



R RESILIENCE GUIDANCE: PREAMBLE

CHARLESTON'S ENVIRONMENTAL THREATS

Charleston has four primary environmental threats that impact buildings, properties, and citizens. These icons are used throughout the publication to identify resilience improvements associated with these threats:



Flood



Wind



Earthquake



Heat

Properties with a backlog of maintenance are more vulnerable to environmental threats and damage.



Good Maintenance

This publication was spearheaded by the Preservation Society of Charleston in an effort to increase the resilience of the city's built environment and to promote the safety of its citizens from environmental threats. The project began with a series of conversations with City representatives, local leaders, and citizens to better understand Charleston's most pressing resilience issues.

Three focus areas emerged from these conversations as desired project outcomes:

- A detailed explanation of the requirements for flood mitigation projects;
- Clarification of the City permitting, BAR, and DRB review processes; and
- Identification of lower-cost, implementable improvements to increase resilience.

This document primarily addresses the third bullet, which is considered by the Preservation Society of Charleston and the City of Charleston to be the highest priority need. To that end, the information herein is designed to serve the greatest number of property owners and tenants, not just designated historic buildings.

Multiple actions can increase the overall resilience of the "Holy City" and empower its residents to protect themselves and their properties from environmental threats. ***This publication provides guidance to implement improvements, as well as a broader understanding of best practices, to assist in conversations with contractors, architects, and engineers. The options presented range from routine maintenance measures to projects that can reduce the severity of flood, heat, wind, and earthquake damage.***



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of CHARLESTON

Dear Residents,

Charleston's built environment is extraordinary because of its improbable perseverance in a challenging climate. It has contended with the forces of water, wind, heat, and even seismic shifts for generations. It is no wonder that historic preservation is so firmly embedded in our city's culture: Each building still standing here is a testament to this legacy of stewardship.

To survive the next century and beyond, taking care of our city will require new ways of thinking. The impetus for this publication is our mission to support the long-term preservation of Charleston's built environment and enhance livability for all of its residents. True to our reputation as a grassroots organization, it is the outcome of a meticulous study of Charleston's unique vulnerabilities to a changing climate and robust community engagement.



We aim for this publication to serve the greatest number of residents and not just owners of historic homes. Charlestonians have established and maintained one of the most distinct built environments in the world, often against great odds. Professionals in the building trades should not have a monopoly on how to care for them. Caring for your home by learning to perform basic maintenance and enhancements is an act of civil service.

For more complex projects beyond the capacity of the ordinary homeowner, this guidance can help broker informed conversation with contractors, architects and engineers. There is great joy in taking the small steps it takes to create resilient properties and to do your part to protect the Charleston we know and love.

Many are to thank for their extraordinary contributions to this volume. The project was spearheaded by PSC staff member Erin Mehard. The National Trust for Historic Preservation, City of Charleston, Ceres Foundation, Edwin and Ellen Harley, and Jim and Augustine Smith all provided critical financial support. Our network of peer reviewers throughout Charleston were some of the most knowledgeable professionals in the field. And, of course, the authors Dominique Hawkins and Jenny Wolfe at PDP. Their work here, I believe, will stand the test of time and serve as an indispensable resource for Charleston's residents.

Sincerely,

A handwritten signature in black ink that reads "Brian R. Turner". The signature is fluid and cursive.

Brian R. Turner
President & CEO, Preservation Society of Charleston

RESILIENCE GUIDANCE CONTENTS

This *Resilience Guidance for Charleston* addresses a variety of issues that owners and tenants of smaller properties may confront in the process of maintaining and incrementally improving their properties. These sections can be used to guide routine maintenance, address a noted problem, or improve the resilience potential of a larger project such as a roof replacement.

TOPIC SECTION CONTENTS

Each topic section contains:

- Description of how the four environmental threats of flooding, high winds, earthquakes, and extreme heat can impact the site or building component
- Listing of “Key Tips” for upgrades – many of which are do-it-yourself and maintenance projects – and their potential resilience benefits
- Checklists that include information on the relative cost and expertise level for each recommendation, including several no-cost or low-cost items that can be implemented independently by property owners or tenants
- Identification of best practices for properties subject to the Board of Architectural Review (BAR) or Design Review Board (DRB)
- Identification of issues to consider when the property is located in the Special Flood Hazard Area (SFHA)
- Resources for additional information
- Identification of codes and requirements that may influence project design

Information is cross-referenced between the topic sections to make it easier to locate the relevant material.

R1 RESILIENCE GUIDANCE: OVERVIEW

Introduces maintenance as an overall strategy to improve resilience to climate threats including water and flooding, wind, earthquakes, and extreme heat, and provides information about the permit review process.

R2 RESILIENCE GUIDANCE: LANDSCAPE

Landscape improvements can be relatively low-impact and inexpensive to implement, with resilience benefits of water absorption on-site and the cooling impacts of increasing shade.

R3 RESILIENCE GUIDANCE: ROOF SYSTEM

Maintaining or modifying the roof system can reduce water intrusion, damage from high winds, and interior heat gain while providing an opportunity for solar collection.

R4 RESILIENCE GUIDANCE: EXTERIOR WOOD

Supplementing connections on wood structures can reduce the impacts of high winds and earthquakes, while care is needed to minimize deterioration from rot and potential pest infestation.

R5 RESILIENCE GUIDANCE: EXTERIOR MASONRY

Stone, brick, and other structural masonry units rely on mortar to bond individual units together, while reinforcing bars give concrete tensile strength, both of which can be compromised by water exposure.

R6 RESILIENCE GUIDANCE: WINDOWS AND DOORS

Building openings are more vulnerable to environmental impacts and can be reinforced or modified to reduce the impacts of high winds and regulate indoor air temperatures.

R7 RESILIENCE GUIDANCE: BUILDING SYSTEMS

Building systems are vulnerable to floodwater, and efficient appliances and equipment can reduce dependence on power and fuel and their associated costs.

R8 RESILIENCE GUIDANCE: BUILDING INTERIOR

Interior improvements can reduce flood- and earthquake-related structural damage and contents loss, and help regulate temperatures to reduce heat gain.





City of Charleston

Dear Residents of the City of Charleston,

I am pleased to introduce to you the Resilience Guidance for Charleston, a vital initiative in partnership with the Preservation Society of Charleston and our city staff. This comprehensive document aims to empower you, our valued residents, with the knowledge and tools to enhance the resilience and sustainability of your homes.



In Charleston, we face unique environmental challenges, from flooding and high winds to earthquakes and extreme heat. The Resilience Guidance for Charleston addresses these threats head-on, providing practical solutions that range from DIY projects to essential questions for engaging contractors. It is designed to be approachable and budget-conscious, ensuring that every resident can take meaningful steps towards safeguarding their property.

This guidance is structured into seven informative chapters, each focusing on key aspects of home resilience: landscaping improvements, roof systems, exterior wood elements, exterior masonry, windows and doors, building systems, and building interiors. Within each chapter, you will find a handy checklist to assist you in evaluating and improving the resilience of your home.

By implementing the recommendations outlined in this document, you will not only protect your investment but also contribute to the overall resilience of our community. Together, we can fortify Charleston against environmental challenges and ensure a safer, more sustainable future for generations to come.

I encourage each of you to explore the Resilience Guidance for Charleston and embark on this journey towards a more resilient home. Your proactive efforts will make a significant difference, and I am confident that, with your dedication, we can strengthen our city's ability to thrive amidst adversity.

Sincerely,

William S. Cogswell, Jr.
Mayor, City of Charleston

