

# Brace Gable End Roof Framing



FEMA

## PROTECTING YOUR PROPERTY FROM HIGH WINDS

Gable end roofs are more susceptible to damage from high winds than hip or flat roofs. The gable end presents a large, flat obstacle to the wind and receives its full force. If the framing of the gable end and the entire roof is not adequately braced to resist the wind, the roof can fail. Roof failures, especially in unbraced gable roofs, are a common cause of major damage to structures and their contents in high winds.

If your property has a gable roof, check to see whether the roof framing is braced. The top figure shows a cutaway view of an unbraced gable end roof. This is a truss roof, but some gable end roofs are constructed with rafters rather than trusses. Both types should be braced as shown in the bottom figure. If you are unsure whether your gable end roof is adequately braced, check with your local building department. After inspecting your roof framing, a building official can tell you whether bracing is required and if so, how it should be added.

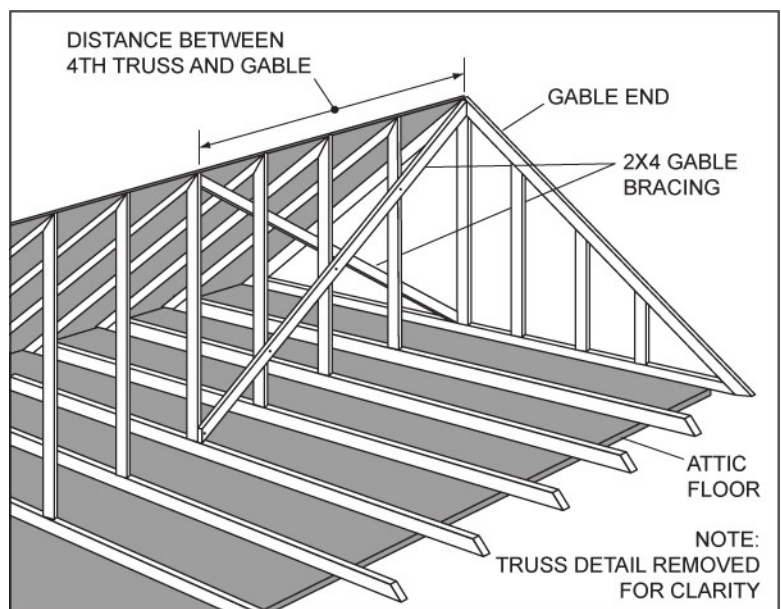
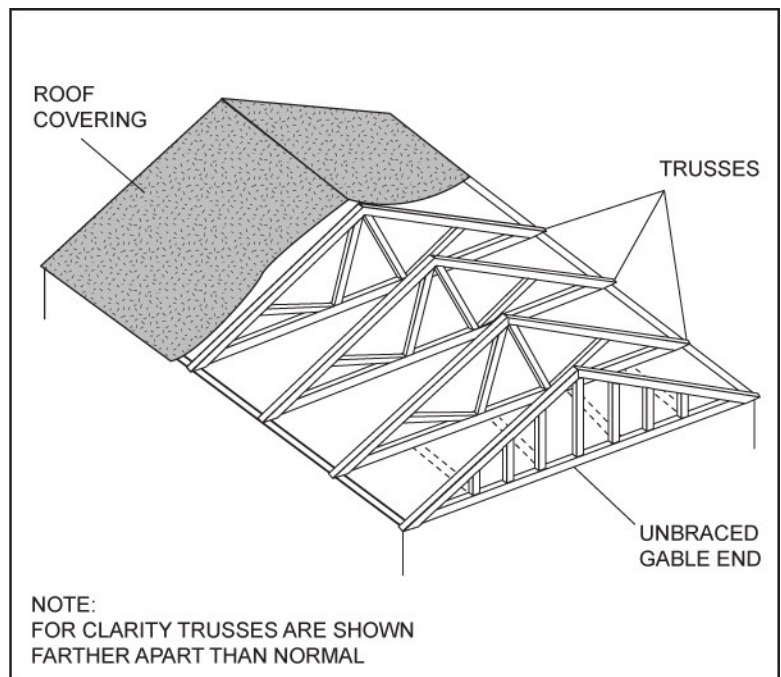
### BENEFITS OF UTILIZING THIS MITIGATION STRATEGY

- Helps to prevent roof failure, which can lead to major damage of a structure and its contents
- Helps to prevent injuries to occupants

### TIPS

Keep these points in mind if you have bracing added to a gable end roof:

- ✓ Bracing can be added fairly easily, but you should have a contractor perform the work to make sure that the bracing is properly designed and attached.
- ✓ If you have a building official inspect your roof framing, ask about other changes you may be able to make to your property to protect it from high winds.



- ✓ The detail featured on this Fact Sheet provides increased resistance of the gable end to wind loads. For another gable end retrofit that meets current building code requirements, see FEMA P-804, *Wind Retrofit Guide for Residential Buildings*.

## ESTIMATED COST

If you hire a contractor to brace a gable end roof, you can expect to pay about \$100 for each gable end. This figure is for a gable end about 30 feet long. Bracing longer gable ends may be slightly more expensive.

## OTHER SOURCES OF INFORMATION

Institute for Business & Home Safety (IBHS), <http://www.disastersafety.org>.

FEMA 247, *Against the Wind: Protecting Your Home from Hurricane Wind Damage*, December 1993, <http://www.fema.gov/library/viewRecord.do?id=1641>.

FEMA 488, *Hurricane Charley in Florida: Mitigation Assessment Team Report, Observations, Recommendations and Technical Guidance*, Chapter 8, "Building Envelope Performance," April 2005, <http://www.fema.gov/library/viewRecord.do?id=1444>.

FEMA 489, *Hurricane Ivan in Alabama and Florida: Mitigation Assessment Team Report, Observations, Recommendations and Technical Guidance*, August 2005, <http://www.fema.gov/library/viewRecord.do?id=1569>.

FEMA P-499, *Home Builder's Guide to Coastal Construction*, "Roof Sheathing Installation," Technical Fact Sheets No. 7.1, December 2010, <http://www.fema.gov/library/viewRecord.do?id=2138>.

FEMA 549, *Hurricane Katrina in the Gulf Coast: Mitigation Assessment Team Report, Building Performance Observations, Recommendations, and Technical Guidance*, July 2006, <http://www.fema.gov/library/viewRecord.do?id=1857>.

FEMA P-804, *Wind Retrofit Guide for Residential Buildings*, December 2010, <http://www.fema.gov/library/viewRecord.do?id=4569>.

The Federal Alliance for Safe Homes (FLASH), <http://www.flash.org>.

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