



James L. Greeson  
State Fire Marshal  
IDHS Fire and Building Safety

July 21, 2017

## ICE/WATER SHIELD AND METAL DRIP EDGE IN CLASS 2 RESIDENTIAL CONSTRUCTION

State and local building officials have received many questions about ice/water shield and drip edge in Class 2 residential construction. In response to these questions, this document has been created to provide guidance and share the code sections that govern this subject in the State of Indiana.

As of the date of this document, residential construction in the State of Indiana is governed by the 2005 Indiana Residential Code (see 675 IAC 14-4.3). The 2005 Indiana Residential Code adopts, but amends, the fifth printing of the 2003 International Residential Code. The 2005 Indiana Residential Code regulates ice/water shield and drip edge as follows:

### **Ice/Water Shield**

The sections pertinent to ice and water shield are as follows:

#### R903 WEATHER PROTECTION:

R903.1 General. Roof decks shall be covered with approved roof coverings secured to the building or structure in accordance with the provisions of this chapter. **Roof assemblies shall be designed and installed in accordance with this code and the approved manufacturer's installation instructions** such that the roof assembly shall serve to protect the building or structure.

#### R904 MATERIALS:

R904.1 Scope. The requirements set forth in this section shall apply to the application of roof covering materials specified herein. **Roof assemblies shall be applied in accordance with this chapter and the manufacturer's installation instructions.** Installation of roof assemblies shall comply with the applicable provisions of Section R905.

#### 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.**

R905.2.7.1 Ice protection. In areas where the average daily temperature in January is 25° F (-4° C) or less or when Table R301.2(1) criteria so designates, an ice barrier that consists of at 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 eave's edge 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.

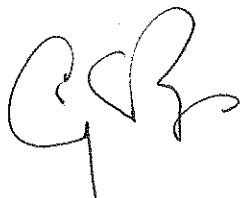
Section R905.2.7.1 refers to Table R301.2(1) CLIMATIC AND GEOGRAPHIC DESIGN CRITERIA, which is amended by 675 IAC 14-4.3-6. A copy of the amended table follows at the end of this document. Note that the table lists specific Indiana counties in which the use of ice/water shield is required. Note also, however, that the sections cited above (R903.1, R904.1, and R905.1) further require that all roofing materials be installed in accordance with the manufacturer's installation instructions, and that R905.2.7.1 requires ice/water shield in any additional location in Indiana in which the average daily temperature in January is 25° F or lower. Together, these sections and Table R301.2(1) set forth the locations and circumstances in which ice/water shield are required. In short, there are specific counties in which the product is always required (per Table R301.2(1) and Section 905.2.7.1), and specific counties in which it is required only when the roofing manufacturer's installation instructions require it (per Sections R903.1, R904.1 and R905.1).

**Metal Drip Edge:**

Metal drip edge is a type of base flashing. It is necessary to safeguard the otherwise unprotected edge of roof sheathing or other deck materials from exposure to and absorption of moisture, and the deterioration of the material resulting from that exposure. Drip edge is not specifically addressed among the types of base and cap flashings discussed in amended Section R905.2.8.1, however its use is established good roofing practice, and should be included in all roofing work. Further, under the provisions of Sections R903.1, R904.1 and R905.1, it *shall* be provided and installed if it is required by the roofing manufacturer's installation instructions.

It is clear that flashings are required by the Indiana Residential Code, as approved and adopted by the Indiana Fire Prevention and Building Safety Commission. Installation of flashings, including ice/water shield and drip edge, is also established good roofing practice that provides value and extended life to a structure, with the potential to save homeowners and insurers thousands of dollars over time.

All Building Code Officials around the state are required to enforce the 2005 Indiana Residential Code. However, it is not their responsibility, nor the responsibility of this office, to enforce provisions of any manufacturer's or installer's warranty, other than citing non-compliant conditions, if any exist. Determining who shall be responsible for the cost of replacing ice/water shield, drip edge, or any other roofing material that is required by the 2005 Indiana Residential Code is not a matter governed by the Department or any other state or local building official, but is left for the interested parties to determine.



Craig E. Burgess, AIA, NCARB, LEED AP, CPE, CBI  
Indiana State Building Commissioner  
Office of the State Fire Marshal  
Indiana Department of Homeland Security  
302 W. Washington St., Room E-241  
Indianapolis, IN 46204

ONE AND TWO FAMILY DWELLING CODE

~~a.m.: 20110831-IR-675110254RFA; filed Aug 1, 2014, 11:12 a.m.: 20140827-IR-675130339RFA, eff Dec 1, 2014; readopted filed Mar 10, 2017, 9:37 a.m.: 20170405-IR-675170005RFA)~~

**675 IAC 14-4.3-4 Section R301.2; climatic and geographic design criteria**

Authority: IC 22-13-2-2; IC 22-13-2-13  
 Affected: IC 22-12; IC 22-13; IC 22-14; IC 22-15; IC 36-7

Sec. 4. Delete the last sentence of SECTION R301.2. (*Fire Prevention and Building Safety Commission; 675 IAC 14-4.3-4; filed Jun 13, 2005, 3:00 p.m.: 28 IR 3259, eff 90 days after filing with the Secretary of State; readopted filed Aug 4, 2011, 8:35 a.m.: 20110831-IR-675110254RFA; readopted filed Mar 10, 2017, 9:37 a.m.: 20170405-IR-675170005RFA*)

**675 IAC 14-4.3-5 Sections R301.2.1.1 and R301.2.1.2; design criteria, internal pressure**

Authority: IC 22-13-2-2; IC 22-13-2-13  
 Affected: IC 22-12; IC 22-13; IC 22-14; IC 22-15; IC 36-7

~~Sec. 5. Delete SECTIONS R301.2.1.1 and R301.2.1.2. (*Fire Prevention and Building Safety Commission; 675 IAC 14-4.3-5; filed Jun 13, 2005, 3:00 p.m.: 28 IR 3259, eff 90 days after filing with the Secretary of State; readopted filed Aug 4, 2011, 8:35 a.m.: 20110831-IR-675110254RFA; readopted filed Mar 10, 2017, 9:37 a.m.: 20170405-IR-675170005RFA*)~~

**675 IAC 14-4.3-6 Table R301.2(1); climatic and geographical design criteria**

Authority: IC 22-13-2-2; IC 22-13-2-13  
 Affected: IC 22-12; IC 22-13; IC 22-14; IC 22-15; IC 36-7

Sec. 6. Delete TABLE R301.2(1) and the corresponding footnotes and substitute to read as follows:

TABLE R301.2(1)

No.	County	Wind Speed <sup>1</sup> (MPH)	Seismic Zone <sup>2</sup>	Ground Snow (PSF)	Found-ation <sup>3</sup>	Winter Design Temp	Decay	Termite	Weathering <sup>4</sup>	Ice Shield Under-layment Required	Air Freezing Index	Mean Annual Temp
01	Adams	90	B	20	36	1°	Slight to Moderate	Moderate to Heavy	Severe	Yes	1303	50.9
02	Allen	90	B	20	36	1°	Slight to Moderate	Moderate to Heavy	Severe	Yes	1490	49.9
03	Bartholomew	90	B	20	24	9°	Slight to Moderate	Moderate to Heavy	Severe	No	1083	53.1
04	Benton	90	B	20	36	1°	Slight to Moderate	Moderate to Heavy	Severe	Yes	1350	49.1
05	Blackford	90	B	20	30	2°	Slight to Moderate	Moderate to Heavy	Severe	No	1425	51.4
06	Boone	90	B	20	30	2°	Slight to Moderate	Moderate to Heavy	Severe	No	1401	52.3
07	Brown	90	B	20	24	9°	Slight to Moderate	Moderate to Heavy	Severe	No	1080	53.1
08	Carroll	90	B	20	36	1°	Slight to Moderate	Moderate to Heavy	Severe	Yes	1321	51.7
09	Cass	90	A	20	36	1°	Slight to Moderate	Moderate to Heavy	Severe	Yes	1450	50.3

ONE AND TWO FAMILY DWELLING CODE

10 Clark	90	B	20	24	9°	Slight to Moderate	Moderate to Heavy	Severe	No	825	54.7
11 Clay	90	C	20	24	9°	Slight to Moderate	Moderate to Heavy	Severe	No	1175	52.1
12 Clinton	90	B	20	30	2°	Slight to Moderate	Moderate to Heavy	Severe	No	1405	50.7
13 Crawford	90	C	20	24	9°	Slight to Moderate	Moderate to Heavy	Severe	No	750	54.7
14 Daviess	90	C <sub>1</sub>	20	24	9°	Slight to Moderate	Moderate to Heavy	Severe	No	743	56.1
15 Dearborn	90	B	20	24	9°	Slight to Moderate	Moderate to Heavy	Severe	No	900	50.5
16 Decatur	90	B	20	24	9°	Slight to Moderate	Moderate to Heavy	Severe	No	1115	52.4
17 Dekalb	90	B	30	36	1°	Slight to Moderate	Moderate to Heavy	Severe	Yes	1389	50.0
18 Delaware	90	B	20	30	2°	Slight to Moderate	Moderate to Heavy	Severe	No	1400	50.8
19 Dubois	90	C	20	24	9°	Slight to Moderate	Moderate to Heavy	Severe	No	770	53.9
20 Elkhart	90	A	30	36	1°	Slight to Moderate	Moderate to Heavy	Severe	Yes	1358	50.5
21 Fayette	90	B	20	30	2°	Slight to Moderate	Moderate to Heavy	Severe	No	1369	51.5
22 Floyd	90	B	20	24	9°	Slight to Moderate	Moderate to Heavy	Severe	No	770	54.7
23 Fountain	90	B	20	30	2°	Slight to Moderate	Moderate to Heavy	Severe	No	1525	51.2
24 Franklin	90	B	20	24	9°	Slight to Moderate	Moderate to Heavy	Severe	No	1174	51.8
25 Fulton	90	A	30	36	1°	Slight to Moderate	Moderate to Heavy	Severe	Yes	1553	49.3
26 Gibson	90	C <sub>1</sub>	20	24	9°	Slight to Moderate	Moderate to Heavy	Severe	No	893	55.2
27 Grant	90	B	20	30	2°	Slight to Moderate	Moderate to Heavy	Severe	No	1430	50.3
28 Greene	90	C	20	24	9°	Slight to Moderate	Moderate to Heavy	Severe	No	990	52.9
29 Hamilton	90	B	20	30	2°	Slight to Moderate	Moderate to Heavy	Severe	No	1400	51.5
30 Hancock	90	B	20	30	2°	Slight to Moderate	Moderate to Heavy	Severe	No	1356	51.6
31 Harrison	90	B	20	24	9°	Slight to Moderate	Moderate to Heavy	Severe	No	740	54.7
32 Hendricks	90	B	20	30	2°	Slight to Moderate	Moderate to Heavy	Severe	No	1175	52.3

ONE AND TWO FAMILY DWELLING CODE

33	Henry	90	B	20	30	2°	Slight to Moderate	Moderate to Heavy	Severe	No	1432	49.9
34	Howard	90	A	20	30	2°	Slight to Moderate	Moderate to Heavy	Severe	No	1523	49.6
35	Huntington	90	B	20	36	1°	Slight to Moderate	Moderate to Heavy	Severe	Yes	1270	50.4
36	Jackson	90	B	20	24	9°	Slight to Moderate	Moderate to Heavy	Severe	No	1048	52.5
37	Jasper	90	B	30	36	1°	Slight to Moderate	Moderate to Heavy	Severe	Yes	1647	49.6
38	Jay	90	B	20	30	2°	Slight to Moderate	Moderate to Heavy	Severe	No	1400	49.7
39	Jefferson	90	B	20	24	9°	Slight to Moderate	Moderate to Heavy	Severe	No	870	54.7
40	Jennings	90	B	20	24	9°	Slight to Moderate	Moderate to Heavy	Severe	No	789	54.3
41	Johnson	90	B	20	30	2°	Slight to Moderate	Moderate to Heavy	Severe	No	1390	52.0
42	Knox	90	C <sub>1</sub>	20	24	9°	Slight to Moderate	Moderate to Heavy	Severe	No	1029	53.4
43	Kosciusko	90	A	30	36	1°	Slight to Moderate	Moderate to Heavy	Severe	Yes	1450	49.0
44	LaGrange	90	A	30	36	1°	Slight to Moderate	Moderate to Heavy	Severe	Yes	1360	47.9
45	Lake	90	B	30	36	1°	Slight to Moderate	Moderate to Heavy	Severe	Yes	1300	49.0
46	LaPorte	90	A	30	36	1°	Slight to Moderate	Moderate to Heavy	Severe	Yes	1395	49.7
47	Lawrence	90	C	20	24	9°	Slight to Moderate	Moderate to Heavy	Severe	No	1115	52.6
48	Madison	90	B	20	30	2°	Slight to Moderate	Moderate to Heavy	Severe	No	1420	50.8
49	Marion	90	B	20	30	2°	Slight to Moderate	Moderate to Heavy	Severe	No	1215	51.8
50	Marshall	90	A	30	36	1°	Slight to Moderate	Moderate to Heavy	Severe	Yes	1424	50.0
51	Martin	90	C	20	24	9°	Slight to Moderate	Moderate to Heavy	Severe	No	849	54.2
52	Miami	90	A	20	36	1°	Slight to Moderate	Moderate to Heavy	Severe	Yes	1425	49.4
53	Monroe	90	C	20	24	9°	Slight to Moderate	Moderate to Heavy	Severe	No	1075	53.1
54	Montgomery	90	B	20	30	2°	Slight to Moderate	Moderate to Heavy	Severe	No	1435	50.1
55	Morgan	90	B	20	30	2°	Slight to Moderate	Moderate to Heavy	Severe	No	1200	51.5

ONE AND TWO FAMILY DWELLING CODE

56	Newton	90	B	30	36	1°	Slight to Moderate	Moderate to Heavy	Severe	Yes	1399	50.2
57	Noble	90	A	30	36	1°	Slight to Moderate	Moderate to Heavy	Severe	Yes	1375	49.0
58	Ohio	90	B	20	24	9°	Slight to Moderate	Moderate to Heavy	Severe	No	800	53.0
59	Orange	90	C	20	24	9°	Slight to Moderate	Moderate to Heavy	Severe	No	988	53.0
60	Owen	90	C	20	24	9°	Slight to Moderate	Moderate to Heavy	Severe	No	1224	50.1
61	Parke	90	B	20	30	2°	Slight to Moderate	Moderate to Heavy	Severe	No	1109	53.9
62	Perry	90	C	20	24	9°	Slight to Moderate	Moderate to Heavy	Severe	No	731	55.8
63	Pike	90	C <sub>1</sub>	20	24	9°	Slight to Moderate	Moderate to Heavy	Severe	No	810	54.8
64	Porter	90	B	30	36	1°	Slight to Moderate	Moderate to Heavy	Severe	Yes	1396	49.6
65	Posey	90	C <sub>1</sub>	20	24	9°	Slight to Moderate	Moderate to Heavy	Severe	No	867	55.4
66	Pulaski	90	A	30	36	1°	Slight to Moderate	Moderate to Heavy	Severe	Yes	1480	49.7
67	Putnam	90	B	20	30	2°	Slight to Moderate	Moderate to Heavy	Severe	No	1121	52.6
68	Randolph	90	B	20	30	2°	Slight to Moderate	Moderate to Heavy	Severe	No	1398	49.9
69	Ripley	90	B	20	24	9°	Slight to Moderate	Moderate to Heavy	Severe	No	820	54.5
70	Rush	90	B	20	30	2°	Slight to Moderate	Moderate to Heavy	Severe	No	1369	51.2
71	St. Joseph	90	A	30	36	1°	Slight to Moderate	Moderate to Heavy	Severe	Yes	1379	49.1
72	Scott	90	B	20	24	9°	Slight to Moderate	Moderate to Heavy	Severe	No	941	53.9
73	Shelby	90	B	20	30	2°	Slight to Moderate	Moderate to Heavy	Severe	No	1393	52.6
74	Spencer	90	C <sub>1</sub>	20	24	9°	Slight to Moderate	Moderate to Heavy	Severe	No	710	56.2
75	Starke	90	A	30	36	1°	Slight to Moderate	Moderate to Heavy	Severe	Yes	1425	49.7
76	Steuben	90	A	30	36	1°	Slight to Moderate	Moderate to Heavy	Severe	Yes	1370	47.3
77	Sullivan	90	C <sub>1</sub>	20	24	9°	Slight to Moderate	Moderate to Heavy	Severe	No	1090	52.7
78	Switzerland	90	B	20	24	9°	Slight to Moderate	Moderate to Heavy	Severe	No	727	55.7

ONE AND TWO FAMILY DWELLING CODE

79	Tippecanoe	90	B	20	30	2°	Slight to Moderate	Moderate to Heavy	Severe	No	1557	50.9
80	Tipton	90	B	20	30	2°	Slight to Moderate	Moderate to Heavy	Severe	No	1420	49.2
81	Union	90	B	20	30	2°	Slight to Moderate	Moderate to Heavy	Severe	No	1350	51.5
82	Vanderburgh	90	C <sub>1</sub>	20	24	9°	Slight to Moderate	Moderate to Heavy	Severe	No	581	57.0
83	Vermillion	90	B	20	30	2°	Slight to Moderate	Moderate to Heavy	Severe	No	1100	50.8
84	Vigo	90	C	20	24	9°	Slight to Moderate	Moderate to Heavy	Severe	No	1198	53.1
85	Wabash	90	A	20	36	1°	Slight to Moderate	Moderate to Heavy	Severe	Yes	1536	49.0
86	Warren	90	B	20	30	2°	Slight to Moderate	Moderate to Heavy	Severe	No	1400	51.0
87	Warrick	90	C <sub>1</sub>	20	24	9°	Slight to Moderate	Moderate to Heavy	Severe	No	690	56.2
88	Washington	90	B	20	24	9°	Slight to Moderate	Moderate to Heavy	Severe	No	950	54.5
89	Wayne	90	B	20	30	2°	Slight to Moderate	Moderate to Heavy	Severe	No	1383	49.9
90	Wells	90	B	20	36	1°	Slight to Moderate	Moderate to Heavy	Severe	Yes	1295	49.9
91	White	90	B	20	36	1°	Slight to Moderate	Moderate to Heavy	Severe	Yes	1410	50.3
92	Whitley	90	A	20	36	1°	Slight to Moderate	Moderate to Heavy	Severe	Yes	1493	48.8

<sup>1</sup>Wind exposure category shall be determined on a site-specific basis in accordance with SECTION R301.2.1.4.

<sup>2</sup>See SECTION R301.2.2.

<sup>3</sup>Foundation is minimum foundation depth to bottom of footing from the top of the finished grade above the footing in inches.

<sup>4</sup>The grade of masonry units shall be determined from ASTM C34, C55, C62, C73, C90, C129, C216, or C652.

*(Fire Prevention and Building Safety Commission; 675 IAC 14-4.3-6; filed Jun 13, 2005, 3:00 p.m.: 28 IR 3259, eff 90 days after filing with the Secretary of State; readopted filed Aug 4, 2011, 8:35 a.m.: 20110831-IR-675110254RFA; readopted filed Mar 10, 2017, 9:37 a.m.: 20170405-IR-675170005RFA)*

~~675 IAC 14-4.3-7 Figures R301.2(1), R301.2(2), R301.2(3), R301.2(4), R301.2(5), R301.2(6), R301.2(7), and R301.2(8)~~

Authority: IC 22-13-2-2; IC 22-13-2-13

Affected: IC 22-12; IC 22-13; IC 22-14; IC 22-15; IC 36-7

~~Sec. 7. Delete Figures R301.2(1), R301.2(2), R301.2(3), R301.2(4), R301.2(5), R301.2(6), R301.2(7), and R301.2(8). *(Fire Prevention and Building Safety Commission; 675 IAC 14-4.3-7; filed Jun 13, 2005, 3:00 p.m.: 28 IR 3262, eff 90 days after filing with the Secretary of State; readopted filed Aug 4, 2011, 8:35 a.m.: 20110831-IR-675110254RFA; readopted filed Mar 10, 2017, 9:37 a.m.: 20170405-IR-675170005RFA)*~~