Our greenest buildings have already been built. These are buildings each of us can find just a walk away from our favorite places. Our historic Main Street districts were built with pride by our forefathers to stand the test of time. While not fresh and new, these structures still serve as a strong legacy today, physically and emotionally. These buildings are inherently sustainable, built with native materials to endure local climates, and last for generations.

Moreover, the buildings of our Main Streets still have enormous potential. Already proven, these properties are prime for renovation. Their resilience and inherent energy-efficiencies allow for new businesses to move in with minimal up front cost. The opportunity to couple the purposeful craftsmanship of yesteryear with the insights and technologies of today is present in the heart of all of our historic districts.

RESILIENT DESIGN

Built from natural materials, historic Main Street buildings are fortresses to stand the test of time. Due to historic design features, they are less reliant upon modern energy systems to accommodate human comfort.

1 WINDOW DESIGN

Until the early 20th Century, buildings depended on large windows in a primary source of heat. Today we tend to minimize daylighting, and even made special to allow for natural light distribution throughout the building.

2 HIGH CEILINGS

Before air-conditioning, historic buildings used high ceilings to allow for hot air to rise away from occupants. Using cross ventilation, the warmer air could be flushed out through high windows, leaving a layer of cooler air below.

3 CEILING FANS

Installing ceiling fans can improve cross ventilation by drawing down cool air, effectively reversing the flow that has a circulating air. In cooler months, this process works in reverse when the fans push down rising hot air.

4 BRICK WALLS

Brick walls are made of natural material, brick is durable, beautiful, and also has functional thermal qualities. Brick walls high thermal mass helps regulate the interior building temperature while reducing the energy used for heating and cooling.

5 SHARED WALLS

Common walls between buildings greatly benefit occupants on either side by reducing the wall’s exposure to external heat loss gain.

6 TRANSOM WINDOWS

Transom windows provide light to the waning hours of the day and distribute it deeper into the interior. Operable transom windows and double-hung windows may also help a bit to seal the area between the windows while not affecting the overall view.

7 RETRACTABLE AWNINGS

To shield from direct sunlight during the most-intense afternoon heat.

8 LIGHTING

Ask your property to perform a lighting audit. They may have new incentives to upgrade lighting. Because the correct bulbs are installed for optimum usage. Turn off lights when not used, off, or install occupancy sensors for interior lighting. Increase daylighting by removing headlight windows and skylights. Inefficient interior fixtures by replacing bulbs and lamps only. Add daylight harvesting systems with demand sensors and motion sensors near windows and skylights.

9 HVAC

Consider envelope upgrades that are congruent with your building’s historic character. See Preservation Services for information on how to incorporate energy efficient mechanical systems into historic buildings.

10 HOT WATER

Ask your utility to perform a lighting audit. They may have new incentives to upgrade lighting. Because the correct bulbs are installed for optimum usage. Turn off lights when not used, off, or install occupancy sensors for interior lighting. Increase daylighting by removing headlight windows and skylights. Inefficient interior fixtures by replacing bulbs and lamps only. Add daylight harvesting systems with demand sensors and motion sensors near windows and skylights.

STAGE 1: IMPROVE OPERATIONS INSPECT, CONSERVE & MAINTAIN

Weather regular system inspections or a comprehensive building audit, take a closer look at major building systems, and behavior within building occupants. The Energy Star Portfolio Manager can help you understand your building’s energy use and track year-on-year energy savings. Developed as a means of understanding the efficiencies in your building, energy performance is more easily addressed.

Occupant behavior has a large impact on your energy profile. Adopting power saving strategies that integrate your building is invaluable if you seek the largest return for your investment.

Results: improve comfort and occupant satisfaction, while potentially saving a significant amount of energy with minimal cost.

STAGE 2: REDUCE ENERGY LOADS LIGHTING

Reducing energy usage through lighting is often a key step. Newer LED lighting options require far less energy and meet current technical and aesthetic expectations, while emitting less heat.

PLUG & EQUIPMENT LOADS

Add Advanced Power Strips to shut off power to equipment and electronics. By setting electronics (such as computers or TVs) to sleep mode after 11 minutes can save unnecessary power drain and reduce excessive heat produced by the electronics, saving cooling costs.

BUILDING ENVELOPE

Consider envelope upgrades that are congruent with your building’s historic character. See Preservation Services for information on how to incorporate energy efficient new materials and practices into historic buildings.

STAGE 3: UPGRADE SYSTEMS

HOT WATER

After assessing the demand for hot water, you may be ready to reduce water usage. Minimize hot water usage by setting the water temperature, converting to a smaller water heater, or installing a demand control system. Some offer free tune-ups.

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BATTERY STORAGE

Battery storage systems can be used to store energy generated by renewable energy systems or from grid energy during off-peaks hours.

RETROFIT PROCESS

Whole-building energy-efficiency retrofits can reduce operating costs and improve property value. They may also improve interior comfort and assist in work productivity. Knowing where to begin can be a challenge, though, since energy usage, mechanical systems, occupants behaviors and the exterior envelope are interdependent of each other. Follow the 3-stage approach below to optimize your historic Main Street building’s energy performance.

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