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SC Safe Home Inspector

For the purposes of this program, a South Carolina Safe Home (SC Safe Home) inspector is defined as a participating entity that has satisfactorily completed the South Carolina Safe Home Inspector Training and by virtue of their LLR License, allowed to perform home inspections in the state of South Carolina.

SC Safe Home Wind Survey Checklist

CHECKLIST
The “SCSH Wind Survey Checklist” must be completed by the SC Safe Home inspector at the survey location.

The “checklist” serves as the data collection tool for inspection surveys and the information recorded on it will help to determine whether or not a SCSH grant will be obtained by a homeowner.

The layout of the checklist is designed to simplify the survey process, leading the SC Safe Home inspector from top to bottom and from outside to inside. Each section of the “checklist” deals with a specific area of the structure; related questions are grouped together to simplify the survey process. Once the checklist is completed by the SC Safe Home inspector, a copy should be made for his/her records and the original provided to the homeowner.

COMPLETING THE CHECKLIST
For ease of SC Safe Home inspector use, this manual will give instructions on how to complete the checklist step-by-step. If filling out a section of the checklist requires elaboration because a procedure, regulation or technique needs further explanation, then the elaboration will be provided in connection with the section. Additionally, in-depth information, may be provided in an appendix and will be so noted in the text of the manual.

The checklist is six pages in length.

Page 1 contains information about the SC Safe Home inspector, inspection appointment, homeowner, insurance company, and general building information, a signature block for the person granting access to the house to sign, and the window, door and opening protection codes for use during the survey.

Pages 2, 3, 4 and 5 are virtually identical in terms of questions, but each page refers to a different elevation of the house being surveyed (front, right, back & left). Therefore, with the exception of “Roof Covering” in section F-1, the explanation for completing page 2 applies to pages 3, 4, & 5.

Page 6 deals with the Attic inspection details for the roof deck, nailing, roof structure and connections. Additionally, this page is used to record information on gable end wall bracing (if required).

Remember, the State of South Carolina and the homeowners deserve accurate work. The accuracy of the recorded data is of primary importance, since significant amounts of grant money will be awarded based on the information the SC Safe Home inspector has gathered.

NOTE: The checklist referred to in this manual is now completed electronically online at the SC Safe Home portal. While the hard copy checklist is no longer used, the description of its completion is retained in this manual for explanatory purposes.
WHAT WILL THE FINAL INSPECTION REPORT REVEAL?
The law specifies that the final inspection report must:

1. Outline what eligible improvements can be made to a home to increase resistance to hurricane wind damage.
2. Provide a range of how much each improvement would cost.
3. Explain what insurance discounts may be available for each improvement.

NOTE: There are several steps homeowners can take to minimize the damages caused by high winds. The SC Safe Home Program focuses on the following areas:

1. Bracing Gable Ends
2. Exterior Doors, including garage doors
3. Opening Protection
4. Problems associated with weakened trusses, studs, and other structural components
5. Reinforcement of roof-to-wall connections
6. Repair or replacement of manufactured home piers, anchors, and tie-down straps
7. Roof Covering
8. Roof Deck Attachment
9. Secondary Water Barrier

Certain insurance companies in the state of South Carolina offer premium discounts for high-wind mitigation of the home. The SC Safe Home Program is not affiliated with these discounts. The SC Safe Home Program highly recommends that if a homeowner has mitigation measures in the home or installs them as part of this program, they contact their insurance company to receive the proper paperwork/inspection forms for receiving the discounts.
HOME SURVEY CHECKLIST

**Section A Inspector Information**
- Date Assigned: ____________  Date Inspected: ____________
- Inspector: ____________  Inspection Company: ____________
- Start time: ____________  Finish Time: ____________
- Inspector Contact Information: ____________

**Section B Owner Information**
- Owner’s Name: ____________
- Property Address: ____________
- City: ____________
- County: ____________
- Zip Code: ____________
- Insurance Co: ____________

**Section C General Building Information**

<table>
<thead>
<tr>
<th>Year Built</th>
<th>Number of Stories</th>
<th>Foundation</th>
<th>Foundation Restraint</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building Code</td>
<td>1 Story</td>
<td>Peri/Piling</td>
<td>Anchor Bolts</td>
</tr>
<tr>
<td></td>
<td>2 Story</td>
<td>Slab on Grade</td>
<td>Cut Nails</td>
</tr>
<tr>
<td></td>
<td>3 Story</td>
<td>Stem wall</td>
<td>Rebar</td>
</tr>
<tr>
<td></td>
<td>4 Story</td>
<td></td>
<td>None</td>
</tr>
</tbody>
</table>

- Wind Speed: ____________

**Section D Signature**
- I acknowledge that (inspector name) ____________ inspected the home at the address shown above and no damage was caused to the home and/or any property.
- Inspector Name: ____________  SC LLR License Number: ____________
- Inspection Company: ____________  Phone: ____________
- Inspector Signature: ____________  Date: ____________
- Homeowner/Applicant Signature: ____________  Date: ____________

**Section E Codes**

<table>
<thead>
<tr>
<th>Window Type</th>
<th>Door Type</th>
<th>Protection Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Hung</td>
<td>Single Hinged (out swing)</td>
<td>ASTM E 1886/ E 1996</td>
</tr>
<tr>
<td>Double Hung</td>
<td>Double Hinged (out swing)</td>
<td>Yes</td>
</tr>
<tr>
<td>Horizontal Sliding</td>
<td>Single Hinged (in swing)</td>
<td>No</td>
</tr>
<tr>
<td>Awning/Gable</td>
<td>Double Hinged (in swing)</td>
<td>Other:</td>
</tr>
<tr>
<td>Casement</td>
<td>Sliding Glass</td>
<td></td>
</tr>
<tr>
<td>Fixed glass</td>
<td>Garage (Single)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Garage (Double)</td>
<td></td>
</tr>
</tbody>
</table>

South Carolina Safe Home Inspector Training Program • 5
**SECTION A**

**SC Safe Home Inspector Information**

Please note, some of the forms may have a different appearance in the new, electronic format.

<table>
<thead>
<tr>
<th>Section A Inspector Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date Assigned:</td>
</tr>
<tr>
<td>Inspector:</td>
</tr>
<tr>
<td>Start time:</td>
</tr>
<tr>
<td>Inspector Contact Information:</td>
</tr>
</tbody>
</table>

Date Assigned, and the SC Safe Home Inspector information will be preprinted in this section. The SC Safe Home inspector will fill-in information about the Date Inspected, Start Time, Finish Time, and Dates of Attempted Calls (to set-up appointment for inspection).

Several reminders:

- The home survey must only be done by the SC Safe Home inspector if the homeowner or adult (over 18 years of age) representative is present.
- Information on the survey is confidential and should not be divulged to anyone outside the SCSH Program.
- The SC Safe Home inspector may **not** refer homeowners to contractors not approved by the SCSH Program.

**SECTION B**

**Homeowner Information**

<table>
<thead>
<tr>
<th>Section B Owner Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owner’s Name:</td>
</tr>
<tr>
<td>Property Address:</td>
</tr>
<tr>
<td>City:</td>
</tr>
<tr>
<td>County:</td>
</tr>
<tr>
<td>Zip Code:</td>
</tr>
<tr>
<td>Insurance Co:</td>
</tr>
</tbody>
</table>

All Homeowner Information will also be preprinted. The SC Safe Home inspector must correct pre-printed information, if necessary, or enter information that is missing.
The Year Built section is self-explanatory and it is recognized that in some cases the date must be estimated. The date provided in this section, and other dates referred to throughout this manual, such as when permitted, may provide the easiest method for determining how a house was built and to what standards. Consider the following.

**Number of Stories**

**BACKGROUND:**
Surface friction causes wind speed to slow down; therefore the further above the ground we measure a given wind, the faster the wind speed. The height of a building affects the wind loads that it experiences during a hurricane. Two story houses experience higher wind loads than a similarly located one-story house. Insurance companies include the number of stories in their underwriting criteria to set insurance rates.

**DEFINITION:**
Two Story: Any dwelling with more than one story. A dwelling shall be considered two-story if it is a story in part (e.g., split level) or where the first tenable (livable) floor (having enclosed walls) is elevated greater than 7' above the highest grade immediately below the first floor's structure and the building is supported on frame, steel, or masonry piles braced and connected to a perimeter beam.

**PROCEDURE TO DETERMINE NUMBER OF STORIES AND PILINGS/PIERS**

1. For a house built on the ground (including Stem Wall and Slab on Grade), count the number of livable floors. If the house has two livable floors, it is a two story. Classify the house as a two story regardless of the size of the second livable story. Similarly, if the house has 3 or 4 livable floors, it is a 3 or 4 story house.

2. If the house is on pilings or piers, the pilings or piers count as a story only if:
   - Measure the distance from the bottom of the floor joists to the highest grade. If the total distance is greater than 7', count the pilings/piers as a floor.

**NOTE:** if the structure is elevated on piles/piers, and the area at grade is enclosed, you will ignore the 7' rule if the enclosed area is living space (the living space counts as a story).
If the enclosed area is enclosed by breakaway walls, and the area is only used for parking, storage or building access, as required by flood zone regulations, then you must consider the 7’ rule in determining if the building is 2 or more stories.

Figure C.2 illustrates examples of classifications of the number of stories. In Fig. C.2(a), the greater than 7’ elevation of the first floor structure results in classification as 2 stories. In Fig. C.2(b), the clearance is 7’ or less and the house is classified as 3 story instead of 4 story.

![Figure C.1](image1.jpg)

Figure C.2(a)
2 Story – distance is >7’ to the structure of the first livable finished floor

Figure C.2(b)
3 Story – less than 7’ clearance

![Figure C.2(c)](image2.jpg)

Figure C.2(c)
Typical 2 Story House
Foundation Types

There are 3 foundation types (Pier/Piling, Slab on Grade and Stemwall) which are illustrated below.

<table>
<thead>
<tr>
<th>Foundation Restraint</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchor Bolts</td>
</tr>
<tr>
<td>Cut Nails</td>
</tr>
<tr>
<td>Rebar</td>
</tr>
<tr>
<td>None</td>
</tr>
</tbody>
</table>

**Figure C.3**
Pier/Piling

**Figure C.4**
Stemwall

**Figure C.5**
Slab on Grade

Foundation Restraint

**BACKGROUND:**
Most homes the SC Safe Home inspector will encounter will be restrained. Restraints cannot easily be seen, but they may be visible in spaces like unfinished garages. (See Figure C.6) If the home is wood frame (first floor) and constructed on a stem wall or pilings and piers with straps, check the Anchor Bolts box. If the home is masonry and constructed with a Slab on grade or stem wall, mark the Rebar box.

**Figure C.6**
Anchor Bolts in wood frame wall in garage

Cut nails are not considered adequate and if you see them, mark the appropriate box.
DEFINITIONS FOR INSURANCE COMPANY USE:

**Restrained Foundation** – Houses constructed such that the connection between the foundation and the wall/floor system has a mechanical connection mechanism like anchor bolts, straps, rebar, etc. A slab on grade home is considered restrained if walls are anchored directly to the slab with any of the above connectors.

**Unrestrained Foundation** – Houses supported on posts, piles, piers, or concrete blocks that rely on gravity/friction alone to resist uplift and lateral forces. No mechanical connection exists between the foundation (e.g. top of pile/post) and the wall/flooring system. See Figure C.7 below. Rate “None.”

![Figure C.7 Unrestrained Foundation](image)

**SECTION D Signature**

Only trained SC Safe Home Inspectors are eligible to complete the Inspection for this program. Employees or associates of a SC Safe Home Inspector who are not trained are not allowed to conduct inspections.

The homeowner or person providing access to the house is to fill in the SC Safe Home inspector’s name. This same person must sign the form; their signature only indicates that no damage was done to the house in the process of it being inspected.

It does not indicate agreement or disagreement with the information that was recorded on the survey checklist. The signature must be dated on the appropriate line of the checklist.
This section contains the codes for the window types, door types and the protection codes that will be utilized throughout the elevation survey pages. For example in classifying window types, a double hung window would be referred to as “DH.” In classifying doors, a double hinged out swinging door would be classified as “DO.”

Only products that meet ASTM E-1886 & ASTM E-1996 standards for wind pressure, 9# Missile Impact and pressure cycling are recognized in this program. If the ASTM stamp is clearly visible on the protection system or in the documentation, check the “YES” box on the form. If another standard is listed, write the standard number under the other box. Otherwise, check “NO” for protection codes.
Step-by-step Instructions for Pages 2, 3, 4, and 5 of the checklist which contain Sections F through P as shown below: Page 2 is the Front Elevation, Page 3 is the Right Elevation, Page 4 is the Back Elevation and page 5 is the Left Elevation.

### Front Elevation

**Section F-1 Exterior Roof Information**

<table>
<thead>
<tr>
<th>Roof Shape</th>
<th>Roof Complexity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gable</td>
<td>Simple Roof Shape</td>
</tr>
<tr>
<td>Gambrel</td>
<td>Moderate Roof Shape</td>
</tr>
<tr>
<td>Flat</td>
<td>Complex Roof Shape</td>
</tr>
<tr>
<td>Mansard</td>
<td>Other</td>
</tr>
</tbody>
</table>

**F-1A Roof Covering (Front Elevation Only)**

<table>
<thead>
<tr>
<th>Type of Covering</th>
<th>Condition of Covering</th>
<th>Year Installed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shingles</td>
<td>Good</td>
<td></td>
</tr>
<tr>
<td>Metal</td>
<td>Poor</td>
<td></td>
</tr>
<tr>
<td>Wood</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tile</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Section G-1 Window Openings

<table>
<thead>
<tr>
<th>Number</th>
<th>Quantity</th>
<th>Window Type</th>
<th>Floor</th>
<th>Opening in Inches</th>
<th>Protection</th>
<th>ASTM E 1886/ E 1996</th>
<th>Year Installed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Width Height Yes No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td>Year Installed:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td>Other:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Section H-1 Doors

<table>
<thead>
<tr>
<th>Number</th>
<th>Quantity</th>
<th>Door Type</th>
<th>Floor</th>
<th>Opening in Inches</th>
<th>Protection</th>
<th>ASTM E 1886/ E 1996</th>
<th>Glazed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Width Height Yes No</td>
<td></td>
<td></td>
<td>Yes/No</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td>Year Installed:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td>Other:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Section I-1 Skylights

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Daylight/Shade</th>
<th>ASTM E 1886/ E 1996</th>
<th>Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Daylight/Shade</td>
<td>ASTM E 1886/ E 1996</td>
<td>Yes/No</td>
</tr>
</tbody>
</table>

### Section J-1 Gable Ends (all dimensions in inches)

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Height</th>
<th>Width</th>
<th>ASTM E 1886/ E 1996</th>
<th>Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Section K-1 Wall Cladding (circle floor)

<table>
<thead>
<tr>
<th>Material</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum Siding</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Vinyl Siding</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Brick Veneer</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Painted Block</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

### Section L-1 Wall Construction (circle floor)

<table>
<thead>
<tr>
<th>Material Type</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Steel</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Wood/Light Metal</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

### Section M-1 Reinforcement Check (check 3-5 locations for entire house)

<table>
<thead>
<tr>
<th>Location</th>
<th>Left Corner</th>
<th>Window/Door</th>
<th>Right Corner</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section N-1 Carport</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Circle Applicable)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None Built-In</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attached</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Cars:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Section O-1 Porches</th>
<th>Section P-1 Soffits</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Circle Size and Type)</td>
<td>(Size and Type)</td>
</tr>
<tr>
<td>Overhang</td>
<td>Horizontal Length</td>
</tr>
<tr>
<td>(inches)</td>
<td>(linear feet)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type Size</th>
<th>Type Size</th>
<th>Type Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solid/Wood/Other</td>
<td>Vinyl/Aluminum</td>
<td>None</td>
</tr>
</tbody>
</table>
NOTE: The information the SC Safe Home inspector obtains for Pages 2, 3, 4, and 5 of the checklist concerns all windows, doors, sliding glass doors, skylights, garage doors, gables and walls, roof overhang, soffit material, and length of wall for roof-to-wall connections. The checklist is laid out to allow the SC Safe Home inspector to visit each side of the house once to collect all required information. The data collected on each opening involves determining the size, type and if the opening is protected from debris impact.

Before Page 2, you must determine which elevation you want to call the front of the house. Usually such classification is easy, but the configuration of a house may require some arbitrary decisions on the part of the SC Safe Home inspector. The diagram below illustrates a situation that may be encountered and suggests a method of elevation classification. If the house has many different size windows on an elevation you may find that you need for more than 7 lines for window openings and/or more than 4 lines for doors. Remember, if there are openings of the same size, you can simply indicate the quantity of windows or doors that are of the same size. If the protection code differs for different windows and doors, even if they are the same size, they will have to be entered on separate lines. If you need more space to record more openings, you may use the sheet(s) for another elevation where there may not be as many openings to record. If you run out of space on all sheets, a supplemental sheet can be added to the checklist.

Figure F.1
Elevation Classification
Roof Shape

BACKGROUND:
Roof shape refers to the geometry of the roof and not the roof covering type. Roof shape determines the aerodynamic pressure loads experienced by the roof due to wind flow and wind direction. Many homes are constructed with a combination of roof shapes. Figure F.2 shows typical roof shapes, including gambrel, gable, flat, hip, mansard, and Dutch hip. Some insurance companies limit the selections to two basic classes of roof shape: hip, and gable/other. Other insurance companies include all of the roof shapes in their rating plans. As a result, surveyed houses must be classified using one of the shapes and procedures below. You must look at and record the roof shape on each elevation page. Therefore, as an example, if you see only hip shape on the front, just record that and do not worry about the other elevations as you will record the appropriate shape for each elevation. The computer/database will choose the final rating based on all the reported information you submit.

ROOF SHAPE DEFINITIONS:

Recording the Roof Shape(s)
Roof Shape is reported in the ROOF SHAPE section F for each elevation as follows:

1. Simple shapes that are either purely gable, hip, or flat are easy to identify
2. Report all gables in section J (1 thru 4) (See the instructions for Section J on page 31 of this manual.)
3. See Figure F.2 for a good understanding of how to report roof shapes.
Figure F.2


<table>
<thead>
<tr>
<th>SHAPE</th>
<th>CLASSIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gambrel</td>
<td>Gambrel</td>
</tr>
<tr>
<td>Gable</td>
<td>Gable</td>
</tr>
<tr>
<td>Flat</td>
<td>Flat</td>
</tr>
<tr>
<td>Hip</td>
<td>Hip</td>
</tr>
<tr>
<td>Mansard</td>
<td>Mansard</td>
</tr>
<tr>
<td>Dutch Hip</td>
<td>Gable</td>
</tr>
</tbody>
</table>
Figure F.3
Examples of Hip and Gable Reporting for Sections F and J

Fig. F.3(a)
Hip with Gable = Hip in section F and one gable reported in section J; as 10 feet wide X 3 feet high, No vent.

Fig. F.3(b)
Hip with Dutch Hip where gable portion is greater than 50% of wall = Gable in section F and 3 gables in section J; as 18 feet wide X 4 feet high, No vents.
Fig. F.3(c)
Gable in Section F with two gables in Section J: 24 feet wide x 6 feet high (assumes the gable at the right is the same as the one on the left.

Fig. F.3(d)
Hip Roof House with Gable >50% Wall Width = Gable in Section F and one gable in section J: 16 feet wide x 5 feet tall. Vent 16 inches x 16 inches.
Fig. F.3(e)

*Hip Roof House with Gable Entrance = Hip in Section F and one gable in section J: 12 feet wide x 5 feet high. No vent.*

Fig. F.3(f)

*Standing Seam Metal Roof Hip with Gable Entrance = Hip in Section F and one Gable in Section J: 10 feet wide x 4 feet high, No vent.*
Roof Complexity

Roofs may be classified as being simple, moderate or complex. The reason for this classification is because more roof covering materials are needed for recovering more complex roofs that have many little gables, entrance gables and hips. If there are no gables, the roof would be classified as being “simple.” If there are many gables the roof would be classified as being “complex.”

Figure F.4
Roof Complexity

Simple Roof Shape

Moderate Roof Shape

Complex Roof Shape

<table>
<thead>
<tr>
<th>Roof Complexity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simple Roof Shape</td>
</tr>
<tr>
<td>Moderate Roof Shape</td>
</tr>
<tr>
<td>Complex Roof Shape</td>
</tr>
</tbody>
</table>

Report the Roof Complexity on each elevation.
## Roof Covering

### BACKGROUND
The most common type of residential roof coverings include:

- **Shingles**: Composition shingles are the most common roof covering used in residential construction today. The shingles have about a 10–25 year life span, but are relatively inexpensive to replace.

- **Clay/Concrete Tile**: Clay or concrete tiles are heavy durable products that, if installed correctly, will have a 50-year life span. This roofing system is very expensive to replace. Figure F.5 illustrates curved and flat tiles.

- **Wood Shakes/Shingles**: Wood shakes or wood shingles are often installed on a spaced wood batten deck. The life spans of a wood shake or wood shingle roof is approximately 25 years, and are quite expensive to replace.

- **Metal**: Metal panels or Standing Seam Metal.

- **Other**: Tar and Gravel, metal shingles, built-up roof, and single ply membrane or other products not listed above.

For single family homes the roof covering installed on the front of the house will most always represent the dominate roof covering. Porches and lanais may have flat or low slope roof coverings installed but they are not usually predominate coverings.

### PROCEDURE TO DETERMINE ROOF COVERING
1. A visual determination from ground level should enable you to easily classify the roof covering as shingle, wood, tile, metal or other.

2. If the roof covering is “Other”, write in the type (built-up, and membrane, etc.). If you find a concrete roof deck, with no separate roof covering material, write a description of this in the “Other” box.

3. If the house has multiple roof coverings, classify according to the one that comprises greater than 50% of the roof covering surface. Only select one type of roof covering.
Please note, to determine potential opening protection costs we are counting the number of openings for windows not the number of windows. Figure G.1, below, shows 4 windows but only one OPENING.

### Section G-1 Window Openings

<table>
<thead>
<tr>
<th>Number</th>
<th>Quantity</th>
<th>Window Type</th>
<th>Floor</th>
<th>Opening in Inches</th>
<th>Protection</th>
<th>Year Installed</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
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<td>Yes</td>
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<td></td>
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<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure G.1
Background on Counting Windows vs. Counting Openings

When counting windows, use the pictures below to help understand the difference between “Windows” and “Openings.” Homeowners usually look at each window unit as a “Window” versus looking at the opening in the building as a “Window.” The result will be a higher number of individual “Windows” than openings.

Figure G.2
Windows/Openings

Four Windows = One Opening

Two Windows = One Opening

Glass Block Window = One Opening

One Window and Two Glass Block Windows = Two Openings

For Window Type, use the abbreviations listed in section E of the checklist. Report the floor level where the window is located. Even if the house is single story, record the floor level, if the field is left blank, the computer processing system will consider the blank field as an error and reject the checklist.

Opening dimensions must be reported in inches. It is recommended that actual measurements be made of at least one of each different size window on the house. Once you know the sizes of windows on the house you can estimate the other sizes using the known size as a reference. Dimension estimates need only to be accurate to + or – 6 inches.

Check the appropriate protection code box.

Information presented in this section shows the SC Safe Home inspector where to look at wind damage mitigation products for code compliance stamps and labels.
The process for classifying doors is very similar for that of windows. The doors are numbered, the quantity of same size doors is reported and each door is classified according to type (See Section E) and the floor on which they are installed is recorded. The dimensions for the door and associated windows (side lites or transom lites) are also recorded. Also record if there is a window (glazed opening) in the doors. (See Figure H.1)

<table>
<thead>
<tr>
<th>Number</th>
<th>Quantity</th>
<th>Door Type</th>
<th>Floor</th>
<th>Opening in Inches</th>
<th>Protection</th>
<th>Glazed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Width</td>
<td>Height</td>
<td>ASTM E 1886/ E 1996</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td>Year Installed:</td>
<td>Other:</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The Red lines in Figure H.1 indicate the door type which you would report as “SI” because it is a single in-swing door. The Yellow lines represent the opening dimensions and would be reported as 60 Wide and 90 High.

Record if the door meets the protection standard and the year installed if known. Otherwise, estimate the year the door was installed.
Background on Window & Door Protection Codes

For the South Carolina Safe Home Program, all windows and door must be considered for protection or impact rating, not just Glazed Openings as required by the Building Code.

There are basically 2 ways to protect openings from debris impact. One is to install window and door products designed and tested to meet impact, pressure and cycle test requirements. The other way is to cover the windows or doors with external protection devices – generally called shutters.

Shutters have been on the market for many years, but it was only after Hurricane Andrew hit Florida in 1992, that the building codes required shutter products to be explicitly tested for impact. Therefore it is critical to determine the correct Protection Code and year installed for each opening.

For the South Carolina Safe Home Program, only the following protection standards are recognized:

- ASTM E-1886 & ASTM E-1996

There are other Product Approvals for hurricane protection of windows and doors, however they may or may not be recognized per this program. If a window or door has one of the following labels, record it in the “OTHER” box on the form:

- SSTD12-93/97 or
- TAS 201, 202, and 203

At one time, Wood Structural Panels were permitted to be used as high-wind protection. If hardware is installed indicating Wood Structural Panels are used, check the “NO” box under Protection Codes.

PRODUCTS AVAILABLE:
The types of external protection products that you will see on the market are shown in Figures H.3 (a-f) and H.4. In general, the least expensive of these products are the commercial storm panels made of corrugated aluminum, steel, or polycarbonate. All products passing the same testing standard are considered equivalent in strength and the reasons for using other styles are based on aesthetics and convenience.

After-market window films applied to existing windows are not accepted as an approved alternative to shutters. Current products are not approved since they cannot reliably anchor glass to the frame of the window and therefore, do not offer the same protection as shutters.

Generally, the only acceptable skylight solution is impact rated products. Many skylights are 9 pound missile impact rated and will qualify for the Hurricane rating, however skylights may also be tested with a 4.5 pound missile and only rated “Basic”. Documentation or labeling is required in either case. Conventional shuttering systems are not usually used for skylights on the roof. Some situations may exist when someone has adapted a “system” for a skylight on the roof. If encountered, the homeowner will have to produce paperwork showing the application is approved.
Figure H.3 (a-f)
Various Types of Shutters, All of Which May Qualify for Credits

(a) Bahama

(b) Awning
(Only if a code-approved design. Standard sun shade awnings do not qualify.)

(c) Storm Panels

(d) Roll

(e) Swing or Hinged Colonial

(f) Accordion
Figure H.4

Screen Product

Fabric Product

Plastic Panel
(Must be code-approved.)

Perforated Metal Screen
Background on Product Approval Stamps/Code Compliance labels

Figure H.5 through H.7 show some sample and typical locations for product approval labels on shutter products, windows and doors.

PROCEDURE FOR CHECKING FOR WIND DAMAGE MITIGATION
PRODUCT PROOF OF COMPLIANCE

The SC Safe Home inspector will verify that all openings are rated or covered with rated products. In general, you will be searching for proof of compliance to the standard identified above. This involves searching for a sticker or label on the product or collecting documentation regarding the product. The SC Safe Home inspector must verify that mounting hardware exists around each opening, in order for the home to qualify for credit.

New shutters stored in the garage that have never been installed or mounted do not qualify for this program. Hardware must be installed at all openings for you to certify the rating. However, the SC Safe Home inspector does not have to verify that mounting is done correctly or to manufacturer’s specifications.

Figure H.5 Example of Dade County Product Approval Stamp Found on Commercial Storm Panels. Close up photo shows the following words stamped into the panel: "Florida Storm Panels, Inc. Miami FL, Dade County Product Control Approved".

Figure H.6 Two product approval sticker on accordion shutters indicating that they meet Dade County impact resistance and pressure load standards. These labels contain the words "Dade County Product Approved".
Background on Garage Doors

As with all other doors, garage doors must be impact rated or protected to comply with the requirements of the South Carolina Safe Home Program. Attached garages are defined as garages with no living space above them. Conversely, built-in garages are garages with living space above them. SC Safe Home inspectors will encounter many different garage doors. Materials of construction include: wood, fiberglass, steel; doors may come with or without windows. Mounting methods include: overhead sectional, overhead roll-up, overhead one piece, and hinged on the side.

Doors that have passed wind load and impact testing generally have all the following typical features.

- Steel door panels without windows or openings.
- 5 to 8 track mounting brackets or continuous mounting.
- Track brackets securely fastened to wall or 2 X wood buck.
- 2X pressure treated buck fastened to structure with 4 to 6 – 1/2”≤ diameter (minimum) expansion anchors or 6 to 8 – 5/16”≤ x 3≤ concrete screws (E.g. TAPCON®).
- Horizontal bracing on all panels.
- Many have vertical bracing system also.

Figure H.7
Example Labels and Location Labels Found

Typical Location of Code Compliance Label on a Hurricane Impact Resistant Door. The label in the inset photo reads "TERMALTRU® Dade County Product Control Approved. Serial Number 214105. Impact Rated, shutter optional, not required by code."

Label shows Dade County and SSTD 12 approval, product may be used throughout the State

Label shows SSTD 12 only; product can be used in all counties except Miami-Dade and Broward.
Figure H.8 (a-d)
Examples of Non-Impact Rated Garage Doors

(a) Door with window

(b) Fiberglass door

(c) No bracing

(d) Garage door section without bracing
Figure H.9 (a-d)
Features of Impact Rated Garage Doors

(a) Horizontal and vertical bracing
(b) Properly anchored track brackets
(c) Close up of vertical brace shows hinges fastened to brace
(d) Horizontal bracing

SECTION I
Skylights

Record the number (quantity) of skylights on each elevation. If more space is needed you may use another sheet as discussed previously. Frequently skylights used on a house are the same size so you can often record the number and one size per elevation. Determining the Protection Code for skylights is not a simple task.

Documentation is often the only way to determine the correct protection code. As with roof shingles, the date installed is very important for this item.

NOTE: Unprotected skylights must either be replaced with impact rated or removed and covered over when re-roofing.
One of the identified items for retrofit in the South Carolina Safe Home Project is Gable End Wall bracing. Research findings indicate that gable end walls four feet high and less are not very susceptible to wind induced failures. The size of the gable therefore is an important factor in determining appropriate retrofits for houses. In this section, record the quantity of all gables, regardless of size (some insurance companies classify a home as “Gable” even if it has one small gable). The information is needed to assure proper classification in those instances. (You will still use the rules outlined in Section F of this manual for determining Roof Shape on the Front Elevation Page.) Record in inches the width of the bottom chord of the gable and its height at the highest point. See Figure J.2 for more information.

<table>
<thead>
<tr>
<th>Width</th>
<th>16 feet</th>
<th>Same as Garage Door</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>5 feet</td>
<td>The door is 7 feet high and the gable end is about 75% that height</td>
</tr>
</tbody>
</table>

*Figure J.1*

The size of the gable end vent can be estimated; in this case the round vent would be covered with a “Shutter” product approximately 18 inches square. (This information is needed for shutter pricing estimates.) Some gable end vents are triangular in shape, record those dimensions the same way you record the gable end: width and height in inches.

**Completed Section J.1**

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Height</th>
<th>Bottom Chord Width</th>
<th>Vent-inches Width</th>
<th>Vent-inches Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>60</td>
<td>192</td>
<td>18</td>
<td>18</td>
</tr>
</tbody>
</table>

*Figure J.2*
Recording information in this section should be reasonably straightforward. Check the box that identifies the siding present on each floor of the building. A two-story building with stucco cladding on the ground floor and aluminum siding on the second floor would be reported as shown below:

If there are several different cladding types on an elevation, record them all.

**Background on Wall Construction**

Sections L and M go together to determine the exterior wall construction methods and material. You should first determine if the wall is constructed of wood/steel framing or one of the concrete wall materials identified in Section L. If you determine the wall is Wood/Light Metal Frame, check that box and indicate to which floors this construction applies. If you determine the wall is not Wood/Light Metal Frame, using Section M, you must determine if the concrete block is either reinforced or unreinforced. By design, Solid Concrete walls must be reinforced.

***NOTE***: It is the structure of the wall we are classifying, not the veneer. Brick or stucco veneer is installed on both wood frame or masonry buildings.

**WALL CONSTRUCTION DEFINITIONS**

In terms of insurance company premium rates, the highest premium rates are charged for Frame homes, followed by Masonry and the lowest rate is charged for Reinforced Masonry.
Wood/Light Metal Frame: Buildings where the exterior walls are constructed of wood, metal, or other combustible materials including combinations with other materials such as brick veneer, stone veneer, and stucco on wood.

Concrete Block Un-Reinforced: Concrete Masonry Units (CMUs) that are not reinforced with vertical steel reinforcement. Horizontal steel will most likely be present in lentils and tie or bond beams. The exterior may be left unfinished or have finishes such as stucco or brick veneer system attached or fastened to the wall.

Concrete Block Reinforced: Buildings where the exterior walls are constructed of masonry materials that are reinforced with both vertical and horizontal steel reinforcement and are relied upon for structural stability. Vertical reinforcement shall be fully grouted in the cells of hollow masonry units, and horizontal reinforcement shall be fully grouted in specially formed (Bond Beam) units designed for that purpose or poured concrete tie beams. Tilt-up or poured concrete wall units shall be reinforced both vertically and horizontally with reinforcing steel. (See Section M below for reinforcement checking.)

Solid Concrete: A masonry wall is built from Poured Concrete, Insulated Concrete Forms (ICF - for purposes of classification in this program, ICF construction should be classified as Solid Concrete)

Procedure to Distinguish between Masonry and Frame

Exterior: One way to determine the presence of frame construction is by looking at the windows. Framed homes will have the window frames fastened to the exterior of the house; therefore, the windows are flush with the exterior surface. Masonry homes usually have the window frames recessed, 2” to 4” from the exterior surface. While this is not the case 100% of the time, it is generally correct. Often total wall thickness will reveal the construction material. Frame construction is usually 2x4 wood or steel which produces a wall thickness of approximately 5”. If 2x6 framing is used, the total wall thickness will be approximately 7”. Concrete block is 7-5/8” thick, when finishes are added; the total wall thickness approaches 9” to 10”.

Inside the Attic: The wall type can usually be ascertained from the outside, but if in doubt, examination of the top of the exterior bearing wall from inside the attic will usually confirm the answer. An inspection mirror may be necessary to see the top of the wall as shown in Fig. L.4(d) and L.4(e). If you observe a bond or tie beam, the wall is masonry.

What if a house has both masonry and frame walls? If you simply record the wall construction for each floor and each elevation, the data processing system will make the overall rating determination.

CAUTION: Many homes have stucco finish on the exterior. Stucco can be applied over a number of different substrates: concrete, concrete block, wood framing, insulated concrete forms and EIFS panels.

To complete Section L identify one of the four wall construction types and indicate the floor on which it is used. Shown below is a properly completed Section L for a two story wood frame house:

![Figure L.1](image)
Examples of wall construction, veneers and cladding are shown in Figs. L.2 through L.4.

*Figure L.2 (a–c)*

(a) Typical frame construction

(b) Brick veneer over frame construction

(c) Stone (or Brick) Veneer over CMU or Solid Concrete wall

*Exterior Wall Construction (from Åg1999 Means Square Foot Costs, Åh Copyright R.S. Means Co., Kingston, MA, 781–585–7880, All Rights Reserved)*
Figure L.3 (a–c)
Four Examples of Frame Wall Construction

(a) Window is flush with exterior sheathing = Frame
(b) Door recessed 2”s from stucco = Frame
(c) Two examples of stucco bands around windows (adds 2”s) = Frame
Figure L.4

(a–e) Wall Construction – Masonry Walls
(Must be checked for Reinforcement)

(a) Masonry wall: note the distance from outside surface to window unit = Masonry
(Must be checked for Reinforcement)

(b) View of bond beam at top of masonry wall from inside attic = Masonry
(Must Be Checked For Reinforcement)

(c) View of masonry wall = Masonry
(Must be checked for Reinforcement)

(d) Bond beam means masonry wall below = Masonry
(Must be checked for Reinforcement)

(e) Tie beam
If you have identified the exterior walls as Frame, check “Not Applicable” and continue on to Section N.

<table>
<thead>
<tr>
<th>Section M-1 Reinforcement Check: (check 3-5 locations for entire house)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Applicable</td>
</tr>
</tbody>
</table>

YOU NEED TO ONLY CONFIRM REBAR AT 2 CORNERS AND ONE WINDOW OR DOOR OPENING FOR REBAR ON THE ENTIRE HOUSE. If you are able to check the required locations on the front of the house, record your results in the 3 boxes in section M-1 of the checklist reproduced above. Check at least 3 places: you do not need to check more than 5 locations. Sections M-1 through M-4 provide 12 locations for you to use. If you detect rebar in three locations you do not have to check any more. The 12 locations are provided in case some walls are not accessible for checking. If you detect vertical reinforcing bars at some locations and not at others it may be due to the limitations of the scanner. You may wish to check a few more locations until you detect steel at three different corners or window/door opening. There is nothing restricting you to just 3 to 5 locations.

**Background on Reinforcing Check**

If you have determined that the wall is masonry, check for reinforcement in the walls. Figure M.1 shows typical details of where the reinforcement is located in masonry construction. You will use a metal scanning instrument to locate the rebar. This instrument must be capable of locating metal in wood or concrete up to 6 inches deep. The SC Safe Home inspector should become familiar with their instruments operation by trying to locate rebar in new construction where rebar is visible.
Locating Vertical Rebar: Both the window locations should be scanned at eye level. Use the scanner by starting approximately two feet from the corner of the building or window/door and move the scanner slowly toward the corner. Make note of the scanner readings to confirm the presence of vertical reinforcement. If reinforcement has been found, indicate by checking the appropriate boxes in this section.
Carports and porches are vulnerable to wind failures by virtue of the wind loads that they experience. Often the connections are not properly designed and these structures fail in hurricanes. Figure O.1 shows a porch failure that precipitated a whole roof failure.

The only “difficult” part of this section is remembering the definitions of Built-in and Attached. The classifications for “None” and “Detached” are self-explanatory.

**Detached Carport:** A free-standing structure – not attached to the main building – designed for storage of cars, trucks, boats, etc.

**Attached Carport:** A structure whose roof is attached to the building or the roof structure of the dwelling and at least one side of the structure is open

**Built-in Carport:** The roof of the house extends over the area used for parking cars, boats or other storage. See Figure N.2 and diagram below.

### Section N-1 Carport

<table>
<thead>
<tr>
<th>(Circle Applicable)</th>
<th>None</th>
<th>Built-In</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attached</td>
<td>Detached</td>
<td></td>
</tr>
</tbody>
</table>

**Number of Cars:**

![Attached Carport](image1.png) ![Built-In Carport](image2.png)

**Figure N.1** Attached and Built-In Carports

![Carport - Attached](image3.png) ![Carport - Built-In](image4.png)

**Figure N.2** – The photos identify the differences between “Attached” and “Built-In”.
Porch Definitions:

Small = 0-80 square feet
Medium = 80-120 square feet
Large = >120 square feet

Open – A “Porch” attached to or part of the structure that is open on at least one side. The roof is solid covered with tile, shingles or other roofing materials.

Screened – A “Porch” attached to or part of the structure with exterior walls containing screening material. There are no open or partially open walls. The roof is solid covered with tile, shingles or other roofing materials.

Enclosed – A “Porch” attached to or part of the structure with all exterior walls made of solid materials including windows, doors and sliding glass doors. The roof is solid covered with tile shingles or other roofing materials. Typically, this type of “Porch” is unconditioned space and does not include space converted to “living and conditioned space.” (Conditioned means air-conditioned and or heated.)

<table>
<thead>
<tr>
<th>Size</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small</td>
<td>Open</td>
</tr>
<tr>
<td>Medium</td>
<td>Screened</td>
</tr>
<tr>
<td>Large</td>
<td>Enclosed</td>
</tr>
</tbody>
</table>

Figure O.1
Porch Failure that Initiated Whole Roof Failure

Figure O.2 - Carports and Porches
It is recognized that many overhangs may be different. Report an average value for each elevation of the house in Section P.

<table>
<thead>
<tr>
<th>Section P-1 Soffits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overhang (inches)</td>
</tr>
<tr>
<td>Length (linear feet)</td>
</tr>
</tbody>
</table>

**Figure P.1**

*Soffit Dimensions*

Record the linear feet of soffit when roof-to-wall connections may need to be added or improved. On a hip roof house this will be all sides; for gable end wall houses this will be the non-gable walls.

**Soffit Material Type** - In order to more accurately price roof-to-wall retrofits we must determine the soffit material to be removed and replaced. Therefore, for each elevation, record the soffit material in section P 1 through 4.
Step-by-step Instructions for Page 6 of the Checklist.
Sections Q through V.

<table>
<thead>
<tr>
<th>Materials</th>
<th>Deck Thickness</th>
<th>Roof Deck Attachment</th>
<th>Spacing</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Access</td>
<td>(Nominal)</td>
<td>No Access</td>
<td>No Access</td>
</tr>
<tr>
<td>Plywood</td>
<td>3/8&quot;</td>
<td>8d Nail</td>
<td>6&quot;/12&quot;</td>
</tr>
<tr>
<td>OSB</td>
<td>7/16&quot;</td>
<td>8d Nail</td>
<td>6&quot;/8&quot;</td>
</tr>
<tr>
<td>Planks/Dimensional Lumber</td>
<td>1/2&quot;</td>
<td>10d Nail</td>
<td>6&quot;/8&quot;</td>
</tr>
<tr>
<td>Concrete</td>
<td>5/8&quot;</td>
<td>Screws (&lt;&gt; #8 x 2.5&quot;)</td>
<td></td>
</tr>
<tr>
<td>Deck over Battens</td>
<td>3/4&quot;</td>
<td>Spray Foam Adhesive</td>
<td></td>
</tr>
<tr>
<td>Battens</td>
<td>=&gt;1&quot;</td>
<td>Construction Adhesive</td>
<td></td>
</tr>
<tr>
<td>Metal Deck</td>
<td>Other</td>
<td>Other</td>
<td></td>
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Roof Slope: __/12

<table>
<thead>
<tr>
<th>Section R Roof Structure Materials</th>
<th>Section S Secondary Water Barrier</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Access</td>
<td>Exterior How verified: Photos Documents Other (Circle Applicable)</td>
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<tr>
<td>Rafter</td>
<td>Interior Spray Foam Adhesive: Y N</td>
</tr>
<tr>
<td>Wood Trusses</td>
<td>None If none, is there &gt; than 4 feet of height? Y N</td>
</tr>
<tr>
<td>Light Metal Trusses</td>
<td>12&quot; 16&quot; 24&quot; &gt;24&quot; (Code only)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Section T Roof to Wall Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
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<tr>
<td>No Access</td>
</tr>
<tr>
<td>Severe Corrosion</td>
</tr>
<tr>
<td>3 or More Nails</td>
</tr>
<tr>
<td>Every Truss/Rafter</td>
</tr>
<tr>
<td>Within 1.5&quot; of Trusses</td>
</tr>
</tbody>
</table>

If Unknown, Explain why:

<table>
<thead>
<tr>
<th>Section U Gable End Wall Construction</th>
<th>Section V Building Footprint Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gables 4 feet or more in height:</td>
<td>Count: Plan View of House (for calculating building footprint area)</td>
</tr>
<tr>
<td>No Access</td>
<td></td>
</tr>
<tr>
<td>Not Braced - Cathedral Ceiling</td>
<td></td>
</tr>
<tr>
<td>Not Braced - Flat Ceiling</td>
<td></td>
</tr>
<tr>
<td>Braced Gables:</td>
<td></td>
</tr>
<tr>
<td>Balloon</td>
<td></td>
</tr>
<tr>
<td>Deck/Diaphragm</td>
<td></td>
</tr>
<tr>
<td>Diagonal Bottom or X Bracing</td>
<td></td>
</tr>
<tr>
<td>Horizontal Continuous</td>
<td></td>
</tr>
<tr>
<td>Masonry Cathedral</td>
<td></td>
</tr>
<tr>
<td>Masonry Flat Ceiling</td>
<td></td>
</tr>
</tbody>
</table>

Gables less than 4 feet in height:

Total number of ALL Gables:

(Total must equal # of gables listed on four elevations)

Gable Wall Sheathing (check type):

Plywood
OSB
Planks
Non-wood / Insulation
Masonry

Total Building Footprint Area = __________ sq. ft.
Background

There are 4 items to check in classifying a deck attachment: deck materials, deck thickness, fastener (nail) size and fastener spacing. To achieve the best rating with plywood or OSB, the deck must be at least 7/16” (nominal) thickness, 8d nails or greater or #8 screws, installed 6”/6” spacing and less than an average of 3 nail misses per 4’ of structure. If there is no attic or no access to the attic mark “No Access” in three places: in Section Q, Section R and Section T. Explain why there is no access in Section T.

**Roof Deck Materials:** The most common roof deck materials in residential construction today are plywood and Oriented Strand Board (OSB) decks. Prior to the introduction of plywood to the construction industry (in the 1950’s), the common roof decking material was dimensional lumber or tongue and groove (T&G) decking. Dimensional lumber or T&G are usually 4” to 8” wide boards that are nominally 1” thick (3/4” actual thickness) that are laid parallel or diagonal to the ridge. These “Plank/Dimensional Lumber” decks are usually fastened by at least two nails per truss/rafter connection, sometimes 3, depending on the width of the board. (In rare instances, you may find staples in the dimensional lumber.) If you encounter this condition, you should check the “Planks/Dimensional Lumber” box. Because of the inherently large number of nails in dimensional lumber or T&G, the uplift capacity is far greater than plywood/OSB decks. If you encounter a concrete roof deck, check “Concrete” in the deck Materials Section and move on to Section U.

---

**Section Q Roof Deck**

<table>
<thead>
<tr>
<th>Materials</th>
<th>Deck Thickness</th>
<th>Roof Deck Attachment</th>
<th>Spacing</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Access</td>
<td>(Nominal)</td>
<td>No Access</td>
<td>&gt; 6”/12”</td>
</tr>
<tr>
<td>Plywood</td>
<td>3/8”</td>
<td>staples</td>
<td>6”/12”</td>
</tr>
<tr>
<td>OSB</td>
<td>7/16”</td>
<td>8d Nail</td>
<td>6”/6”</td>
</tr>
<tr>
<td>Planks/Dimensional Lumber</td>
<td>1/2”</td>
<td>10d Nail</td>
<td></td>
</tr>
<tr>
<td>Concrete</td>
<td>5/8”</td>
<td>Screws (=&gt; #8 x 2.5”)</td>
<td></td>
</tr>
<tr>
<td>Battens</td>
<td>3/4”</td>
<td>Spray Foam Adhesive</td>
<td></td>
</tr>
<tr>
<td>Metal Deck</td>
<td>=&gt;1”</td>
<td>Construction Adhesive</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>Other</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Roof Slope:** __________/12

**Average # of missed nails in 4’ of structure:**

- 0
- 1
- 2
- 3
- 4+
Figures below identify some of the most common and unusual roof deck materials.

**Fig. Q.1**  
Plywood Roof Deck

**Fig. Q.2**  
OSB Roof Deck

**Fig. Q.3**  
Planks/Dimensional Lumber

**Fig. Q.4**  
Concrete Roof Deck
Batten deck is a system where 1” to 2” wide boards are laid perpendicular to the rafters and spaced apart from each other as shown in Fig. Q.5. This deck forms the basis for which to install wood shakes or wood shingles. There is no continuous deck in this roofing system. The shakes themselves normally prevent water penetration because the thickness of the shake layer is substantial. However, when a homeowner wants to replace the shake roof with a different product, a solid deck is often installed on top of the existing batten deck.

**Figure Q.5**

Typical Construction of Batten Deck

---

**Roof Slope**

The slope of a roof is the vertical rise in inches for every horizontal twelve inch (12”) length (the “run”). It is expressed with the rise mentioned first and the run mentioned second. For example, if your roof has a five inch (5”) rise for every horizontal foot, then it has a “5 in 12” slope (sometimes called “pitch”). A roof slope gauge can be used to obtain this figure quickly. Determine the Roof Slope and enter the “rise” number in the checklist.

**Figure Q.5b**

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Deck Thickness

This measurement is important for two reasons: (1) it allows you to obtain attachment nail size and (2) it verifies that a minimum thickness of deck material was used. Do not measure within 6” of the deck H-clips, because your measurement could be to the underside of the underlayment that is held away from the deck a little by H-clip as shown in Fig. Q.6.

1. View the grading stamp on the deck material
2. Using either a business card or a thin steel rule, slip the card or rule into the gap between the sheathing panels to determine the deck thickness
3. Record thickness in the Deck Thickness section of Section Q.
Background Roof Deck Attachment

It is very important that you make every attempt to determine the type and size of the deck attachment fastener. The attachment size is an extremely important factor in determining the uplift capacity of the plywood sheets. The difference in uplift capacity of 2 inch long 6d nails at a typical nail spacing and 8d nails at the same spacing is about a factor of 2.4. Therefore, it is critical that you observe the deck attachment fastener size.

DO NOT GUESS THE NAIL SIZE

To determine fastener size, you must seek out deck fasteners that have missed the rafters/trusses and measure the length of the fastener. You will be able to find these missed fasteners in almost all attics. If a complete miss is not found, look for a side-splitting fastener – that is, a fastener that pierces the side of the rafter (see Fig. Q.7).

Some building departments require that these missed fasteners, which are often called “shiners,” be removed before installation of the roof cover. However, even in counties with these policies, it is likely that you will find at least one missed fastener or at least a partially missed fastener in almost all attics. Figures Q.8 and Q.9 show missed fasteners in two different attics.

You will be measuring the length of the fastener to determine the nail size. For COMMON NAIL SIZES, the “penny” designation (i.e., 8d) also sets the diameter of the wire used to create the nail. Similar to electrical wire size, the nail diameters are specified by “gauge” numbers. The larger wire gauge number corresponds to smaller wire diameter. You should be aware there are nail types other than “common.” Other nail types have different uses and different diameters. Common nails have the thickest head and largest wire diameter. Box nails have a large, but thinner head, and are made of smaller wire diameters than common nails. Finishing nails have very small heads and are made of yet still smaller diameter wire.
All of these nails are the same length for a given penny size. For example, an 8d common nail is 10 gauge, whereas an 8d box nail is 11 gauge, and an 8d finishing nail is 12 gauge. All of these nails are 2.5” in length.

Figure Q.8.
A Missed Nail in Plywood Deck Construction (Inset photo shows length that should be measured)

Figure Q.9.
Missed Nail in Dimensional Lumber Deck – Measure Length of Protruding Nail
Be careful not to confuse framing nails with deck nails. Figure Q.10 shows a framing nail that missed the rafter next to a smaller deck nail. On the other side of the sheathing is a dormer which is fastened to this deck with 16d framing nails rather than the 8d deck attachment nails.

When dealing with multiple layered roof decks, make sure that you account for the total thickness of the deck in estimating the fastener size. Multiple layered decks often occur when a wood shake roof is replaced with tiles or shingles. The spaced batten deck of the shakes is covered with the plywood decking prior to application of the new roof product. An example of a multiple deck is shown in Fig. Q.11. Look for signs that the missed fastener is used to secure the outermost layer of decking and not just the first layer of decking. A multiple layered deck should be considered to be standard attachment, regardless of fastening schedule.
Nail Spacing

If staples are found, first check to see if you can also find nails. Sometimes during re-roofing, decks are re-nailed to meet newer Building Code requirements. If you are sure the deck has not been re-nailed, record “Staples.” If you see adhesive foam or construction adhesive installed mark the appropriate box and then move on to Section R.

If you find nails, you have to determine the nailing pattern used to attach the deck to the rafters/trusses. You will use the metal scanner, as shown in Fig. Q.13. The reference of 6”/12” for nail spacing refers to the maximum spacing between nails attaching the deck to the structure. The first number, 6”, refers to the maximum spacing for the rafter/truss that supports the edge of the sheathing. The 12” refers to the rafter/trusses supporting the middle portion or “field” of the sheet.

Scan for nail spacing on 3 trusses - 48” width, two field trusses and one edge truss. Field and Edge refer to the field and edge of the sheathing. Identify edge of sheathing by looking for a change in the plywood grain, or a shift in the panel-panel interface line.
Figure Q.12 shows a nailing pattern for 6”/6” nail spacing. For 6”/12” spacing the nails on the three intermediate connections would be spaced 12” apart instead of 6” apart.

Determining the spacing of the nails is accomplished by using a metal scanner and moving the scanner in only one direction, left to right, or right to left, but do not move the scanner from side to side while scanning for nails.

If you encounter a roof deck fastened with screws, it will be difficult to certify size. You should attempt to locate a “Missed” screw and measure it as you would a nail. If you find no missed nails, the deck may be fastened with screws. The homeowner may have documentation/plans to show the deck is screwed down. If you cannot determine the screw size and the homeowner does not have documentation, if there is no documentation, check screws and no access.
If a Spray Foam Adhesive (Fig. Q.14 Example Foamseal) or Construction Adhesive (Figure Q.15) is used to attach the deck to the truss/rafter, record in the appropriate boxes in Section Q.
Average Number of Missed Nails in 4’ of Structure:

Observe the number of MISSED or SIDE-SPLITTING nails in a typical piece of the roof deck (48” length along joist). The larger number of missed nails, the greater the reduction in deck attachment strength.

Report the average number of missed nails in four feet of structure. Obtain the values to be averaged around the attic to observe as many locations as possible. If you report that the average number of missed nails is 4 or more, the Report will advise the homeowner to re-nail the roof deck. See figure Q.16 above.
A visual inspection of the attic should yield the type of Roof Structure Material to be entered in Section R. If there is no access, check the box and explain why in Section T.

<table>
<thead>
<tr>
<th>Section R Roof Structure Materials</th>
</tr>
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<tbody>
<tr>
<td>No Access</td>
</tr>
<tr>
<td>Rafters</td>
</tr>
<tr>
<td>Wood Trusses</td>
</tr>
<tr>
<td>Light Metal Trusses</td>
</tr>
</tbody>
</table>

Spacing: 12" 16" 24" >24" (Circle one)

Record structure spacing by circling the appropriate number. Modern buildings are usually constructed with the 24 inch spacing while older homes were frequently constructed with the rafters spaced 16 inches apart.
Secondary Water Barrier

Background

Secondary water barrier (also referred to as Secondary Water Resistance or SWR) is a layer of protection that prevents water from entering the building when the roof covering is blown off during a hurricane. There are 2 ways of achieving SWR on a wood deck. Secondary water resistance systems are Not Building Code required but is required for the SC Safe Home Program.

The most economical way to achieve SWR is to apply Self-Adhering Modified Bitumen Tape to the plywood joints. This self-adhering tape is generically known as “Peel and Stick” or “Ice & Water” shield that is a rubber-like product applied directly to a roof deck to prevent leakage from ice jams in northern climates. Here, the product is applied to the outside of a clean roof deck prior to application of regular underlayment and roof covering. Most often used is 4” to 6” widths as shown in Fig. S.1. This is done when new roof cover is being put on the house.

Sometimes the entire roof deck is covered with the self-adhesive material; this is an acceptable form of Secondary Water Barrier protection.

Figure S.1.

Self-Adhering Modified Bitumen Strips Applied to Plywood Joints of Roof Deck
The second way is a foam polyurethane coating applied from inside the attic thus covering the joints between all the deck sheets. Figure S.2 shows this type product installed in an attic. Note that when applied to the sheathing/structure joints, this product also reinforces the connection between trusses/rafters and roof sheathing.

*Figure S.2*
*Foamseal™ – An example of foam coating*

You should not select “Exterior” for the Secondary Water Barrier section of the checklist unless the roof covering was removed and the adhesive strips were actually observed or the homeowner provides photographs or a letter from the installing contractor stating that the modified bitumen strips were installed.

If a spray foam adhesive has been used in the interior of the house it can be easily observed in the attic. It must be applied to all plywood joints to qualify as a form of roof protection.

If none exists, mark “None” and record if there is greater than 4’ of height at the center of the attic (to facilitate the application of adhesive).

30/90 hot mop is NOT Secondary Water Resistance/Barrier.
SECTION T

Roof-to-Wall Connection

Background:
A variety of Truss-Rafter/Wall connections that exist in homes are discussed in this section. These connections are very critical features that make homes much more resistant to hurricanes and wind-storms. It is therefore, very important to properly determine the presence and proper installation status of straps and/or clips in each house. Some older homes with low slope roofs may be difficult to access and extra effort may be required. The aid of a flashlight, mirror, and telescoping pole to part the insulation may be necessary to make the proper assessment. Be sure to check both sides of the roof framing member to make the proper determination.

Procedure to Determine Acceptable Roof Tie Down Straps/Clips
You will inspect at least six truss connection locations in the attic – three on one side of the building, and three on the other side. This implies that you should only have to get out along the truss twice, each time you should be able to observe three truss/wall connections.
Sometimes when there is no attic access, you can view the roof-to-wall connections through the soffit vents. While not as reliable, it may be an option if you cannot get into the attic.

The first item to check is for corrosion of the metal connectors or straps. For this program, “Severe Corrosion” refers to flaking red rust on the connector. Be aware that “white rust” on the connector means that the galvanizing is still working. Check the appropriate box for this section.

Next, check to see that every tie down bracket is held by 3 or more nails. Check the appropriate box for this section.

Third, check to see whether or not every truss/rafter has a properly attached tie down bracket. Check the appropriate box for this section.

Fourth, you must check to see if the straps are installed within 1.5” of trusses. (See Figure T.2). Check the appropriate box for this section. To qualify for tie-down credit, the answers in Section T must be: no for severe corrosion and yes for the other three checks.” Additionally, add at the bottom of the page: “If you cannot determine the condition or type of straps, check “Unknown” and explain why.

Fig. T.2
Strap NOT within 1.5” of truss
Connection Types:

None: If you find no connectors whatsoever, report “None.” It should be very infrequent that you find no connection at all.

Toe-Nail: In older houses, common connection detail is the toe-nail, where approximately 3 nails are driven at an oblique angle through the rafter and into the top plate. If there are no straps, you will usually find the structure toe-nailed. An example of a toe-nail connection is shown in Fig.T.3.

Figure T.3
Example of a Toe-Nail Connection Used on Rafter to Top Plate Connection

CLIPS, SINGLE WRAP AND DOUBLE WRAP STRAPS:
There are several manufacturers of connectors for hurricane and seismic purposes. Each of these companies has a fairly wide line of hurricane tie-down products. Although you are not expected to identify model numbers of the straps, we are presenting a generic classification system that will serve as a common nomenclature for this project.

Use the following guidelines to recognize the different straps available.

Figures T.4 to T.9 show several different types of hurricane connectors for wood framing.

- **Clips**: Clips are defined as pieces of metal that are nailed into the side of the rafter/truss and into the side of the top plate or wall stud. The metal does not wrap around the top of the rafter/truss, and the clip is only located on one side of the connection. The approximate design capacity of this type of strap is in the order of 400-500 lbs uplift. The approximate design uplift capacity for two clips is 800 lbs. An example of a clip installed in an attic is shown in Figure T.4.
• **Single Wrap and Double Wrap**: The wrap style straps are attached to the side and/or bottom of the top plate and are nailed to the rafter/truss. You will see the strap on both sides of the truss and can infer when it is wrapped over the top of the truss. These straps have an approximate design uplift capacity of 1000 lbs. Double wraps can consist of two straps wrapped over the top cord of the truss/rafter (one on each side) (Fig. T.5).
Some of the straps are simply strips of galvanized metal that are pounded into shape on site to perform the same functions as the straps shown here. These galvanized straps are 1” by 1/8” thick pieces of galvanized steel that may be installed in any fashion.
Figure T.9
Common Galvanized Straps Embedded in Concrete Tie-Beam

Figure T.9 shows the galvanized strap installed correctly in a house that was damaged during Hurricane Andrew. The roof covering and some roof sheathing was damaged, but the trusses were held in place by the straps. Note that the strap is embedded into the concrete tie beam of the house next to the truss location.

Figure T.10
Improperly Located Masonry-Wall-to-Wood Straps Referred to here as Top-Nailed Strap.
Note how strap has curve in the corner

Figure T.10 shows galvanized straps that were incorrectly installed during construction. The incorrectly located straps were bent over and fastened to the top of the bond beam. This means that the uplift is resisted by the withdrawal strength of the fasteners, rather than the shear strength of the strap. Withdrawal capacities of fasteners are usually far less than the shear resistance. The capacity of this connection type is only marginally better than toe-nail connections. You report this as straps installed more than 1.5 inches from the truss/rafter.
Overview of Gable end Wall Construction and Bracing:

Gable end wall failures in hurricanes can lead to significant damage and loss for the homeowners and insurance companies. Properly constructed and/or braced gable end walls can go a long way to reducing these losses. Therefore, it is extremely important for you to understand the bracing systems and how to recognize them in an existing house. In the following sections the procedure for checking the various types of Gable End Wall Bracing and Construction are described in detail for your use and reference during an inspection.
Background on Gable End Walls:

Wind resistance and construction techniques used for Gable End Walls depend on many factors:

1. Materials of construction for the wall.
   a. Frame
   b. Masonry

2. How the installed bracing is actually installed and the Building Code in effect at the time of Permitting and Construction

3. The Size of the Gable End Wall
   a. Research indicates that gable end walls no higher than 4 feet at the peak are not big problems in hurricanes.

4. End wall sheathing effects the strength of the wall
   a. Wood, Plywood, OSB and other solid sheathing materials are preferred
   b. Insulation board and other non-impact resistant materials are not good for wind resistance when installed on gable end walls.

GABLE WALL CONSTRUCTION:
There are four types of gable end wall construction that you will commonly see in the field. These are masonry walls, balloon framed walls, truss walls, and platform or standard frame walls.

MASONRY:
This type of gable end wall is simply an extension of the masonry end wall up to the ceiling height or to the underside of the roof deck. It is an inherently strong construction, but may be more expensive than the other types of gable end walls. A section of this type of wall is shown in Fig. U.2. This construction type is classified in the “braced” section as “Masonry Flat Ceiling or Masonry Cathedral”.

![Figure U.2](64 • South Carolina Safe Home Inspector Training Program)
Balloon Frame:
This is a framing technique where the framing studs run continuously from the ground to the rake of the roof. There will likely be wood blocks between the studs at the attic floor to satisfy fire codes. Figure U.3 shows balloon framing without the blocks between the studs. This type of framing should not be confused with the Platform Framing described below. The distinguishing feature between the two types can be seen when looking at the base of the gable end wall. The balloon frame will not have any kind of anchors in what appears to be the base plate of the gable end wall. The balloon frame wall is shown in Figure U.4.

This construction type would qualify in the Braced section as “Balloon”

Truss End Wall:
This is the practice of simply sheathing the last truss or rafter pair that fall on the gable end. This type of gable end wall construction is particularly weak because the 2x4s are oriented with the larger side against the plywood. With this type of framing you will likely see some sort of nails or bolts. An example of this type of framing is shown in Fig. U.5.

How do you tell the difference between Balloon and Truss Framing at Gable End Wall? One way is to note the orientation of the framing members supporting the ceiling diaphragm; this will provide a clue to the gable end wall construction.

This construction type without other bracing mechanisms discussed is classified as “Not Braced Cathedral Ceiling” or “Not Braced Flat Ceiling”.

Figure U.3.
Balloon Framing

Figure U.4
Balloon framing gable end wall

Figure U.5
1 Truss framing of gable end wall
**Platform Framing:**

Platform framing refers to a framing technique where all 4 walls of a house are constructed the same height, and then another floor or a triangular stud wall is built on top of each of these walls. For a gable end wall, this would look like Fig. U.6, which shows a triangular shaped stud wall that is constructed on top of the regular stud wall. This introduces a potential failure point in the wall where the top plate of the lower wall meets the bottom plate of the gable end wall. It is this location that we are trying to brace for lateral wind loads. This construction type without other bracing mechanisms discussed below is classified as “Not Braced Cathedral Ceiling” or “Not Braced Flat Ceiling”.

*Figure U.6*

*Platform Gable End Wall Details Commonly Seen in Residential Construction*
**Bracing:**

The bracing features presented here are applicable to platform frame or truss wall construction. Balloon framing does not require any of these bracing techniques. Remember that for this program the definition of the bracing refers only to the bottom chord or bottom plate of the gable end wall. There are four types of bracing that you will typically find:

**HORIZONTAL – BLOCKING:**

You may see details like those shown in Fig. U.7. This figure shows horizontal blocking installed between trusses. This detail is also able to carry lateral loads through a diaphragm action of the dry-wall ceiling panels. However, when drywall gets wet, it loses its strength and, therefore, this type of bracing is not acceptable by itself. To be considered “Braced” Horizontal Blocking must be accompanied by Horizontal Continuous or a Ceiling Diaphragm system as described below.

---

**Figure U.7**

*Example of Unacceptable Blocking Used as Horizontal Bracing*

*NOTE: To be considered “Braced” horizontal blocking must be accompanied by “Horizontal Continuous or a Ceiling Diaphragm”*
HORIZONTAL BRACING - CONTINUOUS:

To brace the bottom of the gable end wall, 2x4s are installed perpendicular to the plane of the wall (see Fig. U.8). These bracing members should be connected to the bottom chord of the gable end truss or to the base of the studs of the gable end wall with metal connectors and fastened to all of the interior framing members they intersect (either the bottom chords of the interior trusses or other joists) with a minimum of two 16d nails or 3 inch long Deck Screws at each intersection. Note that this type of bracing can be easily adapted to retrofit situations as shown in Fig. U.9.

You may distinguish this type of Horizontal bracing from the horizontal blocking by observing whether the horizontal members are continuous members on top of the bottom chords vs. pieces between the bottom chords.

You should not worry about making sure the details of the horizontal bracing match Fig. U.9 exactly. Instead, the checklist is more interested in noting the existence of any horizontal continuous brace between the bottom chords of the trusses. You should verify these 3 items:

- The continuous bracing members are 2x4s or larger.
- The continuous bracing members are at least 8' in length and attached in at least 5 locations.
- The spacing of members across the face of the gable wall does not exceed 4' (as shown in Fig. U.9d).

Figure U.8
Horizontal Bracing Construction Details
Figure U.9(a–c)
Horizontal Bracing Retrofit of Gable End

Fig. U9(a)
- 2x4x8’-0” lg lateral brace @ 48” o.c.
- Ceiling joist or roof bottom chord
- 2x4 blocking
- Ceiling nailer
- Gable end ceiling joist or roof truss bottom chord
- Endwall

Fig. U9(b)
- Diag. member
- New 2x4x8’-0” lg lateral brace at ridge line
- New lateral brace @ 48” o.c.
- Truss bottom chord
- Overhang 2-16d nails

Fig. U9(c)
- New 2x4 lateral brace @ 48” o.c.
- 4-16d nails
- 2-16d nails per Bottom chord
- 2-16d nails
- Truss bottom chord
- New 7/16” spacer
- Gable
- 16d nails @ 8” o.c.
- 2-16d nails per block
Diagonal Bracing

DIAGONAL – MIDDLE:
This type of bracing is used for large gable end walls where the excessive deflection of the mid-height point of the gable end wall is of concern. It is often used with some sort of horizontal bracing at the bottom chord of the truss, as shown in Fig. U.10. Because this diagonal bracing does not brace the bottom chord, by itself it does not meet the criteria.

Figure U.10.
Example of a Combination of Mid-Height Diagonal Bracing and Horizontal Bracing of Bottom Chord of Truss that was Observed in a House in South Florida
**DIAGONAL – BOTTOM:**
This type of cross bracing should prevent the lower chord of the gable end wall from deflecting inward or outward. An example of diagonal end bracing is shown in Fig. U.11. Diagonal bracing should appear at least every 8’ across the face of the gable end wall.
Wood Diaphragm:

Figure U.12 shows the structural details for a wood diaphragm from the high wind edition of the Standard Building Code SSTD-10. The plywood ceiling is anchored to the gable end wall and is nailed to the bottom of the trusses. The length of this diaphragm is a function of the building width, but your survey need only check for the presence of the diaphragm and not worry about specific details of implementation. Clear the insulation away from the ceiling near the gable end and determine if the ceiling at that location is plywood or OSB.

Plywood or OSB fastened to the top of the bottom chord to form a floor in the attic may also qualify as a wood diaphragm if the flooring is anchored at not more than 12 inch spacing with 8d nails or 2 inch deck screws to the gable end truss.
Completed Section U

ELEVATION SURVEYS:

<table>
<thead>
<tr>
<th>Section J-1 Gable Ends</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantity</td>
<td>Height</td>
</tr>
<tr>
<td>1&quot;</td>
<td>24&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Section J-2 Gable Ends</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantity</td>
<td>Height</td>
</tr>
<tr>
<td>1&quot;</td>
<td>72&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Section J-3 Gable Ends</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantity</td>
<td>Height</td>
</tr>
<tr>
<td>1&quot;</td>
<td>24&quot;</td>
</tr>
<tr>
<td>1&quot;</td>
<td>72&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Section J-4 Gable Ends</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantity</td>
<td>Height</td>
</tr>
<tr>
<td>1&quot;</td>
<td>72&quot;</td>
</tr>
</tbody>
</table>

Attic survey resulted in the following information:

<table>
<thead>
<tr>
<th>Gable Location</th>
<th>Ceiling Type</th>
<th>Bracing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front</td>
<td>Flat</td>
<td>Masonry Wall</td>
</tr>
<tr>
<td>Right</td>
<td>Flat</td>
<td>Masonry Wall</td>
</tr>
<tr>
<td>Back</td>
<td>Flat</td>
<td>Balloon</td>
</tr>
<tr>
<td>Back</td>
<td>Cathedral</td>
<td>Masonry Wall</td>
</tr>
<tr>
<td>Left</td>
<td>Cathedral</td>
<td>Masonry Wall</td>
</tr>
</tbody>
</table>

Figure U.13
Data from Sections J and How It Is Utilized in Section U Gable Wall Sheathing

<table>
<thead>
<tr>
<th>Section U Gable End Wall Construction</th>
<th>Count</th>
<th># of BRACED Gables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Count</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Number of ALL Gables</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Number Less than 4' high</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Gable Wall Sheathing (check type)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Plywood</td>
<td>1</td>
<td>Balloon</td>
</tr>
<tr>
<td>OSB</td>
<td>1</td>
<td>Deck/Diaphragm</td>
</tr>
<tr>
<td>Planks</td>
<td>2</td>
<td>Diagonal Bottom or X Bracing</td>
</tr>
<tr>
<td>Non-wood / Insulation</td>
<td></td>
<td>Horizontal Continuous</td>
</tr>
<tr>
<td>None</td>
<td></td>
<td>Masonry Cathedral</td>
</tr>
<tr>
<td>Masonry</td>
<td>1</td>
<td>Masonry Flat Ceiling</td>
</tr>
</tbody>
</table>
It is important for the gable end wall to have solid sheathing to adequately handle wind loads. Any kind of wood sheathing should meet these requirements. See Figure U14 Gable End below. Watch for some cases where building paper and wire mesh are tacked onto the last truss and a stucco finish applied to the outside. These construction techniques are not adequate in high wind zones.

Choices for this section should be fairly obvious and you can record the quantity of gable end walls sheathed with each material:

1. Plywood
2. OSB (oriented strand board)
3. Planks (wood or other solid sheathing)
4. Non-wood/insulation
5. None
6. Masonry

Figur e U.14
Gable End Wall Sheathing
Building footprint area is found at the bottom of page 6 of the checklist. Area is calculated by the standard method of multiplying the length of the exterior building wall length times its width. A box is provided for you to use for this calculation. The box is strictly for use by the SC Safe Home inspector and there are no set rules for how to record the information. In the example shown, the building is a two story building with 1800 Square Feet per floor in the house and there is a 24 foot square single story garage on the right.

The calculation used to arrive at the Building Footprint Area is shown in the example below.

**Figure V.1**
Sample Building Footprint Drawing and Calculation

<table>
<thead>
<tr>
<th>Two Story</th>
<th>Single Story</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>24</td>
</tr>
<tr>
<td>60</td>
<td>24</td>
</tr>
<tr>
<td>1800 Sq. Ft. Per Floor</td>
<td>576 Sq. Ft</td>
</tr>
<tr>
<td>3600 Sq. Ft. for this section</td>
<td>4176 Floor Space</td>
</tr>
</tbody>
</table>

2376 Building footprint area (1800 Sq. Ft. + 576 Sq. Ft.)
Appendix A: South Carolina Statute

SECTION II. ARTICLE 8, CHAPTER 75, TITLE 38 OF THE 1976 CODE IS AMENDED SECTION 1. SECTION 38-75-470(A) OF THE 1976 CODE IS AMENDED TO READ:

Section 38-75-470.
(A) The Director of Insurance shall appoint an advisory committee to the director to study issues associated with the development of strategies for reducing loss of life and to address the mitigation of property losses due to hurricane, earthquake, flood, and fire. The advisory committee also shall consider the associated costs to individual property owners. The advisory committee is composed of:

(1) the director or his designee;
(2) the Chairman of the Building Codes Council or his designee;
(3) a representative from Clemson University involved with wind engineering;
(4) a representative from an academic institution involved with the study of earthquakes;
(5) a representative from an insurer writing property insurance in South Carolina;
(6) a representative from the Department of Commerce;
(7) a representative from the South Carolina’s Municipal Association;
(8) a representative from the South Carolina Association of Counties;
(9) a representative from the Homebuilders Association;
(10) a representative from the Manufactured Housing Institute of South Carolina;
(11) a representative from the State Fire Marshal’s office;
(12) a representative from the South Carolina Emergency Management Division;
(13) a representative from the State Flood Mitigation Program;
(14) two at-large members appointed by the director;
(15) two at-large members appointed by the Governor;
(16) a general contractor;
(17) a representative from the South Carolina Association of Realtors; and
(18) a structural engineer.

Loss Mitigation Grant Program, grants for the development of proactive hazard mitigation strategies authorized

SECTION 2. SECTION 38-75-480 OF THE 1976 CODE IS AMENDED TO READ:

Section 38-75-480. (A) There is established within the Department of Insurance a loss mitigation grant program. Funds may be appropriated to the grant program, and any funds appropriated must be used for the purpose of making grants to local governments or for the study and development of strategies for reducing loss of life and mitigating property losses due to hurricane, flood, earthquake, and fire. Grants to local governments must be for the following purposes:

(1) mitigating losses for eligible residential properties within the local jurisdiction in accordance with the guidelines established by the director or his designee; and
(2) providing technical assistance to and acting as an information resource for local governments in the development of proactive hazard mitigation strategies as they relate to reducing the loss of life and mitigating property losses due to natural hazards to include hurricane, flood, earthquake, and fire.

(B) Funds may be appropriated for a particular grant only after a majority affirmative vote on each grant by the advisory committee and submission of a resolution approved by a majority of the members of the relevant local
governing body approving the application for grant funds.

(C) The Department of Insurance may make application and enter into contracts for and accept grants in aid from federal and state government and private sources for the purposes of:

1. Mitigating losses for eligible residential properties in accordance with the guidelines established by the director or his designee; and
2. Conducting loss mitigation studies for the development of strategies or measures aimed at reducing loss of life and mitigating property losses due to hurricane, flood, earthquake, and fire; or
3. Any other purposes consistent with this article.

South Carolina Hurricane Mitigation Program, grant criteria and limit established, matching grant funds may be available to local governments, and to establish a nonmatching grant formula.

SECTION 3. SECTION 38-75-485 OF THE 1976 CODE IS AMENDED TO READ:
Section 38-75-485. (A) There is established within the Department of Insurance, the South Carolina Hurricane Damage Mitigation Program. The advisory committee, established pursuant to Section 38-75-470, shall provide advice and assistance to the program administrator with regard to his administration of the program.

(B) This section does not create an entitlement for property owners or obligate the State in any way to fund the inspection or retrofitting of residential property in this State. Implementation of this program is subject to annual legislative appropriations.

(C) The program shall develop and implement a comprehensive and coordinated approach for hurricane damage mitigation that includes the following:

1. The program may award matching or nonmatching grants based upon the availability of funds. The program administrator also shall apply for financial grants to be used to assist single-family, site-built or manufactured or modular, owner-occupied, residential property owners to retrofit their primary legal residence to make them less vulnerable to hurricane damage.

   (a) To be eligible for a matching grant, a residential property must:
      (i) be the applicant’s primary legal residence;
      (ii) be actually owned and occupied by the applicant;
      (iii) be the owner’s legal residence as described in Section 12-43-220(c);
      (iv) be a single family, site-built, manufactured, or modular, owner-occupied residential property;
      (v) be a residential property covered by a current homeowners or dwelling insurance policy that:
         (A) is issued by an insurer licensed in this State or a surplus lines insurer, where the policy is lawfully placed by a broker authorized to do business in this State; and
         (B) provides insurance coverage of the residential property equal to or greater than the fair market value of the residential property as defined in Section 12-37-3135(a)(2) and reflected in the county records;
      (vi) have undergone an acceptable wind certification and hurricane mitigation inspection in accordance with program requirements.

   (b) All matching grants must be matched on a dollar-for-dollar basis for a total of ten thousand dollars for the mitigation project. No grant issued by the program for any mitigation project for a residential property may exceed five thousand dollars.

   (c) The program must create a process in which mitigation contractors agree to participate and seek reimbursement from the State and homeowners selected from a list of participating contractors. All mitigation projects must be based upon the securing of all required local permits and inspections. Mitigation projects are subject to random reinspection. The program may reinspect up to ten percent of all projects.
(d) Matching fund grants also must be made available to local governments and nonprofit entities, on a first-come, first-served basis, for projects that reduce hurricane damage to single-family, site-built or manufactured or modular owner-occupied, residential property, provided that:

(i) no matching grant for any one local government or nonprofit entity may exceed fifty thousand dollars in any fiscal year;

(ii) the total amount of matching grants awarded to all local governments and nonprofit entities combined may not exceed two hundred fifty thousand dollars in any fiscal year; and

(iii) the difference between two hundred fifty thousand dollars and the total amount of grants awarded to all local governments and nonprofit entities combined in any fiscal year may be applied to grants to individual homeowners who meet the qualifications for a grant described in subitems (a) through (d) or in subitem (g).

(e) Grants may be used for the following improvements:

(i) roof deck attachment;

(ii) secondary water barrier;

(iii) roof covering;

(iv) brace gable ends;

(v) reinforce roof-to-wall connections;

(vi) opening protection;

(vii) exterior doors, including garage doors;

(viii) tie downs;

(ix) problems associated with weakened trusses, studs, and other structural components;

(x) inspection and repair or replacement of manufactured home piers, anchors, and tiedown straps; and

(xi) any other mitigation techniques approved by the advisory committee.

(f) To be eligible for a nonmatching grant, a residential property must comply with the requirements set forth in subsection (C)(1)(a), (c), and (e).

(i) For nonmatching grants, applicants who otherwise meet the requirements of subitems (a), (c), and (e) may be eligible for a grant of up to five thousand dollars and may not be required to provide a matching amount to receive the grant. These grants must be used to retrofit single-family, site-built or manufactured or modular, owner-occupied, residential properties in order to make them less vulnerable to hurricane damage. The grant must be used for the retrofitting measures set forth in Section 38-75-485(C)(1)(e).

(ii) Nonmatching grant award amounts will be determined based on the cost of the mitigation project and a percentage of the total adjusted household income of the applicant according to the most recent federal income tax return. Those applicants with a total annual adjusted gross household income which does not exceed eighty percent of the median annual adjusted gross income for households within the county in which the person or family resides may be eligible for the maximum grant award amount of five thousand dollars. Applicants with a higher total annual adjusted household income may be awarded a lower amount. The director or his designee shall issue a bulletin annually that sets forth the maximum grant award amounts based on the total annual adjusted gross household income of the applicant adjusted for family size relative to the county area median income or the state median family income, whichever is higher, as published annually by the United States Department of Housing and Urban Development. If the cost of the mitigation project exceeds the amount of the grant award, the remaining cost is the applicant’s responsibility. No grant award may exceed five thousand dollars.
(2) The department shall define by regulation the details of the mitigation measures necessary to qualify for the grants described in this section.

(3) Multimedia public education, awareness, and advertising efforts designed to specifically address mitigation techniques must be employed, as well as a component to support ongoing consumer resources and referral services.

(4) The department shall use its best efforts to obtain grants or funds from the federal government to supplement the financial resources of the program. In addition to state appropriations, if any, this program must be implemented by the department through the use of the premium taxes due to this State by the South Carolina Wind and Hail Underwriting Association, and one percent of the premium taxes collected annually and remitted to the Department of Insurance.

(5) The director or his designee may promulgate regulations necessary to implement the provisions of this article.

TIME EFFECTIVE

SECTION 4. THIS ACT TAKES EFFECT UPON APPROVAL BY THE GOVERNOR.

Ratified the 9th day of May, 2017.
Approved the 10th day of May, 2017.
Appendix B: Example of a Completed Checklist

The information entered on this checklist represents what the SC Safe Home Inspector is to complete for each inspection at a minimum. Specific notes have been added to clarify requirements where needed. Check the appropriate section of this manual for additional information.

The photos included in this Appendix show the features of the subject house and should be referred to while reviewing this example checklist.
On the front of this house are three small gables, so the roof shape is reported as “Gable.” The roof complexity on this elevation is “Complex” due to the number of different surfaces and angles on the roof.

Wind Opening dimensions include the clear fixed glass sections above the windows where they exist.

The door dimensions include the clear glass above the front door. The front door contains glazing and is noted appropriately. The homeowner had paperwork to show the door was ASTM compliant.

Three gable ends are reported with no vents.

Wall finish is “stucco.”

Reinforcing is checked in two places on the front elevation. Access was too difficult to check on the right corner.

A small porch is reported and solid soffits 12 inches wide for the full length of the front walls is recorded.
The side of the house has a simple hip roof shape.

One window opening is reported so the sizes noted include the fixed glass section above.

The final (third) reinforcing check is performed and recorded here.
Hip roof with “Moderate” complexity due to the multi-surface roof.

The entire lanai is protected with one of the fabric hurricane screens. (ASTM Compliant) Therefore, all openings are considered protected. If the lanai protection did not exist, all opening dimensions would have to be recorded. If this were the case, the circled numbers on the checklist must be present.

The exterior finish is Stucco, but the majority of the back wall is wood frame as evidenced by the lack of set-back for the windows and sliding glass doors.

A large open porch is reported (the fact that there are two is not significant). A solid soffit and dimensions are recorded as well.
Note skylight recorded on the left elevation.

### Left Elevation

#### Section F-4 Exterior Roof Information

<table>
<thead>
<tr>
<th>Roof Shape</th>
<th>Roof Complexity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gable</td>
<td>X Simple Roof Shape</td>
</tr>
<tr>
<td>Gambrel</td>
<td>Moderate Roof Shape</td>
</tr>
<tr>
<td>Flat</td>
<td>Complex Roof Shape</td>
</tr>
</tbody>
</table>

#### Section G-4 Window Openings

<table>
<thead>
<tr>
<th>Number</th>
<th>Quantity</th>
<th>Window Type</th>
<th>Floor</th>
<th>Opening in Inches</th>
<th>Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td>SH</td>
<td>1</td>
<td>36 x 50</td>
<td>Yes</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>SH</td>
<td>1</td>
<td>50 x 30</td>
<td>No</td>
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</table>

#### Section H-4 Doors

<table>
<thead>
<tr>
<th>Number</th>
<th>Quantity</th>
<th>Door Type</th>
<th>Floor</th>
<th>Opening in Inches</th>
<th>Protection</th>
<th>Glazed</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>SO</td>
<td>1</td>
<td>36 x 80</td>
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#### Section I-4 Skylights

<table>
<thead>
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<th>Quantity</th>
<th>Daylight Block</th>
<th>ASTM E 1886/ E 1996</th>
<th>Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2.2</td>
<td>2.2</td>
<td>No</td>
</tr>
</tbody>
</table>

#### Section J-4 Gable Ends (all dimensions in inches)

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Bottom Chord Width</th>
<th>Bottom Chord Height</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>12</td>
<td>14</td>
<td>2000</td>
</tr>
</tbody>
</table>

#### Section K-4 Wall Cladding (circle floor)

<table>
<thead>
<tr>
<th>Material</th>
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<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum Siding</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Vinyl Siding</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Wood Siding</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

#### Section L-4 Wall Construction (circle floor)

<table>
<thead>
<tr>
<th>Type</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete Block Un-Reinforced</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Concrete Block Reinforced</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Solid Concrete</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Wood/Light Metal Frame</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

#### Section M-4 Reinforcement Check: (check 3 - 5 locations for entire house)

<table>
<thead>
<tr>
<th>Not Applicable</th>
<th>Left Corner</th>
<th>Window/Door</th>
<th>Right Corner</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section N-4 Carport</td>
<td>Section O-4 Porches</td>
<td>Section P-4 Soffits</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(Circle Applicable)</th>
<th>(Exclude Prow Screen Enclosure)</th>
<th>Overhang (inches)</th>
<th>Horizontal Length (linear feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Built-In</td>
<td>Small</td>
<td>12</td>
<td>6.8</td>
</tr>
<tr>
<td>Attached</td>
<td>Medium</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Detached</td>
<td>Large</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of Cars:</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Solid/Wood/Other</td>
</tr>
<tr>
<td></td>
<td>Vinyl/Aluminum</td>
</tr>
<tr>
<td></td>
<td>None</td>
</tr>
</tbody>
</table>
The photos clearly show plywood, the grade stamp shows 15/32 which is nominal ½” material. The missed nail is an 8d nail. Spacing checked out to be 6/6. There are very few missed nails, so the average is “0”.

Wood truss spacing is 24”.
No SWR was observed and the homeowner stated they did not installed one.

Photo show single wrap straps on each truss with three nails and no corrosion.

From the elevation pages, three gable ends are reported. Because the height does not exceed 4 feet, no bracing information is required.

The homeowner had a set of plans to enable the SC Safe Home Inspector to determine the footprint square feet.

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Photo show single wrap straps on each truss with three nails and no corrosion.

From the elevation pages, three gable ends are reported. Because the height does not exceed 4 feet, no bracing information is required.

The homeowner had a set of plans to enable the SC Safe Home Inspector to determine the footprint square feet.
Single Wrap Tie-Down on each Truss

Grading Stamp Shows 15/32

Missed Nail = 8d
Appendix C:
Suggested Protocols for Surveyors/Inspectors

SURVEYOR/INSPECTOR RESPONSIBILITIES

The Surveyor will:

1. Have an in-depth understanding of the certification criteria and methods.
2. Achieve an acceptable score on the tests and all follow-up tests (if necessary) to ensure
3. Understanding of all changes in the program.
4. Use the latest approved forms for the survey. Electronic forms will be shipped to you with changes included.
5. Upon receipt of a request, contact the homeowner by phone to set up the appointment time.
6. Professional and courteous language must be used. A suggested script is provided below.
7. Arrive at your appointment on time. If you will be more than 10 minutes late, call the homeowner.
8. At the dwelling, complete the entire survey and check it for completeness before you leave.
9. Be courteous and professional at all times.
10. Send completed surveys to the homeowner within 24 hours of completion.
11. Respond reasonably to homeowner follow-up questions on your survey. This may include, in rare cases, revisiting the house if the homeowner can make a case that something you did was in error.

SETTING SURVEY APPOINTMENTS

The survey must be completed with the homeowner, or adult representative, present, to allow access to the attic of the building. DO NOT ENTER THE HOME IF ONLY MINOR CHILDREN ARE PRESENT. The surveyor should call the homeowner to arrange for an appropriate person to provide access to the home.

When scheduling the appointment, request that the homeowner locate and have available copies of any papers related to any existing hurricane protection devices like shutters. The papers for the protection devices are needed to verify that the present products meet the required standards.

SURVEY TOOLS

In addition to normal inspector tools and equipment, the following list shows some suggested additional items you can use to complete a Mitigation Survey of a residential house. There are a couple of tools that may be unique to this survey program. One is the metal scanner which is used for measuring nail spacing and location of rebar in masonry construction. Another is a telescoping pole needed to check the presence of hurricane straps in low slope roofs.

- Latest version of the Survey checklist
- Laser Pointer for Laminated Glass Testing
- Flashlight – high intensity with 1,000,000 Candle Power is suggested
- Head mounted flashlight
- Step ladder or folding ladder to access attic
- 6” steel ruler to measure deck thickness
- Metal scanner
- 3’ telescoping pole (such as a golf ball retriever) – to gently part insulation around rafter/wall connection to examine straps in low slope roofs
- Inspection Mirror
- Binoculars – for examining skylights from the ground
- Long sleeved shirt to protect skin from insulation in attic
- Dust mask and Bump of Hard Hat for use in attic
- Tyvec suit
AT THE DWELLING
1. Look for shutters/attachment brackets and notice garage door type (if any).
2. Knock on front door and request owner or the person you talked to when making the appointment.
3. Show owner your ID badge and remind him/her of purpose of visit and confirm he/she will be here during your inspection. Ask for any paperwork on shutters.
4. Conduct the exterior inspection.
5. Make sure shoes are clean and/or ask if you need to remove shoes before entering the house (if necessary) to conduct the attic inspection.
6. Examine documentation regarding shutters.

CONCLUSION TO SURVEY:
7. Complete the “Date of inspection” and the time you started and completed the inspection.
8. If the homeowner information is not correct make appropriate changes.
9. Leave the provided information letter/flyer with the homeowner.
10. Have the homeowner sign checklist on page 1.

EXAMPLE SCRIPT FOR CONTACTING HOMEOWNER TO SET UP APPOINTMENT

Introduction:
My name is _______________________________ with _______________________________.
I am calling to schedule the home inspection you requested through the South Carolina Safe Home Program.

Inform about Inspection Process:
• This certification inspection will take between 30 minutes and 1 hour.
• What days and times are convenient for you?
• Decide on a mutually agreeable time
• You or an adult to represent you will need to be present during that time.
• I will need to get inside attic to complete my work.
• Do you have impact rated window or shutters on the house now?

If yes, ask them to have a copy of any available paperwork showing the year installed and the model name, number, or any other documents you have regarding your hurricane protection systems.

Confirmation and Closing:
Thank you. I will meet you at _______________________________________ (Confirm time and date).

My name again is _______________________________. If you must cancel or change the appointment, please call me at _______________________________. Thank you again.
SC Safe Home is a grant program established by the state legislature under the Omnibus Coastal Property Insurance Reform Act of 2007. The Omnibus Act was enacted to address issues involving property insurance availability and affordability along South Carolina's Coast. It established the South Carolina Comprehensive Hurricane Grant Mitigation Program known as SC Safe Home. The SC Safe Home Program provides grants to South Carolina property owners to assist with the retrofit of their homes to make them more resistant to loss due to hurricane damage.

The State of South Carolina makes no representations, guarantee, or warranty, either express or implied, regarding the performance or effectiveness of the wind resistive devices, installed pursuant to the SC Safe Home Participating Wind Inspectors Manual SC Safe Home Participating Contractor Manual with respect to protecting property, loss prevention, life safety and protection purposes, or fitness for a particular purpose.

The State of South Carolina reserves the right to modify the information contained in its grant program documents without notice. The State of South Carolina is not liable for any damages or loss sustained by any participant's utilization of any wind resistive device or any information contained in the Wind Inspection Report or Contractor Manual.

Any and all use of or reliance upon wind resistive devices or the information contained in the Wind Inspection Report and Contractor Manual, including but not limited to any selection of products or vendors, is solely the participant's responsibility and the participant(s) assume(s) all risks and liabilities, if any, with respect to the use of the wind resistive devices or the information contained in the SC Safe Home Wind Inspection Report or Contractor Manual. The Wind Inspection Report and Contractor Manual and associated materials contained therein or provided pursuant thereto are provided as is without warranty of any kind. These documents were last updated 03/2020.