



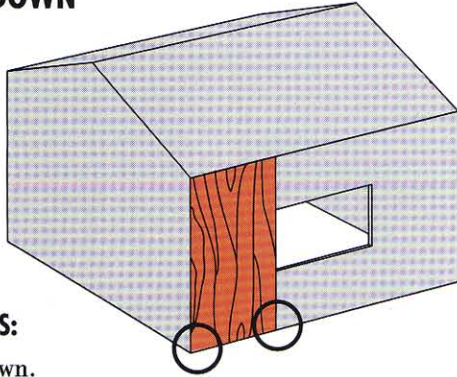
# BUILDING ANALYSTS



"Aren't you overdoing it a bit?"

# WHAT IS A HOLD DOWN?

## TYPICAL HOLD DOWN LOCATIONS



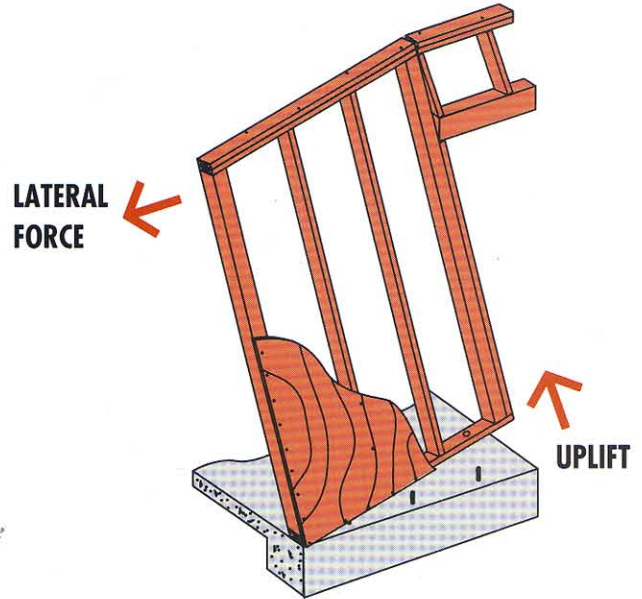
### COMMON PROBLEMS:

- Missing hold down.
- Undersized hold down.
- Improper location of hold down.
- Improper installation of hold down.

### POTENTIAL DAMAGES:

- Cracked finishes.
- Water intrusion.
- Ruptured plumbing and gas lines.
- Partial or total collapse of the framing system.
- Personal injury.

## OVERTURNING FAILURE

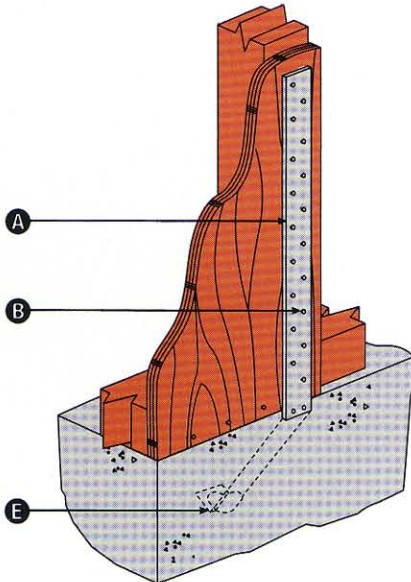


## ROTATION AT BASE

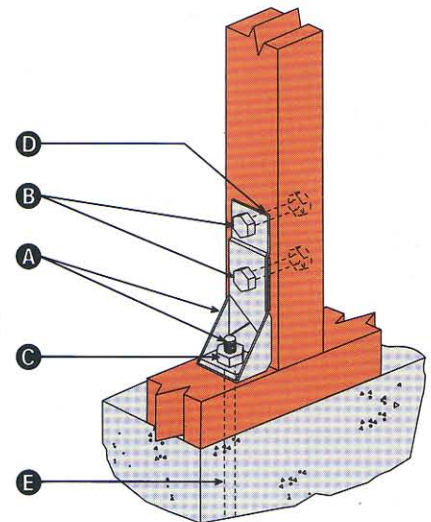
## PROPER CONSTRUCTION:

There are generally two types of hold downs; the embedded strap and the anchor bolt hold down. Their function is to prevent the end of a shear wall from lifting off the foundation. The following are the principal elements necessary for hold downs to function properly:

- A** CORRECT SIZE OF ANCHOR BOLT AND/OR HOLD DOWN
- B** ATTACHED TO THE END STUD BY SUFFICIENT NAILING OR BOLTING
- C** NUT TIGHTENED SUFFICIENTLY ON ANCHOR BOLT
- D** BOLT HOLES DRILLED TO PROPER SIZE
- E** STRAP OR BOLT PROPERLY EMBEDDED INTO FOUNDATION
- POSITIONED PROPERLY AT THE END OF THE WALL, ADJACENT TO THE END POST
- POSITIONED AT THE PROPER DISTANCE FROM THE EDGE OF THE FOUNDATION



## STRAP HOLD DOWN



## ANCHOR BOLT HOLD DOWN

Building Analysts is a full-service architectural and engineering firm with many years of experience in construction litigation. Our services include: architectural and structural investigations, repair recommendations, preparation of exhibits and expert testimony. We hope this newsletter is helpful. Please contact Stan Livingston, Pete diGrolamo, Mike Romanowski or Bob Carroll at Building Analysts if you need our input or recommendation: (619) 234-8153

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SPRING 1997 NEXT ISSUE: Attic Ventilation