

**2006 Texas Revisions
to the 2006 International Residential Code**

Chapter 3
Building Planning

Revise Section R301.2.1 to read as follows:

R301.2.1 Wind limitations. Buildings and portions thereof shall be limited by wind speed, as defined in Table R301.2(1), and construction methods in accordance with this code. Basic wind speeds shall be determined from Figure 301.2(4). Where different construction methods and structural materials are used for various portions of a building, the applicable requirements of this section for each portion shall apply. Where loads for wall coverings, curtain walls, roof coverings, exterior windows, skylights, ~~garage doors~~ and exterior doors are not otherwise specified, the loads listed in Table R301.2(2) adjusted for height and exposure using Table R301.2(3) shall be used to determine design load performance requirements for wall coverings, curtain walls, roof coverings, exterior windows, skylights, ~~garage doors~~ and exterior doors. Where loads for garage doors are not otherwise specified, the loads listed in Table R301.2(4) adjusted for height and exposure using Table R301.2(3) shall be used to determine design load performance requirements for garage doors. Asphalt shingles shall be designed for wind speeds in accordance with Section R905.2.6.

Add a new Table R301.2(4) as follows:

TABLE R301.2(4)
GARAGE DOOR LOADS FOR A BUILDING WITH A MEAN
ROOF HEIGHT OF 30 FEET LOCATED IN EXPOSURE B (PSF)

		<u>Basic Wind Speed (mph – 3 second gust)</u>							
		90	100	110	120	130	140	150	
<u>Roof Angle > 10 degrees</u>									
<u>Effective Area:</u>									
<u>Width (ft)</u>	<u>Height (ft)</u>								
9	7	12.8 -14.5	15.8 -17.9	19.1 -21.6	22.8 -25.8	26.7 -30.2	31.0 -35.1	35.6 -40.2	
16	7	12.3 -13.7	15.2 -16.9	18.3 -20.4	21.8 -24.3	25.6 -28.5	29.7 -33.1	34.1 -38.0	

For SI: 1 foot = 304.8mm, 1 square foot = 0.0929 sq m, 1 mile per hour = 1.609 km/h

1. For effective areas or wind speeds between those given above the load may be interpolated, otherwise use the load associated with the lower effective area.
2. Table values shall be adjusted for height and exposure by multiplying by the adjustment coefficient in Table R301.2(3).
3. Plus and minus signs signify pressures acting toward and away from the building surfaces.
4. Negative pressures assume door has 2 feet of width in building's end zone.

Revise Section R301.2.1.1 to read as follows:

R301.2.1.1 Design Criteria. Construction in regions where the basic wind speeds from Figure R301.2(4) equal or exceed 100 miles per hour (45 m/s) in hurricane prone regions, or 110 miles per hour (49 m/s) elsewhere, shall be designed in accordance with one of the following:

1. American Forest and Paper Association (AF&PA) *Wood Frame Construction Manual for One- and Two-Family Dwellings* (WFCM); or
2. *Southern Building Code Congress International Standard for Hurricane Resistant Residential Construction* (SSTD 10); or
3. *Minimum Design Loads for Buildings and Other Structures* (ASCE-7); or
4. American Iron and Steel Institute (AISI), *Standard for Cold-Formed Steel Framing Prescriptive Method for One- and Two-family Dwellings* (COFS/PM) *with Supplement to Standard for Cold-Formed Steel Framing – Prescriptive Method For One- and Two-Family Dwellings*; or
5. Concrete construction shall be designed in accordance with the provisions of this code; or
6. *Institute For Business and Home Safety (IBHS) Guidelines for Hurricane Resistant Residential Construction.*

Revise Section R301.2.1.2 to read as follows:

R301.2.1.2 Protection of openings. For structures located in the Inland II area as adopted by the Texas Department of Insurance, protection of exterior openings from windborne debris is not required. For structures located in the Inland I area, as adopted by the Texas Department of Insurance, Windows in buildings located in windborne debris regions shall have glazed exterior openings protected from windborne debris. For structures located in the Seaward area as adopted by the Texas Department of Insurance, buildings shall have all exterior openings protected from windborne debris. Exterior openings shall include exterior windows, exterior doors, garage doors and skylights. Glazed Exterior opening protection for windborne debris shall meet the requirements of the Large Missile Test of using either an approved impact resisting standard, ANSI/DASMA 115 or ASTM E 1996 and ASTM E 1886 referenced therein. Exterior opening protection shall be installed in accordance with the manufacturer's approved installation instructions for the manner in which they were tested for uniform static wind pressure resistance and for windborne debris resistance. Removable windborne debris protection shall have installation instructions provided.

Exceptions:

1. For structures located in the Inland I area, Wood structural plywood panels with a minimum thickness of $\frac{7}{16}$ $\frac{15}{32}$ inch (44 12 mm) and a maximum span of 8 feet (2438 mm) shall be permitted for opening protection in one- and two-story buildings. Panels shall be pre-cut so that they shall be attached to the buildings framing surrounding the opening containing the product with the glazed opening. Panels shall be installed on the exterior side of the building. Panels shall be labeled or marked to identify the proper installation location on the building. Panels shall be secured with the attachment hardware provided. Installation instructions shall be provided. Attachments shall be designed to resist the component and cladding loads determined in accordance with either Table R301.2(2) or ASCE 7-Section 1609.6.5 of the *International Building Code*. Attachment in accordance with Table R301.2.1.2 is permitted for buildings with a mean roof height of 33 feet (10 058 mm) or less where wind speeds do not exceed 130 miles per hour (58 m/s). If attachments are determined using component and cladding loads, then the following limitations shall apply:
 - a) Panel span and fastener spacing shall be in accordance with Table R301.2.1.2.
 - b) Attachment hardware shall comply with the footnotes of Table R301.2.1.2.
 - c) Attachment hardware shall be secured to the wall framing only (wood or steel wall framing, concrete, or masonry block). Attachment hardware shall not be secured to exterior coverings or brick veneer unless the entire assembly is tested in accordance with R301.2.1.2.

TABLE R301.2.1.2
 WINDBORNE DEBRIS PROTECTION FASTENING SCHEDULE
 FOR WOOD STRUCTURAL PANELS USED IN THE INLAND I AREA ^{a,b,c,d}

FASTENER TYPE	FASTENER SPACING (inches)		
	Panel span ≤ 4 feet	4 feet < panel span ≤ 6 feet	6 feet < panel span ≤ 8 feet
No. 6 Screws	16"	12"	9"
No. 8 Screws	16"	16"	12"

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound = 4.448 N, 1 mile per hour = 0.447 m/s

- a. This table is based on a maximum wind speed (3 second gust) of 130 mph and a 33-foot mean roof height.
- b. Fasteners shall be installed at opposing ends of the wood structural panel. Fasteners shall be located a minimum of 1" from the edge of the panel.
- c. Fasteners shall be long enough to penetrate through the exterior wall covering and a minimum of 1 ¼" into wood wall framing and a minimum of 1 ¼" into concrete block or concrete, and into steel framing a minimum of 3 exposed threads. Fasteners shall be located a minimum of 2 ½" from the edge of concrete block or concrete.
- d. Where screws are attached to masonry or masonry/stucco, they shall be attached utilizing vibration-resistant anchors having a minimum withdrawal capacity of 490 pounds.

2. For structures located in the Seaward area, plywood panels with a minimum thickness of 15/32 inch (12 mm) shall be permitted for exterior opening protection in one- and two-story buildings. Panels shall be pre-cut so that they shall be attached to the buildings framing surrounding the opening containing the exterior opening product. Panels shall be installed on the exterior side of the building. Panels shall be labeled or marked to identify the proper installation location on the building. Panels shall be secured with the attachment hardware provided. Installation instructions shall be provided. The panels and their attachment to the structure shall meet the requirements of the Large Missile Test using either an approved impact resisting standard or ASTM E 1996 and ASTM E 1886 referenced therein. The panels shall be installed in accordance with the manner in which they were tested for uniform static wind load resistance and for windborne debris resistance.

Revise Section R308.6.9 to read as follows:

~~**R308.6.9 Testing and labeling.** Unit skylights shall be tested by an approved independent laboratory, and bear a label identifying manufacturer, performance grade rating and approved inspection agency to indicate compliance with the requirements of AAMA/WDMA/CSA 101/I.S.2/A440.~~**Performance.** Skylights shall be designed to resist the design wind loads specified in Table R301.2(2) adjusted for height and exposure per Table 301.2(3).

Add the following new section:

R308.6.10 Testing and labeling. Unit skylights shall be tested by an approved independent laboratory, and bear a label identifying manufacturer, performance grade rating and approved inspection agency to indicate compliance with the requirements of AAMA/WDMA/CSA 101/I.S.2/A440.

Add the following new section:

R308.6.11 Other skylight assemblies. Skylight assemblies not included within the scope of Section R308.6.10 shall be tested in accordance with ASTM E 330.

Add the following new section:

R308.6.12 Windborne debris protection. Protection of skylights in buildings located in windborne debris regions shall be in accordance with Section R301.2.1.2.

R308.6.12.1 Testing and labeling. Skylights shall be tested by an approved independent laboratory, listed by an approved entity, and bear a label identifying manufacturer, performance characteristics, and approved inspection agency to indicate compliance with the requirements of the following specification:

1. ASTM E 1886 and ASTM E 1996; or
2. AAMA 506.

Skylights qualified in this section shall also meet the requirements of R308.6.10 or R308.6.11.

Add the following new section:

SECTION R325
CORROSION RESISTANCE

R325.1 Corrosion resistance. Metal connectors and fasteners shall be corrosion resistant in accordance with the following:

R325.1.1 Seaward areas.

R325.1.1.1 Open Areas. Metal connectors and fasteners located in open areas shall be either stainless steel and meet ASTM A167; hot-dip galvanized after fabrication and meet ASTM A123 or ASTM A153; or hot-dip galvanized or galvanized prior to fabrication and meet ASTM A653. Open areas shall include:

1. Porches
2. Decks
3. Carports
4. Exterior wall coverings
5. Roof coverings
6. Metal ties for stone and masonry veneer
7. The underside of elevated structures
8. Anchors for securing mechanical equipment
9. Garage door attachments
10. Roof vent attachments
11. Skylight attachments
12. Impact protective systems (shutters)

R325.1.1.2 Vented or Enclosed Areas. Metal connectors and fasteners located in vented or enclosed areas may meet the requirements of Section R325.1.1.1 or shall be hot-dip galvanized or electrogalvanized in accordance with ASTM A641; mechanically deposited zinc coatings in accordance with ASTM B695; or electrodeposited zinc coatings in accordance with ASTM B633. Vented or enclosed areas shall include:

1. Attics
2. Exterior wall stud cavities
3. Crawl spaces
4. Window and exterior door attachments
5. Roof sheathing
6. Wall sheathing

Exceptions (corrosion resistance not required):

1. One-half inch diameter or greater steel bolts

R325.1.1.3 Conditioned Areas. Metal connectors and fasteners located in conditioned areas are not required to be corrosion resistant. Conditioned areas include:

1. Heated and cooled living areas

R325.1.2 Inland I areas.

R325.1.2.1 Open Areas. Metal connectors and fasteners located in open areas shall be either stainless steel and meet ASTM A167; hot-dip galvanized after fabrication and meet ASTM A123 or ASTM A153; hot-dip galvanized or galvanized prior to fabrication and meet ASTM A653; hot-dip galvanized or electrogalvanized in accordance with ASTM A641; mechanically deposited zinc coatings in accordance with ASTM B695; or electrodeposited zinc coatings in accordance with ASTM B633. Open areas shall include:

1. Porches
2. Decks
3. Carports
4. Exterior wall coverings
5. Roof coverings
6. Metal ties for stone and masonry veneer
7. The underside of elevated structures
8. Anchors for securing mechanical equipment
9. Garage door attachments
10. Roof vent attachments
11. Skylight attachments
12. Impact protective systems (shutters)

Exceptions (corrosion resistance not required):

1. One-half inch diameter or greater steel bolts

R325.1.2.2 Vented or Enclosed Areas. Metal connectors and fasteners located in vented or enclosed areas may meet the requirements of Section R325.1.2.1 or shall be epoxy-coated in accordance with ASTM A899. Vented or enclosed areas shall include:

1. Attics
2. Exterior wall stud cavities
3. Crawl spaces
4. Window and exterior door attachments
5. Roof sheathing
6. Wall sheathing

Exceptions (corrosion resistance not required):

1. One-half inch diameter or greater steel bolts.

R325.1.2.3 Conditioned Areas. Metal connectors and fasteners located in conditioned areas are not required to be corrosion resistant. Conditioned areas include:

1. Heated and cooled living areas

R325.1.3 Inland II areas.

R325.1.3.1 Open Areas. Metal connectors and fasteners located in open areas shall be either stainless steel and meet ASTM A167; hot-dip galvanized after fabrication and meet ASTM A123 or ASTM A153; hot-dip galvanized or galvanized prior to fabrication and meet ASTM A653; hot-dip galvanized or electrogalvanized in accordance with ASTM A641; mechanically deposited zinc coatings in accordance with ASTM B695; or electrodeposited zinc coatings in accordance with ASTM B633. Open areas shall include:

1. Porches
2. Decks
3. Carports
4. Exterior wall coverings
5. Roof coverings
6. Metal ties for stone and masonry veneer
7. The underside of elevated structures
8. Anchors for securing mechanical equipment
9. Garage door attachments
10. Roof vent attachments
11. Skylight attachments
12. Impact protective systems (shutters)

Exceptions (corrosion resistance not required):

1. One-half inch diameter or greater steel bolts

Chapter 43
Referenced Standards

Add the following standards:

AAMA American Architectural Manufacturers Association
1827 Waldon Office Square, Suite 550
Schaumburg, IL 60173

Standard Reference Number	Title	Referenced in code section number
<u>506-06</u>	<u>Voluntary Specification for Hurricane Impact and Cycle Testing of Fenestration Products</u>	<u>R308.6.12.1, R613.7.1</u>

ASTM ASTM International
100 Barr Harbor Drive
West Conshohocken, PA 19428

Standard Reference Number	Title	Referenced in code section number
<u>A 123/A 123M – 97e1</u>	<u>Specification for Zinc (Hot-Dip Galvanized) Coating on Iron and Steel Products</u>	<u>R325</u>
<u>A 899-91(1999)</u>	<u>Specification for Steel Wire Epoxy - Coated</u>	<u>R325</u>

DASMA Door and Access Systems Manufacturers Association International
1300 Summer Avenue
Cleveland, OH 44115-2851

Standard Reference Number	Title	Referenced in code section number
<u>115-2003</u>	<u>Standard Method for Testing Garage Doors: Determination of Structural Performance Under Missile Impact and Cyclic Wind Pressure</u>	<u>R301.2.1.2</u>

IBHS Institute For Business and Home Safety
4775 East Fowler Avenue
Tampa, FL 33617

Standard Reference Number	Title	Referenced in code section number
	<u>2005 Guidelines for Hurricane Resistant Residential Construction</u>	<u>R301.2.1.1</u>