



Engineering
WINDSTORM

Windstorm Roofing Requirements
2006 IRC

Coastal Building Inspections and Engineering (CBI) is an engineering and inspection company located in Alvin, Texas. CBI has been performing TDI windstorm inspections in the windstorm areas since 1991. CBI is available to perform windstorm design and inspection services required to maintain windstorm insurance availability for your structure. **ANY CHANGE, ADDITION OR REPAIR MUST BE INSPECTED TO MEET THE WINDSTORM BUILDING CODE TO MAINTAIN INSURABILITY OF YOUR STRUCTURE.**

Coastal Building Inspections and Engineering has inspectors available in Jefferson, Chambers, Harris, Brazoria & Galveston Counties. Please contact our office before you begin construction. Framing repairs and room additions will require an engineered design prior to commencement of construction.

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Windstorm Process

- ⑩ To be eligible for windstorm insurance through the Texas Windstorm Insurance Association, new structures, or repair/alterations to existing structures must be inspected and certified to meet building specification adopted by the Texas Department of Insurance.
- ⑩ The building specification adopted by the TDI is the 2006 International Residential Code.
- ⑩ Coastal Building Inspections (CBI) performs inspections of roof covering installations to meet the building specifications adopted by the TDI.

⑩ **WPI-1, Application for Certificate of Compliance Form**, shall be submitted to Coastal Building Inspections prior to commencement of construction (A windstorm inspection will not be performed if a WPI-1 is not on file for a specific structure)

- ⑩ Inspectors require 24 hours notice for inspections. Most inspections are provided on the same day requested.
- ⑩ Inspections shall be performed during installation.
- ⑩ After the project is completed and all inspections are finished, CBI will submit a WPI-2 form to the TDI to certify the project. TDI will then issue a WPI-8, Certificate of Compliance form, accessible via their website which can be accessed at www.tdi.texas.gov/wind.
- ⑩ All payments are due prior to certification.

Inspection Requirements (General)

Asphalt Shingles: General:

- ⑩ Asphalt shingles shall be installed according to Section R905.2 of the 2006 International Residential Code. See Figure 2 for general installation.
- ⑩ **Roof slope:** Asphalt shingles shall only be used on roof slopes of 2 units vertical in 12 units horizontal (2:12) or greater
- ⑩ Fasteners shall not be overdriven or crooked. See Figure 3.

Roof Deck Sheathing:

- ⑩ Roof deck shall be minimum 7/16" OSB (15/32" Plywood).
- ⑩ Shall be nailed 4" o.c. edges and 6" o.c. in field (for gable ends, the gable rafter and fly barg shall be considered an edge).
- ⑩ Fasteners shall be minimum 8d common (0.131 x 2.5").
- ⑩ Roof deck over spaced boards shall be installed as shown in Figure 1.

Underlayment:

- ⑩ Slopes greater than 4:12 shall have one layer of felt fastened with corrosion resistant fasteners.
- ⑩ Slopes greater than 2:12 and less than 4:12 must have half-lapped felt fastened with corrosion resistant fasteners. See Section R905.2.7.2.
- ⑩ Metal drip edge (if used) fastened 10" o.c.
- ⑩ Felt placed over metal drip edge @ eaves and under drip edge @ rake edges

Asphalt Roofing Shingles Product Requirements

- ⑩ Composition shingle roof covering shall be tested in accordance with ASTM D 3161, Class F. Asphalt shingle wrappers shall bear a label indicating compliance with ASTM D 3161, Class F.
- ⑩ Composition shingle roof covering shall be installed per manufacturer's installation instructions.
- ⑩ Shingles shall be fastened to the roof deck using 6 nails per shingle.

Re-roofing Requirements Over Existing Shingles(General)

Re-roofing a Composition Shingle Roof

- A maximum of one layer of composition shingles may be applied over a single layer of existing composition shingles.
- All existing shingles shall be removed if there are two or more layers of shingles already present.
- The manufacturer's recommendation for re-roofing shall be followed.
- One layer of 15 pound felt shall be applied over the existing shingle roof. Felt shall be adequately fastened to hold it down until the shingles can be applied.
- Felt may be omitted if and only if all of the following three conditions are met:
 1. Existing shingles and deck must provide an adequate nailing surface.
 2. Existing shingles must be in a satisfactory condition so that new shingles can lay flat.
 3. Butts of new shingles must be butted directly against tabs of existing shingles.

The inspector's judgment shall be final as to whether felt is required. Consultation with the inspector prior to re-roofing is suggested if any questions exist regarding felt application.

- ⑩ Asphalt shingles shall be installed according to Section R905.2 of the 2006 International Residential Code.

Roof Covering Products Other than Asphalt Shingle

- ⑩ Roof covering products other than Asphalt Shingles, shall be designed and/ or tested to resist the Component and Cladding loads Specified in Table R301.2(2) of the 2006 International Residential Code.
- Products shall have a TDI product evaluation or test report that indicates compliance of the product and the installation method with the required Component and Cladding load.
- Examples of products that require product evaluations or testing information are: Metal roofing, Modified Bitumen roofing, roof tiles, and wood shakes and shingles
- For a list of evaluated products, please see: <http://www.tdi.state.tx.us/wind/prod/indexrc.html>
- It shall be the responsibility of the contractor to obtain the testing information for the product and provide to the inspector upon request.

2006 INTERNATIONAL RESIDENTIAL CODE

SECTION R905 REQUIREMENTS FOR ROOF COVERINGS

R905.1 Roof covering application. Roof coverings shall be applied in accordance with the applicable provisions of this section and the manufacturer's installation instructions. Unless otherwise specified in this section, roof coverings shall be installed to resist the component and cladding loads specified in Table R301.2(2), adjusted for height and exposure in accordance with Table R301.2(3).

R905.2 Asphalt shingles. The installation of asphalt shingles shall comply with the provisions of this section.

R905.2.1 Sheathing requirements. Asphalt shingles shall be fastened to solidly sheathed decks.

R905.2.2 Slope. Asphalt shingles shall be used only on roof slopes of 2 units vertical in 12 units horizontal (2:12) or greater. For roof slopes from 2 units vertical in 12 units horizontal (2:12) up to 4 units vertical in 12 units horizontal (4:12), double underlayment application is required in accordance with Section R905.2.7.

R905.2.3 Underlayment. Unless otherwise noted, required underlayment shall conform to ASTM D 226 Type I, ASTM D 4869 Type I, or ASTM D 6757.

Self-adhering polymer modified bitumen sheet shall comply with ASTM D 1970.

R905.2.4 Asphalt shingles. Asphalt shingles shall have self-seal strips or be interlocking, and comply with ASTM D 225 or D 3462.

R905.2.4.1 Wind resistance of asphalt shingles.

Asphalt shingles shall be installed in accordance with Section R905.2.6. Shingles classified using ASTM D 3161 are acceptable for use in wind zones less than 110 mph (49 m/s). Shingles classified using ASTM D 3161, Class F, are acceptable for use in all cases where special fastening is required.

R905.2.5 Fasteners. Fasteners for asphalt shingles shall be galvanized steel, stainless steel, aluminum or copper roofing nails, minimum 12 gage [0.105 inch (3 mm)] shank with a minimum $\frac{1}{8}$ -inch (10 mm) diameter head, ASTM F 1667, of a length to penetrate through the roofing materials and a minimum of $\frac{3}{4}$ inch (19 mm) into the roof sheathing. Where the roof sheathing is less than $\frac{3}{4}$ inch (19 mm) thick, the fasteners shall penetrate through the sheathing. Fasteners shall comply with ASTM F 1667.

R905.2.6 Attachment. Asphalt shingles shall have the minimum number of fasteners required by the manufacturer. For normal application, asphalt shingles shall be secured to the roof with not less than four fasteners per strip shingle or two fasteners per individual shingle. Where the roof slope exceeds 20 units vertical in 12 units horizontal (167 percent slope), special methods of fastening are required. For roofs located where the basic wind speed per Figure R301.2(4) is 110 mph (49 m/s) or higher, special methods of fastening are required. Special fastening methods shall be tested in accordance with ASTM D 3161, Class F. Asphalt shingle I wrappers shall bear a label indicating compliance with ASTM D 3161, Class F.

R905.2.7 Underlayment application. For roof slopes from 2 units vertical in 12 units horizontal (17-percent slope), up to 4 units vertical in 12 units horizontal (33-percent slope), underlayment shall be two layers applied in the following manner. Apply a 19-inch (483 mm) strip of underlayment felt parallel to and

starting at the eaves, fastened sufficiently to hold in place. Starting at the eave, apply 36-inch-wide (914 mm) sheets of underlayment, overlapping successive sheets 19 inches (483 mm), and fastened sufficiently to hold in place. Distortions in the underlayment shall not interfere with the ability of the shingles to seal. For roof slopes of 4 units vertical in 12 units horizontal (33-percent slope) or greater, underlayment shall be one layer applied in the following manner. Underlayment shall be applied shingle fashion, parallel to and starting from the eave and lapped 2 inches (51 mm), fastened sufficiently to hold in place. Distortions in the underlayment shall not interfere with the ability of the shingles to seal. End laps shall be offset by 6 feet (1829 mm).

R905.2.7.1 Ice barrier. In areas where there has been a history of ice forming along the eaves causing a backup of water as designated in Table R301.2(1), an ice barrier that consists of a least two layers of underlayment cemented together or of a self-adhering polymer modified bitumen sheet, shall be used in lieu of normal underlayment and extend from the lowest edges of all roof surfaces to a point at least 24 inches (610 mm) inside the exterior wall line of the building.

Exception: Detached accessory structures that contain no conditioned floor area.

R905.2.7.2 Underlayment and high wind. Underlayment applied in areas subject to high winds [above 110 mph (49 m/s) per Figure R301.2(4)] shall be applied with corrosion-resistant fasteners in accordance with manufacturer's installation instructions. Fasteners are to be applied along the overlap not farther apart than 36 inches (914 mm) on center.

R905.2.8 Flashing. Flashing for asphalt shingles shall comply with this section.

R905.2.8.1 Base and cap flashing. Base and cap flashing shall be installed in accordance with manufacturer's installation instructions. Base flashing shall be of either corrosion-resistant metal of minimum nominal 0.019-inch (0.5 mm) thickness or mineral surface roll roofing weighing a minimum of 77 pounds per 100 square feet (4 kg/m²). Cap flashing shall be corrosion-resistant metal of minimum nominal 0.019-inch (0.5 mm) thickness.

R905.2.8.2 Valleys. Valley linings shall be installed in accordance with the manufacturer's installation instructions before applying shingles. Valley linings of the following types shall be permitted:

1. For open valley (valley lining exposed) lined with metal, the valley lining shall be at least 24 inches (610 mm) wide and of any of the corrosion-resistant metals in Table R905.2.8.2.
2. For open valleys, valley lining of two plies of mineral surfaced roll roofing, complying with ASTM D 3909 or ASTM D 6380 Class M, shall be permitted. The bottom layer shall be 18 inches (457 mm) and the top layer a minimum of 36 inches (914 mm) wide.
3. For closed valleys (valley covered with shingles), valley lining of one ply of smooth roll roofing complying with ASTM D 6380 Class S Type III, Class M Type II, or ASTM D 3909 and at least 36 inches wide (914 mm) or valley lining as described in Items 1 and 2 above shall be permitted. Specialty underlayment complying with ASTM D 1970 may be used in lieu of the lining material.

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R905.2.8.3 Crickets and saddles. A cricket or saddle shall be installed on the ridge side of any chimney or penetration more than 30 inches (762 mm) wide as measured perpendicular to the slope. Cricket or saddle coverings shall be sheet metal or of the same material as the roof covering.

R905.2.8.4 Sidewall flashing. Flashing against a vertical sidewall shall be by the step-flashing method.

R905.2.8.5 Other flashing. Flashing against a vertical front wall, as well as soil stack, vent pipe and chimney flashing, shall be applied according to the asphalt shingle manufacturer's printed instructions.

LINING MATERIAL

MATERIAL	MINIMUM THICKNESS (inches)	GAGE	WEIGHT (pounds)
Cold-rolled copper	0.0216 nominal	-	ASTM B 370, 16 oz. per square foot
Lead-coated copper	0.0216 nominal	-	ASTMB 101, 16 oz. per square foot
High-yield copper	0.0162 nominal	-	ASTM B 370, 12 oz. per square foot
Lead-coated high-yield copper	0.0162 nominal	-	ASTMB 101, 12 oz. per square foot
Aluminum	0.024	-	-
Stainless steel	-	28	-
Galvanized steel	.0179	26 (zinc coated G90)	-
Zinc alloy	0.027	-	-
Lead	-	-	2 1/2
Painted terne	-	-	20

For SI: 1 inch = 25.4 mm, 1 pound = 0.454 kg

TABLE R905.2.8.2 VALLEY

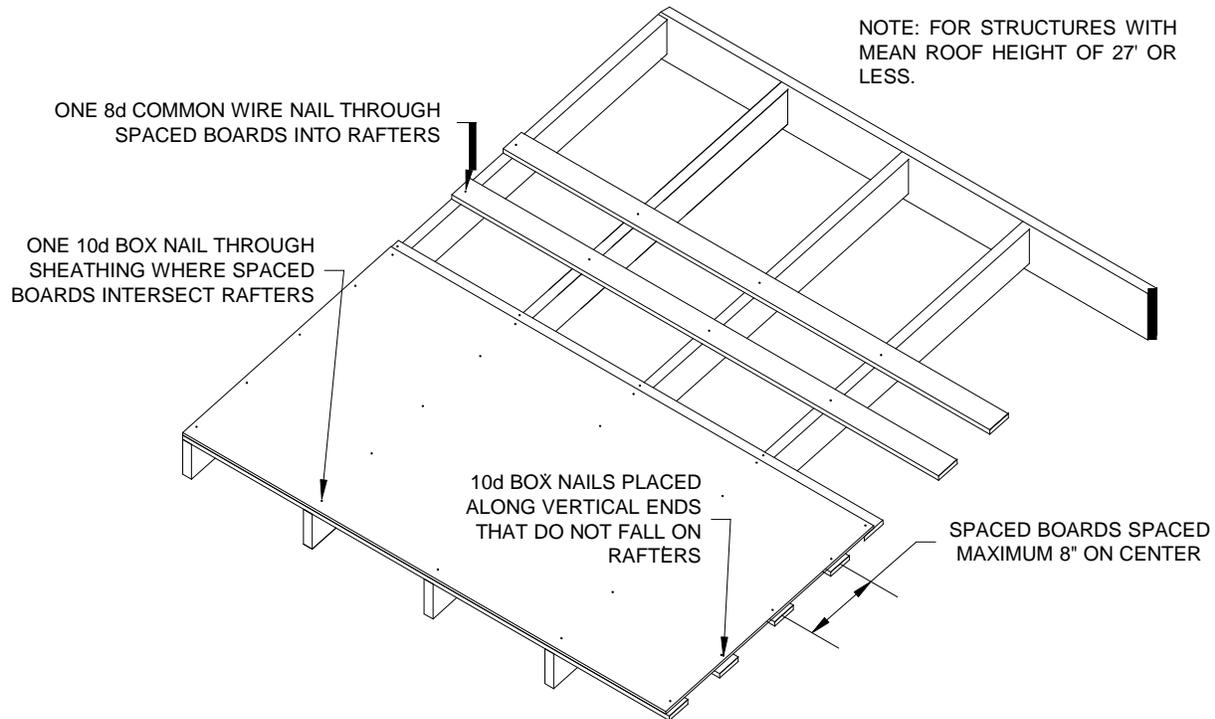


Figure 1- Sheathing Over Spaced Board Installation

DIRECTIONS FOR APPLICATION

Please read carefully. Failure to follow these instructions may void the product warranty. See specific application instructions for Prestique® Plus and Prestique Gallery Collection® 110 MPH and Prestique 190 MPH limited wind warranty requirements.

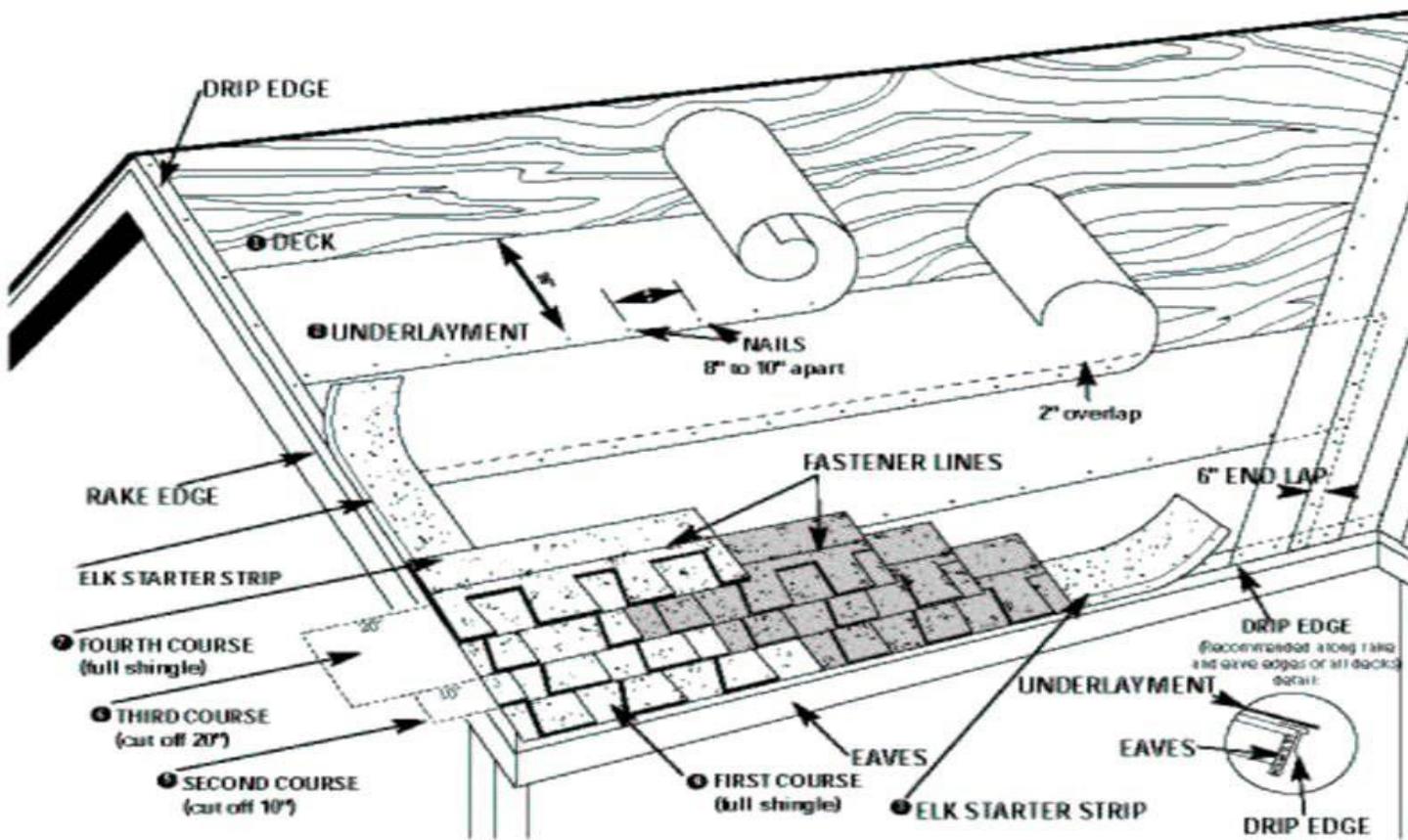


Figure 2- General Installation

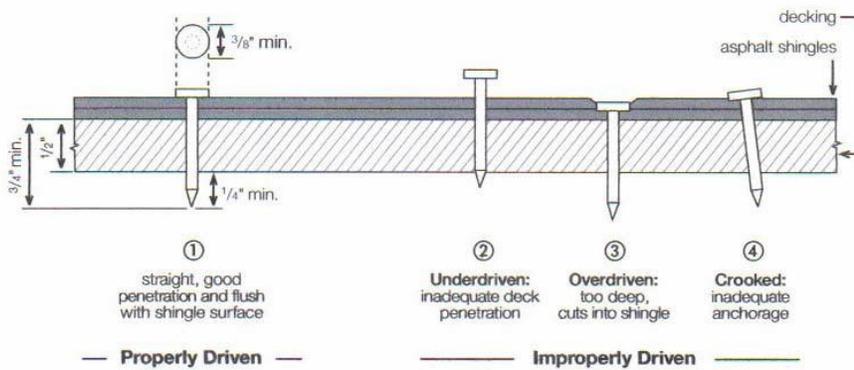


Figure 3- Nail Penetration

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ASPHALT SHINGLE PRODUCTS THAT CONFORM TO THE 2006 INTERNATIONAL RESIDENTIAL CODE (IRC) AND 2006 INTERNATIONAL BUILDING CODE (IBC), AS MODIFIED WITH 2006 TEXAS REVISIONS

Effective January 1, 2008 (Revised July 29, 2008)

The 2006 IRC and IBC, with 2006 Texas Revisions, require asphalt shingle roof coverings installed in areas where the basic wind speed is 110 mph or higher to conform to ASTM D 3161, Class F, or as an alternative, determined in accordance with ASTM D 6381 and UL 2390.

Asphalt shingle manufacturers have tested their asphalt shingle roof covering products to these standards and the asphalt shingle wrappers shall bear a label indicating compliance with ASTM D 3161, Class F or using one of the alternative methods listed. Asphalt shingles tested to ASTM D 3161, Class F, are appropriate for installation on sloped roofs. (Reference: IRC Sect. R905.2.6 and IBC Sect. 1504.1.1) As an alternative, asphalt shingles may be tested to determine the resistance of the sealant to uplift force using ASTM D 6381 and for the installation to be designed using UL 2390 to determine appropriate uplift and force coefficients applied to the shingle. (Reference: IBC Sect. 1609.5.2) The alternative method is not referenced in the IRC, but may be applied to residential structures. Asphalt shingles tested to ASTM D 6381 are appropriate for installation on sloped roofs. ASTM D 7158 combines ASTM D 6381 and UL 2390 into one standard. ASTM D 7158 is not referenced in the 2006 IRC or IBC. ASTM D 7158 is referenced in the 2007 Supplement to the 2006 IRC and IBC, and most manufacturers have embraced ASTM D 7158 testing and labeling of their products. Asphalt shingles tested to ASTM D 7158 are appropriate for installation on sloped roofs.

Wind Resistance of Asphalt Shingles Summary:

ASTM D 3161, Class F – Asphalt shingles tested and labeled on the wrapper as conforming to ASTM D 3161, Class F are acceptable for installation where the basic wind speed is less than or equal to 130 mph.

Alternative Test Methods:

ASTM D 6381/UL 2390 –Asphalt shingles tested and labeled on the wrapper as conforming to ASTM D 6381 and UL 2390, Class G are acceptable for installation where the basic wind speed is less than or equal to 120 mph. Asphalt shingles tested and labeled on the wrapper as conforming to ASTM D 6381 and UL 2390, Class H are acceptable for installation where the basic wind speed is less than or equal to 130 mph.

ASTM D 7158 – Asphalt shingles tested and labeled on the wrapper as conforming to ASTM D 7158, Class G are acceptable for installation where the basic wind speed is less than or equal to 120 mph. Asphalt shingles tested and labeled on the wrapper as conforming to ASTM D 7158, Class H are acceptable for installation where the basic wind speed is less than or equal to 130 mph.

APPLICABILITY OF ASPHALT SHINGLE TESTS TO CATASTROPHE ZONES			
ZONE	BASIC WIND SPEED	ASTM D 3161	ASTM D 6381/UL 2390 OR ASTM D 7158
INLAND II	110	Class F	Class G or Class H
INLAND I	120	Class F	Class G or Class H
SEAWARD	130	Class F	Class H

Notes: Asphalt shingles must conform to the appropriate classification for ASTM D 3161, ASTM D 6381/UL 2390, or ASTM D 7158. Conformance with more than one standard is not required.

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2006 IRC and IBC Asphalt Shingle Products			Wrapper Label Standard Reference		
Manufacturer	Product	Plant Location	ASTM D 3161 Class	ASTM D 6381 UL 2390 Class	ASTM D7158 Class
Atlas Roofing Corporation	Alpine	Ardmore, OK	F	--	--
Atlas Roofing Corporation	Chalet	Hampton, GA	F	H	H
Atlas Roofing Corporation	GlassMaster 25	Ardmore, OK	F	H	H
Atlas Roofing Corporation	GlassMaster 25	Hampton, GA	F	H	H
Atlas Roofing Corporation	Pinnacle 35	Daingerfield, TX	F	H	H
Atlas Roofing Corporation	Pinnacle 35	Meridian, MS	F	H	H
Atlas Roofing Corporation	Pinnacle 45	Daingerfield, TX	F	H	H
Atlas Roofing Corporation	StormMaster LM	Daingerfield, TX	F	H	H
Atlas Roofing Corporation	StormMaster ST	Ardmore, OK	F	--	--
Atlas Roofing Corporation	Stratford	Hampton, GA	F	H	H
Atlas Roofing Corporation	Stormmaster Slate	Ardmore, OK	F	H	H
CertainTeed Corporation	Carriage House Shangle	Oxford, NC	F	H	H
CertainTeed Corporation	Centennial Slate	Oxford, NC	F	H	H
CertainTeed Corporation	CT20	Avery, OH	F	H	H
CertainTeed Corporation	CT20	Oxford, NC	F	H	H
CertainTeed Corporation	CT20	Shreveport, LA	F	H	H
CertainTeed Corporation	Grand Manor Shangle	Oxford, NC	F	H	H
CertainTeed Corporation	Hatteras	Oxford, NC	F	H	H
CertainTeed Corporation	Landmark	Peachtree City, GA	F	H	H
CertainTeed Corporation	Landmark	Shakopee, MN	F	H	H
CertainTeed Corporation	Landmark	Shreveport, LA	F	H	H
CertainTeed Corporation	Landmark	Wilmington, CA	F	H	H
CertainTeed Corporation	Landmark Plus	Birmingham, AL	F	H	H
CertainTeed Corporation	Landmark Plus	Shakopee, MN	F	H	H
CertainTeed Corporation	Landmark Plus	Shreveport, LA	F	H	H
CertainTeed Corporation	Landmark Premium	Birmingham, AL	F	H	H
CertainTeed Corporation	Landmark Premium	Shakopee, MN	F	H	H
CertainTeed Corporation	Landmark Premium	Shreveport, LA	F	H	H
CertainTeed Corporation	Landmark Special	Birmingham, AL	F	H	H
CertainTeed Corporation	Landmark TL, aka Landmark TL Ultimate	Birmingham, AL	F	H	H
CertainTeed Corporation	Landmark TL	Fremont, CA	F	--	--
CertainTeed Corporation	Landmark TL IR	Birmingham, AL	F	H	H
CertainTeed Corporation	Patriot	Oxford, NC	F	H	H
CertainTeed Corporation	Presidential Shake	Birmingham, AL	F	H	H
CertainTeed Corporation	Presidential Shake	Fremont, CA	F	--	--
CertainTeed Corporation	Presidential Shake TL, aka Presidential Shake TL Ultimate	Birmingham, AL	F	H	H
CertainTeed Corporation	Presidential Shake TL	Fremont, CA	F	--	--
CertainTeed Corporation	XT 25	Oxford, NC	F	H	H
CertainTeed Corporation	XT 25	Shreveport, LA	F	H	H
CertainTeed Corporation	XT 30	Oxford, NC	F	H	H
CertainTeed Corporation	XT 30	Shreveport, LA	F	H	H
CertainTeed Corporation	XT 30 IR	Shreveport, LA	F	H	H
GAF-Elk Corporation	Camelot	Mt. Vernon, IN	F	H	H
GAF-Elk Corporation	Capstone®, Capstone® 40 with FLXTM	Tuscaloosa, AL	F	H	H
GAF-Elk Corporation	Country Mansion	Mt. Vernon, IN	--	H	H
GAF-Elk Corporation	Grand Canyon	Fontana, CA	F	H	H
GAF-Elk Corporation	Grand Sequoia	Fontana, CA	F	H	H

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GAF-Elk Corporation	Grand Slate	Mt. Vernon, IN	--	H	H
GAF-Elk Corporation	Marquis WeatherMax	Minneapolis, MN	--	H	H
GAF-Elk Corporation	Royal Sovereign	Dallas, TX	--	H	H
GAF-Elk Corporation	Sentinel	Dallas, TX	--	H	H
GAF-Elk Corporation	Sentinel	Mt. Vernon, IN	--	H	H
GAF-Elk Corporation	Slateline	Mt. Vernon, IN	F	H	H
GAF-Elk Corporation	Timberline Armorshield II, Prestique X-tra	Tuscaloosa, AL	F	H	H
GAF-Elk Corporation	Timberline® Natural Shadow™	Dallas, TX	F	H	H
GAF-Elk Corporation	Timberline® Natural Shadow™, Raised Profile	Ennis, TX	F	H	H
GAF-Elk Corporation	Timberline® Natural Shadow™	Michigan City, IN	F	H	H
GAF-Elk Corporation	Timberline® Natural Shadow™, Raised Profile	Shafter, CA	F	H	H
GAF-Elk Corporation	Timberline® Natural Shadow™, Raised Profile	Tuscaloosa, AL	F	H	H
GAF-Elk Corporation	Timberline® Prestique® 30, Timberline 30	Dallas, TX	F	H	H
GAF-Elk Corporation	Timberline® Prestique® 30, Prestique® High Definition	Ennis, TX	F	H	H
GAF-Elk Corporation	Timberline® Prestique® 30, Timberline 30	Michigan City, IN	F	H	H
GAF-Elk Corporation	Timberline® Prestique® 30, Prestique® High Definition	Shafter, CA	F	H	H
GAF-Elk Corporation	Timberline® Prestique® 30, Prestique® High Definition	Tuscaloosa, AL	F	H	H
GAF-Elk Corporation	Timberline® Prestique® 40, Timberline Select 40	Baltimore, MD	F	H	H
GAF-Elk Corporation	Timberline® Prestique® 40, Prestique® I High Definition	Ennis, TX	F	H	H
GAF-Elk Corporation	Timberline® Prestique® 40, Timberline Select 40	Michigan City, IN	F	H	H
GAF-Elk Corporation	Timberline Prestique® Cool Color Series	Shafter, CA	F	H	H
GAF-Elk Corporation	Timberline Prestique® Grande	Ennis, TX	F	H	H
GAF-Elk Corporation	Timberline® Prestique® 40, Prestique® 1 High Definition	Shafter, CA	F	H	H
GAF-Elk Corporation	Timberline® Prestique® Lifetime, Timberline Ultra	Baltimore, MD	F	H	H
GAF-Elk Corporation	Timberline® Prestique® Lifetime, Prestique® Plus High Definition	Ennis, TX	F	H	H
GAF-Elk Corporation	Timberline® Prestique® Lifetime, Timberline Ultra	Michigan City, IN	F	H	H
GAF-Elk Corporation	Timberline® Prestique® Lifetime, Prestique® Plus High Definition	Shafter, CA	F	H	H

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Owens Corning Fiberglass Corporation	Berkshire	Minneapolis, MN	F	--	--
Owens Corning Fiberglass Corporation	Classic	Denver, CO	F	--	--
Owens Corning Fiberglass Corporation	Classic	Irving, TX	F	--	--
Owens Corning Fiberglass Corporation	Classic	Medina, OH	F	--	--
Owens Corning Fiberglass Corporation	Classic	Memphis, TN	F	--	--
Owens Corning Fiberglass Corporation	Classic	Minneapolis, MN	F	--	--
Owens Corning Fiberglass Corporation	Classic	Summit, IL	F	--	--
Owens Corning Fiberglass Corporation	Duration	Irving, TX	F	--	--
Owens Corning Fiberglass Corporation	Duration	Minneapolis, MN	F	--	--
Owens Corning Fiberglass Corporation	Duration	Summit, IL	F	--	--
Owens Corning Fiberglass Corporation	Duration Premium	Irving, TX	F	--	--
Owens Corning Fiberglass Corporation	Duration Premium	Minneapolis, MN	F	--	--
Owens Corning Fiberglass Corporation	Duration Premium	Summit, IL	F	--	--
Owens Corning Fiberglass Corporation	Oakridge, Oakridge Pro 30	Brookville, IN	F	--	--
Owens Corning Fiberglass Corporation	Oakridge, Oakridge Pro 30	Denver, CO	F	--	--
Owens Corning Fiberglass Corporation	Oakridge, Oakridge Pro 30	Houston, TX	F	--	--
Owens Corning Fiberglass Corporation	Oakridge, Oakridge Pro 30	Irving, TX	F	--	--
Owens Corning Fiberglass Corporation	Oakridge, Oakridge Pro 30	Medina, OH	F	--	--
Owens Corning Fiberglass Corporation	Oakridge, Oakridge Pro 30	Minneapolis, MN	F	--	--
Owens Corning Fiberglass Corporation	Oakridge, Oakridge Pro 30	Portland, OR	F	--	--
Owens Corning Fiberglass Corporation	Oakridge, Oakridge Pro 30	Summit, IL	F	--	--
Owens Corning Fiberglass Corporation	Oakridge Pro 40	Denver, CO	F	--	--
Owens Corning Fiberglass Corporation	Oakridge Pro 40	Houston, TX	F	--	--
Owens Corning Fiberglass Corporation	Oakridge Pro 40	Irving, TX	F	--	--
Owens Corning Fiberglass Corporation	Oakridge Pro 50	Denver, CO	F	--	--

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Owens Corning Fiberglass Corporation	Oakridge Pro 50	Houston, TX	F	--	--
Owens Corning Fiberglass Corporation	Prominence	Medina, OH	F	--	--
Owens Corning Fiberglass Corporation	Supreme	Denver, CO	F	--	--
Owens Corning Fiberglass Corporation	Supreme	Irving, TX	F	--	--
Owens Corning Fiberglass Corporation	Supreme	Medina, OH	F	--	--
Owens Corning Fiberglass Corporation	Supreme	Summit, IL	F	--	--
Owens Corning Fiberglass Corporation	WeatherGuard HP	Houston, TX	F	--	--
Tamko Building Products, Inc.	Elite Glass-Seal	Frederick, MD	F	H	H
Tamko Building Products, Inc.	Elite Glass-Seal	Joplin, MO	F	H	H
Tamko Building Products, Inc.	Elite Glass-Seal	Tuscaloosa, AL	F	H	H
Tamko Building Products, Inc.	Glass-Seal	Frederick, MD	--	H	H
Tamko Building Products, Inc.	Glass-Seal	Joplin, MO	--	H	H
Tamko Building Products, Inc.	Galss-Seal	Tuscaloosa, AL	F	H	H
Tamko Building Products, Inc.	Heritage 30	Dallas, TX	F	H	H
Tamko Building Products, Inc.	Heritage 30	Joplin, MO	F	H	H
Tamko Building Products, Inc.	Heritage 30	Frederick, MD	F	H	H
Tamko Building Products, Inc.	Heritage 30	Phillipsburg, KS	F	H	H
Tamko Building Products, Inc.	Heritage 30	Tuscaloosa, AL	F	H	H
Tamko Building Products, Inc.	Heritage 50	Dallas, TX	F	H	H
Tamko Building Products, Inc.	Heritage 50	Frederick, MD	F	H	H
Tamko Building Products, Inc.	Heritage 50	Phillipsburg, KS	F	H	H
Tamko Building Products, Inc.	Heritage 50	Tuscaloosa, AL	F	H	H
Tamko Building Products, Inc.	Heritage Vintage	Phillipsburg, KS	F	H	H
Tamko Building Products, Inc.	Heritage XL	Dallas, TX	F	H	H
Tamko Building Products, Inc.	Heritage XL	Frederick, MD	F	--	--

Notes: The symbol "--" in the 2006 IRC and IBC Shingle Products table indicates that the shingle is not labeled to indicate compliance with the ASTM standard.

The words (AR), (Algae Eater), or (StainGuard®) on the shingle wrapper indicate that the asphalt shingle product is manufactured with "Algae Resistant" aggregate and does not effect the products conformity to ASTM D 3161, ASTM D 6381, or ASTM D 7158.

Approved roof vents for all windstorm areas*

* Listed products are acceptable for use in the Inland I, Inland II and Seaward zones for structures with a mean roof height less than 35'. Products shall be installed according to installation methods specified in the TDI product evaluation. It is the responsibility of the contractor to provide product acceptability and installation methods for roofing products. Products not listed may not have sufficient design pressure resistance to be used for all structures or wind speeds.

Manufacturer	Approved Model No.
Air Vent, Inc.\ Owens Corning Ventsure 4117 Pinnacle Point Drive Suite 400 Dallas, TX 75211 (214) 630-7377	SQP61, UH50, SLP61, SLP61, STC5, B144, RA50, B144, VTSG-144, SLA, SLA, VTS455, RV26, RV28, RV26, BR26, RV26, BR28, RV26, ASRHP, RV26, PC12, RV26, PC15, RV26, XLR, RV26, SV3000, Ridge Filtervent, Shinglevent II, Ventsure® 4' Rigid, ABC Supply Venturi Ridge Vent, CRV Ridge Vent, Steep Pitch Ridge Vent, VenturiVent Plus, WTI12, WTI14, WTE12, WTE14, WTI12A, WTI14A, WTE12A T112, T114, TE12, TE14, ATI12, ATI14, ATE12, ATE14, RV-55 (VTS555)], TIBG-12S, TOBG-12S, TIB-12S, TOB-12S
Blocksom & Company 450 St. John Road, No. 710 Michigan City, IN 46360 (219) 874-3231	Roof Saver Rolled Ridge Vent with Wind Deflector
Benjamin Obdyke, Inc. 400 Babylon Road Suite A Horsham, PA 19044 Telephone: (877) 647-8368	Roll Vent® Rapid Ridge® Shingle Over Ridge Vents Xtractor Vent® XLP Xtractor Vent® X18 Xtractor Vent® X18 Xtra Xtractor Vent® XLP Turbo
Canplas Industries LTD. 500 Veterans Drive Barrie, Ontario, Canada L4M 4V3 (800) 461-1771	Duraflo 6050T, 60PRO50, 6050, 6065, and 6075 Roof Vents DuraFlo WeatherPro Shingle Over Ridge Vent
DCI Products Clifton Industrial Park 100 Mill Street Clifton Heights, PA 19018 Telephone: (800) 622-4455 www.dciproducts.com	SmartVent SmartRidge II Shingle Over Ridge Vents
Diversi-Plast Products 7425 Laurel Avenue Minneapolis, MN 55426 (800) 828-6114	Trimline™ Plus and Rigid Roll Plus Owens Corning "VentSure® with Weather Protector™ Rigid Roll with Weather Protector™

Approved roof vents for all windstorm areas*

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FLAMCO (Florida Metal Products Inc.) P.O. Box 6310 Jacksonville, FL 32236	4 foot plastic shingle over vent
GAF Materials Corporation 1361 Alps Road Wayne, NJ 07470 (973) 628-3000	Cobra Ridge Vent 3, Cobra Ridge Runner Gun-Nailable Shingle Over Ridge Vent Rolls: SONN , FSNN, and RidgePro™ Shingle Over Ridge Vent
Greenheck Fan Corporation 400 Ross Avenue Schofield, Wisconsin 54476 (715) 359-6171	USGF
LL Building Products, Inc. 295 McKoy Road Burgaw, N C 28425 Phone: (910) 259-6374	GC12E, AIC14, GIC12
Lomanco, Inc. 2101 West Main Street Jacksonville, AR 72076 Telephone: 1-800-643-5596	OR-4 Omniridge Shingle Over Ridge Vent, MODEL 750, BIB-12, BEB-12, BIB-12TR, BEB-12TR, BIB-14 and BEB-14 Whirlybird Wind Turbines, Model 135 Static Roof Vent, Model 2000 Powered Static Roof Vents, Model 860P Roof Louvre, LO-OmniRoll (LOR-30) and the Lo-OmniRidge Shingle Over Ridge Vents
O'Hagins, Inc. 210 Classic Court Rhonert Park, CA 94928 Telephone: (707) 303-3660	Tapered Low Profile Composition Vent
Ross Manufacturing, LLC 155 Spire Lane New Braunfels, Texas 78132 (830) 643-0175	Ross Series 150 Roof Vent

Approved roof vents for all windstorm areas*

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TAMLYN
13623 Pike Road
Stafford, Texas 77477
(800) 334-1676

TAMLYN Series TSB150 ROOF VENT

Coastal Building Inspections, RLLP.

P.O. Box 56, Friendswood, Texas 77546
OFFICE 281-331-0788 FAX 281-331-0708



Bruce Anderson Lewis, P.E., Chief Engineer
Craig Anthony Roll, ICC Certified Inspector

To: Builders

From: Coastal Building Inspection and Engineering

RE: Composition Shingle Roof Covering Damage due to Hurricanes

In the aftermath of Hurricane Ike, many questions arose regarding the performance of composition shingle roof coverings. Composition shingle roof coverings are the most common loss paid by insurance companies for high wind events, due in part to the inadequacy of building codes and the inaccuracy of the test standards used to verify product acceptability.

A house's proximity to surrounding structures as well as its height greatly affects the actual wind pressure on the roof covering. The wind pressures on the roof are highest around eaves, ridges and gable ends and are higher for taller structures. These factors are not considered by the testing standards used to verify composition shingle product acceptability. Due in part to this, most shingle manufacturers do not extend their warranty to the higher wind speeds and will only warrant for wind speeds up to 60 mph. Roofing products other than composition shingle products must be tested and designed to resist the actual pressure that a given structure may be subject to during a design event, including the edge zones. Composition shingle products do not require design as they are addressed directly in the Code.

For houses built in the windstorm area prior to February 1, 2003, the minimum shingle product that could be used only had to pass the UL 997 test which is tested using a fan blowing wind at 60 mph on a 4x8 test specimen. If no tabs lift then the product passes the test. This test has nothing to do with how many nails are used to anchor it down (most pass the test with 4 nails) nor does it accurately test the pressure that the product may be subject to at the eaves, rakes or ridges in an actual hurricane. The test wind speed is also obviously lower than hurricane wind speeds. Depending on the location of the structure, the wind speeds from Hurricane Ike may have been as high as 110 mph sustained (averaged over 1 minute).

For houses built in windstorm areas after February 1, 2003, the shingle must be tested to the same test standard as before, except with the fan turned up to 110 mph. Again, most of the products pass the test with 4 nails; however, this test does not accurately test the shingle for the actual wind pressures it may be subject to on the roof.

The minimum number of fasteners required for the installation of a composition shingle roof covering in a high wind is the number of fasteners that the product passed the ASTM D 3161. Most shingle products pass the test with 4 fasteners. The manufacturers recommend 6 nails in high wind areas, but the code does not require this recommendation be enforced. The ASTM D 3161 test is not intended to test the anchorage of the shingle. It is intended to test the seal between courses.

Our inspection process for inspecting roof coverings is to educate the roofing contractor and establish a proper pattern for the installation on each project. Failure of shingle roof coverings may still occur due to the combination of the relatively weak code requirements for the product and the high wind pressure zones on the roof. Failure of an area of the roof or an entire roof covering does not necessarily indicate that the installation was improper. Older roof coverings will become brittle and be more prone to failures as well. In the case of a loss, the manufacturer can be contacted if the measured wind speed for an area was less than the warranted wind speed.

Coastal Building Inspection, RLLP.

798 FM 517, ALVIN, TX 77511
 OFFICE 281-331-0788 FAX 281-331-0708



Bruce Anderson Lewis, P.E., Chief Engineer
 Craig Anthony Roll, ICC Certified Inspector

WINDSTORM INSPECTION REPORT

INSPECTOR: _____ JOB TYPE: _____
 JOB NO. _____ WINDSTORM ZONE: _____
 BUILDER: _____ BUILDER PHONE: _____
 OWNER: _____ OWNER PHONE: _____
 ADDRESS: _____
 CITY: _____ COUNTY: _____

RE-ROOF COMPOSITION SHINGLE INSPECTION

PRODUCT INFORMATION	PROJECT DESCRIPTION (INSPECTION TYPE)
<p>Type of Shingle (Name and Model): _____ <input type="checkbox"/> ASTM D 3161, class F <input type="checkbox"/> ASTM D 6381/ UL 2390, class H <input type="checkbox"/> ASTM D 7158, class H Other Products (Type/TDI Evaluation #): _____ Roof Pitch: _____/12 _____/12 _____/12 (Shall not be less than 2:12 for comp. shingles)</p>	<p><input type="checkbox"/> Partial, (Type): _____ (Must be partial if any part excluded) <input type="checkbox"/> Entire Re-Roof (Type): _____ <input type="checkbox"/> Entire+ Garage attached w/ breezeway <input type="checkbox"/> Entire + Detached Garage or Other: _____</p>
<p>INSTALLATION</p> <p><input type="checkbox"/> Deck Repair, nailed 4" o.c. @ edges, 6" o.c. in field w/ 8d common nail or equivalent</p> <p><input type="checkbox"/> Half-lapped felt nailed 36" o.c. @ laps, Roof slope 2:12 up to 4:12</p> <p><input type="checkbox"/> Single felt layer nailed 36" o.c. @ laps, Roof slope 4:12 or great</p> <p><input type="checkbox"/> Felt over drip edges @ eaves</p> <p><input type="checkbox"/> Felt under drip edge @ rakes</p> <p><input type="checkbox"/> Drip Edge fastened 10" o.c.</p> <p><input type="checkbox"/> Flashing attached per Section R905.2.8</p> <p><input type="checkbox"/> Shingles nailed on proper line (per manufacturer installation instructions)</p> <p><input type="checkbox"/> Shingles nailed flush (not over-driven)</p> <p><input type="checkbox"/> Starter course nailed 1" from edge at rakes and eaves</p> <p><input type="checkbox"/> Ridge vent per spec. w/ proper nail (2.5" min.) Ridge Vent Manufacturer/Model: _____</p>	<p style="text-align: center;">ROOF DRAWING</p>

Notes: _____

INSPECTOR SIGNATURE

DATE:



TEXAS DEPARTMENT OF INSURANCE

Windstorm Inspections / MC 103-1E 333 Guadalupe Street P.O. Box 149104 Austin, Texas 78714-9104
(512) 322-2203 or toll free 1-(800)248-6032 Fax (512) 322-2273 TDI website: www.tdi.state.tx.us

APPLICATION FOR CERTIFICATE OF COMPLIANCE Form WPI-1

Physical Address of Structure to Be Inspected (Complete 9-1-1 Street Address including house/building Number):

Tract or Addition _____
Lot _____ Tract _____
Block _____
City _____ Zip Code _____ County _____

| Inside City Limits | Outside City Limits
Structure is located in: | Inland II | Inland I | Seaward
Is the structure located in a Coastal Barrier Resource Zone (COBRA): | Yes | No

**FAX THIS FORM TO CBI
OFFICE FOR EACH JOB
FAX# (281) 331-0708**

Owner:
Name: _____ Telephone No.: _____ Fax No.: _____
Mailing Address: _____ City: _____ Zip Code: _____

Builder/Contractor (at time of construction):
Name: _____ Telephone No.: _____ Fax No.: _____
Mailing Address: _____ City: _____ Zip Code: _____

Engineer:
Name: _____ Telephone No.: _____ Fax No.: _____
Mailing Address: _____ City: _____ Zip Code: _____
E-Mail Address: _____ Texas Registration No.: _____

Commencement of Construction (date): _____ Date of Application: _____

1. Type of Building:

- | Commercial
- | Residential Dwelling
- | Duplex
- | Garage Attached by Breezeway
- | Detached Garage
- | Condominium (# of Units: _____*)
- | Townhouse (# of Units: _____*)
- | Apartments (# of Units: _____*)
- | * Per Building
- | Farm & Ranch
- | Metal Building
- | Other (Specify): _____

2. Type of Inspection:

- D Entire Building (Type): _____
 - D Entire Re-Roof (Type): _____
 - D Re-decking
 - D Partial Re-roof (Type and Area): _____
 - D Re-decking
 - D Alteration (Type): _____
 - D Repair (Type): _____
 - D Mechanical Only (Type): _____
 - D Foundation Only (Type): _____
 - D Addition (Type): _____
 - D Retrofit of All Exterior Openings: _____
- (For windborne debris protection only (impact resistant exterior opening products or shutters). All exterior openings shall include windows, doors, garage doors, and skylights.

Comments:

Submitter Information:

SUBMITTER NAME (please print): _____ DATE: _____
TELEPHONE NUMBER: _____
PLEASE CHECK ONE: | Owner | Builder/Contractor | Insurance Agent | Engineer | Other (Specify) _____

**FOR TEXAS DEPARTMENT OF INSURANCE INSPECTIONS: MAIL OR FAX TO YOUR LOCAL FIELD OFFICE
FOR INSPECTIONS BY ENGINEERS: MAIL OR FAX TO AUSTIN OFFICE: 512/322-2273**