

WOOD IN HIGH WINDS & EARTHQUAKES

WOOD STRUCTURES BEND AND FLEX

WIND LOADING The framing members, shear walls and diaphragms of wood-frame buildings have numerous connections that provide multiple and often redundant load paths for resistance to wind and seismic forces. These connections enable structures, when stressed by high wind or seismic action, to move and stretch without sudden, and potentially disastrous, fracture.

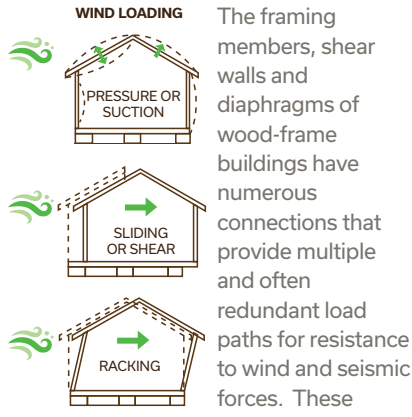


Diagram illustrating wind loading on a wood structure, showing pressure or suction, sliding or shear, and racking.

MASS TIMBER'S LIGHTWEIGHT ADVANTAGE

Forces in an earthquake are proportional to the structure's weight. Because mass timber is substantially lighter than steel or concrete, it has inherent advantages in wind and seismic events.

Research and building code development have proven that mass timber structures can meet or exceed the most demanding earthquake and seismic requirements.

WOOD CONSTRUCTION IS WIND-RESISTIVE

FEMA finds wood-frame dwellings stand up to winds well over 100 MPH.

HURRICANE CHARLEY

was the strongest recorded tropical storm in Florida's history. After the storm there was **no observed structural damage** to wood-frame buildings that conformed to the 2001 Florida building code standards.



"NEW WOOD-FRAME HOUSES BUILT TO CODE EARNED HIGH MARKS FOR STRUCTURAL INTEGRITY, EVEN IN AREAS WHERE 3—SECOND WIND GUSTS HIT 150 MPH"

FEDERAL EMERGENCY MANAGEMENT AGENCY

WOOD CONSTRUCTION IS SEISMIC-RESISTIVE

In California, 80% of the 400 million square feet of public schools are wood-frame. Following the

NORTHRIDGE EARTHQUAKE,

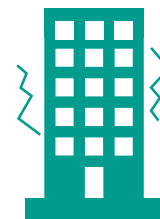


most of the damage that caused school closures was repairable and not life threatening. This was expected because:

"WOOD-FRAME DESIGN ... IS VERY RESISTANT TO DAMAGE REGARDLESS OF THE DATE OF CONSTRUCTION."

EQE SUMMARY REPORT, NORTHRIDGE EARTHQUAKE

MULTI-STORY PERFORMANCE



A 6-storey wood building standing on the world's largest shake table in Japan, resisted a major Maximum Considered Earthquake—or a 1 in 2,500-year earthquake—with **minimal damage**.

RESEARCH & RESOURCES

Get the latest wind and seismic information and research:

- Think Wood Research Library
- US Geological Survey Earthquake Catalog
- American Wood Council: Code Conforming Wood Design
- WoodWorks: Designing for Wind Resistance, Designing for Earthquakes

THINK WOOD™

Learn more about how wood is the natural choice for resilient buildings. Visit thinkwood.com/performance

The Brooklyn Riverside | Dwell Design Studio LLC | Tampa Bay, Florida | Photo by Lisa Preshail

SOURCES: Seismic Safety Inventory of California Public Schools, California Department of Government Services, 2002 | Design Of Wood Frame Structures For Permanence, AWC. | Hurricane Charley, FEMA, Paper 488.