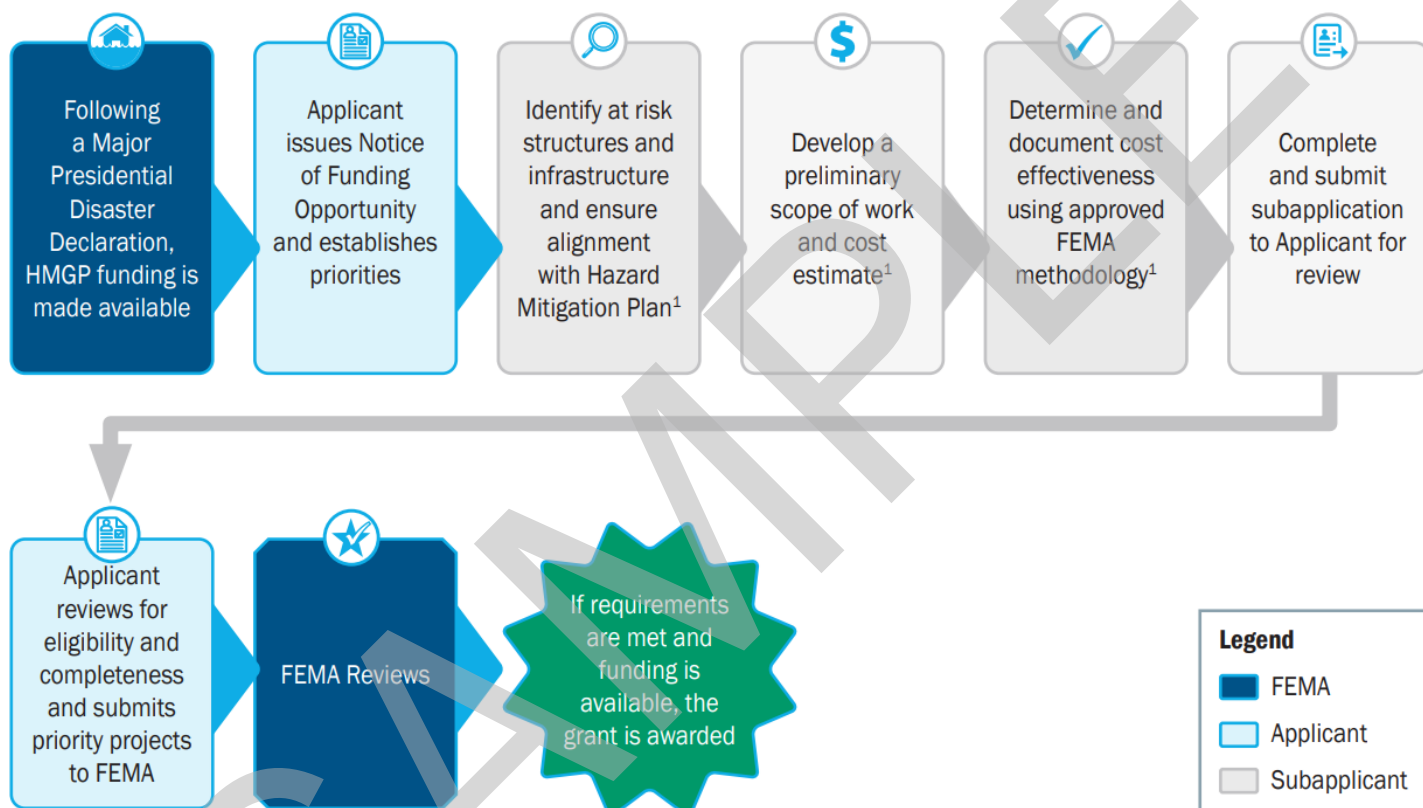


# Hurricane Wind Retrofit: Overview

\*The following information is intended for guidance only and is not a request for information. The following template is only intended to help the reader understand the FEMA Hazard Mitigation Grant Program (HMGP) application process.

**Purpose:** Application templates have been developed to provide step-by-step instructions for specific project types. This application can be used for projects that involve hurricane wind retrofits. Hurricane wind retrofit projects are a long-term effort and require multiple steps. **Figure 1** shows the general process flow and decision points from a Major Presidential Disaster Declaration to grant award.



**Figure 1: Generator Project Process Overview**

Notes:

- (1) These activities may also occur prior to the Disaster Declarations and/or the Notice of Funding Opportunity.

Prior to starting an application, it is recommended that you review the summary of data requirements (**Table 1**) needed to complete the application. Early submission of accurate and complete eligibility and pre-award information will facilitate FEMA’s review process and the release of Hazard Mitigation Grant Program (HMGP) funds.

The methodology used to evaluate cost-effectiveness will affect data requirements for the application. There are two methods to evaluate cost-effectiveness for a hurricane wind retrofit:

- Pre-calculated benefits: Refer to **Step 12** of the **Technical Job Aid** for information on when pre-calculated benefits apply.

- Benefit-cost analysis (BCA) using the BCA Toolkit via: Modeled Damages, Professional Expected Damages or Historical Damages. The use of Modeled Damages is recommended due to pre-established wind damage functions in the BCA Toolkit which may simplify the documentation necessary to justify before and after mitigation damages. Professional Expected Damages should be considered only when potential damages due to one or more wind events have been modeled by a professional engineer.

Check the applicability of pre-calculated benefits prior to completing a BCA, as use of pre-calculated benefits will reduce data requirements.

## Key Resources

### HURRICANE WIND RETROFIT PROJECT APPLICATION AND INSTRUCTIONS

This application form is designed specifically for projects that involve the retrofit of a hurricane prone structure. The accompanying instructions provide definitions, explanations, and clarification on the information requested in each section of the application. This step-by-step guidance references additional Job Aids and FEMA resources to help direct you to more detailed information, if needed.

### HAZARD MITIGATION ASSISTANCE TECHNICAL REVIEW JOB AID SERIES, HURRICANE WIND RETROFIT TECHNICAL REVIEW

This Job Aid describes the requirements for the technical review process for Hazard Mitigation Assistance-funded hurricane wind retrofit projects and provides a step-by-step approach to addressing each of the major components of a hurricane wind retrofit project application.

### HAZARD MITIGATION ASSISTANCE ENVIRONMENTAL PLANNING AND HISTORIC PRESERVATION (EHP) REVIEW JOB AID SERIES, HURRICANE WIND RETROFIT: INFORMATION REQUIRED FOR ENVIRONMENTAL REVIEW

This Job Aid provides detailed guidance regarding information that should be included for hurricane wind retrofit project applications, including recommended documentation and supplemental information needed to help FEMA conduct an EHP review. This Job Aid categorizes the components considered within FEMA’s EHP review process, describes the information needed under each component, identifies potential sources of documentation, and provides examples.

**Table 1: Summary of Data Requirements**

Location and Scope of Work Information	Required Eligibility Data <sup>1</sup>	Required Pre-Award Data <sup>2</sup>	Application Section and Number
Applicant/subapplicant contact information	✓		A
Description of hurricane risk and structure existing conditions	✓		B2, B3
Detailed scope of work including details on proposed activities, on site access, staging, and demolition activities	✓		B4
Design criteria, including design wind speed, risk category, and wind exposure category	✓		B4
Building code(s) and standard(s) that the project will comply with.	✓		B4
Technical data to support the scope of work and level of protection	✓		B6

Location and Scope of Work Information	Required Eligibility Data <sup>1</sup>	Required Pre-Award Data <sup>2</sup>	Application Section and Number
Submit vulnerability assessment or plan/scope and timeframe for completion of a vulnerability assessment	If available	✓	C4
List of properties and locations	✓		C, Building Information Spreadsheet
Flood zone designation	✓		
Facility type for each structure	✓		
Indicate the number of openings (windows and doors) proposed to be retrofitted, if applicable.	If Applicable		
Construction type for each structure	✓		
Description of alternatives (no action, alternative action, proposed project)	✓		E
Photographs of each property of all sides of the structure	✓		K
Map showing project location of all properties being retrofit with staging areas	✓		K
FIRMette showing project location of all properties being retrofit	✓		K
Schedule (schedule must be for 3 years or less)	✓		G
Project cost estimate with line items and supporting documentation	✓		H
<b>Cost-Effectiveness: Information required depends upon the methodology used to show cost-effectiveness</b> Note: This includes common data requirements to show cost-effectiveness; some projects may require additional documentation of damages to demonstrate a benefit-cost ratio over 1.0. The technical job aid provides step-by-step instructions and additional resources.			
<b>Pre-calculated Benefits – Residential Hurricane Wind Retrofit</b>			
Narrative describing why the project qualifies for pre-calculated benefits.  Note: To be eligible for pre-calculated benefits the project must provide Intermediate or Advanced mitigation packages as discussed in FEMA P-804 and be located where the design wind speed exceeds 120 mph.	✓		J
Supporting documentation demonstrating that the total project costs are less than the maximum costs listed in the <i>Cost Effectiveness Determination for Residential Hurricane Wind Retrofit Measures Funded by FEMA</i> for the appropriate mitigation package type.	✓		
Supporting documentation for locality multiplier, if used.	✓		
<b>Pre-calculated Benefits – Nonresidential Hurricane Wind Retrofit</b>			
Narrative describing why the project qualifies for pre-calculated benefits.  Note: To be eligible for pre-calculated benefits the project must: <ol style="list-style-type: none"> <li>1. Include improvements to opening protection, roof retrofits, and load path.</li> <li>2. These elements must be brought into compliance with the International Building Code (IBC), International Existing Building Code (IEBC), American Society of Civil Engineers (ASCE) 7: <i>Minimum Design Loads</i></li> </ol>	✓		J

Location and Scope of Work Information	Required Eligibility Data <sup>1</sup>	Required Pre-Award Data <sup>2</sup>	Application Section and Number
<p><i>for Buildings and Other Structures, FEMA P-577: Design Guide for Improving Hospital Safety in Earthquakes, Floods, and High Winds: Providing Protection to People and Buildings, and any locally enforced building codes after completion of a structural wind vulnerability assessment.</i></p> <p>3. The project must have a project useful life of at least 25 years.</p> <p>4. The project cost must not exceed 10% of the building replacement value (25% of the building replacement value for projects located in Puerto Rico or US Virgin Islands).</p>			
Supporting documentation for the building construction type (for projects located in Puerto Rico or US Virgin Islands)	✓		
Supporting documentation for the building replacement value	✓		
<b>FEMA BCA Tool: Modeled Damages</b>			
Project configuration: Location, Structure Type, Hazard Type, Mitigation Type	✓		
Project useful life	For Non-standard Values		
Cost estimate and expected annual maintenance data	✓		
Wind hazard data	For Non-Default Values		
Supporting documentation for type of building	✓		
Supporting documentation for structure properties (before- and after-mitigation)	✓		
Supporting documentation for building area	✓		J
Supporting documentation for non-default building replacement value, building contents value, and displacement costs.	For Non-Default Values		
Supporting documentation for loss of function benefits (annual operating budget for non-residential buildings, or service population/information on alternative facility for critical facilities).	If Applicable		
Export of the BCA, PDF of the BCA Report from the toolkit, and supporting documentation	✓		
<b>FEMA BCA Tool: Historical Damages</b>			
Project configuration: Location, Structure Type, Hazard Type, Mitigation Type	✓		
Project useful life	For Non-standard Values		
Cost estimate and expected annual maintenance data	✓		
Documented year of construction	✓		
Documented historical wind damages	✓		J
Estimated recurrence intervals for one or more damage event, or at least 3 historical damage events from different years	✓		
Export of the BCA, PDF of the BCA Report from the toolkit, and supporting documentation	✓		
<b>FEMA BCA Tool: Professional Expected Damages</b>			
Project configuration: Location, Structure Type, Hazard Type, Mitigation Type	✓		J

Hazard Mitigation Grant Program Application Template

Location and Scope of Work Information	Required Eligibility Data <sup>1</sup>	Required Pre-Award Data <sup>2</sup>	Application Section and Number
Project useful life	For Non-standard Values		
Cost estimate and expected annual maintenance data	✓		
Documentation for potential damages before- and after- mitigation due to one or more wind event, modeled by a professional engineer	✓		
Export of the BCA, PDF of the BCA Report from the toolkit, and supporting documentation	✓		
<b>Additional EHP Documentation: Needs vary based on potential impacts. Considerations include:</b>			
Description of public outreach that has occurred.		✓	F
Description of any federal, state, or local agency coordination, and permitting		✓	
Provide any environmental and/or cultural studies that have been conducted in the area		✓	
Is the project in a known floodplain?	If yes, additional documentation and discussion of impacts and potential mitigation measures will be required		
Are there nearby surface waters or wetlands?			
Are there known hazardous or contaminated materials at the project site?			
Does the project involve the use of imported fill?			
Will the project remove vegetation?			
List any best management practices that will be used during construction		✓	
<b>Other Required Documents</b>			
Fund commitment letters	✓		K
Applicable signed SF-424 forms and Assurances	✓		
Designated authorized agent documentation	✓		

Notes:

<sup>1</sup> Eligibility: Items that must be included in the grant application to fully evaluate eligibility.

<sup>2</sup> Pre-Award: Information that FEMA will need to review prior to award.