UNITED INSURANCE COMPANY LIMITED

Guide To Making Your Home Hurricane Resistant

with Engineer Designed Pull-out Checklist

UNITED INSURANCE COMPANY LIMITED
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FOREWORD

Message from T. A "Tommy" Peirce, Managing Director

During the past 20 years we have had several devastating hurricanes in the Commonwealth Caribbean. Most of us will recall David in Dominica in 1979, Gilbert in Jamaica in 1988, Hugo in Montserrat in 1989, Andrew in the Bahamas in 1992 and Luis in Antigua in 1995. Nevertheless we are told by Professor William Gray of Colorado State University that the 1970s and 1980s and the early years of the 1990s were relatively quiet periods in the North Atlantic and that we can expect an increase in hurricane activity over the next 2 decades. That period of increased activity may have started in 1995.

Following Hurricane Andrew in 1992 insurance premiums increased significantly in the Eastern Caribbean. There has been some reduction from the peak, but there is no guarantee that premiums may not rise again to burdensome levels. Indeed, in the United States Virgin Islands and Saint Maarten premiums are now at levels never experienced in the Commonwealth Caribbean.

The factors influencing reinsurance and (therefore insurance) rates are:

1. the availability of capacity from reinsurers;

2. the severity and frequency of natural hazards;

3. the general standards of the building industry measured, in part, by the exsistence and effectiveness of national codes;

4. the vulnerability of the particular property to the effects of natural hazards.

There is almost nothing we can do about the item 1 and absolutely nothing we can do about item 2. With respect of item 3 we can do our bit by lobbying governments to mandate the the use of building codes which incorporate adequate standards and which are bolstered by effective enforcement mechanisms.

What we can do is to address the issue in item 4. In our part of the world, the hurricane hazard is one of the natural perils which international reinsurance companies focus on. The catastrophic damage caused by hurricanes in the Commonwealth Caribbean determines the cost of our purchasing reinsurance protection and this cost is ultimately passed on to the consumer. We must, therefore, focus on taking whatever initatives we can to mitigate the damage done by hurricanes.

It has been demonstrated in recent hurricanes that the most vulnerable parts of a building are the roof, windows and external doors. These are the areas we must focus on. For example, we must invest in shutters for our glass windows and patio doors.

How can you play your part in this exercise which is aimed at the mutual benefits of reducing the risk of hurricane damage (and, just as importantly, reducing the chances of distress and disruption in your family's life), lowering premiums and ensuring the continuation of a sound insurance industry?

There are two ways we are offering you to safeguard your property:

1. MINIMUM DESIGN UPGRADE - This is prescriptive and does not necessarily involve the use of professionals This publication provides an easy guide for you to critically examine your property and if necessary retrofit appropriately to improve the security of your home and achieve a reduced insurance premium.

2. SPECIFIC DESIGN UPGRADE - This is performance driven and does involve using the services of an engineer. We have available a second pamphlet which you can obtain by request, which provides a guide to the engineer as to what is required to safeguard your property.

Of the two systems proposed, the Specific Design Upgrade will initially be slightly more expensive to carry out. However it will attract a substantially lower premium and is also a more reliable long-term solution. Whichever system you choose the reduced insurance premiums can pay for the cost of retrofitting your property. If you have any queries please call us. If we can't answer your questions ourselves, we will provide you with a list of professionals who are willing to assist in these matters.

The publication of this booklet would not have been possible without the assistance of Mr. Tony Gibbs, Consultant to Consulting Engineering Partnership Ltd. Mr. Gibbs is one of the foremost wind engineers in the world and we at United, and indeed everyone in Barbados and the Caribbean, are fortunate to have the services of Mr. Gibbs. He has devoted considerable time and expertise in assisting us with this venture.

Please join us in our effort to reduce the vulnerability of our properties against the hurricane peril.

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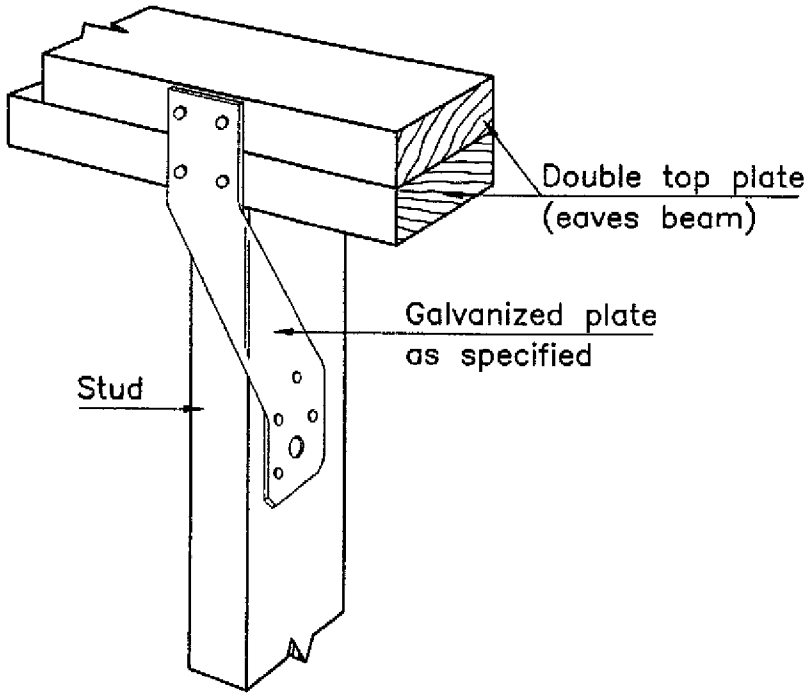
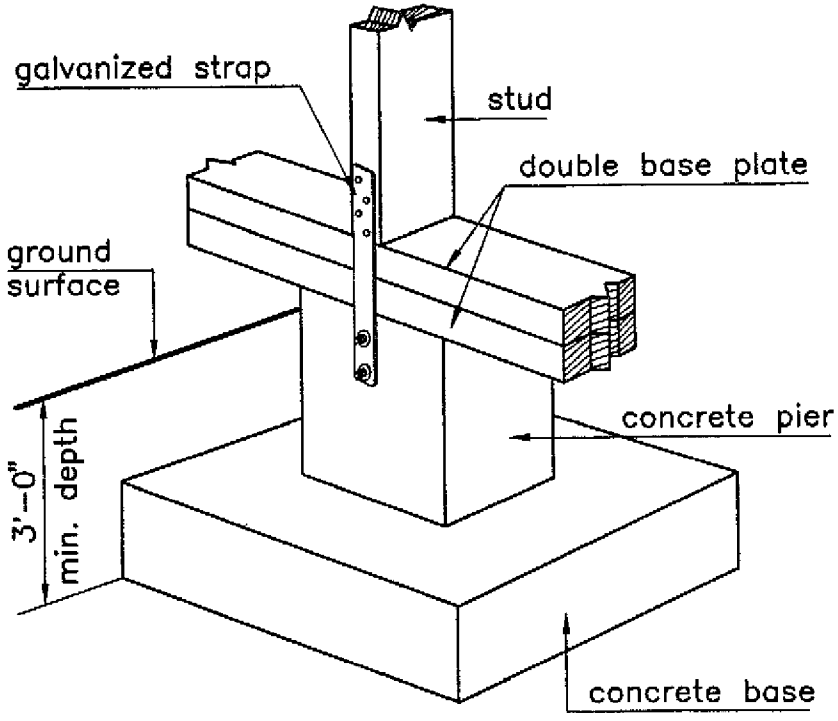
Homeowners' Hurricane-Resistant Safeguard Guide



Stud & top plate connection

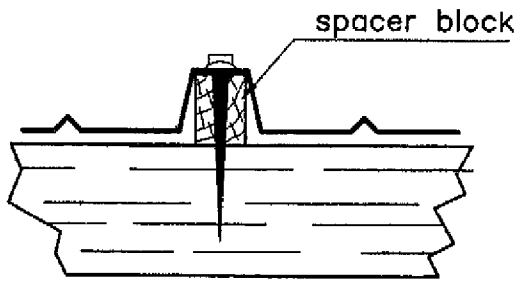
Guide Ref. #1

Homeowners' Hurricane-Resistant Safeguard Guide Reference Drawings

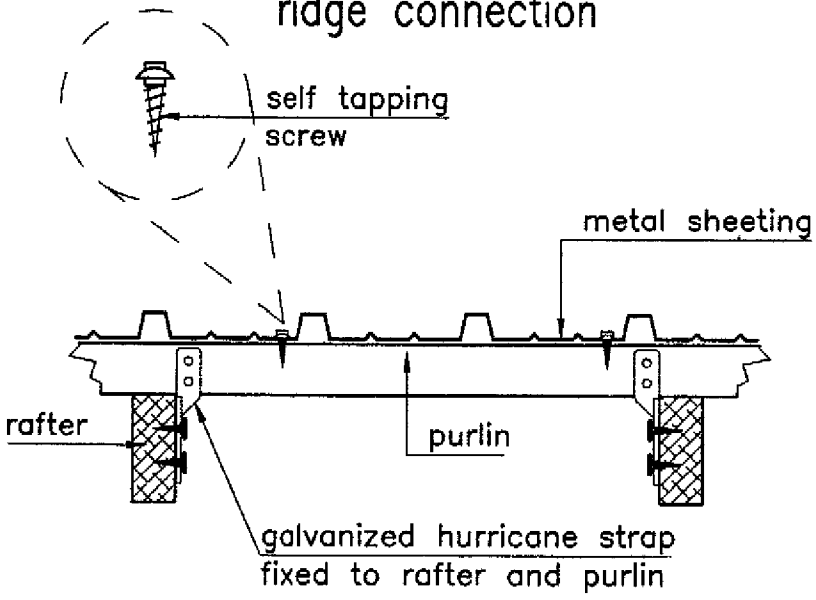


Stud to foundation connection
Foundation anchorage

Guide Ref. #2



ridge connection

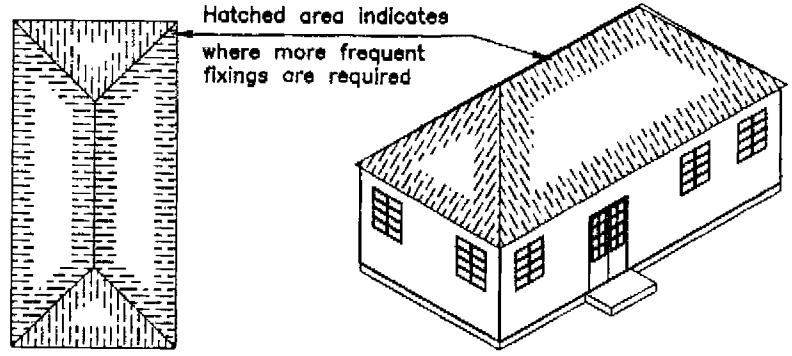


valley connection

Metal sheet fixings and
purlin–to–rafter connection

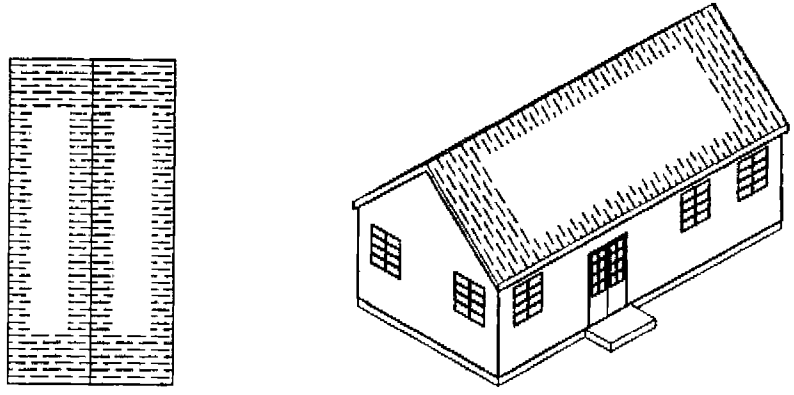
Guide Ref. #3

Homeowners' Hurricane-Resistant Safeguard Guide Reference Drawings



plan isometric

hip–roof

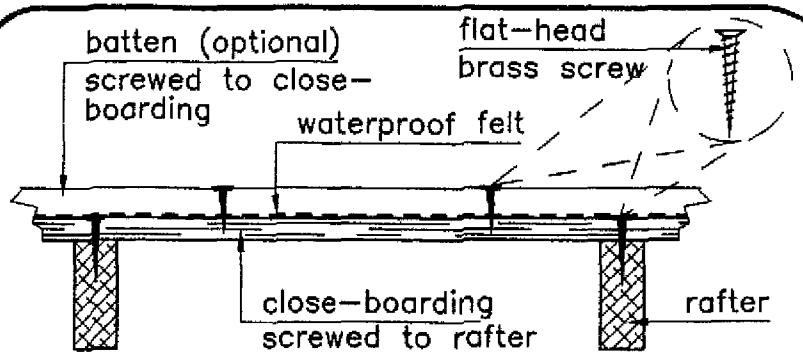


plan isometric

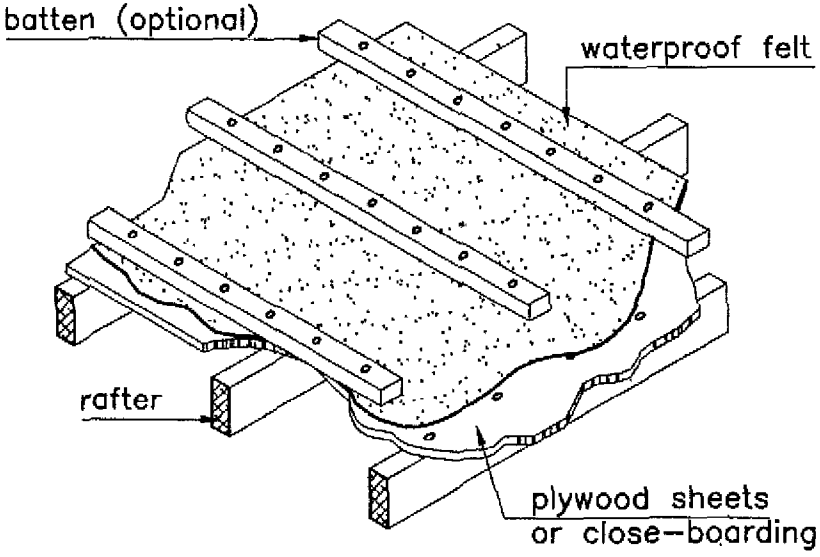
gable roof

The more vulnerable areas of roofs

Guide Ref. #4



cross section



isometric

Fixing of close-boarding and battens for tile and shingle roofing

Guide Ref. #5

PULL OUT SECTION

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Homeowners' Hurricane-Resistant Safeguard Guide and Checklist

PULL OUT SECTION

MAKE YOUR HOME HURRICANE-RESISTANT AND UNITED CAN REDUCE YOUR INSURANCE PREMIUM

The enclosed Safeguard Compliance Checklist has been developed in association with Mr. Tony Gibbs, one of the foremost wind engineers in the world and an expert in hurricane resistant construction. Careful implementation of such measures where necessary undoubtedly will reduce the risk of your home being seriouslyly damaged by a hurricane.

IMPORTANT! PLEASE READ!

Where the property owner can certify compliance with items #1, 2, 3, 4 and 5 of the prescribed hurricane-resistant safeguards described on the supplied checklist then United Insurance will issue a warranty on their policy and give a ***discount of 17.5% off their premium****. Compliance with safeguards #6 , 7a and 7b will earn* ***further discounts of 2.5% each****. Compliance with all safeguards would be worth you* ***a total of 25% discount*** *off your premium!*

Once again, proof that:

You're sure in safe hands with UNITED

PULL OUT SECTION

UNITED INSURANCE

Hurricane-Resistant Safeguard Compliance Checklist

Please tick appropriately in the boxes below, detach, sign and return to United Insurance

	YES Please tick in box	Guide Ref. #
1. EXTERNAL SIDES		
Precast concrete interconnected and fixed to floors and roofs	☐	
Coral stone block masonry a/ 12 inches (or greater) in thickness and with a maximum height-to-thickness ratio of 12, or	☐	
b/ 6 inches (or greater) in thickness reinforced and fixed to floors and roofs	☐	
Concrete block masonry reinforced and fixed to floors and roofs	☐	
Timber construction complying with all of the following: a/ ¾-inch marine plywood or ⅝-inch tongue-and-groove lumber	☐	
b/ 2-inch by 4-inch vertical studs at (maximum) 2-foot spacing to which the plywood or lumber is nailed or screwed	☐	
c/ two 2-inch by 4-inch horizontal base plates and two 2-inch by 4-inch horizontal eaves beams to which the studs are fastened with galvanised metal plates in accordance with manufacturers' specifications	☐	#1
d/ all openings framed with 2-inch by 4-inch vertical and horizontal studs, cills and lintols all fastened with galvanised metal plates in accordance with manufacturers' specifications	☐	
e/ the entire perimeter secured to reinforced concrete foundations with galvanised metal straps or approved bolts at (maximum) 4-foot spacing	☐	#2
f/ minimum depth of foundation to be 3 feet below adjacent ground level unless some other means is used to achieve adequate anchorage	☐	#2

PULL OUT SECTION

2. ROOFS

YES Please tick in box | Guide Ref. #

Concrete ☐

Light-weight coverings

a/ 26-gauge steel sheeting with valley fasteners or with ridge fasteners supplemented by spacer blocks under the ridges. Fastener spacings must not be greater than 6 inches along the purlins and purlins must not be further apart than 4 feet for 15% of the roof dimension along eaves, gables and ridges ☐ **#3 & #4**

b/ 22-gauge aluminium sheeting with valley fasteners or with ridge fasteners supplemented by spacer blocks under the ridges. Fastener spacings must not be greater than 6 inches along the purlins and purlins must not be further apart than 4 feet for 15% of the roof dimension along eaves, gables and ridges ☐ **#3 & #4**

c/ Asphalt shingles fixed in accordance with manufacturer's recommendations for hurricane areas and laid on waterproofing felt on top of ¾-inch (or greater) plywood sheets which in turn are fastened by screws or appropriate nails to supporting timber rafters ☐ **#5**

d/ Shingles individually fixed to close boarding which in turn is fastened by screws or appropriate nails to supporting timber rafters ☐ **#5**

NB i/ In all cases the methods of connecting and fixing must, at least, comply with the manufacturers' recommendations for severe hurricane locations

ii/ If battens are used, the fastening of the battens to the close boarding must be at least as strong as the fastening of the covering to the battens

Other coverings

a/ Slates individually fixed to close boarding which in turn is fastened by screws or appropriate nails to supporting timber rafters ☐ **#5**

b/ Concrete or clay tiles individually fixed to close boarding which in turn is fastened by screws or appropriate nails to supporting timber rafters ☐ **#5**

PULL OUT SECTION

YES Please tick in box | Guide Ref. #

NB i/ In all cases the methods of fixing must, at least, comply with the manufacturers' recommendations for severe hurricane locations

ii/ If battens are used, the fastening of the battens to the close boarding must be at least as strong as the fastening of the covering to the battens

Frames for light-weight roof coverings

a/ Steel rafters fixed to walls ☐ **#6**

b/ Bolted steel trusses fixed to walls ☐ **#6**

c/ Timber rafters fixed at the ridges and to the walls with bolts or appropriate fasteners ☐ **#6 & #7**

d/ Bolted timber trusses fixed to the walls with bolts or appropriate fasteners ☐

e/ Timber trusses fabricated using appropriate fasteners and fixed to the walls with bolts or appropriatefasteners ☐

NB In all cases the methods of connecting and fixing must, at least, comply with the manufacturers' recommendations for severe hurricane locations

3. WINDOWS

Made of approved laminated glass fixed to frames with structural silicon
or ☐

Protected by pre-installed or pre-fabricated shutters which are made of at least ¾-inch timber or other wise able to resist, without breaching, the impact of flying objects such as an 8-foot long 2-inch by 4-inch piece of timber moving at 35 miles per hour ☐ **#8, #9 & #10**

Made of timber or aluminium louvres with provisions for excluding the rain during storm conditions ☐

PULL OUT SECTION

YES Please tick in box | Guide Ref. #

NB The windows or shutters must be secured to the walls, slabs, beams or columns near all corners of each panel or in accordance with the manufacturers' recommendations for severe hurricane locations

4. DOORS

Glass Sliding Doors

a/ Made of laminated glass fixed to frames with structural silicon and able to resist, without breaching, the impact of flying objects such as an 8-foot long 2-inch by 4-inch piece of timber moving at 35 miles per hour ☐

b/ Protected by pre-installed or pre-fabricated shutters which are made of at least ¾-inch timber or otherwise able to resist, without breaching, the impact of flying objects such as an 8-foot long 2-inch by 4-inch piece of timber moving at 35 miles per hour ☐

c/ The moving frames must have a certificate from the supplier indicating compliance with the requirements for Category 3 hurricanes, including both strength and deflexions ☐

d/ The fixed perimeter frames must be secured to the walls, slabs, beams or columns by bolting or in accordance with the manufacturers' recommendations for severe hurricane locations ☐

e/ The tracks of the top and bottom rails must be deep enough to prevent the moving doors from being dislodged in severe hurricanes (The manufacturer's advice should be sought on this matter) ☐

Roller Shutter (or Overhead) Doors

a/ These must have certificates from the suppliers indicating compliance with the requirements for Category 3 hurricanes, including both strength and deflexions ☐

PULL OUT SECTION

YES Please tick in box | Guide Ref. #

b/ The fixed perimeter frames must be secured to the walls, slabs, beams or columns by bolting or in accordance with the manufacturers' recomendations for severe hurricane locations ☐

c/ The side tracks must be deep enough to prevent the moving doors from being dislodged in severe hurricanes unless some other mechanism is employed to prevent such an occurrence (The manufacturer's advice should be sought on this matter) ☐

Other Doors

a/ Timber doors must be solid core or made up from solid timber members ☐

b/ Each door leaf must be fixed by hinges or bolts in at least four locations adjacent to all corners ☐

5. OTHER APERTURES

a/ Protection from wind and rain must be provided by pre-installed or pre-fabricated shutters which are made of at least ¾-inch timber or otherwise able to resist, without breaching, the impact of flying objects such as an 8-foot long 2-inch by 4-inch piece of timber moving at 35 miles per hour ☐ **#8, #9 & #10**

b/ The shutters must be secured to the walls, slabs, beams or columns near all corners of each panel or in accordance with the manufacturers' recommendations for severe hurricane locations ☐

6. SOLAR WATER HEATERS and AIR CONDITIONERS

These must have certificates from the suppliers indicating compliance with the requirements for Category 3 hurricanes for both manufacture and installation ☐

PULL OUT SECTION

7. ROOF SHAPES

	YES Please tick in box	Guide Ref. #
a/ Hip-roofs without parapets but with no overhangs and with minimum slope of 15°, or	☐	#11
gable roofs without parapets but with no overhangs and with minimum slope of 20°	☐	
b/ Hip-roofs with parapets and with minimum slope of 15°, or	☐	#12
gable roofs with parapets and with minimum slope of 20°	☐	

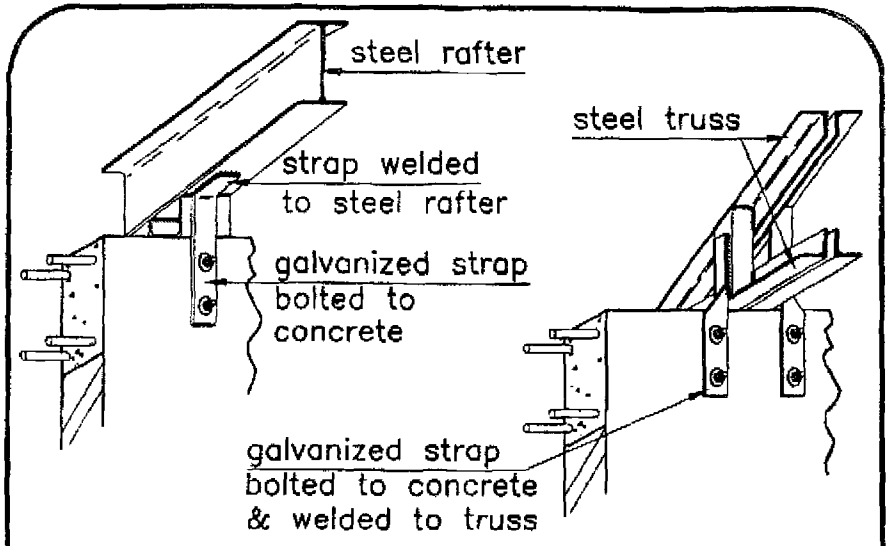
POLICYHOLDER'S DECLARATION

I hereby certify that the information I have given in this document is accurate. I fully understand that this information will form the basis of a warranty which will be attached to my insurance policy and falsification of any part could result in my policy being declared void in the case of a windstorm or hurricane claim.

Policyholder's name:_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _Date: _ _ _ _ _ _

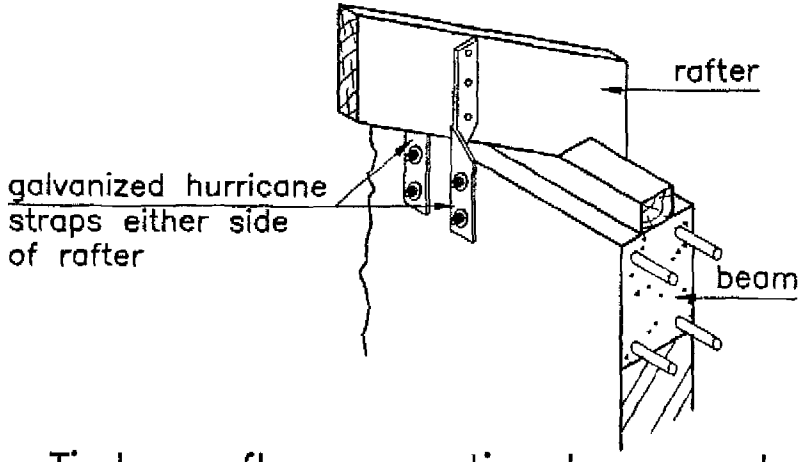
_ _ _ _ _ _ _ _ _ _ _ _ _ _ _

Signature



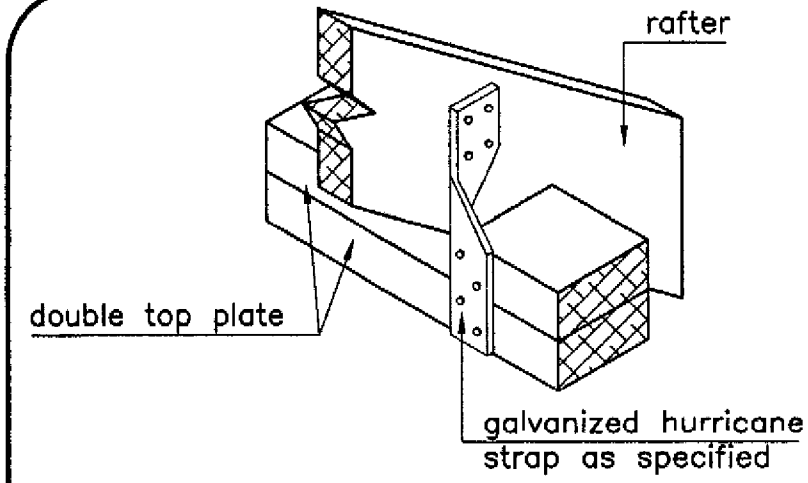
(after welding, apply rust–proofing coating)

Steel truss and rafter connection to concrete

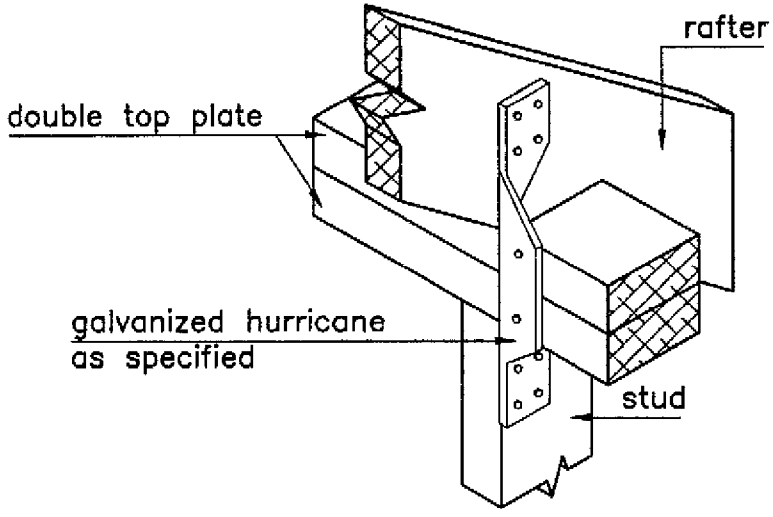


Timber rafter connection to concrete

Guide Ref. #6



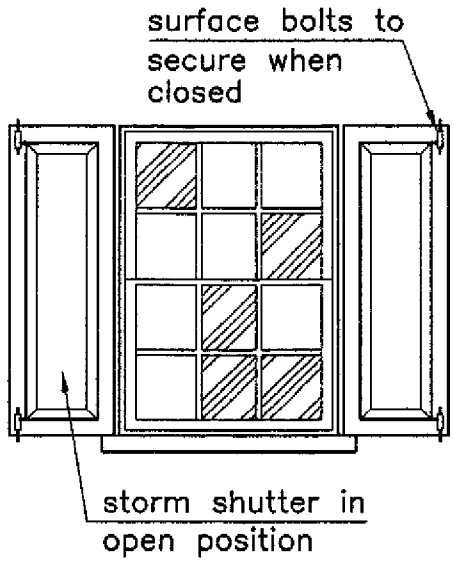
Rafter & top plate connection



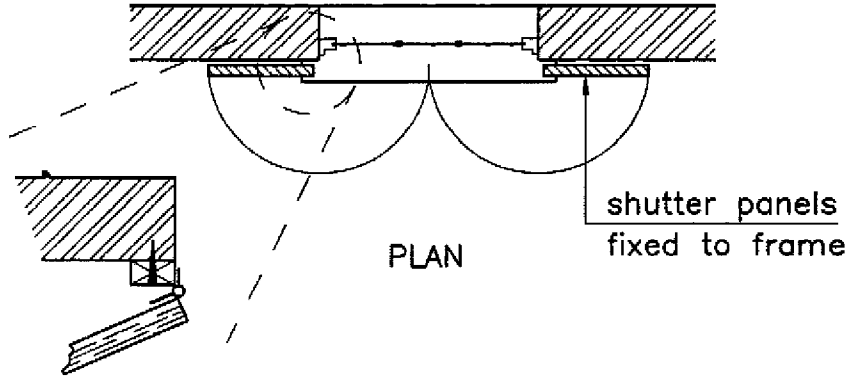
Stud, top plate & rafter connection

Guide Ref. #7

Homeowners' Hurricane-Resistant Safeguard Guide Reference Drawings



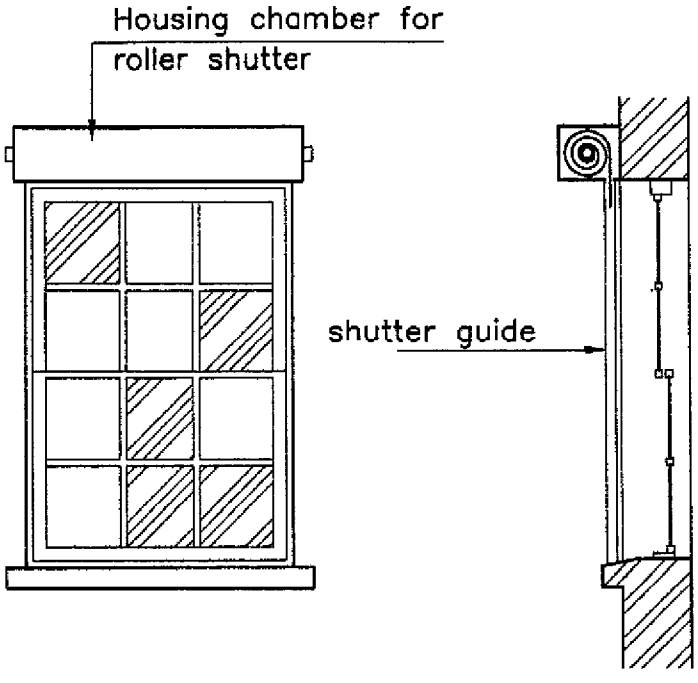
ELEVATION



PLAN

Permanently installed shutters

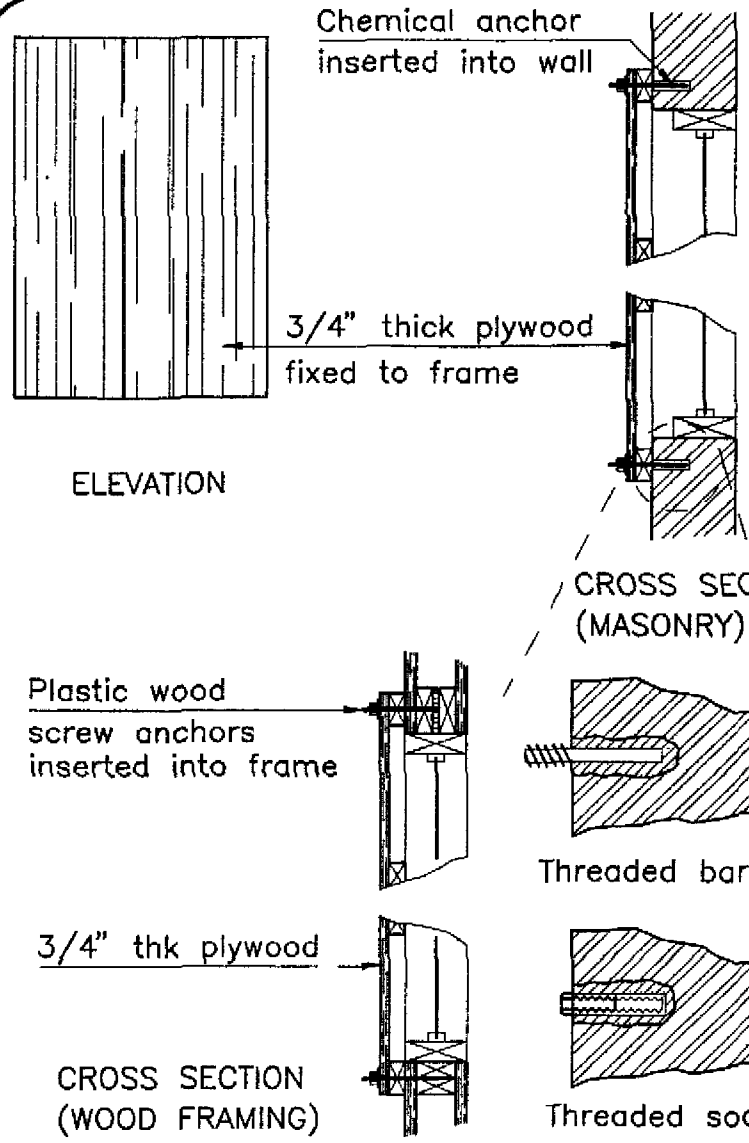
Guide Ref. #8



Roller shutter

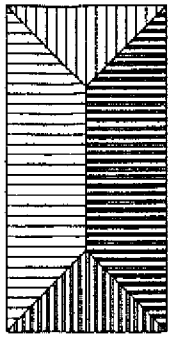
Guide Ref. #9

Homeowners' Hurricane-Resistant Safeguard Guide Reference Drawings

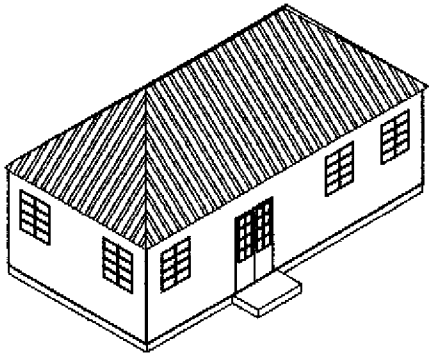


Pre-fabricated removable shutter

Guide Ref. #10

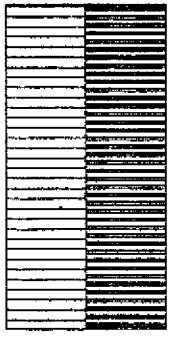


plan



isometric

hip : 20° or greater



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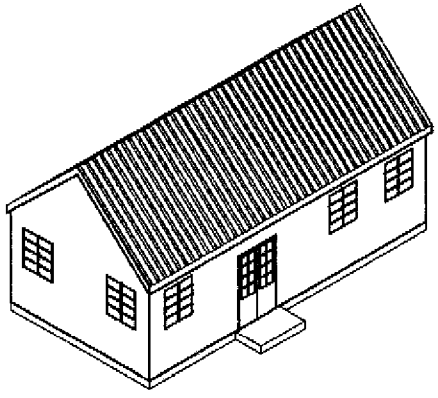


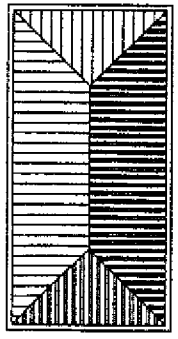
isometric

high gable : 25° or greater

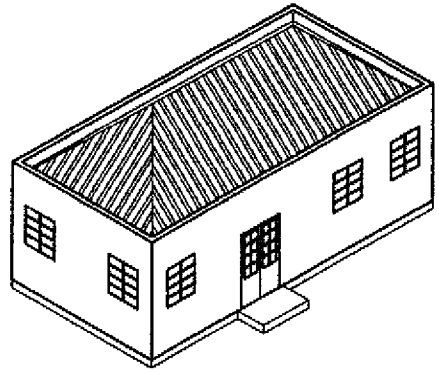
Favourable roof shapes

Guide Ref. #11

Homeowners' Hurricane-Resistant Safeguard Guide Reference Drawings

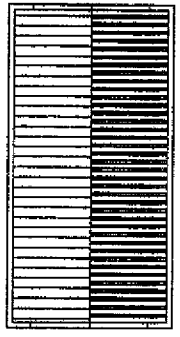


plan

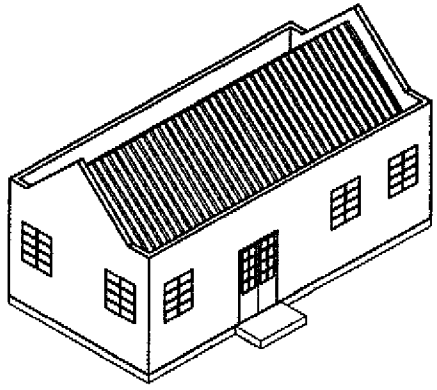


isometric

hip with parapet : 15° or greater



plan



isometric

high gable with parapet : 20° or greater

Favourable roof shapes

Guide Ref. #12

NOTES

NOTES