

Cambridge Small Business

Ready for Extreme Weather?

CLIMATE RESILIENCE TOOLKIT

**GET STARTED:** Once you have determined the best actions for you, use this resource sheet to inform how you can get started implementing some of the identified actions to better prepare your business for climate change.

Action <small>*not ranked</small>		When to implement	Cost range	Help
1	Install photovoltaics on roof	Anytime	\$\$	Sunny Cambridge: <a href="https://www.energysage.com/sunnycambridge">https://www.energysage.com/sunnycambridge</a>
2	Replace roofing with light-color reflective material to meet LEED standards	When you need to replace your roof	\$\$	Cool Roof Rating Council: <a href="https://coolroofs.org/resources/leed">https://coolroofs.org/resources/leed</a>
3	Install a Variable Refrigerant Flow (VRF) system for cooling and heating	When upgrading HVAC system	\$\$\$	Get help making upgrades to efficient building systems: <a href="http://cambridgeenergyalliance.org/business/financing">http://cambridgeenergyalliance.org/business/financing</a>
4	Replace asphalt with porous surface	Anytime	\$\$	EPA Soak Up The Rain: <a href="https://www.epa.gov/soakuptherain/soak-rain-permeable-pavement">https://www.epa.gov/soakuptherain/soak-rain-permeable-pavement</a>
5	Install cogeneration and energy storage system to provide back-up	When you are renovating	\$\$\$	Mass Clean Energy Center: <a href="https://www.masscec.com/energy-storage-0">https://www.masscec.com/energy-storage-0</a>
6	Install electric subpanel to allow critical utilities to operate on back-up power	Anytime or when renovating	\$\$	Cambridge DPW/Flooding: Is Your Property Protected? <a href="https://www.cambridgema.gov/theworks/ourservices/engineering">https://www.cambridgema.gov/theworks/ourservices/engineering</a>
7	Elevate or relocate main utilities	When you are renovating	\$\$	Cambridge DPW/Flooding: Is Your Property Protected? <a href="https://www.cambridgema.gov/theworks/ourservices/engineering">https://www.cambridgema.gov/theworks/ourservices/engineering</a>
8	Make your windows and doors airtight	When you are renovating	\$	Mass Save Facility Assessments: <a href="https://www.masssave.com/en/saving/business-rebates/facility-assessments/">https://www.masssave.com/en/saving/business-rebates/facility-assessments/</a>
9	Clean storm drains(s) close to your business	Before the next predicted rainstorm/ in the fall and spring	\$	Why clean storm drains? <a href="https://www.cambridgema.gov/theworks/ourservices/sewermaintenance/preventivemaintenance">https://www.cambridgema.gov/theworks/ourservices/sewermaintenance/preventivemaintenance</a>
10	Use flood-resistant materials	When you are renovating	\$	FEMA flood resistant material brochure: <a href="https://www.fema.gov/media-library-data/20130726-1502-20490-4764/fema_tb_2_rev1.pdf">https://www.fema.gov/media-library-data/20130726-1502-20490-4764/fema_tb_2_rev1.pdf</a>
11	Insulate roof, basement and exterior walls	When you are renovating	\$\$	Get a free energy assessment: <a href="http://cambridgeenergyalliance.org/sign-up">http://cambridgeenergyalliance.org/sign-up</a>
12	Develop business continuity plan	Anytime	\$	<a href="https://www.cambridgema.gov/CDD/econdev/smallbusinessassistance/emergencypreparednessforbusinesses">https://www.cambridgema.gov/CDD/econdev/smallbusinessassistance/emergencypreparednessforbusinesses</a>
13	Ask your property manager if there is a business continuity plan	Anytime	\$	If not, direct them to the CDD business continuity plan

Cambridge Small Business v.1

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**WHAT IS YOUR RISK?**

The City has studied future flood and heat risks from climate change, which show that in the future, temperature will be warmer and extreme flood events are likely to be more intense than they are today. The results from the City’s Climate Change Vulnerability Assessment (CCVA) show that everyone is at risk of higher temperatures, while some properties are more prone to flooding. In all cases, we all need to prepare for a new normal best suited for small business. This toolkit can help you think through how to be prepared for climate change. If you lease your commercial space, review this list with the owner/building manager.

1. UNDERSTAND YOUR FLOOD RISK

Look up your address in the Cambridge FloodViewer here:

  
<https://www.cambridgema.gov/Services/FloodMap>

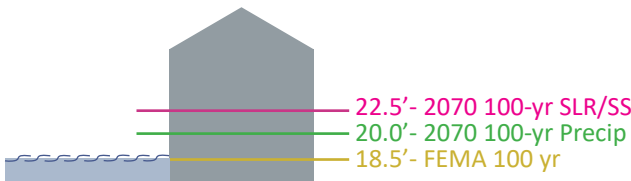
The FloodViewer does not include all types of storms (e.g., microbursts), so your property may still experience flooding, even though it is not identified in a flood zone in the FloodViewer.

2. UNDERSTAND YOUR BUSINESS OPERATIONAL RISK

Part of being prepared is understanding your business climate risk. Factors that can increase vulnerability include:

- Financial stress and lack of emergency funds
- A workforce or clients/ customers that cannot reach location.
- Equipment or supplies that require stable indoor environment or constant cooling; e.g., food or medication storage.

3. GET INFORMED ABOUT YOUR FLOOD RISKS



**You are in an identified flood zone:** Focus on protection and prevention to minimize impacts on you and your property.

**You are not in an identified flood zone:** Focus on prevention to minimize impact on your property.

4. POSSIBLE FLOOD IMPACTS:

☐ Your basement or 1st floor could flood

☐ Your building heating systems are damaged


☐ You lose equipment/stock

☐ Staff and/or clients rely on public transportation

☐ You are not insured for flood damage

☐ You do not have emergency funds for recovery

GET INFORMED ABOUT YOUR HEAT RISKS



- The building your business is in has **little to no insulation** and has old windows.
- Your **air conditioner cannot meet the demand**, or you do not have air conditioning.
- You are **surrounded by parking** lots and/or hard surface with **little vegetation**.

POSSIBLE HEAT IMPACTS:

☐ Indoor temp. reaches 80 degrees & is unbearable

☐ Loss of food/product due to power shortage

☐ Mold grows in your building from condensation

☐ Employees affected by transportation disruption

☐ Customers stay home

☐ Your who works outside gets sick

# A new normal

## What can you do to prepare?

Now that you have identified your climate risk and how you could be impacted by **flooding** and **extreme heat**, you are informed to identify which actions might be best suited to your business and even reduce climate change. This image shows some options to improve the resiliency of your business. This is not a comprehensive list of all the ways you can prepare and protect, but rather a starting point of practical actions that you can take to make your business more resilient in the future.

### 1. Install solar panels on roof

**How:** Discover your solar potential by using the City's solar map at <https://www.mapdwell.com/en/solar/cambridge> then contact a solar installer.

**Why:** This will reduce the risk of brownout during **extreme heat** and will provide you with building autonomy during energy shortages due to **flooding** or **extreme heat** if you also install storage power systems and separate circuits.

### 2. Replace roofing with light-color reflective material to meet LEED standards

**How:** Use light-color material to minimize heat gain. Ask your roofer about the rating of proposed material for solar reflectance.

**Why:** This will maintain your roof at a cooler temperature, and it will help your building be more comfortable during **extreme heat** and potentially reduce energy costs.

### 3. Install a Variable Refrigerant Flow (VRF) system for cooling and heating

**How:** While replacing your A/C or heating system, contact an energy specialist familiar with VRF that provides for different needs and setpoints in each space for greater energy efficiency.

**Why:** This will make your building more energy efficient and will reduce energy demand during **extreme heat** to diminish the risk of brownout. VRF units can also be located above the flood level.

### 4. Replace asphalt with porous surface

**How:** Pave your driveway and pathways with light-color material such as pavers or gravel that also filters water.

**Why:** This will maximize water getting directly to the ground and will reduce **flood risk** and **street flooding**. It will also make your property cooler during **extreme heat**.

### 5. Install cogeneration and energy storage system to provide back-up

**How:** If you are considering replacing your utility system, contact an energy specialist to assess if a micro-cogeneration unit—also called combined heat and power or a battery storage system—might be a good fit for your business.

**Why:** The system could be designed to maintain power for critical services during blackout caused from **flooding** or **extreme heat** brownout.

### 6.

#### Install electric subpanel to allow critical utilities to operate on back-up power

**How:** Decide which electrical loads are critical for operation during a blackout. Circuits feeding the refrigerator, lighting circuits, elevators, and any other necessary loads will be pulled from the main breaker panel into the isolated sub panel to be powered from a generator or solar panel.

**Why:** This will maintain your business operations and minimal comfort during a blackout or power outage due to **flooding** or **extreme heat**.

### 11. Insulate roof, basement and exterior walls

**How:** Ask an energy auditor or utility provider to complete an attic-to-basement evaluation and to provide a custom energy report outlining recommended energy efficiency improvements. Select which measures could be most effective for your business.

**Why:** It will keep your business cooler during **extreme heat** and will also maintain interior temperature during power outages.

### 10. Use flood resistant materials

**How:** When rebuilding your basement, use water-resistant material such as terrazzo or ceramic tile floor and cement board. Do not use sheetrock or fiberboard.

**Why:** This will reduce **flooding damage** to your business and will allow you to recover faster. These materials are also often mold resistant and would protect from **extreme heat** and humidity.

### 9. Clean storm drain(s) close to your business

**How:** Remove leaves and dirt that clog the grates.

**Why:** This will allow for the City's infrastructure to best capture stormwater and reduce **flooding risk**.

### 8. Make your windows and doors airtight

**How:** Replace all the caulking around your windows and doors. Or when replacing, ask how they perform for energy loss. Make sure that replacement windows meet or exceed energy requirements.

**Why:** It will keep your interior cooler during **extreme heat** and will also maintain interior temperatures during energy outages.

### 7. Elevate or relocate main utilities

**How:** When replacing or upgrading your heating and electrical utility systems, raise all components at least 1 foot above the anticipated flood level if you are in a flood area, and as much as affordable otherwise.

**Why:** Avoid costly **flood damage** by preventing your electrical system components, including service panels (fuse and circuit breaker boxes), meters, switches, and outlets to be in contact with flood water. These are easily damaged by flood water.

