



Technical Bulletin FH 2021-02

First Release:

November 24, 2021

Prepared by:

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FORTIFIED Engineering Director

Applicable Standards:

FORTIFIED Home™—Hurricane

Applicable Designation Level:

Updated FORTIFIED Corrosion Protection Requirements and Best Practices

Abstract

Minimum corrosion protection requirements for metal connectors and fasteners used to construct or retrofit buildings are an important part of FORTIFIED designation requirements for homes in coastal areas. Metals exposed to salt and moisture in the air are highly susceptible to accelerated corrosion, which can undermine the structural integrity of critical connections if not addressed.

FORTIFIED corrosion protection requirements have been updated to:

- Incorporate the most current codes, standards, and research
- Identify connections required for designation vs. best practice recommendations
- Identify acceptable corrosion resistance options for different areas
- Identify acceptable equivalence testing methods for coated fasteners
- Clarify regions where corrosion resistance requirements apply (i.e., introduced definition of “saltwater shoreline”)
- Change the format for improved clarity and application to different designation levels

The updated FORTIFIED corrosion protection requirements for fasteners and connectors in coastal regions are shown in Figure 1.

To address the most common coastal regions where clarification of a *saltwater shoreline* has been requested, maps have been provided for additional visual reference in interpreting the definition, as shown in Figure 2 and Figure 3.

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FORTIFIED Home™ Corrosion Protection Requirements for Fasteners & Connectors in Coastal Regions

For all connections described in this table: if corrosion is observed at time of re-designation, designation may not be renewed.

Requirements & Best Practices for FORTIFIED Roof™ Designations			
ROOF CONNECTIONS	REQUIREMENTS		BEST PRACTICES
	Distance to saltwater shoreline ¹		Distance to brackish water shoreline
	0-300 ft	300-3000 ft	0-300 ft
	Category A	Category B (or better)	
	Follow manufacturer's corrosion resistance guidance for coastal areas. If not provided by manufacturer, the following corrosion resistance categories may be accepted for exposed fasteners and clips		Category B (or better)
Roofing nails for shingles			
Concrete and clay roof tile fasteners			
Roof vent fasteners			
Metal roof system including panels and exposed fasteners, clips, etc.			
Fasteners used for attachment of underlayment to roof deck			
Roof-mounted equipment exposed connections and fasteners			

Effective November 1, 2021

Figure 1. Corrosion protection requirements for coastal regions

Requirements vs. Best Practices

Roof connections, and exterior exposed connections (such as connections under soffits and elevated foundations) noted in Figure 1 that are within 3,000 ft from a saltwater shoreline are required to have the minimum corrosion protection specified documented for FORTIFIED designation. The definition of a *saltwater shoreline* is provided in the table's note 1.



Corrosion-Resistant Fasteners

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*For the purposes of FORTIFIED Home designation, **saltwater shoreline** shall be considered as the coastline along the mainland United States of America including seaward island coastlines. This includes the Atlantic, Pacific, and Gulf of Mexico coastlines, as well as the coastline of any Bay or Sound with no land barrier separating it from being completely open to the ocean or Gulf of Mexico. Distances are measured from the closest feature of the subject building to the ocean or gulf coastline.*

Roof and exterior exposed connections noted in Figure 1 that are within 300 ft from a brackish water shoreline are **recommended** to have the minimum corrosion protection noted. Additionally, interior connections (such as connections enclosed in an attic or within a wall cavity) that are within 3,000 ft from a saltwater shoreline or 300 ft from a brackish water shoreline are **recommended** to have the minimum corrosion protection noted. Corrosion resistance of interior connections are not required to be documented to meet FORTIFIED designation requirements.

Documentation Requirements

To document that roof connections and exterior exposed connections noted in Figure 1 meet the minimum corrosion protection requirements, the FORTIFIED Evaluator must obtain a combination of following for each connection type to document the installed fastener or connector and its associated level of corrosion resistance:

- Site-specific photos of product packaging and/or labels identifying both the fastener or connector information and its level of corrosion resistance
- Manufacturer data sheets or testing reports identifying the product and its level of corrosion resistance
- Site-specific photos of the installed fastener or connector taken close enough to show identifying information on the product such as stamps, engravings, embossments, etc. that identify level of corrosion resistance
- Site-specific invoices showing the product information for the fasteners or connectors ordered and delivered to the home's address that identify level of corrosion resistance.

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Maps for Common Coastal Areas

To provide additional guidance interpreting the definition of a saltwater shoreline along the Alabama Gulf coastline, maps are provided in Figure 2 and Figure 3.

Saltwater Shoreline: Map AL-1

For use with "FORTIFIED Corrosion Protection for Fasteners and Connectors in Coastal Regions"

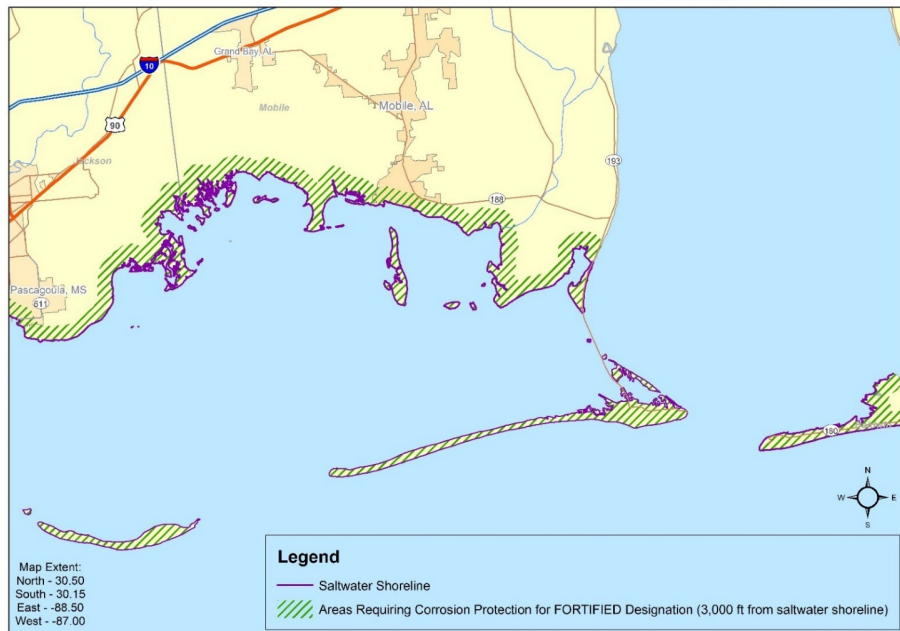


Figure 2. Saltwater shoreline for Alabama – Mobile and Dauphin Island area

Saltwater Shoreline: Map AL-2

For use with "FORTIFIED Corrosion Protection for Fasteners and Connectors in Coastal Regions"

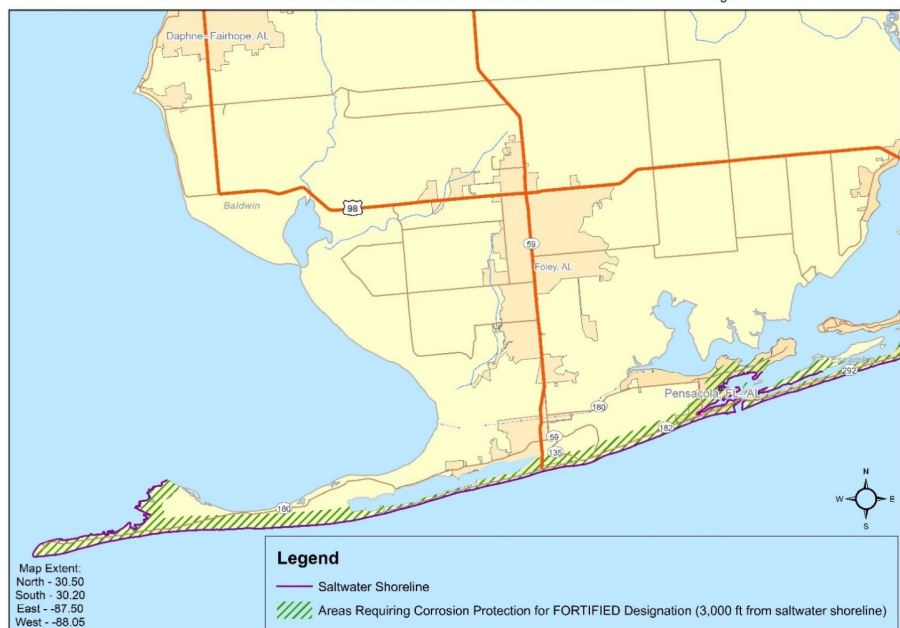


Figure 3. Saltwater shoreline for Alabama – Foley and Gulf Shores area



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Re-Designation Considerations

For FORTIFIED designated homes located 3,000 ft from a saltwater shoreline at the time of re-designation, the FORTIFIED Evaluator must provide photos of the visible connections noted in Figure 1. Photos should be taken from an appropriate distance to give overall perspective of the extent of corroded connections, and photos should also be taken close enough to show the corrosion on the individual fastener or connector. Corroded connections will require further action for FORTIFIED re-designation to be issued, such as inspection and assessment by a qualified corrosion specialist, along with repair or replacement of the affected connections.