

FORTIFIED HOME - GOLD

FORTIFIED Designation Process for Modular Homes

INTRODUCTION

Unlike manufactured/mobile homes which are built to the HUD Code, modular homes are factory-built single family homes designed to comply with the International Residential Code. Since most of the home's construction happens in the plant and can be supervised and verified by an onsite QA/QC Manager, modular homes are generally a good candidate for FORTIFIED, a voluntary resilient construction program designed to reduce the damage caused by severe weather.

Because critical modular home construction activities occur at both the plant and during site installation, the following key players must be in place to ensure the FORTIFIED standard is met and all required documentation is collected and submitted.

- The modular manufacturer plant must be approved by FORTIFIED, knowledgeable in FORTIFIED technical requirements and have a QA/QC process in place to collect required unit-specific FORTIFIED documentation as a unit is built in the plant.
- 2. There must be a **FORTIFIED evaluator** engaged who is familiar with the modular compliance process and documentation requirements.
- 3. The **installing contractor** must be aware of the FORTIFIED standard and documentation requirements at site installation including completion of installation compliance forms.

For modular homes to successfully achieve FORTIFIED designations, these key players must operate as a team, with each recognizing their unique role in the FORTIFIED process. Following the suggested process described below can help ensure clear communication and collaboration between the plant, the evaluator, and the installing contractor.

GETTING STARTED WITH FORTIFIED

STEP 1 - Contact IBHS

Either the manufacturer or the installing contractor can initiate conversations with IBHS to learn more about the FORTIFIED Program and its construction and documentation requirements.

Contact IBHS at support@ibhshelp.zendesk.com to request more information from a FORTIFIED team member.

STEP 2 – Information Gathering

During initial communications with IBHS, the following questions should be discussed and answered so that an appropriate compliance process can be developed:

- What is the desired level of FORTIFIED to achieve?
- Is there a professional engineer who provides signed and sealed plans for each unit?
- Which FORTIFIED-related materials are purchased by the manufacturing plant, and which are supplied by the installing contractor?
- What roles do the manufacturing plant and the installing contractor have in the construction process?
- What roles do the manufacturing plant and installing contractor have in the siting process?
- Who installs the units onsite (i.e. installing contractor)?
- What is the level of involvement of the modular manufacturer (if any) during site installation?
- Who will hire the FORTIFIED Evaluator (i.e. manufacturer or installing contractor)?
- Who is responsible for the design of the foundation?
- Who is ultimately provided with the designation certificate?

STEP 3 - Follow-up and Site Visits

After this initial information is gathered, follow-up meetings and site visits will be scheduled to provide more in-depth training on FORTIFIED requirements, observe in-plant operations and refine the documentation requirements and process.

STEP 4 - Select an Evaluator

Regardless of design and construction, a FORTIFIED designation can only be issued after all required documentation has been submitted by a certified FORTIFIED evaluator and reviewed by the FORTIFIED team at IBHS.

Use the <u>FORTIFIED Service Provider Directory</u> to select an evaluator, who will be responsible for collecting and submitting documentation for each unit.

STEP 5 - Define the Documentation Process

When the primary team of three (manufacturing plant, installing contractor, and evaluator) is in place, a plan to collect documentation should be developed using the example documentation checklist as a starting point that may be refined as necessary. The plan should define which party is responsible for securing specific documentation and when/how in the process it needs to be provided to the evaluator. The group should also agree upon communication methods and checkpoints throughout the process.

ROLES & RESPONSIBILITES

While most of a modular home's construction happens in the plant and can be supervised and verified by an onsite Quality Assurance/ Quality Control (QA/QC) Manager, elements of the foundation and site-installation are also required to be meet the FORTIFIED standard. These are usually outside of the plant's scope of work and are the responsibility of the installing contractor. To ensure that the entire start-to-finish process from plant construction to site installation meets the FORTIFIED standard and is properly documented, each party must understand the specific documentation they are responsible to collect and submit for a FORTIFIED designation.

Role of the Modular Home Manufacturing Plant

The primary role of the modular manufacturer is the design and construction of the units in the plant. Units must be designed by a professional engineer in compliance with the applicable building code of the home's final location and constructed to meet all FORTIFIED requirements to achieve the desired FORTIFIED level. Design plans must be provided, and documentation must be collected in the plant during the construction process. The plant must provide the in-plant documentation to the FORTIFIED evaluator in an agreed upon manner.

Design

Typically, modular home manufacturers either have a professional engineer on staff or contract with a professional engineer to provide signed and sealed designs for each unit. Designs must be site-specific or applicable for where the units will be located. For components and cladding (C&C), FORTIFIED requires that wind pressures be calculated with the minimum benchmarks of 130 mph with Exposure C. For non-shingle roof covers such as metal panels, the required site design C&C wind uplift pressures for all roof zones must be provided in the plans incorporating FORTIFIED minimum requirements. For Silver and Gold designations, the required site design C&C wall wind pressures for all doors and windows must be provided in the plans incorporating FORTIFIED minimum requirements. For the Gold level of designation, a signed and sealed foundation design plan must be provided.

• In-Plant QA/QC Process

Modular manufacturers must develop an in-plant QA/QC process to collect the documentation photos required by FORTIFIED for each unit. As the unit travels through the different stations in the plant, FORTIFIED documentation photos must be collected that are applicable at each station. Documentation must be unit-specific, so the plant must have a method in place to identify the unit number in each documentation photo, to indicate which photos belong to which individual units and ensure that they cannot be used as documentation for any other unit. FORTIFIED will provide an example documentation checklist to the modular manufacturer and may perform a site visit at the plant to confirm what FORTIFIED documentation will be collected at each station. The final documentation checklist used in the plant must be approved by FORTIFIED, if it differs from the example checklist.

• Site Installation

Sometimes the modular manufacturer is involved in some portion of the site installation of units. For example, this could include sending a punch list crew to finish remaining items in the home, or the

manufacturer could have a role in completing installation of hinged roofs. If the modular manufacturer does visit the site during or after installation, they may have a role to play in collecting final site-specific documentation.

Role of the Certified FORTIFIED Evaluator

A FORTIFIED Evaluator is an independent, third-party inspector who meets minimum eligibility requirements and has successfully completed FORTIFIED Evaluator Certification training. FORTIFIED Evaluators are not employed by IBHS and charge fees for their services.

• FORTIFIED Evaluator Responsibilities

Documentation can only be submitted to IBHS by a certified FORTIFIED Evaluator. Therefore, either the modular manufacturer or the installing contractor must hire a FORTIFIED evaluator to manage collection of the required documentation for each unit pursuing a FORTIFIED designation.

Some documentation will originate at the plant, while other documentation will be required from the site installation. All required documentation must be submitted in an evaluation report to IBHS for review. After IBHS review, a designation determination will be made which will be relayed by the evaluator to their client.

The FORTIFIED Evaluator will follow the documentation checklist for modular homes to confirm that all required documentation has been collected and provided to IBHS.

• Site Presence of a FORTIFIED Evaluator

Although periodic visits are encouraged, it is not practical for an evaluator to be present onsite during plant construction. Instead, the evaluator must collaborate with the manufacturer to remotely collect documentation during this process. This can be done with file sharing apps or whichever digital means are most efficient for all parties.

It is ideal for the evaluator to be onsite during site installation of units to collect site-specific documentation. If circumstances prevent that, it may be acceptable for the evaluator to collaborate with the installing contractor to provide the required site-specific site installation documentation. However, care must be taken to ensure that all site-installation documentation requirements are clearly communicated, understood, and ultimately obtained. Failure to provide all required documentation to IBHS will result in designations not being awarded.

The Modular Home Designation Toolkit for FORTIFIED Gold can help evaluators ensure that all documentation is collected and properly submitted:

- Sample Documentation Checklist for FORTIFIED Modular Homes designations includes a complete list of documentation requirements for the manufacturing and site installation processes. It is also available as a customizable spreadsheet with columns for each party responsible for documenting the project.
- Evaluator Guide for Submitting to FOCUS helps evaluators understand where in the IBHS evaluation software, FOCUS, to upload specific documents.
- A FORTIFIED Home- Site Installation Compliance Form for Modular Construction must be completed for every modular home evaluation by the installing contractor.

Role of the Installing Contractor

Typically, the primary role of the installing contractor is building a foundation at the permanent location of the home, installing the home on the foundation, and other site installation components such as connecting the modular units together, completing installation of hinged roofs (if applicable), and connecting the home to the installed permanent foundation. Additionally, it could involve installing the roof cover or attached structures such as porches or carports.

• Collaboration with Evaluator

First and foremost, the installing contractor must communicate with the FORTIFIED evaluator to confirm time and location of installations in advance, so the evaluator can arrange to be present and collect the required documentation, while it is available onsite. If the evaluator cannot be present, the installing contractor must collaborate with the evaluator to provide the required site installation documentation. However, care must be taken to ensure that all site-installation documentation requirements are clearly communicated, understood, and ultimately obtained. Failure to provide all required documentation to IBHS will result in designations not being awarded. The sample documentation checklist for FORTIFIED modular construction, which includes requirements at site installation, can be used to communicate the requirements and responsibilities.

• Foundation Installation

The installing contractor must follow the signed and sealed foundation design plan and ensure that the plan and the installed foundation are approved by the Authority Having Jurisdiction. If there are any deviations from the signed and sealed foundation plan, then the installing contractor must obtain written approval from the sealing engineer and provide it to the evaluator. Photos of the permanent foundation with unit sited on top showing positive anchorage to structure are required for all FORTIFIED designations. For Gold level designations, photos of each type of lower wall to foundation connection clearly showing connections spaced at 48 inches on center maximum are required, as well as photos of typical hold downs/tension ties at building corners.

Connection of Modular Units

Modular units must be installed in accordance with the manufacturer's installation details for the site module interconnections. These include, but are not limited to floor mating, end wall mating, roof truss and gable end structural interconnections. Photos of each type of unit connection installed are required.

• Roof Installation

If the installing contractor is responsible for installation of hinged roofs, then these must be installed in accordance with manufacturer's installation details and on-site photos of roof sections raised with sealed roof deck installed are required.

If the installing contractor is responsible for selecting and installing the roof cover, then the appropriate documentation must be collected to confirm that a properly wind rated roof cover was selected and installed. For non-shingle roof covers, such as metal panels, roof covers must have an approved certified test report with design pressure ratings that are equal to or greater than the required site design pressures. The roof cover must be installed in compliance with the certified test report and manufacturer's installation instructions. Additionally, for homes sited within a certain proximity to saltwater, corrosion resistant roof cover assemblies and fasteners in compliance with FORTIFIED requirements must be installed and documented. Photos documenting panel type, fastener type and corrosion resistance, and fastener installation pattern are required.

• Attached Structures

For Silver and Gold levels, additional attached structures such as porches or carports must be documented to meet both FORTIFIED design and installation requirements. Additionally, for homes sited within a certain proximity to saltwater, corrosion resistant connectors in compliance with FORTIFIED requirements must be installed and documented. To ensure that requirements are met, the installing contractor must communicate the intent to install attached structures to the FORTIFIED evaluator as soon as possible and prior to installation. Photos of attached structure roof member to roof beam, roof beam to column, and column to foundation connections are required.

• Installation Compliance Forms

The installing contractor is required to complete and sign the FORTIFIED Home Site Installation Compliance Form for Modular Construction, confirming that the foundation, modular home installation, and installation of additional applicable components such as roof cover or attached structures have been installed to meet the requirements of the Authority Having Jurisdiction, manufacturer's installation instructions, and any FORTIFIED requirements.

Role of IBHS/FORTIFIED

FORTIFIED is involved in the early stages of initial information gathering and providing guidance related to FORTIFIED construction and documentation requirements for all key team members (manufacturer, installing contractor, and evaluator). After the key team is established, and all FORTIFIED processes and requirement questions have been addressed, the IBHS role shifts to reviewing evaluation reports for compliance as they are provided to IBHS.

• Audit Review and Designation Process

After the unit installation is completed and all required documentation has been obtained and provided to the evaluator, the evaluator must upload all documentation to the project file in FORTIFIED's proprietary evaluation processing software, FOCUS, and submit the project to IBHS for review. The IBHS audit review team will review all documentation. If all documentation is provided and in compliance, a designation will be awarded. If additional information is needed, the IBHS audit team will communicate with the evaluator through FOCUS to obtain the required information. If the documentation provided shows that FORTIFIED requirements are not met, then a designation will not be awarded. In this case, fixes, repairs or remediations may be options to bring the project into compliance.

When a FORTIFIED designation certificate is awarded, the evaluator will download the designation certificate from FOCUS and distribute it to their client.

SUMMARY

In summary, to achieve successful modular home designations, the modular home manufacturer, the FORTIFIED evaluator, and the installing contractor must all operate as a team with the same end goal. Establishing this team early along with establishing and maintaining excellent and regular communication from start to finish is the key to success.



FORTIFIED GOLD - MODULAR HOME DOCUMENTATION CHECKLIST

Manufacturing Plant

For FORTIFIED Home™ - Gold New Roof Designations

Documentation listed in this section will need to be collected by the manufacturing plant and provided to the certified FORTIFIED Evaluator, who will submit a complete designation application to IBHS.



NOTE: All sections in this checklist refer to the 2020 FORTIFIED Home™ Standard.

NOTE: This checklist assumes modular home units will not include garage doors and will have shingle or metal roof covers only.

Design

	Signed and sealed building (unit) design plans
	For openings, required site design wall wind pressures for all doors and windows must be included in design plans
	For metal roof covers, required site design uplift pressures for all roof zones must be included in design plans
	For metal roof covers, certified test report for metal panel system (Refer to section 2.8.1)
	Signed and sealed foundation design plan
	If not available on product labels/stickers, documentation of impact and design pressure rating for all openings (i.e. windows, doors, skylights, etc.)
Plant	Production
	ALL PLANT PHOTOS MUST IDENTIFY UNIT NUMBER AND BE STAMPED WITH TIME AND DATE
	Verify Roof Structural Members (Section 2.5): Documentation: 1 photo minimum showing at least 3 exposed roof members (i.e. trusses, rafters) with tape measure between roof members to show on center spacing
	Verify Roof Deck Thickness (Section 4.1) • Documentation: 1 photo of sheathing type and thickness, i.e. plywood/OSB grade stamp or sheathing edge with tape measure
	 Verify Roof Deck Attachment and Fastener Type (Section 4.2) Documentation: 1 photo showing type of fastener used – photos must show either carton label indicating nail type and size, or full nails clearly showing ring shank with tape measure showing length (required minimum 8D ring shank as specified in Section 2.6) Documentation: 8 total photos showing maximum nail spacing: 4 photos must be taken from different locations above roof deck showing nail spacing with tape measure in four different locations, and 4 photos must be provided from four different locations below roof the deck. Each photo in attic must include 2 consecutive structural roof members (truss and/or rafter) and show

any areas where excessive shiners are present

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FORTIFIED GOLD - MODULAR HOME DOCUMENTATION CHECKLIST

Manufacturing Plant

For FORTIFIED Home™ - Gold New Roof Designations

U Verriv Sealed Roof Deck (Section 4.4		Verify Sealed Roof Deck	(Section 4.4
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- **Documentation for all sealed roof deck methods:** 1 legible photo of each label for each approved synthetic underlayment, 30# felt, self-adhered underlayment, and/or seam tape product showing ASTM
- Documentation for taped seams and underlayment Section 4.4.1.1 (see below):
 - 4 overall photos (one from each elevation) after seams are taped
 - 4 overall photos (one from each elevation) after underlayment/anchor sheet is installed
 - 2 closer photos showing underlayment/anchor sheet nailing pattern
 - For tile roof cover, 4 photos (one from each elevation) showing installed cap sheet.
 - For homes to be installed within 3000 ft of a saltwater shoreline, 1 photo of packaging for cap nails used to attach underlayment to roof deck showing that they meet [99]

 TIP: Collect fastener documentation in plant regardless of sited location.

Documentation for 2-Ply Underlayment – Section 4.4.1.2:

- 4 overall photos (one from each elevation) showing installed underlayment
- 2 closer photos showing underlayment nailing pattern
- For homes to be installed within 3000 ft of a saltwater shoreline, 1 photo of packaging for cap nails used to attach underlayment to roof deck showing that they meet <u>FORTIFIED Corrosion Protection</u> Requirements

TIP: Collect fastener documentation in plant regardless of sited location.

Documentation for Self-Adhered Membrane – Sections 4.4.1.3 and 4.4.2.2:

- 4 overall photos (one from each elevation) showing installed membrane before bond break is applied
- if bond break is applied, 4 photos from different eave/rake locations showing bond break held back 8" from edge

Documentation for Closed Cell Spray Foam – Section 3.2:

- 4 photos from different areas within attic showing spray foam installation at sheathing joints and roof framing members
- Documentation from the installing contractor identifying the manufacturer and product

☐ Verify Drip Edge (Section 4.5)	
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- Documentation: 4 photos from different areas showing drip edge installation and nailing pattern
- ☐ Verify Roof Cover Rating and Attachment (Sections 4.7 and 4.8)
 - **Documentation for all roof covers:** Minimum roof slope for all roof cover types present on the home Some examples of how roof slope can be documented are by holding a T-square up to the roof eave to show "rise over run", by placing an inclinometer on the roof and photographing the reading, or by using a mobile app to measure and including a photo capture of the results.
 - **Documentation for all roof covers:** 4 finished elevation photos from each side of the home showing installed roof cover
 - **Documentation for asphalt shingle roof covers if shingle installed in plant** (see below):
 - 1 photo of shingle packaging showing manufacturer and product name
 - 1 photo of shingle packaging showing shingle ASTM rating and class
 - 4 photos of starter strip installation from different areas (include eave and rake)
 For homes to be installed within 3000 ft of a saltwater shoreline, photo of shingle nail packaging showing nails meet <u>FORTIFIED Corrosion Protection Requirements</u>
 TIP: Collect fastener documentation in plant regardless of sited location
 - For Hail Supplement Only: 1 photo of shingle packaging showing hail rating OR documentation showing IBHS or other hail impact rating (Refer to Section 7.2.1)



FORTIFIED GOLD - MODULAR HOME DOCUMENTATION CHECKLIST

Manufacturing Plant

For FORTIFIED Home™ - Gold New Roof Designations

- Documentation for metal panel roof covers if metal roof installed in plant (see below):
 - For exposed fasteners: 1 photo of metal panel fastener packaging showing manufacturer, product, type and size. For homes to be installed within 3000 ft of a saltwater shoreline, photo must show that fasteners meet FORTIFIED Corrosion Protection Requirements
 - 4 photos from different locations showing installed metal panel fastener spacing with tape measure in all roof zones





☐ **<u>Hurricane Only:</u>** Verify Attic Vents and Covers (Section 4.9)

Documentation: Minimum of 1 legible photo of packaging for each roof mounted vent showing manufacturer, model and TAS 100(A) rating. Product information (pdf) may also be included



☐ **Hurricane Only:** Verify Windows and Skylights Impact Rating (Section 5.2)

- **Documentation:** 2 photos for each type of window or impact-rated window cover; one overall photo and one photo showing label with impact rating
- **Documentation:** 2 photos for each skylight; one overall photo and one photo showing label with impact rating



☐ **Hurricane Only:** Verify Entry Doors Impact Rating (Section 5.3)

- **Documentation:** 2 photos for each type of entry door or impact-rated entry door cover; one overall photo and one photo showing label with impact rating
- ☐ Verify Gable End Wall Sheathing (Section 5.5.1)
 - **Documentation:** 1 photo per gable end showing sheathing type and thickness by plywood/OSB stamp or sheathing edge with tape measure from within the attic
- ☐ Verify Gable End Wall Framing and Bracing (Section 5.5.2)
 - **Documentation:** 2 photos per gable end showing bracing at top and at bottom and connection to supporting wall below from within the attic



Hurricane Only: Verify Gable End Overhang Construction (5.5.3)

- Documentation: 1 photo per gable end showing length of gable end overhangs with tape measure
- **Documentation:** 1 photo per gable end showing overhang framing from within the attic. Photos must show that gable end rake soffits are NOT vented.



☐ **Hurricane Only:** Verify Soffits (Section 5.6)

- **Documentation for flexible soffits:** I photo with tape measure showing length of overhang and flexible soffit cover
- **Documentation for flexible soffit covers requiring intermediate bracing:** 1 photo showing intermediate bracing per FORTIFIED Standard Detail <u>F-S-1</u>
- **Documentation for rigid soffit covers:** I photo showing rigid soffit cover
- Documentation: For homes to be installed within 3000 ft of a saltwater shoreline, documentation must be provided that exposed soffit fasteners meet <u>FORTIFIED Corrosion Protection</u> Requirements

TIP: Collect soffit fastener documentation in plant regardless of sited location



FORTIFIED GOLD - MODULAR HOME DOCUMENTATION CHECKLIST

Manufacturing Plant

For FORTIFIED Home™ - Gold New Roof Designations

- ☐ Verify Attached Structure Connections (Section 5.8) (i.e. porch/carport installed in plant)
 - Documentation: 1 photo showing roof member connection to roof beam with metal connectors
 - **Documentation:** I photo showing connection of roof beam to column with metal connectors or a minimum of (2) bolts

Documentation: For homes to be installed within 3000 ft of a saltwater shoreline, documentation must be provided that exposed attached structure connectors, anchors and fasteners meet FORTIFIED Corrosion Protection Requirements

TIP: Collect anchor/ fastener documentation in plant regardless of sited location



- ☐ **<u>Hurricane Only</u>**: Verify Design Pressure Rating of Windows and Doors (Section 6.2)
 - **Documentation:** 2 photos for each type of opening; one overall photo and one photo showing label with design pressure rating

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- ☐ **<u>Hurricane Only</u>**: Verify Wall Impact Resistance (Section 6.3)
 - **Documentation:** 2 photos showing type and thickness of wall sheathing. Photos must show that exterior is fully sheathed
- ☐ Verify Continuous Load Path (CLP) (Section 6.4)
 - Documentation: 1 photo for each type of roof to wall connection clearly showing connectors
 - **Documentation:** If second story is attached at the plant1 photo for each type of wall above to wall below connection installed in plant, clearly showing connectors and/or lapped sheathing
 - For sheathed exterior walls, failure to observe at minimum, lapped sheathing at story levels (or vertical metal strap connectors AND horizontal framing plates if sheathing is not lapped) automatically DISQUALIFIES the home from meeting FORTIFIED Gold requirements.
 - Documentation: For homes to be installed within 3000 ft of a saltwater shoreline, documentation must be provided that exposed CLP connectors, anchors and fasteners meet <u>FORTIFIED Corrosion</u> Protection Requirements

TIP: Collect fastener documentation in plant regardless of sited location



FORTIFIED GOLD - MODULAR HOME DOCUMENTATION CHECKLIST

Field Installation/Complete Exterior

For FORTIFIED Home™ - Gold New Roof Designations

Documentation listed in this section will need to be collected by the certified FORTIFIED Evaluator, who will submit a complete designation application to IBHS. Coordination with the installation contractor is critical for success.



NOTE: All sections in this checklist refer to the 2020 FORTIFIED Home™ Standard.

NOTE: This checklist assumes modular home units will not include garage doors and will have shingle or metal roof covers only.

ALL PHOTOS MUST BE SITE SPECIFIC

verified by geolocation stamp or home address visible in photo

Verify	Sealed Roof Deck (Section 4.4) Documentation for hinged roofs: Photos of each roof section raised in field with sealed roof deck installed in field
Verify	 Roof Cover Rating and Attachment (Sections 4.7 and 4.8) Documentation for metal panel roof covers (if not completed at the manufacturing plant): For exposed fasteners: 1 photo of metal panel fastener packaging showing manufacturer, product, type and size. For homes within 3000 ft of a saltwater shoreline, photo must show that fasteners meet FORTIFIED Corrosion Protection Requirements 4 photos from different locations showing installed metal panel fastener spacing with tape measure in all roof zones
Hurric	cane Only: Verify Attic Vents and Covers (Section 4.9) Documentation: 1 photo of each gable end vent that is open to the attic space, showing a temporary cover to be used when a storm approaches and that permanent hardware, for attaching



- the cover is installed
- ☐ Verify Gable End Wall Framing and Bracing (Section 5.5.2)
 - Documentation (if not completed at the manufacturing plant): 2 photos per gable end showing bracing at top and at bottom and connection to supporting wall below from within the attic



- Hurricane Only: Verify Windows, Skylights and Entry Doors Impact Rating (Section 5.2 and 5.3)
 - **Documentation** (if applicable): photos showing permanent anchor installation for temporary impact protection systems and that temporary impact protection systems are stored onsite
- ☐ Verify Chimney Connections (Section 5.7)
 - Documentation (if applicable): 1 photo per chimney showing location of chimney on exterior of home
- ☐ Verify Attached Structure Connections (Section 5.8)
 - Documentation (if not completed at the manufacturing plant): 1 photo showing roof member connection to roof beam with metal connectors
 - Documentation (if not completed at the manufacturing plant): 1 photo showing connection of roof beam to column with metal connectors or a minimum of (2) bolts



MODULAR HOME DOCUMENTATION CHECKLIST

Field Installation/Complete Exterior

For FORTIFIED Home™ - Gold New Roof Designations

- **Documentation** (if not completed at the manufacturing plant): For homes within 3000 ft of a saltwater shoreline, documentation must be provided that exposed attached structure connectors, anchors and fasteners meet <u>FORTIFIED Corrosion Protection Requirements</u>
- **Documentation** (if not completed at the manufacturing plant): 1 photo showing column connection to foundation with metal connectors or a minimum of (2) bolts



Note: for multi-level attached structures, collect all documentation provided on <u>Evaluator</u> <u>documentation checklist</u> - engineering design is required.

- ☐ Verify Continuous Load Path (CLP) Connections (Section 6.4)
 - **Documentation:** Photos of unit connections in the field as applicable, i.e.;
 - Floor mating structural interconnections
 - End wall mating structural interconnections
 - Roof truss structural interconnections
 - Hinged top chords
 - Gable end structural interconnections
 - Documentation: Photos of permanent foundation with unit sited on top showing positive anchorage to structure
 - **Documentation:** 1 photo for each type of lower wall to foundation connection clearly showing connections spaced at 48" O.C. maximum
 - **Documentation:** I photo of typical hold down/tension tie at building corners
- ☐ Accessory Roofs (Reference Technical Bulletin <u>FH 2023-03</u>)
 - Attached structures that interfere with or interrupt the main roof and/or the main roof cover of the home will affect the home's eligibility for the Roof level of designation.

 Please refer to Technical Bulletin FH 2023-03 for information on eligibility and compliance of accessory roof structures and provide the required documentation for accessory roofs that interfere with the main roof as applicable.
- ☐ Finished Elevation Photos
 - Documentation: 4 elevation photos of the completed home, one from each face of the dwelling
 - Documentation: finished elevation photos from each side of the home showing the fully installed roof cover
- ☐ Verify Installer and Other Contractors as Applicable Have Completed FORTIFIED Compliance Form
 - **Documentation:** Completed FORTIFIED Home Site Installation Compliance Form for Modular Construction Compliance Form signed by the installer contractor



2.

1. General Information:

FORTIFIED Home™ - Site Installation Compliance Form for Modular Construction

The installing contractor is required to complete and sign the FORTIFIED Home - Site Installation Compliance Form for Modular Construction, confirming that the foundation, modular home installation, and installation of additional applicable components such as roof cover or attached structures have been installed to meet the requirements of the Authority Having Jurisdiction, manufacturer's installation instructions, and any FORTIFIED requirements. This form is not valid if all sections are not filled out, initialed and/or signed by installing contractor.

a.	FORTIFIED ID:(Obta	ain from homeowner or FORTIFIED Evaluator)
b.	Modular Home Manufacturer:	
c.	Site Builder/Retailer:	
d.	Homeowner's Name:	
e.	Site Address:	
f.	City: State	: ZIP:
g.	County:	
h.	Serial Number:	
i.	Building Code and Edition:	
j.	Permit Number:	
k.		
Founda	ation Design and Construction:	
site-sp	ed masonry or stone (a dry-stack foundation) are not eligi pecific foundation plan signed and sealed by a profession ed in compliance with the engineer's design drawings.	
a.	Yes No Is unit sited on a permanent, reinforce	d foundation?
b.	Yes No Is the unit connected to the foundation	n with permanent anchorage?
c.	Yes 🗆 No 🗀 Site specific foundation design plan sign	gned and sealed by a professional engineer is provided?
	 Yes \(\subseteq \text{No} \subseteq \subseteq \text{Foundation design plan incomodular unit to the foundation?}\) 	ludes requirements for the specific anchorage of the
	 Yes No Foundation plan is approve department)? 	d by the Authority Having Jurisdiction (building
d.	Yes No Foundation is installed in compliance	with signed and sealed foundation plan?
e.	Yes □ No □ Is the foundation level?	
f.	Yes No Foundation construction has been insp	pected and approved by the Authority Having Jurisdiction?
g.	Explain any "No" answers or provide additional comme	nts as needed:



3.	Modula	r Home Installation:
	a.	Yes No Are anchors that connect modular unit to foundation located, spaced, and installed in compliance with the signed and sealed engineered drawings?
	b.	Are the following connections between modular units installed in accordance with the manufacturer's installation details for the site module interconnections:
		 Yes □ No □ N/A □ Floor mating structural interconnections
		 Yes □ No □ N/A □ End wall mating structural interconnections
		Yes □ No □ N/A □ Roof truss structural interconnections
		Yes □ No □ N/A □ Hinged top chords
		Yes □ No □ N/A □ Gable end structural interconnections
	c.	Yes □ No □ N/A □ All site installed exterior sheathing is minimum 7/16" OSB/plywood?
	d.	Explain any "No" or "N/A" answers or provide additional comments as needed:
4.	Attache	d Structures Section:
	a ir	lote: Attached structures that interfere with or interrupt the main roof and/or the main roof cover of the home will iffect the home's eligibility for the Roof level of designation. Please refer to Technical Bulletin FH 2023-03 for information on eligibility and compliance of accessory roof structures and communicate with FORTIFIED evaluator to rovide the required documentation for accessory roofs that interfere with the main roof.
	2020 FC prescrip all atta	er and Gold levels of designation, attached structures must meet the requirements listed in section 5.8 of the <u>ORTIFIED Home Standard</u> and must be installed in compliance with either engineered design, or FORTIFIED of tive requirements. For Silver and Gold evaluations, the installing Contractor shall complete this section for ched structure(s) such as porches, carports, and breezeways with solid roofs that are attached to an exterior to the roof structure of the main home.
	☐ Che	ck here if there are NO attached structures (Skip to section 5)



Engineered Attached Structure Section Complete this section if the design of the attached structure is per engineered design: ☐ I confirm that signed and sealed engineered designs for attached structure(s) from professional engineer were received. ☐ I confirm that all attached structures (porches, carports, breezeways, etc..) with solid roofs that are attached to an exterior wall or to the roof structure of the main home are installed per signed and sealed engineered design. ☐ I confirm that all attached structure connections have positive uplift connections Installed. *Gravity-only* connections and/or nail-only connections are not permitted. i. For single-level attached structures \square I understand that nail-only connections for roof, beam, and column connections are not permitted and did not install them. ☐ I confirm roof framing is directly connected to roof beam with metal connectors. ☐ I confirm roof beam is directly connected to columns with metal connectors or a minimum of (2) bolts. ☐ I confirm columns are directly connected to foundation with metal connectors or a minimum of (2) bolts. OR Check here if there are no single level attached structures. ii. For multi-level attached structures (multi-level porch with middle floor level): ☐ I understand that nail-only connections for roof, beam, and column connections are not permitted and did not specify them. ☐ I confirm roof framing is directly connected to roof beams with metal connectors. ☐ I confirm roof beams are directly connected to upper-level columns with metal connectors or a minimum of (2) bolts. ☐ I confirm upper-level columns are connected directly to one of the following at their bottom: Lower-level columns with metal connectors or (2) bolts min. Middle floor structural support beams with metal connectors or (2) bolts min. ☐ I confirm middle floor beams are attached to lower-level columns/pilings/piers with metal connectors or a minimum of (2) bolts. ☐ I confirm lower-level columns are directly connected to foundation with metal connectors or a minimum of (2) bolts or have been installed with embedment depth/footing specified in the signed and sealed engineered drawings. OR ☐ Check here if there are no multi-level attached structures.



b. Prescriptive Attached Structure Section

Complete this section if attached structures are installed per section 5.8 of the 2020 FORTIFIED Home™ Standard.

- I confirm that the attached structure meets ALL of the following requirements for prescriptive design (If any of the following requirements are not met, engineered design is required):
 - Rectangular or square plan; 20'D x 25'W max.
 w/ 1.5' max. overhang
 - Flat, monoslope roof
 - Weight of roof = 7 psf min.
 - Mean roof height = 15 ft max.
 - Framing geometry as shown in Figure 1

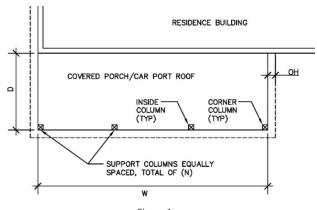


Figure 1

☐ Using the output from the <u>FORTIFIED Porch/Carport Calculator</u> with correct site conditions entered, fill out the required uplift loads and the installed connector information for each connection location listed in the table below.

Connection Location	Required Uplift	Connector	installed	Max. Uplift Capacity of
(Refer to Figure 1)	(lbs)	Manufacturer	Connector	Connector from Manufacturer
Inside column to foundation				
Inside column to beam				
Corner column to foundation				
Corner column to beam				
Each roof member to beam				

☐ Check here to confirm that the manufacturer's published allowable loads for installed the required uplift loads from the above table.	connectors meet or exceed
Provide additional comments regarding attached structures as needed:	



I certify that I am a licensed building contractor in the	state of	or a huilding
code official who is duly authorized by the state of verify building code compliance.		
In my professional opinion, based on my knowledge, below, all applicable installation requirements for con construction of the home located at:		
Furthermore, I understand that any person who make knowingly, with an intent to injure, defraud, or deceived make a false statement or misrepresentation may be this Affidavit, the undersigned does not make a healt	es a false statement or misrepresen ve, who assists, abets, solicits, or co subject to both criminal and/or civi	tation, and any other person nspires with such person to
Signature:	Date:	
Printed Name:		
Company:		
Phone Number:		
Phone Number:		

Note: Completion of this form in its entirety does not, by itself, satisfy FORTIFIED requirements for continuous load path installation. Additional information presented by the FORTIFIED Evaluator will also be considered in determining if FORTIFIED continuous load path installation requirements have been met.



MODULAR HOME DOCUMENTATION - EVALUATOR GUIDE TO SUBMITTING IN FOCUS

Like an evaluation for any other home, documentation showing a modular home meets the FORTIFIED standard must be submitted for IBHS review using the audit software FOCUS. Since the entries for a manufactured or modular home are not always intuitive, this chart can help evaluators understand where, in FOCUS, specific information should be stored.



NOTE: Evaluators should alert the IBHS audit team that an evaluation is for a modular home by entering a comment in the FOCUS 2.5 board.

	ed to the evaluator for submittal to IBH
DOCUMENTATION REQUIRED	Upload Documentation in FOCUS 2.5
Signed and sealed building (unit) design plans	Eligibility Form include these in "Other Documents"
For openings, required site design wall wind pressures for all doors and windows must be included in design plans	Silver and Gold Compliance Form General Information
For metal roof covers, required site design uplift pressures for all roof zones must be included in design plans	Roof Cover Compliance Form If applicable
For metal roof covers, certified test report for metal panel system (Refer to section 2.8.1)	Roof Cover Compliance Form If applicable
Signed and sealed foundation design plan	Eligibility Form include these in "Other Documents"
If not available on product labels/stickers, documentation of impact and design pressure rating for all openings (i.e. windows, doors, skylights, etc)	Silver and Gold Compliance Form General Information If applicable
Chimney framing/anchorage details and/or manufacturer information if applicable	Silver and Gold Compliance Form General Information If applicable
PLANT PRODUCTION Documentation for each of these requirements should be collected by the plant and provide	ed to the evaluator for submittal to IBH
DOCUMENTATION REQUIRED	Upload Documentation in FOCUS 2.5
Verify Roof Structural Members (Section 2.5): 1 photo minimum showing at least 3 exposed roof members (i.e. trusses, rafters) with tape measure between roof members to show on center spacing.	Roofing Compliance Form General Information
Verify Roof Deck Thickness (Section 4.1): 1 photo of sheathing type and thickness, i.e. plywood/OSB grade stamp or sheathing edge with tape measure	Roofing Compliance Form General Information
 Verify Roof Deck Attachment and Fastener Type (Section 4.2): 1 photo showing type of fastener used – photos must show either carton label indicating nail type and size, or full nails clearly showing ring shank with tape measure showing length (required minimum 8D ring shank as specified in Section 2.6) 8 total photos showing maximum nail spacing: 4 photos must be taken from above roof deck showing nail spacing with tape measure in four different locations and 4 photos must be provided from 4 locations within the attic (below roof deck). Each photo in attic must include 2 consecutive structural roof members (truss and/or rafter) and show any areas where excessive shiners are present. 	Roofing Compliance Form General Information
Verify Sealed Roof Deck (Section 4.4): For all sealed roof deck methods: 1 legible photo of each label for each approved synthetic underlayment, 30# felt, self-adhered underlayment, and/or seam tape product showing ASTM. For taped seams and underlayment only – (Section 4.4.1.1): 4 overall photos (one from each elevation) after seams are taped. 4 overall photos (one from each elevation) after underlayment/anchor sheet is installed. 2 closer photos showing underlayment/anchor sheet nailing pattern For tile roof cover, 4 photos (one from each elevation) showing installed cap sheet. For homes to be installed within 3000 ft of a saltwater shoreline, 1 photo of packaging for cap nails used to attach underlayment to roof deck showing that they meet FORTIFIED Corrosion Protection Requirements For 2-Ply underlayment only– Section 4.4.1.2: 4 overall photos (one from each elevation) showing installed underlayment 5 chose photos showing underlayment nailing pattern For homes to be installed within 3000 ft of a saltwater shoreline, 1 photo of packaging for cap nails used to attach underlayment to roof deck showing that they meet FORTIFIED Corrosion Protection Requirements For self-adhered membrane only – Sections 4.4.1.3 and 4.4.2.2: 4 overall photos (one from each elevation) showing installed membrane before bond break is applied If bond break is applied, 4 photos from different eave/rake locations showing bond break held back 8" from edge. For Closed Cell Spray Foam – Section 3.2: 4 photos from different areas within attic showing spray foam installation at sheathing joints and roof framing members.	Roofing Compliance Form General Information If applicable

PLANT PRODUCTION (continued) Documentation for each requirement should be collected by the plant and provided to	the evaluator for submittal to IBHS.
OCUMENTATION REQUIRED	Upload Documentation in FOCUS 2.5
erify Drip Edge (Section 4.5): 4 photos from different areas showing drip edge installation and nailing pattern	Roofing Compliance Form General Information
Perify Roof Cover Rating and Attachment (Sections 4.7 and 4.8): Per all roof covers: Minimum roof slope for all roof cover types present on the home. Some examples of how roof slope can be documented are by holding a T-square up to the roof eave to show "rise over run", by placing an inclinometer on the roof and photographing the reading, or by using a mobile app to measure and including a photo capture of the results.	Roof Cover Compliance Form
Perify Roof Cover Rating and Attachment (Sections 4.7 and 4.8) continued: For all roof covers: Of 4 finished elevation photos from each side of the home showing installed roof cover.	Roofing Compliance Form General Information
Perify Roof Cover Rating and Attachment (Sections 4.7 and 4.8) continued: Documentation for asphalt shingle roof covers (see below): 1 photo of shingle packaging showing manufacturer and product name. 1 photo of shingle packaging showing shingle ASTM rating and class. 4 photos of starter strip installation from different areas (include eave and rake). For homes to be installed within 3000 ft of a saltwater shoreline, photo of shingle nail packaging showing nails meet FORTIFIED Corrosion Protection Requirements. Documentation for metal panel roof covers (see below): For exposed fasteners: 1 photo of metal panel fastener packaging showing manufacturer, product, type and size. For homes within 3000 ft of a saltwater shoreline, photo must show that fasteners meet FORTIFIED Corrosion Protection Requirements. 4 photos from different locations showing installed metal panel fastener spacing with tape measure in all roof zones.	Roof Cover Compliance Form If roof cover installed in plant
• Minimum of 1 legible photo of packaging for each roof mounted vent showing manufacturer, model and TAS 100(A) rating. Product information (pdf) may also be included.	Roofing Compliance Form General Information
Perify Windows and Skylights Impact Rating (Section 5.2): 2 photos for each type of window or impact-rated window cover; one overall photo and one photo showing label with impact rating. 2 photos for each skylight; one overall photo and one photo showing label with impact rating.	Silver and Gold Compliance Form General Information
Perify Entry Doors Impact Rating (Section 5.3): 2 photos for each type of entry door or impact-rated entry door cover; one overall photo and one photo showing label with impact rating.	Silver and Gold Compliance Form General Information
Perify Gable End Wall Sheathing (Section 5.5.1) 1 photo per gable end showing sheathing type and thickness by plywood/OSB stamp or sheathing edge with tape measure from within the attic.	Silver and Gold Compliance Form General Information
erify Gable End Wall Framing and Bracing (Section 5.5.2) 2 photos per gable end showing bracing at top and at bottom and connection to supporting wall below from within the attic.	Silver and Gold Compliance Form General Information If applicable and completed in plant
Perify Gable End Overhang Construction (5.5.3) 1 photo per gable end showing length of gable end overhangs with tape measure 1 photo per gable end showing overhang framing from within the attic. Photos must show that gable end rake soffits are NOT vented.	Silver and Gold Compliance Form General Information If applicable
For flexible soffits:	Silver and Gold Compliance Form General Information If applicable
Cerify Chimney Connections (5.7): 2 photos per chimney showing chimney framing and anchorage to structure from underside of deck/within attic	Silver and Gold Compliance Form General Information If applicable
Prify Attached Structure Connections (5.8) (i.e. Porch/Carport/ etc): 1 photo showing roof member connection to roof beam with metal connectors. 1 photo showing connection of roof beam to column with metal connectors or a minimum of (2) bolts. For homes within 3000 ft of a saltwater shoreline, documentation must be provided that exposed attached structure connectors, anchors and fasteners meet FORTIFIED Corrosion Protection Requirements	Silver and Gold Compliance Form General Information <i>If applicable</i>
erify Design Pressure Rating of Windows and Doors (Section 6.2): • 2 photos for each type of opening; one overall and one showing label with design pressure rating	Silver and Gold Compliance Form General Information
2 photos is such type of spenning, one seems and one showing labor with assign pressure	

Silver and Gold Compliance Form
General Information

Verify Continuous Load Path (CLP) Connections (Section 6.4):

• 1 photo for each type of roof to wall connection clearly showing connectors.

1 photo for each type of wall above to wall below connection, clearly showing connectors and/or lapped sheathing.
 For homes within 3000 ft of a saltwater shoreline, documentation must be provided that exposed CLP connectors, anchors and fasteners meet FORTIFIED Corrosion Protection Requirements

FIELD INSTALLATION/ COMPLETE EXTERIOR Documentation for each requirement should be collected by the evaluator for submittal to IBHS. DOCUMENTATION REQUIRED **Upload Documentation in FOCUS 2.5** Roofing Compliance Form **General Information** - and -Sealed Roof Deck (Section 4.4): Roof Cover Compliance Form • For hinged roofs, photos of roof sections raised in field with sealed roof deck installed in field Include photos of roof deck attachment, installation of sealed roof deck, and installed roof cover in the appropriate sections. Verify Roof Cover Rating and Attachment (Sections 4.7 and 4.8): For metal panel roof covers: o For exposed fasteners: I photo of metal panel fastener packaging showing manufacturer, Roof Cover Compliance Form product, type and size. For homes within 3000 ft of a saltwater shoreline, the photo must show If not completed in plant that fasteners meet FORTIFIED Corrosion Protection Requirements. \circ 4 photos from different locations showing installed metal panel fastener spacing with tape measure in all roof zones. Verify Attic Vents and Covers (Section 4.9): Roofing Compliance Form 1 photo of each gable end vent that is open to the attic space, showing a temporary cover to be used **General Information** when a storm approaches and that permanent hardware, for attaching the cover is installed. If applicable Verify Gable End Wall Framing and Bracing (Section 5.5.2): Silver and Gold Compliance Form 2 photos per gable end showing bracing at top and at bottom and connection to supporting wall **General Information** below from within the attic. If applicable and not completed in plant Verify Windows, Skylights and Entry Doors Impact Rating (Section 5.2 and 5.3): Silver and Gold Compliance Form Photos showing permanent anchor installation for temporary impact protection systems if **General Information** applicable and that temporary impact protection systems are stored onsite. If applicable Verify Attached Structure Connections (5.8): 1 photo showing roof member connection to roof beam with metal connectors. • 1 photo showing connection of roof beam to column with metal connectors or a minimum of (2) bolts. NOTE: For multi-level attached structures, collect all documentation provided on Evaluator Silver and Gold Compliance Form documentation checklist - engineering design is required. General Information If applicable and not completed in plant For homes within 3000 ft of a saltwater shoreline, documentation must be provided that exposed attached structure connectors, anchors and fasteners meet FORTIFIED Corrosion Protection Requirements. 1 photo showing column connection to foundation with metal connectors or a minimum of (2) bolts. Verify Continuous Load Path (CLP) Connections (Section 6.4): Silver and Gold Compliance Form · Photos of unit connections installed in field. **General Information** · Photos of permanent foundation with unit sited on top showing positive anchorage to Include in "Wall Above to Wall Below Connection" file uploader in Gold section 1 photo for each type of lower wall to foundation connection clearly showing connections spaced at Include in "Lower Wall to Foundation Connection" file uploader in Gold section • 1 photo of typical hold down/tension tie at building corners. Accessory Roofs (Reference <u>Technical Bulletin FH 2023-03</u>): Roofing Compliance Form Attached structures that interfere with or interrupt the main roof and/or the main roof cover of the home will **General Information** affect the home's eligibility for the Roof level of designation. Please refer to Technical Bulletin FH 2023-03 for - and information on eligibility and compliance of accessory roof structures and communicate with FORTIFIED Roof Cover Compliance Form evaluator to provide the required documentation for accessory roofs that interfere with the main roof. If needed **Provide Finished Elevation Phots:** 4 elevation photos of the completed home, one from each face of the dwelling Eligibility Form • 4 finished elevation photos from each side of the home showing the fully installed roof cover. Roofing Compliance Form **General Information** Roofer Confirmation, Silver Confirmation and **Verify Installer Compliance Forms:** Gold Confirmation Forms FORTIFIED Home Site Installation Compliance Form for Modular Construction Upload in signed compliance form uploaders



NOTE: Remember to alert the IBHS audit team that an evaluation is for a modular home by entering a comment in the FOCUS 2.5 board.