal management
- Design project management
- Facilities management
- Financial management
- Human resources
- Technology

These non-exhaustive checklists are available for reference when identifying risk reduction strategies.

¹⁴ For more information on the Risk Treatment Plan, see ISO Standard 31000.

Worksheet 5: Risk treatment plan

A LIST HAZARDS AND ASSOCIATED RESIDUAL RISK

Copy from step 4 worksheet, columns A and C

B DETERMINE RISK TREATMENT

Will you avoid, mitigate, transfer, or accept the risk?

C CREATE AN ACTION PLAN

Action: Identify actions needed to implement the risk treatment.

Priority level: Prioritize the action from 1 to 5. Which actions address the most critical risks? Is one action necessary to complete before another?

- 1: near-term need, cost barrier low
- 2: near term need, cost barrier high
- 3: medium-term need, cost barrier low
- 4: medium-term need, cost barrier high
- 5: long-term need

Responsible Party, Collaborators, Implementation Timeframe, and Cost: Identify who will implement the action, when, and at what cost. Cost may range from none to high:

- None
- Low: firm has the needed capital
- Medium: firm has the needed funds in reserve
- High: firm will need to seek a loan or alternative financing

Relationship to ongoing/planned investments: Are there actions that can be rolled into an ongoing or planned investment?

Ongoing maintenance: Once implemented, does the action require regular maintenance? If so, how frequently?

A	B	C								
HAZARD	RESIDUAL RISK	RISK TREATMENT	ACTION	PRIORITY	RESPONSIBLE PARTY	COLLABORATORS	TIMEFRAME	COST	RELATIONSHIP	ONGOING MAINTENANCE
Hurricane	4	<input type="checkbox"/> Avoid <input checked="" type="checkbox"/> Mitigate <input type="checkbox"/> Transfer <input type="checkbox"/> Accept	Identify backup payroll system	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	Firm technology lead	Firm finance lead	<input type="checkbox"/> This week <input type="checkbox"/> Next week <input type="checkbox"/> This month <input checked="" type="checkbox"/> Next month <input type="checkbox"/> This year Before start of next hurricane season	<input type="checkbox"/> None <input checked="" type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	Opportunity to consolidate and build redundancy across accounting department	<input type="checkbox"/> None <input type="checkbox"/> Daily <input type="checkbox"/> Weekly <input type="checkbox"/> Monthly <input type="checkbox"/> Quarterly <input type="checkbox"/> Every 6 mo <input checked="" type="checkbox"/> Yearly <input type="checkbox"/> Every 2 yrs

The example illustrated here is for reference only and should not be used to replace a firm's customized inputs.

A HAZARD	RESIDUAL RISK	B RISK TREATMENT	C ACTION	PRIORITY	RESPONSIBLE PARTY	COLLABORATORS	TIMEFRAME	COST	RELATIONSHIP	ONGOING MAINTENANCE
Pandemic	3	<input type="checkbox"/> Avoid <input type="checkbox"/> Mitigate <input checked="" type="checkbox"/> Transfer <input type="checkbox"/> Accept	Purchase pandemic insurance	<input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	Firm finance lead	Insurance broker	<input checked="" type="checkbox"/> This week <input type="checkbox"/> Next week <input type="checkbox"/> This month <input type="checkbox"/> Next month <input type="checkbox"/> This year	<input type="checkbox"/> None <input type="checkbox"/> Low <input checked="" type="checkbox"/> Medium <input type="checkbox"/> High	Can be discussed with broker along with cyber liability insurance need	<input type="checkbox"/> None <input type="checkbox"/> Daily <input type="checkbox"/> Weekly <input type="checkbox"/> Monthly <input type="checkbox"/> Quarterly <input type="checkbox"/> Every 6 mo <input checked="" type="checkbox"/> Yearly <input type="checkbox"/> Every 2 yrs
Extreme heat	5	<input type="checkbox"/> Avoid <input checked="" type="checkbox"/> Mitigate <input type="checkbox"/> Transfer <input type="checkbox"/> Accept	Install on-site Photovoltaic system to mitigate brownouts and rolling blackouts	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input checked="" type="checkbox"/> 4 <input type="checkbox"/> 5	Office manager	IT lead & Facility Manager	<input type="checkbox"/> This week <input type="checkbox"/> Next week <input checked="" type="checkbox"/> This month <input type="checkbox"/> Next month <input type="checkbox"/> This year	<input type="checkbox"/> None <input type="checkbox"/> Low <input type="checkbox"/> Medium <input checked="" type="checkbox"/> High	Will also reduce energy costs	<input type="checkbox"/> None <input type="checkbox"/> Daily <input type="checkbox"/> Weekly <input type="checkbox"/> Monthly <input checked="" type="checkbox"/> Quarterly <input type="checkbox"/> Every 6 mo <input type="checkbox"/> Yearly <input type="checkbox"/> Every 2 yrs
Loss of a key employee	3	<input type="checkbox"/> Avoid <input checked="" type="checkbox"/> Mitigate <input type="checkbox"/> Transfer <input type="checkbox"/> Accept	Complete succession plan	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input checked="" type="checkbox"/> 5	Principal	Future firm leader(s)	<input type="checkbox"/> This week <input type="checkbox"/> Next week <input type="checkbox"/> This month <input type="checkbox"/> Next month <input checked="" type="checkbox"/> This year	<input type="checkbox"/> None <input checked="" type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	None	<input type="checkbox"/> None <input type="checkbox"/> Daily <input type="checkbox"/> Weekly <input type="checkbox"/> Monthly <input type="checkbox"/> Quarterly <input type="checkbox"/> Every 6 mo <input checked="" type="checkbox"/> Yearly <input type="checkbox"/> Every 2 yrs
Power loss	5	<input type="checkbox"/> Avoid <input checked="" type="checkbox"/> Mitigate <input type="checkbox"/> Transfer <input type="checkbox"/> Accept	Acquire generator	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	Office manager	IT lead & Facility Manager	<input type="checkbox"/> This week <input type="checkbox"/> Next week <input type="checkbox"/> This month <input checked="" type="checkbox"/> Next month <input type="checkbox"/> This year	<input type="checkbox"/> None <input checked="" type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	Mitigates power loss and maintains electric heat during winter storm.	<input type="checkbox"/> None <input type="checkbox"/> Daily <input type="checkbox"/> Weekly <input type="checkbox"/> Monthly <input type="checkbox"/> Quarterly <input checked="" type="checkbox"/> Every 6 mo <input type="checkbox"/> Yearly <input type="checkbox"/> Every 2 yrs

The example illustrated here is for reference only and should not be used to replace a firm's customized inputs.

A HAZARD	RESIDUAL RISK	B RISK TREATMENT	C ACTION	PRIORITY	RESPONSIBLE PARTY	COLLABORATORS	TIMEFRAME	COST	RELATIONSHIP	ONGOING MAINTENANCE
Cyberattack	4	<input type="checkbox"/> Avoid <input type="checkbox"/> Mitigate <input checked="" type="checkbox"/> Transfer <input type="checkbox"/> Accept	Purchase cyber liability insurance	<input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	IT lead	Principal, Insurance broker	<input checked="" type="checkbox"/> This week <input type="checkbox"/> Next week <input type="checkbox"/> This month <input type="checkbox"/> Next month <input type="checkbox"/> This year	<input type="checkbox"/> None <input checked="" type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	Can be discussed with broker along with pandemic insurance need	<input type="checkbox"/> None <input type="checkbox"/> Daily <input type="checkbox"/> Weekly <input type="checkbox"/> Monthly <input type="checkbox"/> Quarterly <input type="checkbox"/> Every 6 mo <input checked="" type="checkbox"/> Yearly <input type="checkbox"/> Every 2 yrs
Winter storm	5	<input type="checkbox"/> Avoid <input checked="" type="checkbox"/> Mitigate <input type="checkbox"/> Transfer <input type="checkbox"/> Accept	Acquire generator	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5	Office manager	IT lead & Facility Manager	<input type="checkbox"/> This week <input type="checkbox"/> Next week <input type="checkbox"/> This month <input checked="" type="checkbox"/> Next month <input type="checkbox"/> This year	<input type="checkbox"/> None <input checked="" type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High	Mitigates power loss and maintains electric heat during winter storm.	<input type="checkbox"/> None <input type="checkbox"/> Daily <input type="checkbox"/> Weekly <input type="checkbox"/> Monthly <input type="checkbox"/> Quarterly <input checked="" type="checkbox"/> Every 6 mo <input type="checkbox"/> Yearly <input type="checkbox"/> Every 2 yrs

The example illustrated here is for reference only and should not be used to replace a firm's customized inputs.

Review: Plan maintenance

While your initial efforts at business continuity planning may be a focused project, business continuity planning is an ongoing cycle of testing, exercising, evaluating, and refining your business continuity planning documentation, including the worksheets. After all, risk is not static. Future hazard events may reveal new vulnerabilities or opportunities to enhance business continuity. Most experts recommend an annual review, at minimum¹⁵. Outside of the annual review, additional circumstances that trigger a review may include¹⁶:

- newly identified hazards¹⁷
- changes to hazard vulnerability
- vulnerabilities identified by tests, drills, or exercises
- issues identified by post-disruption debrief
- new office or business functions are acquired, integrated, or divested
- suppliers or supply chain shifts
- on-site workforce population adjustment
- site, building(s), or layout modifications
- infrastructure and transportation service changes
- overall business model changes (restructure/acquisition)

It is critical to review the planning documentation with all firm employees on a regular basis and to solicit feedback when the plan is practiced and improved.

Reference material. The “Prepare: Mitigating risk” section of this guide includes preparedness recommendations for the following firm functional areas:

- Contracts & legal management
- Design project management
- Facilities management
- Financial management
- Human resources
- Technology

These non-exhaustive checklists are available for reference when identifying risk reduction strategies.



Business Continuity Planning (BCP) Life Cycle

Training, testing, and maintaining the firm’s business continuity plan is an important part of the business continuity planning life cycle.

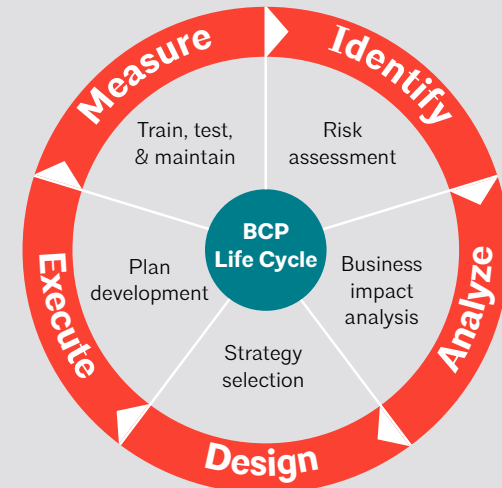


Image courtesy of Raymond-Cox Consulting, LLC

¹⁵ Step 1: Resource Inventory, for instance, will evolve on a more frequent basis.

¹⁶ Program Reviews, Ready.gov: www.ready.gov/program-reviews

¹⁷ Newly identified hazards could be environmental, anthropogenic, or systemic. For example, if your neighboring business changes from an accountant to a restaurant, there may be an increased risk of fire.

-
- **Prepare for and respond to disruptions**

Prepare: Mitigating risk

This section provides a series of non-exhaustive checklists organized by firm function:

- Contracts & legal management
- Design project management
- Facilities management
- Financial management
- Human resources
- Information technology

Each functional area includes checklists of recommended preparedness tasks. These checklists are designed to help firms prepare for disruption and are also available for reference when developing the risk treatment plan (see step 5 of the Business Continuity Planning Process). Remember to design in redundancy. It's important for all firm systems, staff roles, and technology to have backup measures or cross training.



Prepare

Click the title of each checklist to jump to recommended actions.

CONTRACTS & LEGAL MANAGEMENT	DESIGN PROJECT MANAGEMENT	FACILITIES MANAGEMENT	FACILITIES MANAGEMENT	HUMAN RESOURCES	INFORMATION TECHNOLOGY
<ul style="list-style-type: none"> • Evaluate contracts 	<ul style="list-style-type: none"> • Build in redundancy • Create a communications plan • Prepare for remote work 	<ul style="list-style-type: none"> • Catalog facility documents, contacts & equipment • Prepare office space 	<ul style="list-style-type: none"> • Prepare financials • Analyze insurance needs 	<ul style="list-style-type: none"> • Collect key documents • Prepare employees 	<ul style="list-style-type: none"> • Document hardware and software • Provide remote access • Protect yourself from cyberattacks



Evaluate contracts

Contracts govern a firm's work. Do your contracts adequately anticipate risks and provide for new business opportunities?

Ensure the contract has a fair and equitable means of terminating the project in case the project is canceled post-disaster

In the AIA B101 Contract, the owner has the right to terminate the agreement at any time. In that situation, the architect would be paid for services provided and costs incurred up to that point and, if they negotiated for one, they could receive a termination fee. See B101 Sections 9.5 through 9.7. This owner right is specific to the AIA documents. Termination for Convenience by the Owner is a common contractual right in construction contracts, but it's not universal. Another possibility in B101 is that the architect could terminate the agreement if the owner suspends the project for 90 cumulative days. It's not an automatic termination, but the architect would have that option. If the architect chose not to terminate, the architect's fees and time to perform would be equitably adjusted to account for the suspension. See B101 Sections 9.2 and 9.3.

Know your legal liabilities post-disaster

If the owner intends to resume the project at a later date (after the hazard event has passed and things are back on track) but does not want to (or cannot) retain the original architect, the owner has rights to the architect's instruments of service (IOS). The standard AIA documents allow the owner to continue using the architect's IOS for the project under a termination for convenience situation, but it must release the architect from claims and indemnify the architect from any claims by third parties that arise from the owner's use of the IOS. See B101 Section 7.3.1.

Anticipate the possible need for additional services for projects under construction that might be damaged by a disaster but continue

For a significant hazard event that adds additional scope to the original project, the parties are likely best served by amending the agreement to address the change. This would give the parties the ability to clearly define the scope of the new work, how the architect will be compensated for it, and how it will affect the schedule for the overall project.

Prepare for post-disaster building assessments of projects.

Past and current clients may be reaching out to your firm to assess damage to their buildings, to determine a scope of work for repairs, retrofits or rebuilding, or to advise on navigating the complex landscape of federal and state disaster recovery grants, loans and policies. Refer to the AIA Safety Assessment Program for information on training and policies for volunteer assessments. Once you've trained your employees, consider offering these valuable skills as part of a contract retainer with your clients.

Be aware of contract clauses related to both design schedule and construction schedule delays

Most contracts contain strict requirements related to schedules. If a disruption impacts a schedule, communicate with the owner early and often, and propose a plan about how to recover. Most owners will be reasonable if you do this with their project in mind. Also be aware of "force majeure" clauses in your contract, which may allow for a contractual forgiveness for certain events outside of the architect's control.

Review identified force majeure events carefully

Many contracts will have a force majeure clause that will allow for an extension of time to perform or maybe even allow a party to end the agreement after specific hazard events. In a contract, the clause will usually list hazard events considered to be a force majeure event. If the hazard event experienced is listed, then it's covered. If not listed, it's questionable as to whether the hazard event would be considered a force majeure event under the contract provision.



Build in redundancy

Your team members—both within and outside the firm—are valuable assets and critical to the smooth execution of projects. What would happen if a key team member was suddenly absent? Protect your firm and your projects by building in redundancy.

Reduce single point of contact ①①

To the extent possible, it's recommended to have at least two client-facing staff members involved in each project. One as a backup to the principal in charge in case the prime contact is unavailable. Ensure the backup staff member knows the contract agreement (or where the contract is located), the owner's representative, the consultants on the project, and the general contractor. Should something suddenly happen to the principal in charge, the project would be able to continue.

Mitigate risk ①

Consider whether or not key team members should be permitted to travel together. Staggering travel will reduce the chance that an accident could devastate the entire firm leadership.

Cross-train employees to perform more than one duty ①①

Cross-train personnel to perform essential functions so that the workplace is able to operate even if key staff members are absent.

Establish business continuity expectations with consultants and clients ①①

Discuss how work will continue should a hazard event occur.

Develop a succession and transition plan ①①①

While this type of plan isn't specifically designed for the sudden loss of a key team member, developing a succession plan may help ease such an occurrence (in addition to helping the firm maintain a strong footing during planned leadership transitions). A succession plan identifies your target retirement date or the date you'd want to shift roles, who (first, second, third) would ideally replace you, how each individual currently ranks in their ability to do so, and what needs to be done to get them ready to actually do so. The transition plan details how to get from today to that succession with key milestones to achieve. [Learn more about succession planning.](#)

Have an alternative firm ready to recommend ①

Should your firm suddenly be unable to meet your contractual obligations, it may be helpful to have a trusted, collaborative firm ready to recommend.



Redundancy is resiliency

Firm strategies: Minimizing disruption due to key team member vacancy

- ① I have now prepared myself a little bit better for the possibility of another team member loss by maintaining close relationships with some key consultants and independent contractors whom I could rely on if I needed to outsource work. Sometimes this means hiring them to do work that I could do in the office, but it is worth it to continue building a relationship.
—Firm owner
- ① We prioritize mentoring and work to engage employees in all aspects of the firm: from construction administration to marketing and business development. We even include younger staff members in client presentations—after practicing ahead of time, of course. We want our staff to be prepared to jump in to more advanced roles should circumstances require it.
—Principal
- ① I have a hit-by-a-bus policy: Whenever possible, two people are included in client meetings. This not only provides for continuity but ensures salient details are heard and understood.
—Senior Architect
- ① When our sole licensed architect suddenly retired, we had to scramble to hire a licensed architect. Now, we maintain a minimum of two licensed architects on staff and proactively support our emerging professionals on their path to licensure.
—Principal



🕒 Create a communications plan

Communicating—to employees, to clients, and to the public—is a critical component of managing any disruption. Developing template messaging beforehand can reduce time and stress during a hazard event.

Create a post-disaster communications plan 🕒🕒

Who is the primary point of contact to coordinate all communications within the firm and externally to key clients, consultants, contractors, and other contacts? Who is responsible for maintaining an up-to-date employee contact list? Who is responsible for maintaining the client, user, consultant, contractor, critical vendor, and other stakeholder database for each project? How is the directory accessible from multiple access points (Dropbox, hard copy, USB, server, etc.)? Who is responsible for communicating with the client for each project?

Create a template for communicating short-term and long-term disruptions to employees 🕒🕒

Who is responsible and how will communications be disseminated, particularly if the employees are dispersed?

Create a template for communicating short-term and long-term disruptions to clients/the public 🕒🕒

So that a firm can communicate quickly, develop messaging in advance of a disruption for notifying clients, consultants, contractors, and other contacts of any operational changes. Be sure multiple employees are able to access this communication template and to also update your firm's website and social media to provide pre-disaster and post-disaster information.

Develop a script for out-of-office voicemail and out-of-office email messages during a disruption 🕒



Learning from disruption

- 🕒 **Unexpected team member vacancy:** Staff turnover is inevitable. Whether sudden or planned, how staff changes are communicated is key. Work to get buy-in from the client—as well as the user group, if applicable—when transitioning staff. This process will be smoother if the initial project procurement is centered on the capabilities of the firm rather than the reputation of a team member. A firm's marketing strategy needs to go beyond a single individual's talent.
—Senior Architect



○ Prepare for remote work

Working remotely involves more than the information technology infrastructure to do so. Ensure tools, resources, and policies align for optimum remote productivity.

Coordinate remote work arrangements with each employee ⓪⓪

Host regular network and software training sessions, share procedures for accessing “work remotely” systems, and ensure employees can connect. Remote work is most successful when employees are familiar with virtual communication and collaboration tools, and have the space, broadband internet connection, and equipment to support them. Consider alignment of policies, tools, training, practice, and performance reviews to effectively integrate remote work.

Identify a “sister-firm” and/or “sister-office” for large firms ⓪

A “sister-firm” or “sister-office” is a firm/office of similar size and practice type that can temporarily provide assistance (space, printers, contract labor, etc.) to your firm to enable continuity of services until you can return to your place of business. Document the sister-firm/office name, primary and alternative point of contact and contact info (phone/email), and location. Share the relevant sister-firm information with key employees. Depending on your firm size, you may need to plan for employees to be placed within a network of collaborators as your sister-office(s) may not have room to absorb all staff members.

Establish work-at-home policies and logistics as part of your normal work procedures ⓪

The more employees at all levels that have established work-at-home routines, the more seamless the transition will be. Consider the use of cloud file storage and laptops instead of desktops as standard practice, to facilitate mobility and adaptability.

Understand the legal regulations of remote practice ⓪⓪

Nearly every practicing architect engages in some form of “virtual practice” because the pace and practicalities of life demand it—employees travel or relocate, have flexible schedules for family responsibilities, or want to take on other enterprises as consultants. The virtual architectural practice model is far more flexible than traditional practice—and may be all but recession-proof since it can grow and shrink with market fluctuations. While the benefits of virtual practice are many, there are important regulations that must be followed. [Learn more with AIA Trust.](#)



Catalog facility documents, contacts, & equipment

Having important documents and contacts at your fingertips will make navigating a potential disruption easier and more efficient.

Collect facility documents

This includes the premises deed, mortgage, or lease. It is recommended to store this information in multiple locations: the cloud, server, on USB, paper copy at the office, and/or at a key employee's home.

Collect facility contacts

This may include contact information for the building, security, power utility, water utility, internet utility, fire, police, and/or municipal emergency department. It is recommended to store this information in multiple locations: the cloud, server, on USB, paper copy at the office, and/or at a key employee's home. Listing this information in step 1 of the Business Continuity Planning Process is one method of collection.

Establish expectations with providers and service vendors

Touch base with your providers and service vendors for items such as HVAC, electrical, fire, and plumbing to ensure they understand what is expected of them during a hazard event.

Photograph spaces and equipment, catalog, send to insurance company, and upload to the cloud, server, and/or USB

Photograph office/equipment for potential insurance claims and update photos annually or after a remodel or significant purchase. Include date and time stamp. Send photos to your insurance company, upload to cloud-based secure storage, and keep at least one hard copy in a safe place.

Enable remote access to critical documents

Be prepared for a hazard event where the engineering/facilities team may not be able to have access to their file cabinet for operation manuals, blueprints, and schematics—convert these into a digital format that is remotely accessible. This includes provisions for master keys, alarm codes, etc.



Prepare office space

The average worker spends more than one-third of their time at work. Designing or retrofitting—and maintaining—your physical office space with these tips in mind can enhance your business continuity during extreme weather, an attack, a pandemic, or other hazard event.

Preparations if you own or lease your facility

If you own, prepare a list of service and repair providers to contact in case of a hazard event. If you lease, prepare a contact list (landlord or management company) of who to reach out to that will take care of services and repairs. If your firm depends on leased space, then reviewing the lease terms related to the aftermath of a disaster is extremely important. Most lease agreements give the landlord an extended period of time to make a decision on what to do and how to proceed to deal with the damage. This may include a waiting period until the insurance company has disbursed funds for the repair of the building. This period may take as long as 60 to 120 days, during which access to the building may be denied and as such create disastrous results for firms that rely on their leased space. These terms can be renegotiated to provide immediate access at the firm's own risk and expense in order to get equipment, files, or other vital information out of the building or, if conditions are right, to make repairs and then negotiate the payments at a later date after insurance determination has been made. Whether your office is owned or leased, learn what insurance you should carry and get a policy.

Appropriately address issues identified in the building vulnerability assessment **Varies**

Does the design and organization of your physical office space support business continuity? How can the design or retrofit of your office space reduce your vulnerability? Understand your building's anticipated performance level by conducting a building vulnerability assessment.

[Learn more with AIAU.](#)

Locate office in a building near public transit, amenities, and emergency service facilities, or know where these are in an existing building

Where are the nearest hospitals/clinics and public transit stations? Where are secondary locations? What will employees do if there is no public transit available within reasonable walking distance after a hazard event?

Know the intended performance level of your facility

What is the performance level of your building (construction type, age and building code edition, and capacity of mechanical, electrical, fire protection, and plumbing systems)? Is there system redundancy? Upgrade systems to achieve desired performance and service levels, and consider future conditions when making investments.

Clearly label safe exit routes

Does the design and organization of your physical office space support business continuity and safety? Straightforward design and/or clear signage as well as employee training and testing support swift and safe evacuation.

Require landlord documentation of systems testing and performance

Include this requirement in your lease to ensure systems are running properly and deficiencies are addressed.

Plan for shelter in place

Document location, amount, and expiration date of emergency supplies. FEMA recommends enough non-perishable food, utensils, blankets, communication equipment (such as flashlights, radios, and batteries), alternate power sources, first-aid supplies, necessary medications, and durable medical equipment (e.g., hearing aid batteries, catheters) to allow self-sustainment in that location for a minimum of 72 hours. For a detailed list, see Ready.gov. Keep in mind, not all facilities will be suitable for shelter in place. If shelter in place is not appropriate, it is recommended to have a comprehensive evacuation plan in place. Identify staff member(s) responsible for monitoring severe weather. Severe winter weather and hurricanes can sometimes be forecast days in advance and a work-from-home order can be initiated. Severe thunderstorms, earthquakes, volcanic eruptions, flooding, or hazardous material release may necessitate sheltering in place.



🕒 Prepare office space (cont.)

Provide fire and medical equipment and communicate storage location to staff 🕒

The safety/protection of human life is a critical component to business continuity planning. Provide fire extinguishers and first-aid kits as needed to accommodate the size of your office and if feasible evacuation chairs and stretchers. Test, plan, and perform drills regularly.

Perform routine environmental cleaning 🕒

Routinely clean all frequently touched surfaces in the workplace, such as workstations, countertops, and doorknobs, and provide disinfection supplies so that commonly used surfaces (such as keyboards, remote controls, desks) can be wiped down by employees before each use.

Know how a biological or contagion event impacts your HVAC equipment and the office environment 🕒

HVAC systems that require a large quantity of fresh air are vulnerable to these types of hazard events. Understanding how to shut down or circumvent an HVAC system that needs a delivery of fresh air is important.

Understand the run times for generators 🕒

Have plans in place for refuels and service. If generators do not self-test, periodically check automatic transfer switches for backup generators prior to a hazard event.

Understand the minimum your property would need to keep running and how that impacts your manpower 🕒

What services are essential to the function of your building and what resources are needed to ensure those essential services continue? For example, do you need more than one person to check boiler operations?



○ Prepare financials

Whether riding out an economic downturn or ensuring access to capital during a disruption, financial management is a critical component to business continuity.

Protect your assets ⌚

In addition to employing best accounting practices, it is recommended to have a regular audit done of the firm's finances. Depending on the firm and work volume, this may be an annual or biannual undertaking.

Make a plan for financial continuity ⌚

Whether writing checks or through a payroll company, consider alternate access to capital; including virtual banking, electronic transfers, and manual backups. Have backup checks available off-site and designate secondary signature in case first signature is incapacitated. Consider establishing a line of credit. Similarly, evaluate if your financial institution has the redundancy needed.

Know your financial obligations and create a plan to meet them ⌚

We trust our financial institutions to store our documents, but are you in compliance with state corporate laws and the IRS on the length of time for storing your own financial files? Check state and bank policy to maintain compliance.

Get paid without getting sued ⌚ ⌚

Without payment for services, design firms will suffer, stall and may not survive. Importantly, payment issues are also often the single greatest warning sign of a project in trouble. [Learn how to implement billing controls to minimize the professional risk that comes with trying to collect on an unpaid invoice with the AIA Trust.](#)

Seek projects in new geographies ⌚ ⌚ ⌚

Even global downturns usually affect regions at different times. Consequently, when one market is down, others are likely to be recovering (or not yet affected). Firms large and small have diversified their portfolios by exploring new markets at home and abroad.

Create client diversity ⌚ ⌚ ⌚

Just as economic downturns rarely affect all regions at once, so too are there industries or market sectors that thrive while others are down. During the Great Recession, firms of all sizes survived (and sometimes grew) with institutional and public clients that were on a different spending cycle than private industry.

Consider contract innovations ⌚ ⌚

Traditional contractual arrangements have been challenged by evolving delivery methods and the assignment of delivery roles. Whereas firms may once have supplemented their design fees with construction administration, today an owner's representative may perform those services. Rather than cede those responsibilities entirely, some firms are creating opportunities to manage or supervise parts of the construction process that align with their technical specialties. For example, one firm with a strong practice in designing sustainable facades is regularly hired to supervise the construction of only the building envelope on its projects. In this way the firm can ensure that its design work truly delivers the benefits and cost savings that it promises clients.

Consider service diversity ⌚ ⌚ ⌚

A wide range of services can protect a firm during times of economic uncertainty.



Learning from disruption

Economic downturn: During the Great Recession even the largest and most prestigious firms suffered. One firm fought back by building up a property management business. Property management allowed the firm to not only survive, but also encouraged the development of new skillsets that lead to the design and operation of higher performing buildings.



● Analyze insurance needs

Insurance is a risk transfer mechanism that can soften the blow of a disruption. Insurance needs vary based on the risks identified by each firm. It is recommended to quantify coverage needs as informed by the Business Impact Analysis (see step 2 of the Business Continuity Planning Process) compared to current coverage.

Business interruption (BI) insurance: Evaluate coverage and compile documents ⓪ ⓪

BI insurance covers insured businesses for losses of income stemming from unavoidable disruptions to their regular operations as a result of damage to property. In addition to coverage resulting from damage to the policyholder's own property, BI coverage also may be triggered by circumstances including utility service interruption, a government evacuation order, or a substantial impairment in access to a business's premises if those result from a covered property loss. When buying BI insurance, it is important to understand how long the firm may be shut down and what workarounds are covered. Policy endorsements are available to extend BI insurance if the firm suspects a prolonged interruption is possible. [Learn more with the AIA Trust.](#)

Extra expense coverage: Evaluate coverage and compile key documents ⓪ ⓪

Extra expense coverage applies to additional costs incurred by the policyholder as a result of damage to its property, and to costs incurred to mitigate economic losses. Extra expense is written as an endorsement to a business owner's package policy. It is triggered by a covered property loss and covers items such as the additional cost to rent other space due to a fire or other added expenses necessary to keep your business running. Cyber liability insurance also generally has an extra expense component. [Learn more with the AIA Trust.](#)

Business overhead disability insurance: evaluate coverage and compile documents ⓪ ⓪

Business overhead disability insurance provides a monthly benefit to cover most business expenses associated with keeping a firm operating if the owner is unable to work due to disability. This can cover employee salaries and benefits, rent, business loans, utilities, professional membership fees, insurance premiums, and other monthly business bills. This plan is especially important for sole practitioners and single professional firms. This type of plan can also be beneficial for those firms set up in a partnership, given that one's portion of ongoing expenses continue whether or not one is working. [Learn more with the AIA Trust.](#)

Key person/essential employee insurance: Evaluate coverage and compile documents ⓪ ⓪

Key person insurance is life insurance coverage usually owned by the business on the key individuals within that business. In a small firm, this individual is normally the owner/co-founder of the business, managing partner, and/or person responsible for the majority of profits. The aim of key person insurance is to compensate the firm with a specific monetary amount for the losses incurred when a key income generator is lost, in order to continue the business. The firm purchases life insurance coverage on this key person, pays the premiums, and is named the owner and beneficiary of the coverage. In the event of the key person's death, the firm receives the death benefit, which can be used to help keep the business afloat. [Learn more with the AIA Trust.](#)

Facility-related insurance policies: evaluate coverage and compile documents ⓪ ⓪

Property coverage protects you against loss of or damage to essential pieces of your business such as valuable documents, laptops, or your place of business—because it only takes one disaster to wipe them out. Casualty coverage protects your business from personal injury and property damage claims that could seriously and detrimentally impact your firm or component office. Every claim can cost you money, either in paying the legitimate ones or defending yourself against fraudulent ones. General liability coverage protects you from these lawsuits and provides you the peace of mind to be effective. [Learn more about business owners insurance and flood insurance with the AIA Trust.](#)

Cyber liability insurance: evaluate coverage and compile documents ⓪ ⓪

The unique exposures and liabilities associated with privacy breaches and cyberattacks are not properly addressed in traditional general liability and professional liability coverages. To help transfer the cyber risks identified above, evaluate the cyber liability policy options to limit your exposure to both first-party and third-party cyber risks. Understanding scope of coverage and insurer services is vital. There is no standardized policy form, but many insurers offer a checklist of coverage items to compare against their competitors. [Learn more with the AIA Trust.](#)



● Analyze insurance needs (cont.)

Professional liability insurance: evaluate coverage and compile documents ⌚ ⌚

A professional liability insurance policy (sometimes called errors and omissions or E&O insurance) agrees to pay on behalf of the architect for claims related to an error or negligence in the performance of professional duties, in exchange for the premiums paid to the insurance company. There are many reasons why an architect might consider the purchase of professional liability insurance: 1. Business survival: Be aware of the potential liability of possible delays due to hazard events beyond the control of the architect. 2. Contract requirements: Many projects include a requirement for professional liability insurance subject to a certain predetermined limit. Certain projects require separate project professional liability insurance for the project work alone, independent of any other work done by the architect. It is important to note that even with professional liability coverage, a firm continues to retain some risk such as expenses within their deductible, any self-insurance retention, costs exceeding their policy limits, or costs for claims that are excluded from the scope of coverage. [Learn more with the AIA Trust.](#)



Collect key documents

Compiling—and ensuring easy access to—key documents can help facilitate efficient communication across the team and filing of insurance claims should disruption occur.

Collect business license(s)

Many jurisdictions require these be placed on a wall. But what happens if your office is damaged? Having a secured file with a copy of your license on a cloud-based platform allows access from any location. Backup copies could also be stored on the server or on a USB. In some states, you may also be able to reprint your license through their online system.

Store client and consultant contracts

Because contracts are signed in ink, quite often they are placed into a paper file. But how are they accessed if your office is damaged or inaccessible? Scan and save them to a secure cloud-based platform to allow additional access to contracts. Backup copies could also be stored on the server or on a USB. It is recommended to include cybersecurity within client contracts to protect the firm. Make sure consultants follow the same cybersecurity rules prior to signing contracts. Remember to add more than one individual with permission to access the cloud-based files. This is necessary in case someone is unable to perform due to injuries or is nonresponsive to requests.

Collect contact lists for employees, vendors, consultants, insurance, etc.

On a regular basis, update a master list of employees, vendors, consultants, insurance reps, and others that you may need to correspond with should a disruption occur. Keep up-to-date employee rosters by periodically requesting staff for revisions. Addresses, secondary contact info, and cell phone numbers are common items that require updates. Keep a copy on a cloud-based platform with security access to protect employee information. Even a sole proprietor working from home needs to consider how they access information if their home is inaccessible. It is still acceptable to have paper files and office servers, but off-site and cloud-based storage can also be used to better protect important documents. Backup copies could also be stored on the server or on a USB. Restrict and protect paper copies for security purposes. Listing this information in step 1 of the Business Continuity Planning Process is one method of collection.



Prepare employees

Employees can be an asset during a variety of disruptions. Adequate training and communication will help enhance safety and response during a disaster, attack, pandemic, or other hazard event.

Institute safety captains

Depending on the size of the firm, designate a safety captain for the firm or safety captains for each floor or department. Typically, a safety captain will take attendance during fire drills and assist with emergency preparedness tasks. A firm-wide safety captain may lead preparedness efforts and direct implementation of the firm's emergency preparedness plan. It is recommended to have a backup/assistant "marshal" if only one safety captain is designated for the firm in case the captain is absent.

Identify or train first-aid and mental health first-aid employees

Collect name, phone number, and training type/specialty. Test, plan, and do drills regularly. Ensure supplies are assessed and restocked regularly.

Train personnel on immediate steps to take in an emergency

Train employees on communication procedures (who to call for help), operation of fire suppression and medical equipment, and where to find and shut off gas, electricity and water. Document frequency of training, names of trained individuals, phone numbers of trained individuals, and the training type/specialty completed. You might also recommend employees complete their local [CERT \(Community Emergency Response Team\) training](#).

Encourage employees to complete AIA Post-Disaster Safety Assessment Program (SAP) training

SAP training provides architects, engineers, building officials, and inspectors with the knowledge and protocol to evaluate buildings and infrastructure in the aftermath of a disaster. This knowledge can be used to evaluate your own office facility in case of disaster. Learn more with [AIA's Disaster Assistance Program](#).

Maintain an emergency response plan

An emergency plan seeks to maintain safety during an emergency, while the goal of a business continuity plan is to minimize disruption to business functions. An emergency response plan contributes significantly to the success of a business continuity plan. Additionally, encourage employees to create their own personal preparedness and response emergency plans for the health and safety of their own families and to be able to return to work more quickly. Learn more about emergency planning at [ready.gov](#).

Host an info session to advise employees on safest places to be/go during each disaster type

Document the Best Available Refuge Area (BARA) for each hazard type and include in office policy or employee manuals. When sheltering in place, BARA should be located in areas away from exterior walls, in rooms with solid walls on all sides and adequate ceiling coverage, and with a direct egress route. Schedule regular sessions to refresh employees and test the plan. It is recommended to host a session once a month for new employees and anytime there are changes to the plan. It is recommended to send reminders to all employees every six months.

Have a lockdown procedure

Domestic violence, upset clients, or similar hazard events may result in workplace violence. Creating a plan, training employees, and testing the plan for such a hazard event is recommended. Learn more at [Ready.gov/active-shooter](#).

Familiarize employees with the lockdown procedure

Schedule regular sessions to refresh employees awareness of appropriate procedures and test the plan. It is recommended to host a session once a month for new employees and any time there are changes to the plan. It is recommended to send reminders to all employees every six months.



🕒 Prepare employees (cont.)

Train employees on exiting procedures 🕒🕒

Train personnel on exits and a primary and secondary safe zone meeting point for an evacuation.

Create graphics depicting emergency exits and associated meeting points for intranet/break room(s) 🕒🕒

Infographics like these provide an on-site 24/7 reminder of recommended procedures.

Encourage sick employees to stay home 🕒

Ensure that your sick leave policies are flexible and consistent with public health guidance and that employees are aware of these policies. By minimizing the spread of colds and viruses, you can enhance the health of your firm and your community.

Encourage healthy habits 🕒

Instruct employees to clean their hands often with an alcohol-based hand sanitizer that contains at least 60–95% alcohol, or wash their hands with soap and water for at least 20 seconds. Soap and water is recommended if hands are visibly dirty.

Travel smart 🕒

Prohibit firm leaders or key employees from traveling together. Limit nonessential travel when the risk of contracting and spreading disease is high. Advise employees before traveling to take certain steps: Check the CDC's Traveler's Health Notices for the latest guidance and recommendations for each country to which they will travel. Advise employees to check themselves for symptoms of illness before starting travel, and notify their supervisor and stay home if they are sick. Ensure employees who become sick while traveling or on temporary assignment understand that they should notify their supervisor and should promptly call a health care provider for advice if needed. If outside the U.S., sick employees should follow your firm's policy for obtaining medical care or contact a health care provider or overseas medical assistance company to assist them with finding an appropriate health care provider in that country. A U.S. consular officer can help locate health care services. However, U.S. embassies, consulates, and military facilities do not have the legal authority, capability, and resources to evacuate or give medicines, vaccines, or medical care to private U.S. citizens overseas.



Document hardware & software

Documenting IT equipment, software, and processes can make insurance claims easier and provides a record should a key team member loss occur.

Photograph/document IT hardware for potential insurance claims

Photograph IT equipment for potential insurance claims and update photos annually or after a significant purchase. Include date and time stamp. Send photos to insurance company, upload to cloud-based secure storage, server, USB, and keep a hard copy in a safe place. If possible include identifying information such as make, model, and serial numbers, and link images to a sales receipt or invoice.

Review the technology rider in your insurance coverage

Catalogue major software licenses

Have a checklist (printed or stored off-site) of each application. Include in-case-of-emergency phone numbers and points of contact as well as customer-specific information such as the vendor customer number, license keys, and administrative user IDs. Listing this information in step 1 of the Business Continuity Planning Process is one method of collection.

Maintain a secure a list of passwords

Leverage a password management system, preferably hosted on a system not dependent on internal IT resources. During disaster recovery, passwords and access keys will be critical for service restoration.



Provide remote access

If schools are temporarily closed, for instance, can your employees work remotely? Do your employees rely on public transportation to get to the office? What if the power is out at the office? Providing remote access enables projects to continue in the face of many disruptions.

Establish a redundant off-site location to host office data to allow employees to work remotely at home, a common space, or other community offices

To ensure minimal dependency on the server room within a specific office, leverage systems to replicate office data to an off-site location (alternate office, data center, or cloud) with sufficient infrastructure to support remote work.

Provide for portability of key equipment

Laptop computers with docking stations, for example, provide more mobility than desktop computers.

Institute multifactor authentication

Where possible, leverage an identity provider for IT systems, which adds a second component to employee log-ons to remote systems, cloud-hosted resources, and internal sensitive systems. A second factor can be a mobile app, a hardware USB key, or a text message, which helps validate the user access as authentic and reduces the impact of password theft.

Define service level agreements

Determine with firm leadership what type and length of outages are acceptable and how much data loss is acceptable. Then design systems, redundancy, and protections around those requirements while taking into consideration systems costs related to reduced downtime.

Review vendor service level agreements

Do vendor service level agreements match firm expectations and tolerance for outages? Ensure service level agreements are defined in contractual agreements.



Protect yourself from cyberattacks

Defending against cyberattacks and data loss begins long before a potential attack.

Conduct periodic IT/cybersecurity training

Set up backup servers

Backing up critical data is the best defense against cyberattacks. Ensure data backups are conducted on an appropriate schedule/frequency and retained for a sufficient period. If backup servers are located on-site, who will be responsible for evacuating this equipment should the need arise? Or better yet, obtain secure cloud storage for backups.

Set up cloud-based backup

Replicate backup data to an off-site location such as a cloud provider. Most importantly, know what you are backing up. Verify that important data is saved and can be restored to a new server in an acceptable amount of time.

Educate staff on cybersecurity risks, including malware, hacking, and passwords

Malware commonly occurs when downloading free software packages, sharing internet files, utilizing removable media, clicking on suspicious email links, and when an internet security software program is not in place. To minimize attacks, educate employees on what is unacceptable use and have them sign a document of acceptance. Hacking typically occurs through sharing of credentials and passwords and can be facilitated through too-good-to-be-true email offers. Always verify the sender via phone call or separate email. Placing restrictions on sharing will help to minimize hacking. Simple passwords that are easy to remember and are updated infrequently are targets for intruders. Put in place passwords that are multifactor, and periodically change them to help minimize risk.

Implement cybersecurity backup measures

Cloud-based services are becoming more prevalent as a way to minimize a cyberattack. Research companies before signing an agreement to understand what security measures they take to protect data. Additionally, implement a strong spam filter to minimize many types of cyber risks.

Implement a process to change passwords and delete accounts upon an employee's termination

Are passwords changed once employees leave? If not, the firm is open to outside risk. Firms can also monitor internet use to help minimize cyberattacks.

Institute privileged access management

Isolate privileged IT tasks within the firm to dedicated privileged accounts. Do not grant administrative privileges to “everyday” accounts used to check email and browse the internet. Incorporate two-part passwords for sensitive accounts, where each half is maintained by a pair of employees who each only has one-half of the password, and both persons (or a pair from column A and column B of a pre-established list of approved employees) must come together to access the highly privileged account. As with all accounts, change administrative account passwords regularly, and always after an employee leaves.

Engage an IT specialist before a cyberattack

IT is more than fixing a computer. IT specialists can help educate the firm on how best to protect data internally and externally to minimize cyber risk. Initiate strong spam filters, monitor risk, and assist with cloud services that best fit the firm's needs. If the expertise is not on staff, IT consultants offer these services.

Perform routine security audits and testing

Hire a third-party security vendor to scan public internet-facing systems as well as internal systems for weaknesses and known vulnerabilities on a routine basis, and take the necessary steps to remediate the threat.

Perform system updates

Ensure all systems, both internal and public, receive regular security and functionality updates, and all systems in use are supported by its vendor. Subscribe to vendor email lists to receive notifications when vulnerabilities are discovered and patch; follow vendor update release cadences.



● Protect yourself from cyberattacks (cont.)

Develop a technology recovery plan ⌚⌚⌚

Develop plans for technology failure including data loss, telecommunications outage, cyberattacks, and security incidents. The plan defines common risk scenarios and provides guidance on mitigation opportunities and procedures to follow, including which systems to verify for health and data availability and notification procedures. Once developed, it is recommended to conduct annual exercises to evaluate the firm's preparedness in handling technology outages and to inform required participants of their roles in the response.

Consider continuous security monitoring ⌚⌚⌚

Implement email security software to reduce suspicious email. Where possible, deploy a security monitoring system (audit logging as well as an intrusion detection system) and retain dedicated employees to observe for anomalous user activity, unexpected network activity, and system events.

Consider need for cyber liability insurance. ⌚⌚

See "Analyze Insurance Needs" section for more information on cyber liability insurance.

Triage: Responding to a disruption

Sometimes a disruption occurs before embarking on a business continuity plan or the hazard event exceeds the anticipated impacts. When unexpected disruptions occur, the shock can be paralyzing. Extreme weather, cyberattacks, and the sudden loss of a team member are three common disruptions a firm might experience. If you've experienced an extreme weather event, cyberattack, or sudden loss of a team member, the checklists linked within the "In the event of:" graphic can help guide the firm through recovery. Informed by firms that have experienced

such disruptions, these checklists are intended to ease the burden of unforeseen impacts and get the firm back up and running as soon as possible. Alternatively, this section may be a helpful reference when developing employee responsibilities for times of disruption (see step 1 of the Business Continuity Planning Process).

When a disruption occurs, it's important to reflect on the experience and update your business continuity planning documentation accordingly. Reflecting on your experience and understanding what to do (or not do) when a disruption occurs can help the firm navigate the unexpected as well as better plan for future hazard events.



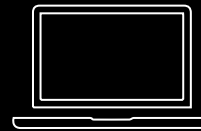
In the event of:

Business continuity planning means preparing for disruption. Here's what to do if an extreme weather event, cyberattack, or key personnel vacancy happens to you.

Click the title of each checklist to jump to recommended actions.



EXTREME WEATHER



CYBERATTACK



KEY TEAM MEMBER
VACANCY



In the event of: Extreme weather

Extreme weather can keep a firm from reopening its office doors, delay projects, and turn your personal life upside down. Below are a few recommendations to help you should extreme weather strike. Keep in mind, when an extreme weather event occurs, your firm, as well as your broader community, may be affected. If employees have lost their home or had family members hurt due to an environmental hazard event, they may not be available to assist the firm.



If a hazard event is forecasted

Hazard events such as heavy precipitation events, storms, and extreme heat events are more likely to be forecasted while hazard events such as earthquakes or tornadoes will have significantly less notice.

Sign up for local emergency alerts.

Monitor emergency operations center's notices and evacuation status.

Communicate with internal team. Team assignments may change to focus on preparing for a forecasted hazard event. Confirm with employees as to whom they will report to during evacuation. Additionally, employees will need to know if or when the office will close in order to plan for their own preparations and safe evacuation.

Ensure physical facilities are secured to the extent possible. Preparations will vary based on the hazard event forecasted. Ensure recent photographs of the office/equipment are available for potential insurance claims.

Create a go box for each project. Archive projects in the design phase in a common, accessible location and make all information available electronically and accessible for remote work. Employees can assist with preparing a go box for each project, including critical information for remote work and project continuity: drawings, project manuals, contracts, notebooks, etc. Assemble these materials in a banker's box or weatherproof box, and remove the box from the threat area should evacuation be required.

Ensure files and contacts are backed up and current login info to the remote server is available.

Ensure engineering/facilities employees are scheduled in a manner that provides maximum coverage. Consider staggering work schedules and having on-call employees available.

Photograph projects under construction: If there is time, it is good practice to photograph projects under construction with a date stamp, including completed sections and materials stored on the job site—if there is a loss, the architect may be part of the claim team for the builder's risk insurance.

Obtain flash drives, chargers, and other supplies for potential evacuation. Depending on the hazard event forecast and your office setup, this may include removal of critical in-house computer hardware, original software files, cameras, projector, license stamps, laptops, rolodexes, password log, checkbooks, tax files, bank records, insurance records, etc.

Conduct external outreach. Prior to a forecast hazard event, when feasible send email communications to clients, consultants, contractors, and other contacts describing the office status. Project managers can share any updated contact information as the primary person in charge of a project and identify an alternate contact if they are unavailable.

Set out-of-office messages. Electronic messages with alternative contact information can be posted to regular communication channels including phone, email, and shared information sites and indicate a potential delay for replies. Prepare social media posts for interruption and recovery procedures.

Support past clients. When a hazard event approaches or a reminder of hazard risk occurs, past clients may scramble for information; as time permits, you may remind them about owners and maintenance information previously provided for operation systems, warranties, and other potentially useful features. Remind your current clients of emergency notices from authorities. Never promise that a building will withstand a threat; maintenance and construction defects may result in performance that is less than the designed condition.



Initial disaster response

Emphasize life safety. Prioritize human life and safety over property in all actions during a hazard event (i.e., leave the building rather than stay to fight a fire or collect valuables; break a window or door to get out if necessary).

Identify available communication resources. Check channels of communication such as office phones, fax lines that don't go through a phone system, office internet, cell phone service, etc.

Ensure everyone at the site is safe. Take roll of all employees in the office and triage for physical or emotional injuries. If safe to do so, encourage employees to stay at home or return home. If shelter is needed and the office is stable, welcome employees to shelter in place.

Determine if employees not present at the office are safe after the hazard event. Contact employees and follow up if there is no response.

Communicate the type of hazard event underway and action(s) to be taken. For example, lockdown procedures, exits that are no longer viable, etc.

Activate shelter in place procedures as necessary and reasonable. If a prolonged stay is necessary (i.e., overnight because no transit is accessible), rearrange common areas if necessary and assign employees who are there to coordinate food and sleeping areas.

If the power is out, unplug appliances. Desktop computers, monitors, TVs, plotters, printers and other equipment should be unplugged to protect them against power-surge damage when power returns.

Allow individuals to work remotely if circumstances permit.



Business is operational

Re-evaluate project schedules. For projects in design, identify the schedule impacts from the closure and advise the client. One or more projects may have to be put on hold if employees are unable to work, the contractor cannot access the site, or a number of other challenges are encountered. Contact the authority having jurisdiction to determine emergency procedures or ordinances available for obtaining permits and resuming work. Coordinate with the clients, contractors, and other parties to determine an acceptable solution; it may require teaming up with an unaffected colleague or alternate contractor. If the client terminates a project due to the changed conditions, work with them to identify an alternative lot, size, scope, schedule, or delivery method, if possible. If there is no opportunity for a modified contract, AIA contracts provide for termination expenses to be paid to the architect. Government and other client's contracts often include force majeure clauses allowing for contract termination in case of extended force majeure events.

Conduct outreach to clients, community groups or government agencies, and design partners to determine new project opportunities (repairs, retrofits). Make your skills available to former clients for technical assistance. Become an active part of any relevant recovery efforts. Help the community analyze reconstruction principles and priorities by joining committees, providing assistance in visioning, writing grants, and fundraising.

Be a resource. If a client or essential consultant is displaced, consider the availability of space in your office to provide temporary workspace for them. Consider allowing colleagues or community groups to use your office conference space for community meetings; this is an opportunity to become a hub for information and idea-sharing. If sharing office space is disrupting operations or too costly, get creative. How could a garage, warehouse, file room, conference room, café, or other less-used space be utilized for community support? Also contact your local AIA component. They can help you provide resources to your peers.



Learning from disruption

- **Extreme weather event:** Few people had the resources to rebuild immediately after the hurricane, so we organized community meetings about rebuilding, participated in the charrettes, and volunteered where we could to help with disaster assessments and planning for future improvements.

-Firm owner

Conduct outreach to clients, community groups or government agencies, and design partners to determine new project opportunities (repairs, retrofits): Make your skills available to former clients for technical assistance. Become an active part of the recovery efforts. Help the community analyze reconstruction principles and priorities by joining committees, providing assistance in visioning, writing grants, and fundraising.

Assess and update plan: Reflect on the experience. What went wrong? What went right? How can you use these findings to enhance your business continuity plan?



Business is disrupted

Check on impact to employees and provide office status update. Within a certain time frame, the primary contact should reach out to the team. If the designated time frame is reached without communication from the primary contact, the secondary contact needs to reach out to employees. Employees will provide a status update, location, and availability. If they have been affected by the hazard event, they should contact a designated person to find out how to receive assistance during the recovery period. Communicate if the office is safe for reoccupation (or an estimated time when that might be known and communicate to them) and any alternate provisions. If the scope of the hazard event warrants a change in the office reopening date, communicate this to your team as soon as possible so they can plan ahead. Communicate any pay impacts that may occur.

Update office website with status information. If the scope of the hazard event warrants a change in the office reopening date, update the office website with new information.

Determine ability to access the site following a disaster. Confirm with the authority having jurisdiction (AHJ) that it is safe to enter the facility. If you have AIA SAP-trained employees, this determination can be made by those trained staff members. The evaluation conducted only informs your own actions and is not a means of tagging the building, which is the responsibility of the AHJ.

When it is safe to do so, designate firm leaders or employees to enter the disaster area and review the status of the building and/or projects under construction. If the damage is significant or access to the building is otherwise restricted, coordination with landlord, building management, and/or local authorities will be needed.

Retrieve key documents. Collect copies of all key documents and meet with building/fire officials, landlord, building management to advise status of building; schedule next steps/actions needed.

Contact insurance agent(s) about coverage and claims.

Determine who can return to work. Coordinate with employees to determine who is able to return to work in person and who needs to work remotely. Adjust project assignments as necessary.

Confirm which staff have access to safe remote work options: If employees cannot return immediately to work or need personal time off, try to be as flexible as possible.

Restore office space. Contact the insurance claim adjuster to schedule the insurance assessment. Alternatively, photograph (with date and time stamp) the office “as is” and share documentation to advise status. If damage is sustained beyond the ability of employees to clean up/repair, schedule cleanup/repair. If it is not possible to use the office again ever, arrange for lease of a new location. If seeking a temporary or permanent new location, consider the availability of housing in the area, access challenges, and the mental health impacts of returning to an impacted area.

Contact your local AIA component. After a hazard event, state and local components may be reached via email, phone, or social media depending on the impacts. Reach out when you are able; they can be a resource to you.



After event

Examine/evaluate projects under construction. If projects under construction experience damage, use the hazard event to learn more and share across the firm.

Examine/document damaged projects and determine the cause of failures. Architects need to continually educate themselves about the causes of building failures in order to prevent them from happening in the future.

Assess and update plan. Reflect on the experience. What went wrong? What went right? How can you use these findings to enhance your business continuity plan? Document findings and capture requirements for business continuity planning documentation (or apply updates if documentation already exists).



From disaster to resilience dividends

How a small Iowa firm managed disruption

Courtesy of Kyle Martin, AIA | Martin Gardner Architecture

THE EVENT: Iowa derecho

It was just a regular Monday in August 2020. The local news broadcast warnings about a strong storm coming through, and sure enough, tornado sirens went off right at noon. From our office building's second-story windows, we watched the storm roll in like we always do, but we quickly realized the storm was unusually fierce. Of our seven employees in our Marion, Iowa, office, only three were in the office that day. If we'd known the true strength of the storm, we would've sought shelter in the basement. But escaping to the basement requires us to go outside to a separate entrance—a path that quickly became unsafe as the storm roared on. Instead, we watched as pieces of neighboring buildings flew by, listening for creaks, and wondering if our roof would hold. The power went out and nearly all of the 150-year-old trees in the park next door fell victim to the 100+ mph winds. A small handful of buildings in the area caught fire due to broken gas lines. After the storm, we filed out of the building along with our neighbors, taking inventory of what was broken and in awe of the strength of what we would soon learn was a derecho.

POST-DISRUPTION:

Our first task was to check on our employees. Due to the COVID-19 pandemic—as well as the weather forecast—our staff was dispersed between the office and their own homes. We didn't know what communication networks were operational, so we tried them all: text message, cell phone, landline, email. In one way or another, we eventually heard from everyone. Many were dealing with storm damage at their own homes, but everyone was safe. It quickly became clear that power and communications were down across the entire region; cell service was spotty at best, and there was no internet. Travel through the metro area was also heavily impacted as trees and debris blocked streets block after block in every part of the county. The day after the storm we put out a message on social media that our Marion office—located just outside Cedar Rapids—was impacted, but our Strawberry Point office—located an hour north of Marion—was still fully operational and that we would reach out to our clients and friends as soon as we were able to begin recovery efforts.

Because of how the power grid is networked through Marion, the local authorities prioritized returning power to the central business district, where our Marion office is located. Therefore, our office was one of the first buildings to regain power—a

mere three days after the storm. If it had been any longer, employees who had managed to stabilize their own properties first would have begun working out of our Strawberry Point office. For many, the internet came back on with the power, and some semblance of normal communications was available.

After our Marion office regained power, we invited our employees and their families to utilize the office as a resource. It was August and unbearably hot. Our employees appreciated the opportunity to charge their phones and cool off while maintaining COVID-19 social distancing precautions.

As they were able, the assigned project managers began reaching out to our clients. In the main disaster area, it took about 30 days before normal construction activities resumed. Some of our projects shut down because clients and contractors had to deal with their own post-disaster problems.

Our early power restoration also allowed us to be a resource to our community. Trying not to sit idly by, we transformed our services to help our clients and the general community navigate the post-disaster reconstruction process: developing an "intake" process to efficiently process phone calls that came in, giving preliminary advice for people who just needed a little guidance, speaking with insurance representatives, taking part in building evaluations with insurance adjusters, providing contact information for other specialized consultants like structural engineers, and referring people to the appropriate contractors. We developed a standardized form to document damage with space for photos and calculating our fees.

In some ways, this community support became a type of guerilla marketing, leading to new work for our firm. We prioritized the people and entities already in our network. We took to social media, alerting our clients, government officials, and community members that we were available to help. We canvassed community social media pages to see who posted about damage in their area so we could potentially respond to their needs. We developed a script of questions and recommendations.

We had just completed a project with local county government, which made it natural for us to reach out to them again. We then contracted with Linn County to assess 80-some buildings and develop project scopes for derecho repairs. In some cases, we referred the repairs to the original architect or engineer. Now, we're developing project bid packages to repair the remainder of the county's building stock.



LESSONS LEARNED

- **Know your dependencies:** Understand the vulnerability of your firm's office by finding out the priority level for utility service to your office's neighborhood. Think through backups for each of the services you use.
- **Be flexible:** The COVID-19 pandemic had positioned us to be able to work from home; however, residential neighborhoods didn't regain power nearly as quickly as our office. Having two small regional offices—plus the ability to work from home—gave us multiple options to continue our work.
- **Reach out proactively:** In every disaster there are ways for architects to be a resource. Don't assume clients and community members know to contact you for help. Be proactive. Let people know what your resources, skills, and abilities are. Identify the social networks that the community finds useful and be on them. Being part of an active chamber of commerce can be powerful in times of need.
- **Trust but verify:** After a disaster, the community is inevitably flooded with "storm chasers." Most of the contractors and tradesmen that arrive post-disaster genuinely want to help, and many, but not all, are qualified to perform the work. However, fraud is common post-disaster, so review contracts carefully.

REFLECTING ON RISK

Table 36: Marion Hazard Prioritization in the *2019-2024 Linn County Multi-jurisdictional Hazard Mitigation Plan* categorizes tornadoes and windstorms, as well as thunderstorms, lightning, and hail as "priority 1" hazards. While not explicitly named in the plan, a derecho¹⁸ is a large, fast-moving complex of thunderstorms with powerful straight-line winds.

¹⁸ "Derecho," Merriam-Webster.com Dictionary, Merriam-Webster, <https://www.merriam-webster.com/dictionary/derecho>. Accessed 2021.



In the event of: Cyberattack

- Cybersecurity and digital information loss are growing concerns across all industries. Should your firm be held hostage by ransomware or experience the loss of sensitive data, below are recommended next steps.



During event:

Identify disruption type. Contact IT upon initial suspicion of a cyberattack or abnormality to minimize continued risk. Take notice of the scope of the disruption. Is it impacting only a single computer, just your office, or firm-wide? Quickly analyzing the problem can assist in reducing spread and damage. If in place, follow the technology recovery plan to identify and address the disruption as planned (where possible) and adapt as the situation warrants.

Identify cybersecurity breach type. Understand the cyberattack. Is it easily resolved, or does it involve significant damage? Analyzing the loss and its impact will help determine if the information lost or pirated is worth recovering. Backup systems, when correctly designed, deployed, and appropriately isolated, can nullify piracy events as damaged data can simply be recovered. In certain situations, if internal IT expertise is not available, contacting a security incident management company as soon as possible may be the best approach to understanding the scale and scope of the disruption.

Contact cyber liability insurance carrier. Many policies offer assistance to help mitigate the risk during the attack.

Contact legal counsel. The firm will need to understand the contractual and legal implications of the cyberattack to help identify and prioritize next steps.

Mitigate or nullify attack when possible. If the source of malicious/unwanted activity can be located through IT forensics, disable accounts, change passwords, shut down internet connectivity, isolate office network, or take other appropriate actions.

Analyze data loss and recovery methods. Firms are technology-based. Analyzing loss needs to quickly happen once an cyberattack occurs to understand what is impacted by a cyberattack, and to minimize additional cyberattacks. An IT specialist can analyze and discuss recovery.

Prioritize restoration. Identify each application criticality as a basis for prioritizing the recovery process. For example, CAD or BIM systems and associated files may be more critical than office productivity software. The ease with which an application can be restored as well as the business cycle will impact criticality. For example, a down payroll system the day before payday will have a higher criticality than the day after payday.

Engage internal team leaders on extent of loss if documents are unrecoverable. Cyberattacks impact the entire firm and can quickly spiral out of control. Make everyone aware of the attack, what is impacted, how it is resolved, and how they should proceed in notifying outside sources.

Notify clients, consultants, and other deadline-related sources of the breach. Cyberattacks can occur without an employee even knowing they have allowed access. They can be passed on from reliable sources, such as consultants, accountants, professionals, or what appear to be secure websites (banks, government). It is important to notify a project team so they understand the reason for possible delays and so they understand how it is being resolved.



After event

Review documentation and interview stakeholders. Review documentation recorded during the cyber event and interview stakeholders to understand their perspectives and insights. If a technology recovery plan was used, discern where the technology recovery plan was insufficient, and make corrections and additions based on lessons learned. Update the incident response plan as needed.

Implement more robust backup, disaster recovery, and monitoring systems. Depending on the disruption source, impact, and perceived future risk, implement improved backup systems to reduce impact and time-to-recovery during a future data loss or cybersecurity attack.

Educate employees on cyber risks/vulnerabilities. Understand why the attack occurred and educate employees on how to minimize future risk. Was it from a source deemed reliable? Asking the source through a separate process before responding or opening links often will greatly diminish attacks.

Implement changes based on broader lessons learned. Execute changes to routine testing, drills, procedural reviews, and user training to mitigate future risks. Ensure lessons learned are embodied to prevent future reoccurrence.

Assess. Reflect on the experience. What went wrong? What went right? How can you use these findings to enhance your business continuity plan? Document findings and capture requirements for business continuity planning documentation (or apply updates if documentation already exists).



In the event of: Key team member vacancy

Whether unexpected death, sudden departure, or temporary inability to work, a key team member vacancy can be detrimental to the daily needs of a firm. Below are a few tips should this happen to you.

After event:

Assess team impact. Determine the essential activities of the key team member and find the right team member to fill the gaps. Recognize that tasks may need to be re-prioritized. Even in a large firm, it may not be reasonable for remaining team members to take on substantial new responsibilities on top of existing assignments.

Communicate employee changes to the entire staff with transparency. Anticipate when temporary circumstances will resolve or change, and communicate both unknowns and expectations.

Notify clients. Communicate relevant aspects of the succession plan to clients with care, individually, and with clear assignment of new team members. Recognize that some clients will be disappointed—take steps to address their concerns.

Revise website and marketing materials as needed. Remove the individual from firm literature, website, social media, etc., to avoid clients/vendors asking for a team member who is no longer available.

Provide training and mentorship for team members with new responsibilities: Reassess other work expectations and reprioritize. Employees experiencing new duties may feel quickly overwhelmed. Try to provide time and flexibility to accommodate onboarding to new duties and projects.

Communicate the ongoing strength of the firm through the media, community partners, pro bono service, etc

If a death is experienced, celebrate the life of the team member (as appropriate) and allow the office time to grieve. This will be unique to the situation. Examples of celebrating the life of the team member include establishing a scholarship to recognize the loss and contributions of the team member, hosting a memorial with a firm-wide and external message (particularly when the individual has an industry-level presence), providing an internally focused message, and offering a very local office message with clear support for the remaining family. Where appropriate, the office may also consider offering support to the team member's family.

Assess. Reflect on the experience. What went wrong? What went right? How can you use these findings to enhance your business continuity plan? How might the firm perform more detailed succession planning and/or cross-training to minimize the impact of unexpected vacancies in the future?

○ **Reference material**

Definitions & concepts

Best available area of refuge (BARA): A location within a facility best suited for sheltering in place, which provides some protection against building damage. Usually, an interior space with solid walls without windows and a solid lid or ceiling, and with adequate egress route.

Business continuity¹⁹: The capability of the organization to continue delivery of products or services within acceptable, predefined capacity following a disruption.

Business continuity plan²⁰: Documented information that guides an organization to respond to a disruption and resume, recover, and restore the delivery of products and services consistent with its business continuity objectives.

Business impact analysis²¹: Process of analyzing the impact over time of a disruption on the organization. The outcome is a statement and justification of business continuity requirements.

Building performance objectives²²: How much damage is acceptable?

- Immediate occupancy (IO): Following a significant environmental hazard event, buildings maintain occupancy and functionality with minimal repairs. The ability to safely reoccupy a building after the hazard event, in order to take shelter or begin making repairs.
- Life safety (LS): Structure is damaged but retains a margin against the onset of collapse.
- Collapse prevention (CP): Structure is damaged and maintains gravity support but retains no margin against collapse.

Climate adaptation²³: The adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.

Consequence: A measure of the severity of a hazard event.

Direct impact: Impacts that are specific to the firm's ability to operate, such as employees, building, server, hardware, etc.

Disaster²⁴: A serious disruption of the functioning of a community or a society causing widespread human, material, economic, or environmental losses that exceed the ability of the affected community or society to cope using its own resources.

Disruption²⁵: Incident, whether anticipated or unanticipated, that causes an unplanned, negative deviation from the expected delivery of products and services according to an organization's objectives.

Functional recovery: Post-event structural and nonstructural capacity are maintained or can be restored to support the basic intended functions of the building's pre-event use and occupancy within a maximum acceptable time, which might differ for various uses or occupancies.

Hazard²⁶: A potential source of danger caused by a naturally occurring or human-induced process or event with the potential to create loss.

Hazard event²⁷: The occurrence of a hazard.

Impact: Impact of a disruption affecting [business] objectives.

Incident²⁸: Event that can be, or could lead to, a disruption, loss, emergency, or crisis.

Indirect impact: Impacts specific to a firm's clients and future work.

Likelihood: A measure of the probability that the undesirable event will occur.

¹⁹ Business continuity ISO 22300, International Organization for Standardization, 2019.

²⁰ Ibid.

²¹ Ibid.

²² FEMA P-2006 Example Application Guide for ASCE/SEI 41-13 Seismic Evaluation and Retrofit of Existing Buildings with Additional Commentary for ASCE/SEI 41-17, FEMA, 2018. https://store.atcouncil.org/index.php?dispatch=products.view&product_id=318

²³ Glossary of Terms, IPCC, 2012. https://archive.ipcc.ch/pdf/special-reports/srex/SREX-Annex_Glossary.pdf

²⁴ National Science and Technology Council, 2005

²⁵ Business continuity ISO 22300, International Organization for Standardization, 2019.

²⁶ AIA Resilience and Adaptation online series glossary, AIA, 2018. <https://aiaa.aia.org/aia-resilience-and-adaptation-online-certificate-program>

²⁷ NIST Special Publication 1190: Community Resilience planning Guide for Buildings and Infrastructure Systems - Volume 1, NIST, 2015.

²⁸ Business continuity ISO 22300, International Organization for Standardization, 2019

Maximum tolerable period of disruption (MTPD)²⁹:

Timeframe within which the impacts of not resuming activities would become unacceptable to the organization.

Risk³⁰: The potential for an unwanted outcome resulting from an incident, event, or occurrence, as determined by its likelihood and the associated consequences.

Secondary hazard: A threat that's potential would be realized as the result of a triggering event that in itself would constitute an emergency. For example, dam failure might be a secondary hazard associated with earthquakes.

Shelter in place³¹: Safely remaining in a building (e.g., a residence) during or after a hazard event.

Vulnerability³²: The degree to which a system is susceptible to, and unable to cope with, adverse effects.

²⁹ Business continuity ISO 22300, International Organization for Standardization, 2019

³⁰ AIA Resilience and Adaptation online series glossary. AIA, 2018. <https://aia.org/aia-resilience-and-adaptation-online-certificate-program>

³¹ NIST Special Publication 1190: Community Resilience planning Guide for Buildings and Infrastructure Systems - Volume 1, NIST, 2015.

³² Glossary of Terms, IPCC, 2012. https://archive.ipcc.ch/pdf/special-reports/srex/SREX-Annex_Glossary.pdf

Resources

Business continuity planning

- [IBHS Open for Business \(2013\)](#). Customizable worksheets for documenting employee, consultant, client, and vendor contact information as well as IT equipment.
- [Ready.gov/business](#). Recommendations for business continuity development, implementation, and training.
- [Leadership in Times of Crisis. A toolkit for economic recovery and resiliency \(2015\)](#). Resources Appendix, Resource 2: Critical Business Functions, pp. 287–288, assists in the identification of core business functions.
- [National Fire Protection Association \(NFPA\) 1600](#). Standard on disaster/emergency management and business continuity programs. Covers cyberthreats, terrorist attacks, and natural disasters. Details the process of risk assessment, business impact analysis, and planning.
- [International Standards Organization \(ISO\) 22301](#). This publication covers security and resilience, business continuity management systems, and requirements. Specifies “requirements to implement, maintain and improve a management system to protect against, reduce the likelihood of occurrence, prepare for, respond to, and recover from disruptions when they arise.”
- [International Standards Organization \(ISO\) 31000](#). This publication provides principles, a framework and a process for managing risk; including risk assessment techniques.
- [Supply Chain Climate Risk Management Framework](#). This tool from the U.S. General Services Administration can help firms evaluate the products or services they rely on and the impact disruption of those supply chains may have on their business. The Self-Assessment Questionnaire and Companion Workbook are especially recommended.
- [Weathering the Next Storm: A Closer Look at Business Resilience](#). This report provides an in-depth look at the ways a wide range of multinational companies are preparing for climate change.
- [IBHS EZ-PREP](#). Customizable worksheet with actions and tasks organized chronologically for use when advanced warning of an extreme weather event such as a hurricane or a severe storm front is expected. This tool walks users through what should be done in the off-season, five days before, 72 hours before, 24–48 hours before, during and immediately after the hazard event, and during the recovery process.

Financial and professional risk management

- [AIA Trust](#). Insurance products and information.
- Risk Management. Free practice resources for AIA members.
- [Task Force on Climate-Related Financial Disclosure](#). This is designed for large business that have to or want to understand financial risk, but the concepts and categories are useful for all businesses.

Hazard risk analysis

- [FEMA Hazard Mitigation Plan Status](#). An interactive portal that catalogs State Hazard Mitigation Plans.
- [FEMA State Hazard Mitigation Officers](#). Contact the State Hazard Mitigation Officer with questions about the State’s Hazard Mitigation Plan.
- [Fourth National Climate Assessment](#). Includes regional climate risks.

Appendix

Worksheet 1a: Staff inventory

Role	Name	Phone #	Email	Key responsibilities	Additional competencies	Responsibilities during a disruption

Worksheet 1b: Workplace inventory

Location	Frequency of use	Infrastructure

Worksheet 1c: Technology (hardware) inventory

Location	Desc.	Qty	Lease or purchased	If leased, renewal terms	Capacity (storage/speed)	Year purchased	Anticipated replacement month/year	Loaded software	Importance	Redundancy

Worksheet Id: Technology (software) inventory

Name	Subscription or purchased	# of subscriptions used /# available	Firm function or activity supported	Hardware requirements	Importance	Redundancy

Worksheet Ie: Vendor inventory

Service	Company	POC Name	Phone number(s)	Email(s)	Alternate POC	Phone number(s)	Email(s)

Worksheet If: Project team inventory

Service	Company	POC Name	Phone number(s)	Email(s)	Alternate POC	Phone number(s)	Email(s)
Project name:							

Worksheet 2: Business impact analysis

A FIRM FUNCTION

Identify the firm function. There will be one *Worksheet 2: Business Impact Analysis* per firm functional area.

B ACTIVITY INVENTORY

Identify key activities that the firm must perform. What are the associated regular tasks? There may be multiple activities per firm function. Include the activity name as well as a brief description of the activity, including its confines and overlaps with other activities. The description will help avoid confusion when these worksheets are referenced after a disruption.

C ANALYSIS

1. Identify direct and indirect impacts of not being able to perform a business activity: What are the financial, legal, brand, and operational impacts?

2. Determine the Recovery Time Objective (RTO) and associated drivers. The RTO should be less than the maximum tolerable period of disruption (MTPD). For drivers, describe the influencing factors.

A	<input type="checkbox"/> Contracts & agreements <input type="checkbox"/> Human resources	<input type="checkbox"/> Design project management <input type="checkbox"/> Marketing & business development	<input type="checkbox"/> Facilities management <input type="checkbox"/> Technology	<input type="checkbox"/> Financial management <input type="checkbox"/> Other _____
B	ACTIVITY NAME: <i>Short title to identify the activity</i>		ACTIVITY DESCRIPTION: <i>Short description to identify the activity</i>	
C	FINANCIAL IMPACT <input type="checkbox"/> High: Disruption could bankrupt the firm <input type="checkbox"/> Medium: Disruption may require firm to rely on reserves in order to meet goals <input type="checkbox"/> Low: Disruption may reduce amount of on-hand capital	LEGAL IMPACT <input type="checkbox"/> High: Disruption could cause a claim against the firm or result in penalties due to violation of law <input type="checkbox"/> Medium: Disruption is less likely to result in a claim or lawsuit <input type="checkbox"/> Low: Disruption is unlikely to result in a claim or lawsuit	BRAND IMPACT <input type="checkbox"/> High: Firm loses current and future clients <input type="checkbox"/> Medium: Firm's trust and capability could be seriously questioned by current and future clients <input type="checkbox"/> Low: Firm's services are perceived to be normal	OPERATIONAL IMPACT <input type="checkbox"/> High: Disruption could significantly impact the majority of required firm operations <input type="checkbox"/> Medium: Disruption could limit many, but not all, required firm operations <input type="checkbox"/> Low: Required operations are minimally disrupted
	RECOVERY TIME OBJECTIVE: <i>When must critical work be resumed for this activity after a disruption (and before the MTPD)</i> <input type="checkbox"/> Same day <input type="checkbox"/> Next Day <input type="checkbox"/> This week <input type="checkbox"/> Next week <input type="checkbox"/> 2+ weeks		RECOVERY TIME DRIVERS: <i>What is driving the recovery time objective?</i>	

Worksheet 3a: Recovery time objective = Same day

A VIABLE STRATEGIES

Start with all activities that have SAME DAY RECOVERY TIME OBJECTIVE (RTO), from step 2. For each activity select the most viable strategies for the resumption of each required resource (staff, workplace, technology, collaborator) within the RTO.

B STRATEGY DURATION

How long is each strategy viable? Can you suspend the activity for a number of days, weeks or months? Provide the estimated duration that a selected strategy can be sustained. Is it able to be sustained for days (D), weeks (W), or for months (M)?

C SOLUTIONS/ADDITIONAL PLANNING

Describe the solution details that allow an activity to continue within the identified RTO by answering the prompts. Remember to provide sufficient details to enable the solutions to be executed by someone not familiar with the activity.

A FIRM FUNCTION:				PROCESS:			
STAFF Strategies to accommodate this activity should the current staff who normally perform the activity become unavailable.		WORKPLACE Strategies that accommodate this activity should the current workplace(s) become unavailable.		TECHNOLOGY Strategies to accommodate this activity should the current technology become unavailable.		COLLABORATOR Strategies that accommodate this activity should the current vendor/partner/consultant service providers become unavailable.	
B (D) days, (W) weeks, (M) months				B (D) days, (W) weeks, (M) months			
<input type="checkbox"/> Transfer work internally	D	W	M	<input type="checkbox"/> Work from home	D	W	M
<input type="checkbox"/> Transfer work externally				<input type="checkbox"/> Alternate facility			
<input type="checkbox"/> Suspend activity				<input type="checkbox"/> Suspend activity			
<input type="checkbox"/> Other:				<input type="checkbox"/> Other:			
C Use the following to help define your solution:				C Use the following to help define your solution:			
Who will the work be transferred to (internal and external), and what is their contact information? How do they know what work they are to perform and when? Who will be directing and monitoring the work? Under what conditions will it be necessary to suspend this activity, and who makes this determination? Would this activity be forced to stop if any individual staff member became unavailable?		Are staff adequately equipped to work from home for months? Under what conditions will it be necessary to work from home and who makes this determination? What preparations are required for this transition? Is there anything that must be picked up from the office or offsite storage location to transition to work from home? How will work be coordinated if co-located?		What hardware, systems, and applications are used to perform this activity? Who has the authority to institute a manual process for this activity? Under what conditions will it be necessary to obtain an alternate system or resource? Are the procedures documented and well understood by staff?		Who performs this activity normally? Under what conditions will it be necessary to suspend this activity and who makes this determination? Is there a list of potential alternate partners and their capabilities? What is the process to make the necessary supplier/partner changes?	

Worksheet 3b: Recovery time objective = Next day

A VIABLE STRATEGIES

Start with all activities that have NEXT DAY RECOVERY TIME OBJECTIVE (RTO), from step 2. For each activity select the most viable strategies for the resumption of each required resource (staff, workplace, technology, collaborator) within the RTO.

B STRATEGY DURATION

How long is each strategy viable? Can you suspend the activity for a number of days, weeks or months? Provide the estimated duration that a selected strategy can be sustained. Is it able to be sustained for days (D), weeks (W), or for months (M)?

C SOLUTIONS/ADDITIONAL PLANNING

Describe the solution details that allow an activity to continue within the identified RTO by answering the prompts. Remember to provide sufficient details to enable the solutions to be executed by someone not familiar with the activity.

A FIRM FUNCTION:				PROCESS:											
STAFF Strategies to accommodate this activity should the current staff who normally perform the activity become unavailable.			WORKPLACE Strategies that accommodate this activity should the current workplace(s) become unavailable.			TECHNOLOGY Strategies to accommodate this activity should the current technology become unavailable.			COLLABORATOR Strategies that accommodate this activity should the current vendor/partner/consultant service providers become unavailable.						
B (D) days, (W) weeks, (M) months				B (D) days, (W) weeks, (M) months				B (D) days, (W) weeks, (M) months				B (D) days, (W) weeks, (M) months			
<input type="checkbox"/> Transfer work internally				<input type="checkbox"/> Work from home				<input type="checkbox"/> Manual workaround				<input type="checkbox"/> Alternate supplier/partner			
<input type="checkbox"/> Transfer work externally				<input type="checkbox"/> Alternate facility				<input type="checkbox"/> Leverage alternate system				<input type="checkbox"/> Perform internally			
<input type="checkbox"/> Suspend activity				<input type="checkbox"/> Suspend activity				<input type="checkbox"/> Suspend activity				<input type="checkbox"/> Suspend activity			
<input type="checkbox"/> Other:				<input type="checkbox"/> Other:				<input type="checkbox"/> Other:				<input type="checkbox"/> Other:			
C Use the following to help define your solution:															
Who will the work be transferred to (internal and external), and what is their contact information? How do they know what work they are to perform and when? Who will be directing and monitoring the work? Under what conditions will it be necessary to suspend this activity, and who makes this determination? Would this activity be forced to stop if any individual staff member became unavailable?				Are staff adequately equipped to work from home for months? Under what conditions will it be necessary to work from home and who makes this determination? What preparations are required for this transition? Is there anything that must be picked up from the office or offsite storage location to transition to work from home? How will work be coordinated if co-located?				What hardware, systems, and applications are used to perform this activity? Who has the authority to institute a manual process for this activity? Under what conditions will it be necessary to obtain an alternate system or resource? Are the procedures documented and well understood by staff?				Who performs this activity normally? Under what conditions will it be necessary to suspend this activity and who makes this determination? Is there a list of potential alternate partners and their capabilities? What is the process to make the necessary supplier/partner changes?			

Worksheet 3c: Recovery time objective = This week

A VIABLE STRATEGIES

Identify all activities that have THIS WEEK RECOVERY TIME OBJECTIVE (RTO), from step 2. For each activity select the most viable strategies for the resumption of each required resource (staff, workplace, technology, collaborator) within the RTO.

B STRATEGY DURATION

How long is each strategy viable? Can you suspend the activity for a number of days, weeks or months? Provide the estimated duration that a selected strategy can be sustained. Is it able to be sustained for days (D), weeks (W), or for months (M)?

C SOLUTIONS/ADDITIONAL PLANNING

Describe the solution details that allow an activity to continue within the identified RTO by answering the prompts. Remember to provide sufficient details to enable the solutions to be executed by someone not familiar with the activity.

A FIRM FUNCTION:				PROCESS:			
STAFF Strategies to accommodate this activity should the current staff who normally perform the activity become unavailable.		WORKPLACE Strategies that accommodate this activity should the current workplace(s) become unavailable.		TECHNOLOGY Strategies to accommodate this activity should the current technology become unavailable.		COLLABORATOR Strategies that accommodate this activity should the current vendor/partner/consultant service providers become unavailable.	
B (D) days, (W) weeks, (M) months				B (D) days, (W) weeks, (M) months			
<input type="checkbox"/> Transfer work internally	D	W	M	<input type="checkbox"/> Work from home	D	W	M
<input type="checkbox"/> Transfer work externally				<input type="checkbox"/> Alternate facility			
<input type="checkbox"/> Suspend activity				<input type="checkbox"/> Suspend activity			
<input type="checkbox"/> Other:				<input type="checkbox"/> Other:			
C Use the following to help define your solution:				C Use the following to help define your solution:			
Who will the work be transferred to (internal and external), and what is their contact information? How do they know what work they are to perform and when? Who will be directing and monitoring the work? Under what conditions will it be necessary to suspend this activity, and who makes this determination? Would this activity be forced to stop if any individual staff member became unavailable?		Are staff adequately equipped to work from home for months? Under what conditions will it be necessary to work from home and who makes this determination? What preparations are required for this transition? Is there anything that must be picked up from the office or offsite storage location to transition to work from home? How will work be coordinated if co-located?		What hardware, systems, and applications are used to perform this activity? Who has the authority to institute a manual process for this activity? Under what conditions will it be necessary to obtain an alternate system or resource? Are the procedures documented and well understood by staff?		Who performs this activity normally? Under what conditions will it be necessary to suspend this activity and who makes this determination? Is there a list of potential alternate partners and their capabilities? What is the process to make the necessary supplier/partner changes?	

Worksheet 3d: Recovery time objective = Next week

A VIABLE STRATEGIES

Identify all activities that have NEXT WEEK RECOVERY TIME OBJECTIVE (RTO), from step 2. For each activity select the most viable strategies for the resumption of each required resource (staff, workplace, technology, collaborator) within the RTO.

B STRATEGY DURATION

How long is each strategy viable? Can you suspend the activity for a number of days, weeks or months? Provide the estimated duration that a selected strategy can be sustained. Is it able to be sustained for days (D), weeks (W), or for months (M)?

C SOLUTIONS/ADDITIONAL PLANNING

Describe the solution details that allow an activity to continue within the identified RTO by answering the prompts. Remember to provide sufficient details to enable the solutions to be executed by someone not familiar with the activity.

A FIRM FUNCTION:				PROCESS:			
STAFF Strategies to accommodate this activity should the current staff who normally perform the activity become unavailable.		WORKPLACE Strategies that accommodate this activity should the current workplace(s) become unavailable.		TECHNOLOGY Strategies to accommodate this activity should the current technology become unavailable.		COLLABORATOR Strategies that accommodate this activity should the current vendor/partner/consultant service providers become unavailable.	
B (D) days, (W) weeks, (M) months				B (D) days, (W) weeks, (M) months			
<input type="checkbox"/> Transfer work internally	D	W	M	<input type="checkbox"/> Work from home	D	W	M
<input type="checkbox"/> Transfer work externally				<input type="checkbox"/> Alternate facility			
<input type="checkbox"/> Suspend activity				<input type="checkbox"/> Suspend activity			
<input type="checkbox"/> Other:				<input type="checkbox"/> Other:			
C Use the following to help define your solution:				C Use the following to help define your solution:			
Who will the work be transferred to (internal and external), and what is their contact information? How do they know what work they are to perform and when? Who will be directing and monitoring the work? Under what conditions will it be necessary to suspend this activity, and who makes this determination? Would this activity be forced to stop if any individual staff member became unavailable?		Are staff adequately equipped to work from home for months? Under what conditions will it be necessary to work from home and who makes this determination? What preparations are required for this transition? Is there anything that must be picked up from the office or offsite storage location to transition to work from home? How will work be coordinated if co-located?		What hardware, systems, and applications are used to perform this activity? Who has the authority to institute a manual process for this activity? Under what conditions will it be necessary to obtain an alternate system or resource? Are the procedures documented and well understood by staff?		Who performs this activity normally? Under what conditions will it be necessary to suspend this activity and who makes this determination? Is there a list of potential alternate partners and their capabilities? What is the process to make the necessary supplier/partner changes?	

Worksheet 3e: Recovery time objective = 2+ weeks

A VIABLE STRATEGIES

Identify all activities that have 2+ WEEKS RECOVERY TIME OBJECTIVE (RTO), from step 2. For each activity select the most viable strategies for the resumption of each required resource (staff, workplace, technology, collaborator) within the RTO.

B STRATEGY DURATION

How long is each strategy viable? Can you suspend the activity for a number of days, weeks or months? Provide the estimated duration that a selected strategy can be sustained. Is it able to be sustained for days (D), weeks (W), or for months (M)?

C SOLUTIONS/ADDITIONAL PLANNING

Describe the solution details that allow an activity to continue within the identified RTO by answering the prompts. Remember to provide sufficient details to enable the solutions to be executed by someone not familiar with the activity.

A FIRM FUNCTION:				PROCESS:											
STAFF Strategies to accommodate this activity should the current staff who normally perform the activity become unavailable.			WORKPLACE Strategies that accommodate this activity should the current workplace(s) become unavailable.			TECHNOLOGY Strategies to accommodate this activity should the current technology become unavailable.			COLLABORATOR Strategies that accommodate this activity should the current vendor/partner/consultant service providers become unavailable.						
B (D) days, (W) weeks, (M) months				B (D) days, (W) weeks, (M) months				B (D) days, (W) weeks, (M) months							
<input type="checkbox"/> Transfer work internally				<input type="checkbox"/> Work from home				<input type="checkbox"/> Manual workaround				<input type="checkbox"/> Alternate supplier/partner			
<input type="checkbox"/> Transfer work externally				<input type="checkbox"/> Alternate facility				<input type="checkbox"/> Leverage alternate system				<input type="checkbox"/> Perform internally			
<input type="checkbox"/> Suspend activity				<input type="checkbox"/> Suspend activity				<input type="checkbox"/> Suspend activity				<input type="checkbox"/> Suspend activity			
<input type="checkbox"/> Other:				<input type="checkbox"/> Other:				<input type="checkbox"/> Other:				<input type="checkbox"/> Other:			
C Use the following to help define your solution:															
Who will the work be transferred to (internal and external), and what is their contact information? How do they know what work they are to perform and when? Who will be directing and monitoring the work? Under what conditions will it be necessary to suspend this activity, and who makes this determination? Would this activity be forced to stop if any individual staff member became unavailable?				Are staff adequately equipped to work from home for months? Under what conditions will it be necessary to work from home and who makes this determination? What preparations are required for this transition? Is there anything that must be picked up from the office or offsite storage location to transition to work from home? How will work be coordinated if co-located?				What hardware, systems, and applications are used to perform this activity? Who has the authority to institute a manual process for this activity? Under what conditions will it be necessary to obtain an alternate system or resource? Are the procedures documented and well understood by staff?				Who performs this activity normally? Under what conditions will it be necessary to suspend this activity and who makes this determination? Is there a list of potential alternate partners and their capabilities? What is the process to make the necessary supplier/partner changes?			

Worksheet 4: Risk assessment

A LIST HAZARDS

Which hazards could affect your office or project locations?

B ASSESS IMPACT

Likelihood: Based on your reference material, consider how likely it is that each hazard will impact your firm. Is the hazard a probable occurrence (highly likely), greater than 50% chance of annual occurrence (likely), less than 50% chance of annual occurrence (possible), or an improbable occurrence (unlikely)? Draw from the State Hazard Mitigation Plan or local hazard mitigation, resilience, or vulnerability assessments for likelihood (also called “probability”). This is not for you to determine, but for you to reference.

Risk: Which hazards pose the highest risk? Risk is based on the likelihood and consequence of the hazard. High-likelihood, low-consequence events may not be a high risk, though low-likelihood, high-consequence events might be a medium or high risk. Here you’ll need to determine, in consult with your insurers and local experts, the extent to which the hazard might impact you.

Consequence: Would the hazard event have a major, moderate, minor, or negligible impact on your firm?

Resources: What critical resources could become unavailable during the hazard event? Here you’ll need to consider the resources that you’ll lose, or lose access to, that will impact your business.

Hazard mitigation: What mitigation measures have you implemented for your firm? Perhaps you selected an office outside of the flood plain or instituted regular technology backups. These answers provide an indication of how prepared you might be to withstand the impacts of the hazard event.

C ASSESS RESIDUAL RISK

Consider that any mitigation measures already in place could minimize the residual risk.

A HAZARD Potential source of danger	B LIKELIHOOD Probability of hazard event on an annual occurrence	RISK Before any mitigation measures	CONSEQUENCE Severity of hazard event	RESOURCES Unavailable during the hazard event	MITIGATION Measures currently in place	C RESIDUAL RISK Remaining risk considering mitigation measures
	<input type="checkbox"/> Highly likely <input type="checkbox"/> Likely <input type="checkbox"/> Possible <input type="checkbox"/> Unlikely	<input type="checkbox"/> 5 – high <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 – low	<input type="checkbox"/> Major <input type="checkbox"/> Moderate <input type="checkbox"/> Minor <input type="checkbox"/> Negligible	<input type="checkbox"/> Staff <input type="checkbox"/> Workplace <input type="checkbox"/> Technology <input type="checkbox"/> Collaborator	<input type="checkbox"/> None <input type="checkbox"/> Some <input type="checkbox"/> A lot	<input type="checkbox"/> 5 – high <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 – low
	<input type="checkbox"/> Highly likely <input type="checkbox"/> Likely <input type="checkbox"/> Possible <input type="checkbox"/> Unlikely	<input type="checkbox"/> 5 – high <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 – low	<input type="checkbox"/> Major <input type="checkbox"/> Moderate <input type="checkbox"/> Minor <input type="checkbox"/> Negligible	<input type="checkbox"/> Staff <input type="checkbox"/> Workplace <input type="checkbox"/> Technology <input type="checkbox"/> Collaborator	<input type="checkbox"/> None <input type="checkbox"/> Some <input type="checkbox"/> A lot	<input type="checkbox"/> 5 – high <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 – low

A HAZARD Potential source of danger	B LIKELIHOOD Probability of hazard event on an annual occurrence	RISK Before any mitigation measures	CONSEQUENCE Severity of hazard event	RESOURCES Unavailable during the hazard event	MITIGATION Measures currently in place	C RESIDUAL RISK Remaining risk considering mitigation measures
	<input type="checkbox"/> Highly likely <input type="checkbox"/> Likely <input type="checkbox"/> Possible <input type="checkbox"/> Unlikely	<input type="checkbox"/> 5 – high <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 – low	<input type="checkbox"/> Major <input type="checkbox"/> Moderate <input type="checkbox"/> Minor <input type="checkbox"/> Negligible	<input type="checkbox"/> Staff <input type="checkbox"/> Workplace <input type="checkbox"/> Technology <input type="checkbox"/> Collaborator	<input type="checkbox"/> None <input type="checkbox"/> Some <input type="checkbox"/> A lot	<input type="checkbox"/> 5 – high <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 – low
	<input type="checkbox"/> Highly likely <input type="checkbox"/> Likely <input type="checkbox"/> Possible <input type="checkbox"/> Unlikely	<input type="checkbox"/> 5 – high <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 – low	<input type="checkbox"/> Major <input type="checkbox"/> Moderate <input type="checkbox"/> Minor <input type="checkbox"/> Negligible	<input type="checkbox"/> Staff <input type="checkbox"/> Workplace <input type="checkbox"/> Technology <input type="checkbox"/> Collaborator	<input type="checkbox"/> None <input type="checkbox"/> Some <input type="checkbox"/> A lot	<input type="checkbox"/> 5 – high <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 – low
	<input type="checkbox"/> Highly likely <input type="checkbox"/> Likely <input type="checkbox"/> Possible <input type="checkbox"/> Unlikely	<input type="checkbox"/> 5 – high <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 – low	<input type="checkbox"/> Major <input type="checkbox"/> Moderate <input type="checkbox"/> Minor <input type="checkbox"/> Negligible	<input type="checkbox"/> Staff <input type="checkbox"/> Workplace <input type="checkbox"/> Technology <input type="checkbox"/> Collaborator	<input type="checkbox"/> None <input type="checkbox"/> Some <input type="checkbox"/> A lot	<input type="checkbox"/> 5 – high <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 – low
	<input type="checkbox"/> Highly likely <input type="checkbox"/> Likely <input type="checkbox"/> Possible <input type="checkbox"/> Unlikely	<input type="checkbox"/> 5 – high <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 – low	<input type="checkbox"/> Major <input type="checkbox"/> Moderate <input type="checkbox"/> Minor <input type="checkbox"/> Negligible	<input type="checkbox"/> Staff <input type="checkbox"/> Workplace <input type="checkbox"/> Technology <input type="checkbox"/> Collaborator	<input type="checkbox"/> None <input type="checkbox"/> Some <input type="checkbox"/> A lot	<input type="checkbox"/> 5 – high <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 – low
	<input type="checkbox"/> Highly likely <input type="checkbox"/> Likely <input type="checkbox"/> Possible <input type="checkbox"/> Unlikely	<input type="checkbox"/> 5 – high <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 – low	<input type="checkbox"/> Major <input type="checkbox"/> Moderate <input type="checkbox"/> Minor <input type="checkbox"/> Negligible	<input type="checkbox"/> Staff <input type="checkbox"/> Workplace <input type="checkbox"/> Technology <input type="checkbox"/> Collaborator	<input type="checkbox"/> None <input type="checkbox"/> Some <input type="checkbox"/> A lot	<input type="checkbox"/> 5 – high <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 – low
	<input type="checkbox"/> Highly likely <input type="checkbox"/> Likely <input type="checkbox"/> Possible <input type="checkbox"/> Unlikely	<input type="checkbox"/> 5 – high <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 – low	<input type="checkbox"/> Major <input type="checkbox"/> Moderate <input type="checkbox"/> Minor <input type="checkbox"/> Negligible	<input type="checkbox"/> Staff <input type="checkbox"/> Workplace <input type="checkbox"/> Technology <input type="checkbox"/> Collaborator	<input type="checkbox"/> None <input type="checkbox"/> Some <input type="checkbox"/> A lot	<input type="checkbox"/> 5 – high <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 – low
	<input type="checkbox"/> Highly likely <input type="checkbox"/> Likely <input type="checkbox"/> Possible <input type="checkbox"/> Unlikely	<input type="checkbox"/> 5 – high <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 – low	<input type="checkbox"/> Major <input type="checkbox"/> Moderate <input type="checkbox"/> Minor <input type="checkbox"/> Negligible	<input type="checkbox"/> Staff <input type="checkbox"/> Workplace <input type="checkbox"/> Technology <input type="checkbox"/> Collaborator	<input type="checkbox"/> None <input type="checkbox"/> Some <input type="checkbox"/> A lot	<input type="checkbox"/> 5 – high <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 – low
	<input type="checkbox"/> Highly likely <input type="checkbox"/> Likely <input type="checkbox"/> Possible <input type="checkbox"/> Unlikely	<input type="checkbox"/> 5 – high <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 – low	<input type="checkbox"/> Major <input type="checkbox"/> Moderate <input type="checkbox"/> Minor <input type="checkbox"/> Negligible	<input type="checkbox"/> Staff <input type="checkbox"/> Workplace <input type="checkbox"/> Technology <input type="checkbox"/> Collaborator	<input type="checkbox"/> None <input type="checkbox"/> Some <input type="checkbox"/> A lot	<input type="checkbox"/> 5 – high <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 – low

Worksheet 5: Risk treatment plan

A LIST HAZARDS AND ASSOCIATED RESIDUAL RISK

Copy from step 4 worksheet, columns A and C

B DETERMINE RISK TREATMENT

Will you avoid, mitigate, transfer, or accept the risk?

C CREATE AN ACTION PLAN

Action: Identify actions needed to implement the risk treatment.

Priority level: Prioritize the action from 1 to 5. Which actions address the most critical risks? Is one action necessary to complete before another?

- 1: near-term need, cost barrier low
- 2: near term need, cost barrier high
- 3: medium-term need, cost barrier low
- 4: medium-term need, cost barrier high
- 5: long-term need

Responsible Party, Collaborators, Implementation Timeframe, and Cost: Identify who will implement the action, when, and at what cost. Cost may range from none to high:

- None
- Low: firm has the needed capital
- Medium: firm has the needed funds in reserve
- High: firm will need to seek a loan or alternative financing

Relationship to ongoing/planned investments: Are there actions that can be rolled into an ongoing or planned investment?

Ongoing maintenance: Once implemented, does the action require regular maintenance? If so, how frequently?

A		B	C							
HAZARD	RESIDUAL RISK	RISK TREATMENT	ACTION	PRIORITY	RESPONSIBLE PARTY	COLLABORATORS	TIMEFRAME	COST	RELATIONSHIP	ONGOING MAINTENANCE
		<input type="checkbox"/> Avoid <input type="checkbox"/> Mitigate <input type="checkbox"/> Transfer <input type="checkbox"/> Accept		<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5			<input type="checkbox"/> This week <input type="checkbox"/> Next week <input type="checkbox"/> This month <input type="checkbox"/> Next month <input type="checkbox"/> This year	<input type="checkbox"/> None <input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High		<input type="checkbox"/> None <input type="checkbox"/> Daily <input type="checkbox"/> Weekly <input type="checkbox"/> Monthly <input type="checkbox"/> Quarterly <input type="checkbox"/> Every 6 mo <input type="checkbox"/> Yearly <input type="checkbox"/> Every 2 yrs

A HAZARD	RESIDUAL RISK	B RISK TREATMENT	C ACTION	PRIORITY	RESPONSIBLE PARTY	COLLABORATORS	TIMEFRAME	COST	RELATIONSHIP	ONGOING MAINTENANCE
		<input type="checkbox"/> Avoid <input type="checkbox"/> Mitigate <input type="checkbox"/> Transfer <input type="checkbox"/> Accept		<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5			<input type="checkbox"/> This week <input type="checkbox"/> Next week <input type="checkbox"/> This month <input type="checkbox"/> Next month <input type="checkbox"/> This year	<input type="checkbox"/> None <input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High		<input type="checkbox"/> None <input type="checkbox"/> Daily <input type="checkbox"/> Weekly <input type="checkbox"/> Monthly <input type="checkbox"/> Quarterly <input type="checkbox"/> Every 6 mo <input type="checkbox"/> Yearly <input type="checkbox"/> Every 2 yrs
		<input type="checkbox"/> Avoid <input type="checkbox"/> Mitigate <input type="checkbox"/> Transfer <input type="checkbox"/> Accept		<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5			<input type="checkbox"/> This week <input type="checkbox"/> Next week <input type="checkbox"/> This month <input type="checkbox"/> Next month <input type="checkbox"/> This year	<input type="checkbox"/> None <input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High		<input type="checkbox"/> None <input type="checkbox"/> Daily <input type="checkbox"/> Weekly <input type="checkbox"/> Monthly <input type="checkbox"/> Quarterly <input type="checkbox"/> Every 6 mo <input type="checkbox"/> Yearly <input type="checkbox"/> Every 2 yrs
		<input type="checkbox"/> Avoid <input type="checkbox"/> Mitigate <input type="checkbox"/> Transfer <input type="checkbox"/> Accept		<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5			<input type="checkbox"/> This week <input type="checkbox"/> Next week <input type="checkbox"/> This month <input type="checkbox"/> Next month <input type="checkbox"/> This year	<input type="checkbox"/> None <input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High		<input type="checkbox"/> None <input type="checkbox"/> Daily <input type="checkbox"/> Weekly <input type="checkbox"/> Monthly <input type="checkbox"/> Quarterly <input type="checkbox"/> Every 6 mo <input type="checkbox"/> Yearly <input type="checkbox"/> Every 2 yrs
		<input type="checkbox"/> Avoid <input type="checkbox"/> Mitigate <input type="checkbox"/> Transfer <input type="checkbox"/> Accept		<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5			<input type="checkbox"/> This week <input type="checkbox"/> Next week <input type="checkbox"/> This month <input type="checkbox"/> Next month <input type="checkbox"/> This year	<input type="checkbox"/> None <input type="checkbox"/> Low <input type="checkbox"/> Medium <input type="checkbox"/> High		<input type="checkbox"/> None <input type="checkbox"/> Daily <input type="checkbox"/> Weekly <input type="checkbox"/> Monthly <input type="checkbox"/> Quarterly <input type="checkbox"/> Every 6 mo <input type="checkbox"/> Yearly <input type="checkbox"/> Every 2 yrs