

# Housing Market Index

Special Questions on Disaster resistant  
(resilient) residential construction techniques  
or practices.

August 2017

Economics & Housing Policy Group

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## **Introduction:**

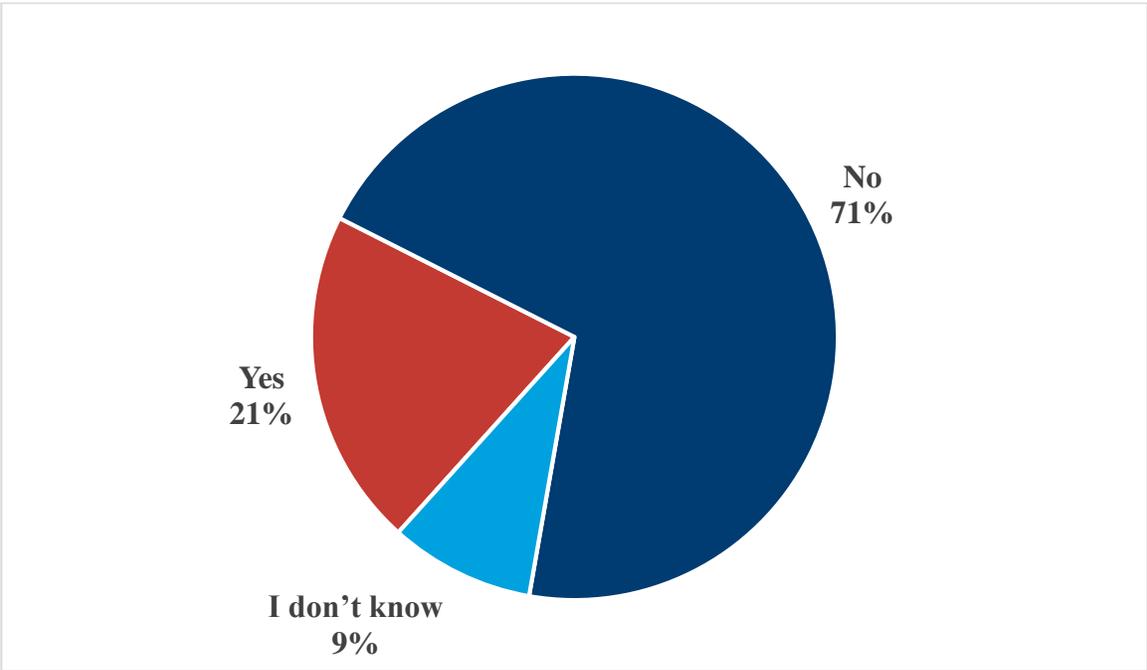
For more than 25 years, the National Association of Home Builders (NAHB) has conducted a monthly survey of its builder members that is used to generate the NAHB/Wells Fargo Housing Market Index (HMI). The main section of the HMI survey asks builders to rate market conditions for the sale of new homes at the present time and expected over the next 6 months, as well as the traffic of prospective buyers. The results are combined into a single composite index that measures the overall strength of the market for new single-family housing.

Throughout its history, the HMI has generally performed well as a leading indicator of single-family housing starts and is widely reported in business media and used by government and Wall Street analysts.

This month survey was sent electronically to a panel of roughly 2,200 builder members. Results are broken down by the four census regions and by total number of units started in 2016. The survey sample is refreshed annually to keep the panel consistent overtime.

In addition to the questions that provide the data needed to compute the HMI, the survey often also includes a set of “special” questions on a topic of current interest to the housing industry. The August 2017 special questions relate to disaster resistant (resilient) residential construction techniques or practices above the currently enforced building code. The results in this report are based on 351 responses to these special questions.

**Q1. Does your local jurisdiction REQUIRE any disaster resistant (resilient) residential construction techniques or practices above the currently enforced building code?  
(Percent of Respondents)**



**Q2. If “Yes” in question 1 i.e. if you’re local jurisdiction require any disaster resistant (resilient) residential construction techniques or practices above the currently enforced building code? What does it require?**

- \*Additional engineering for wind and seismic loads. Depends on design.
- \*Additional fire code implementation in urban/wildland interface,
- \*Additional insulation for Fire Sprinkler protection in ceilings and walls. Additional weather proofing behind angle support.
- \*Additional Wind Protection.
- \*All items do not pertain to fire outside the home.
- \*BRACED WALL STUFF.
- \*Bracewell engineering.
- \*Certain towns require additional flood hazard that is above and beyond code.
- \*Earth Quake Zone Codes.
- \*Earthquake and fire.
- \*Earthquake strapping and sheathing. Engineered building designs.
- \*Enhanced bracing for wind conditions and steep slope areas.
- \*Extra elevations to floor requirement of one foot. Additional window requirements.
- \*Extra fasteners.
- \*Fargo, ND requires all new homes to have certified flood proof basement foundations, no matter where they are built in the city. So even new homes being constructed in areas not threatened by flooding are required to have flood proof basement construction.
- \*FEMA - 36 inches above the curb or benchmark even if you are not in a flood zone. Impact windows are required as are hurricane anchors or straps depending on what system you are using. Secondary roof if applicable to the coastal area.
- \*Fire sprinklers decided by Fire Marshalls with almost no engineering or technical training.
- \*Fortification for wind i.e. Hurricane shutters.
- \*Foundations, strapped water heaters, normal earthquake stuff in Seattle and Portland. Nothing other than IRC Code stuff in Salt Lake City. Many jurisdictions have arcane and byzantine local code requirements, many of those jurisdictions don't know their own rules.
- \*Freeboard of 1-2 feet in flood zones. Adds thousands to the cost of an average home.
- \*High wind zones (Hurricane) engineering required.
- \*Hurricane Clips. Shear Walls. Flashings.
- \*Hurricane Clips and tie downs.
- \*Hurricane clips, shear walls (2)
- \*Hurricane clips, tie down straps above garage door headers, cable bracing for decks.

**Q2. If “Yes” in question 1 i.e. if you’re local jurisdiction require any disaster resistant (resilient) residential construction techniques or practices above the currently enforced building code?**

**What does it require? - continued**

- \*Hurricane clips. Engineered wind bracing.
- \*Hurricane Clips. Shear Walls. Flashing at all penetration. Self-Adhered tape.
- \*Hurricane clips/straps to secure roof trusses to top plates.
- \*Hurricane clips; engineered wind bracing.
- \*Hurricane straps on all roofs.
- \*Hurricane wind code for Gulf of Mexico coastline.
- \*Impact windows, elevated 3 feet above FEMA base flood elevation requirements.
- \*Lots of rack strength in wall bracing. EVERYTHING has to be engineered at this point.
- \*Managing storm water to not go off property is being enforced by Local County.
- \*More wind related structural items like Simpson truss tie downs 'hurricane clips' and design exterior walls for wind load transfer.
- \*None.
- \*One town requires an engineered sheer wall plan.
- \*Our flood plain administrator wanted us building 2.5' above the BFE of the 2015 released FIRM. Also if land was LOMR or LOMA the construction still needs to be flood proof.
- \*Rafters 0.16' centers, high wind garage doors, Simpson straps and hurricane ties.
- \*Requires that the structure be capable of withstanding 130 mph winds for an hour duration.
- \*Shear walls.
- \*Some cities are requiring shear wall and hurricane straps on rafters.
- \*Some localities are requiring us to build our finished floors as much as 3 feet above base flood elevation.
- \*Standard stuff like hurricane clips...but we do not live near the coast...so it is just code officials covering anything and everything.
- \*Statewide building code, local jurisdictions cannot require additional practices above statewide code. Questions below marked are incorporated in statewide code.
- \*This area has very high seismic requirements that are above code. But the state is also on the 2015 code which puts us on the 'bleeding' edge in what we have to do.
- \*Tornado code in. It's of Moore OK. Bracing, hurricane straps, 16OC rafters all nail construction, no staples.
- \*We are in a coastal area and must meet wind load and minimum floor elevation requirements.
- \*We are in Florida and have provisions already included. The velocity zones seem to change without reason at times.

**Q2. If “Yes” in question 1 i.e. if you’re local jurisdiction require any disaster resistant (resilient) residential construction techniques or practices above the currently enforced building code?**

**What does it require? - continued**

\*We deal with flood plain issues.

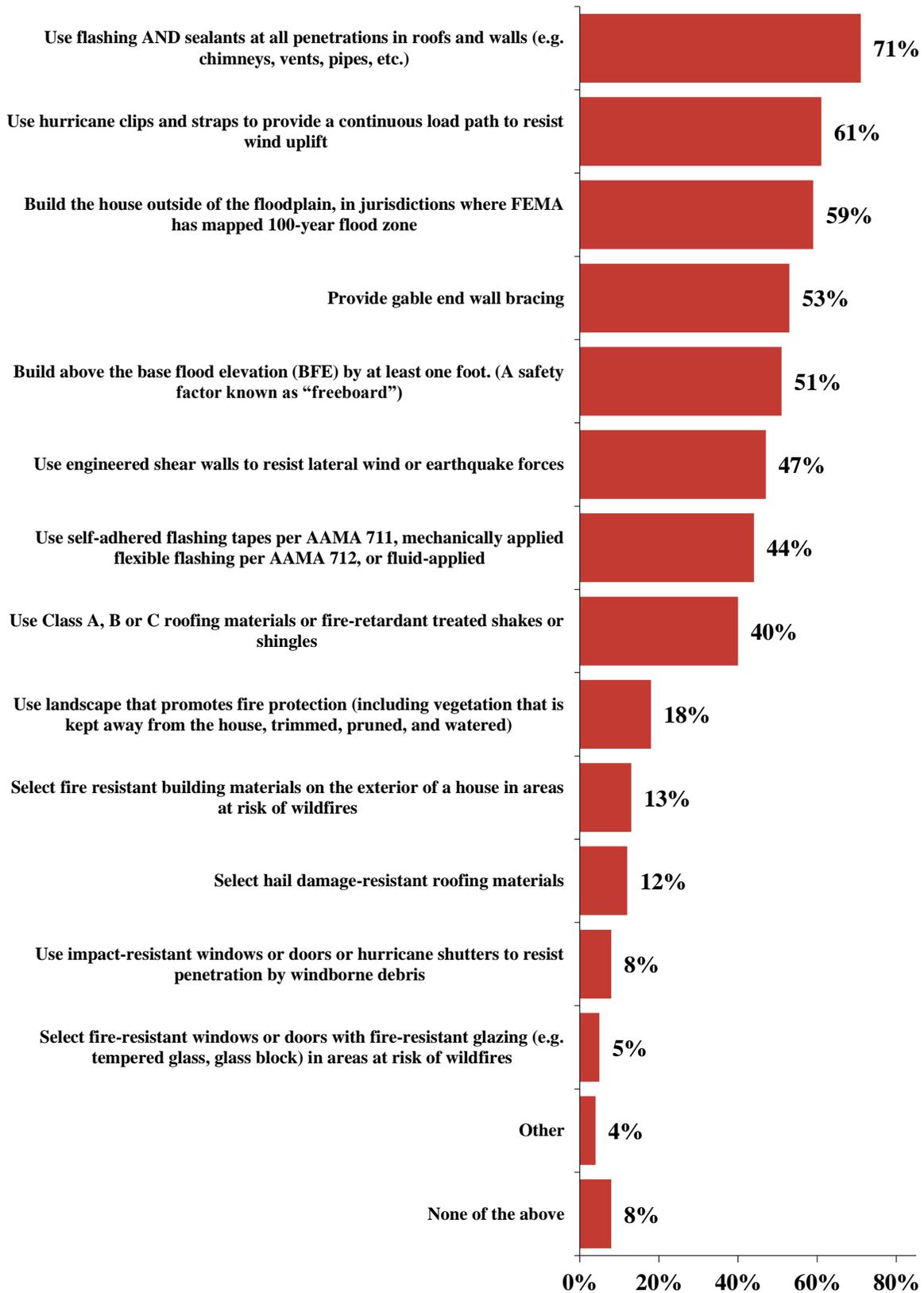
\*We have to follow FEMA's new code.

\*WINDRESISTANCE STRAPS A FEW OTHERS.

\*Windstorm clips, straps, sheer walls and hurricane proof windows (including storm covers). Design done by PE.  
I am reasonably sure this is driven by local ordinance and not code.

\*Yes, but these are additions to currently enforced building codes and not additional building codes for the most part. Wind is the main 'challenge' that these add-on codes are addressing.

**Q3. Do you VOLUNTARILY incorporate or use any of the following disaster resistant (resilient) home construction practices?  
(Percent of Respondents)**

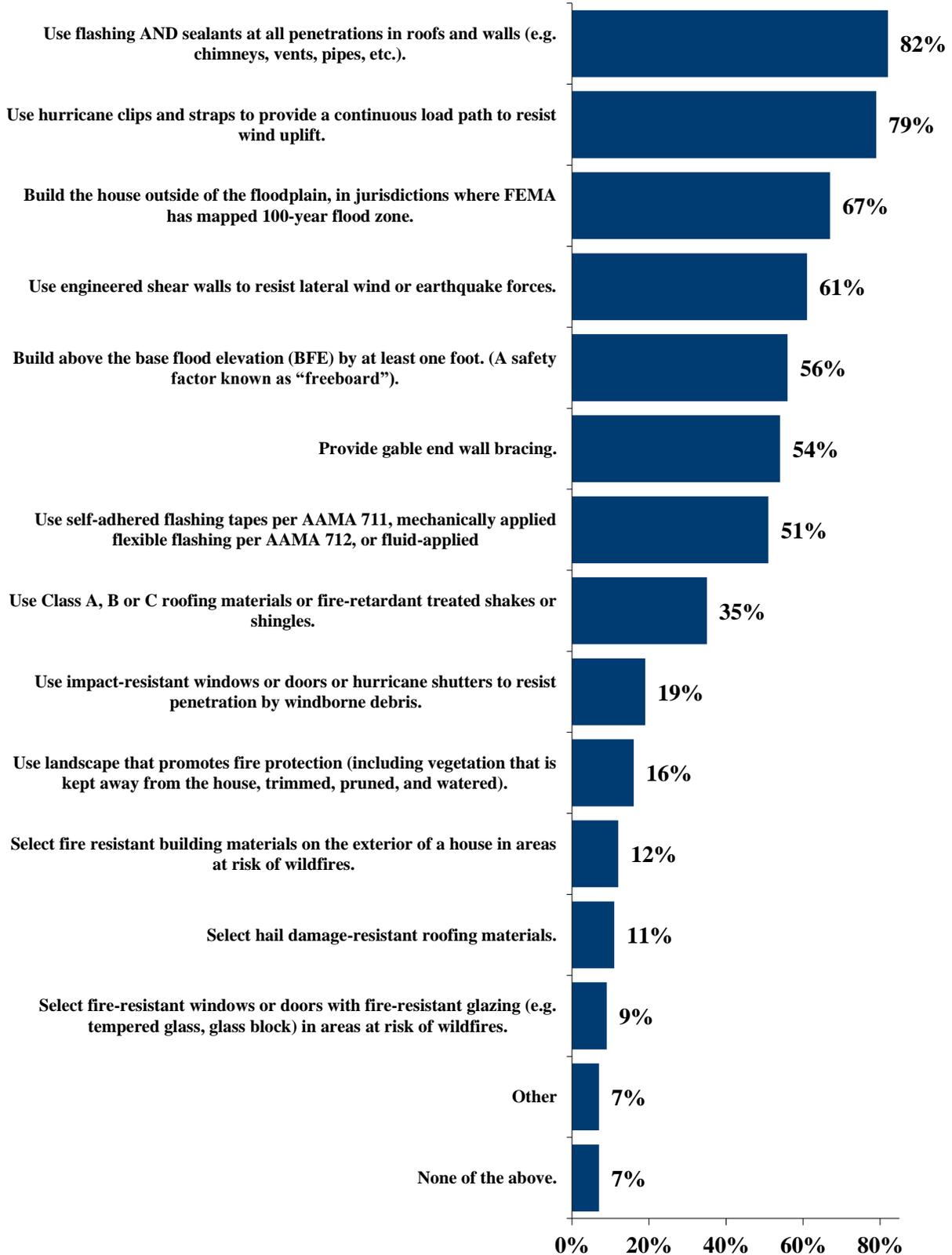


**COMMENT: If “Other” in question 3 i.e. if voluntarily incorporate or use any of the following disaster resistant (resilient) home construction practices? (please specify):**

- Continuous wall sheathing per specified nailing.
- Fire Sprinkler Systems.
- Fortified building.
- Glue sheathing to frame.
- Hurricane clips on trusses and rafters, multiple tie downs and lateral bracing, tempered glass at several locations throughout the house, etc.
- Keep vegetation away from home.
- Most of the above are and have for a long time been code in Oregon.
- Much of this is required.
- Tornado shelters in selected homes.

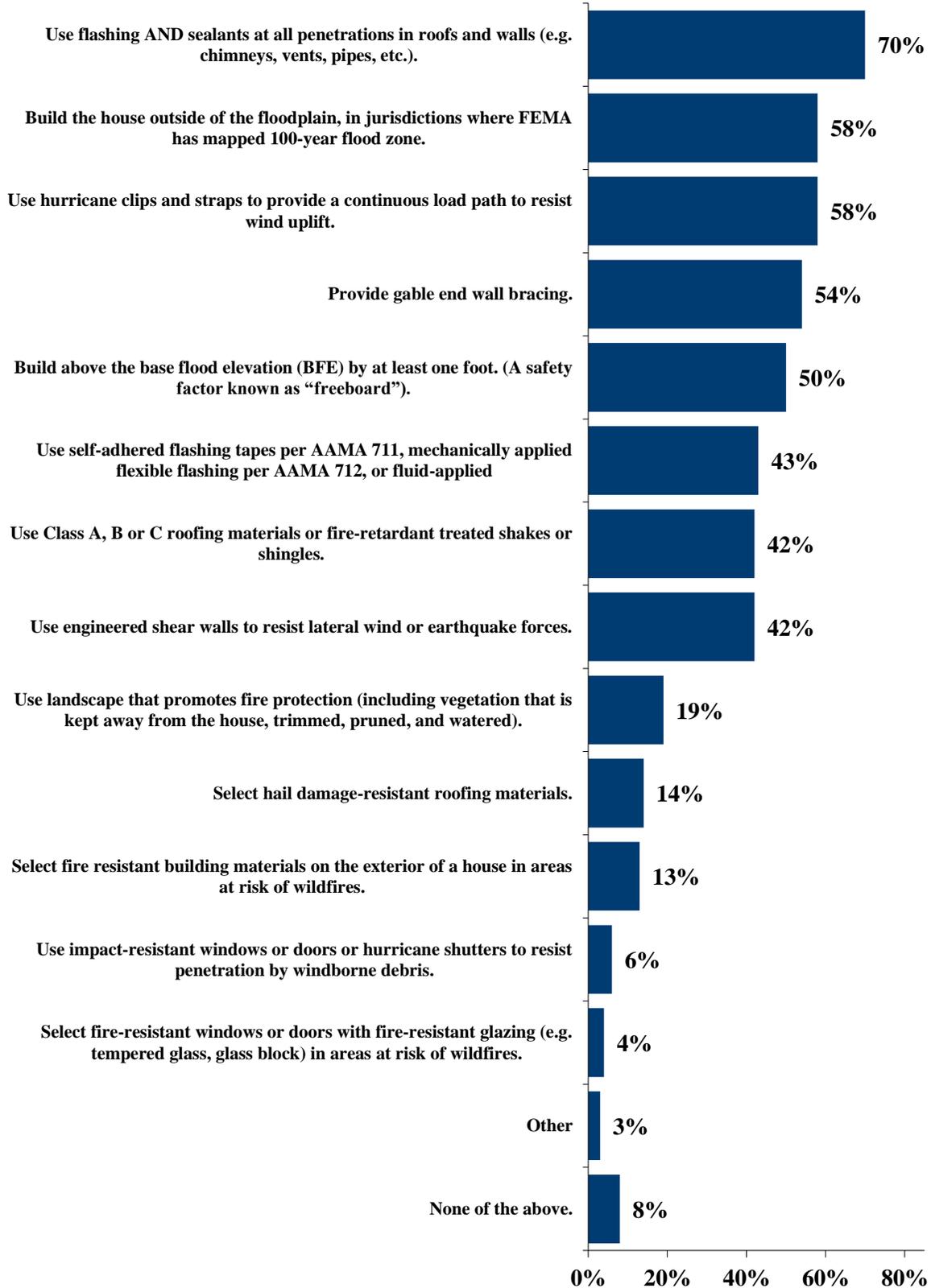
**Q3. Do you VOLUNTARILY incorporate or use any of the following disaster resistant (resilient) home construction practices?**

*(Percent of Respondents who said “YES” to local jurisdiction require any disaster resistant (resilient) residential construction techniques or practices above the currently enforced building code)*



**Q3. Do you VOLUNTARILY incorporate or use any of the following disaster resistant (resilient) home construction practices?**

*(Percent of Respondents who said “NO” to local jurisdiction require any disaster resistant (resilient) residential construction techniques or practices above the currently enforced building code)*



## **Detailed Tables**

**Q1. Does your local jurisdiction REQUIRE any disaster resistant (resilient) residential construction techniques or practices above the currently enforced building code?**

(Percent of Respondents)

Percent	Total	Region				Total Number of Units Started during 2016		
		NE	MW	S	W	<25	25-99	100+
Yes	21	20	15	24	21	21	18	26
No	71	77	76	68	67	73	73	59
I don't know	9	3	9	8	13	6	10	15
Responses	345	30	91	161	63	184	73	34

**Q2. Do you VOLUNTARILY incorporate or use any of the following disaster resistant (resilient) home construction practices? (Check all that apply)**

(Percent of Respondents)

	Total	Region				Total Number of Units Started during 2016		
		NE	MW	S	W	<25	25-99	100+
Use hurricane clips and straps to provide a continuous load path to resist wind uplift.	61	62	65	64	49	65	53	31
Use engineered shear walls to resist lateral wind or earthquake forces.	47	39	48	43	62	46	45	41
Use impact-resistant windows or doors or hurricane shutters to resist penetration by windborne debris.	8	12	2	13	4	11	2	0
Use flashing <b>AND</b> sealants at all penetrations in roofs and walls (e.g. chimneys, vents, pipes, etc.).	71	69	71	72	69	74	58	66
Use self-adhered flashing tapes per AAMA 711, mechanically applied flexible flashing per AAMA 712, or fluid-applied flashing per AAMA 714 at joints in roof and wall sheathing, roof underlayment, or water-resistive barriers.	44	62	44	44	35	49	30	24
Build the house outside of the floodplain, in jurisdictions where FEMA has mapped 100-year flood zone. (The floodplain is defined as the location where the risk of flood in any given year is at least 1%).	59	42	66	59	56	63	55	55

**Q2. Do you VOLUNTARILY incorporate or use any of the following disaster resistant (resilient) home construction practices? (Check all that apply) - *continued***  
**(Percent of Respondents)**

Percent	Total	Region				Total Number of Units Started during 2016		
		NE	MW	S	W	<25	25-99	100+
Build above the base flood elevation (BFE) by at least one foot. (A safety factor known as “freeboard”).	51	46	57	55	35	54	44	52
Use landscape that promotes fire protection (including vegetation that is kept away from the house, trimmed, pruned, and watered).	18	12	13	12	44	20	9	14
Use Class A, B or C roofing materials or fire-retardant treated shakes or shingles.	40	27	34	40	56	43	30	31
Select fire-resistant windows or doors with fire-resistant glazing (e.g. tempered glass, glass block) in areas at risk of wildfires.	5	4	3	6	5	7	3	0
Select fire resistant building materials on the exterior of a house in areas at risk of wildfires.	13	8	7	13	25	16	5	7
Select hail damage-resistant roofing materials.	12	4	15	11	13	13	5	10
Provide gable end wall bracing.	53	50	59	51	51	62	32	41
None of the above.	8	19	5	9	4	5	17	10
Other	4	4	0	6	4	5	0	3
Responses	310	26	86	143	55	164	66	29

## Appendix I: Survey Questionnaire: BEC Special Questions for August 2017

1. Does your local jurisdiction **REQUIRE** any disaster resistant (resilient) residential construction techniques or practices above the currently enforced building code?

- Yes       No       I don't know

2. If "Yes" in question 1, what does it require? (Please specify): \_\_\_\_\_

3. Do you **VOLUNTARILY** incorporate or use any of the following disaster resistant (resilient) home construction practices? (Check all that apply)

- Use hurricane clips and straps to provide a continuous load path to resist wind uplift.
- Use engineered shear walls to resist lateral wind or earthquake forces.
- Use impact-resistant windows or doors or hurricane shutters to resist penetration by windborne debris.
- 
- Use flashing **AND** sealants at all penetrations in roofs and walls (e.g. chimneys, vents, pipes, etc.).
- Use self-adhered flashing tapes per AAMA 711, mechanically applied flexible flashing per AAMA 712, or fluid-applied flashing per AAMA 714 at joints in roof and wall sheathing, roof underlayment, or water-resistive barriers.
- Build the house outside of the floodplain, in jurisdictions where FEMA has mapped 100-year flood zone. (The floodplain is defined as the location where the risk of flood in any given year is at least 1%).
- 
- Build above the base flood elevation (BFE) by at least one foot. (A safety factor known as "freeboard").
- Use landscape that promotes fire protection (including vegetation that is kept away from the house, trimmed, pruned, and watered).
- Use Class A, B or C roofing materials or fire-retardant treated shakes or shingles.
- 
- Select fire-resistant windows or doors with fire-resistant glazing (e.g. tempered glass, glass block) in areas at risk of wildfires.
- Select fire resistant building materials on the exterior of a house in areas at risk of wildfires.
- Select hail damage-resistant roofing materials.
- 
- Provide gable end wall bracing.
- None of the above.
- Other: (Please specify) \_\_\_\_\_

**THANK YOU**