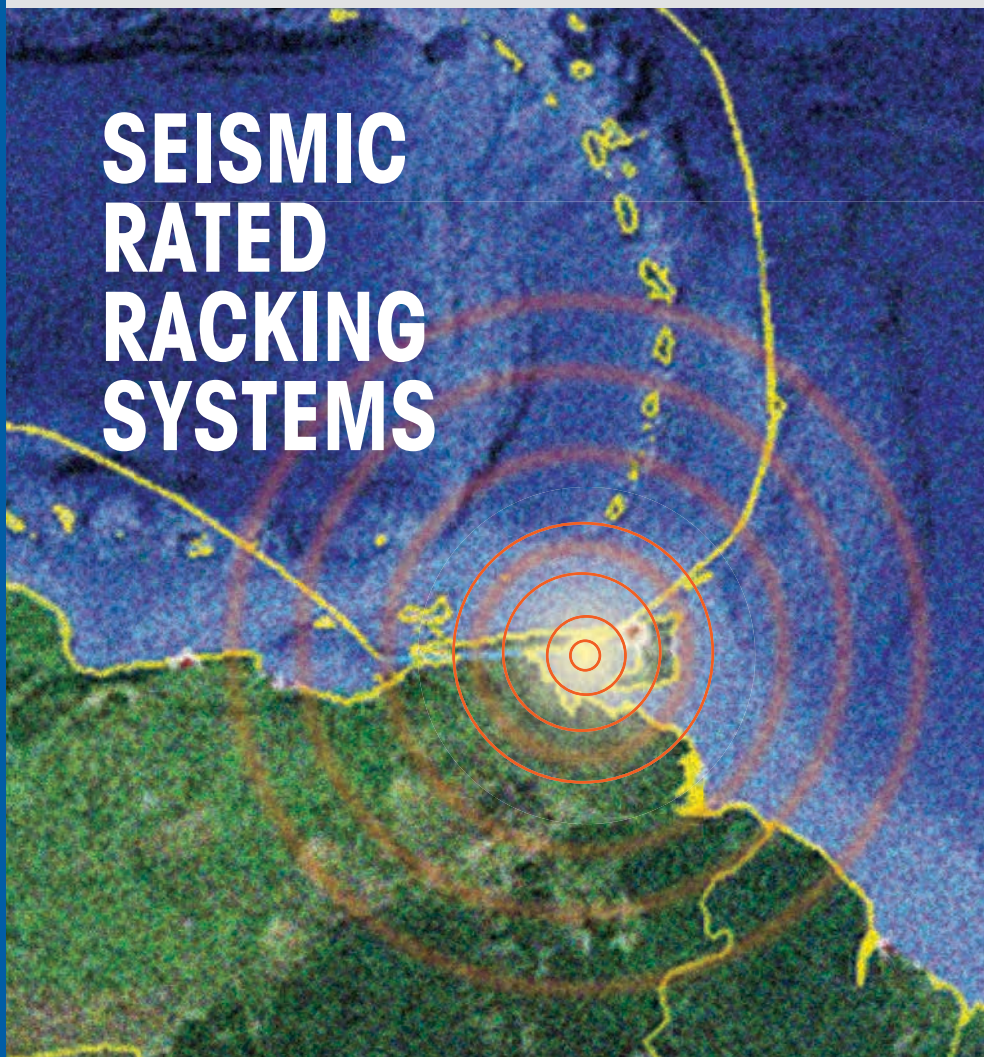




MODEL  
MODIFY  
MAXIMIZE

# SEISMIC RATED RACKING SYSTEMS



## **Why is it important to install seismic rated structures in Trinidad & Tobago and the wider Caribbean Region?**

The islands of the Caribbean lie in an area of relatively high earthquake activity. Most of the earthquakes occurring in the Caribbean are as a result of volcanic or tectonic activity (generated when plates move as accumulated energy is released). The highest seismic hazard values and the likelihood of earthquakes occurring converge typically in regions close to the edges of Earth's tectonic plates. The island of Trinidad, off the coast of Venezuela, sits above a risky earthquake zone since the Central Range fault runs through the heart of the island.

## **How does seismic activity affect storage structures?**

In recent times earthquakes have caused damage to several residential and commercial properties. In some instances, damages to both external and internal structures of warehouses and other storage areas occurred. During an earthquake, occupant safety in these areas depend on the structural performance of the building and on the stability of the racks and shelves, and their contents. Seismic tremors can cause racks to collapse, overturn, or goods can spill or topple off if racks are not properly designed, installed, maintained and loaded. Based on post-disaster assessments, research is showing that the difference in destruction was not as much related to the intensity of the seismic movement as it was to the durability of these structures. These developments have made the need to build seismic resistant structures more evident. Although there are disaster elements beyond our control, structural adjustments for both external (buildings) and internal (non-structural) spaces in a facility's architectural designs, could mean the difference between life and death.





## How do seismic rated storage systems increase the probability of occupant & merchandise safety?

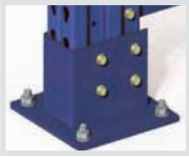
The team at Caribbean Racking Solutions Ltd. constantly aims for the highest level of safety when designing a seismic rated system by taking numerous elements into consideration. To assess storage rack earthquake performance, it is important to determine the ground motions that occurred at the site, the design capacity of the rack, the actual loading of the rack, rack design details, and any other extenuating conditions that would affect rack performance when an earthquake occurs. These factors include the magnitude of earthquake, the depth of the earthquake below the ground's surface, the distance the site is from the fault that generated the earthquake, and the soil conditions at the site.

Other factors that are accounted for include the type of stored product, weight, dimensions, rack elevation and, most importantly the geographic location of the warehouse. Racks are specified according to the exact geographical coordinates of the structure. Larger beams or columns, larger base plates, and more anchorage to secure the rack beams are some of the adjustments that are made. Additionally, seismic bracing patterns are heavier and more condensed.

The procedures currently used to compute seismic loads in rack vary depending upon mandated code requirement for a particular territory/region.



### Some engineered components that increase rack stability:



Heavy  
Footplates



Compact  
Bracing



Reinforced  
Columns



Specialized  
Floor  
Anchors



Rigid Wall Ties

### What range of services does Caribbean Racking Solutions offer?

The CRSL design & installation team comprises experienced and certified professionals that will guarantee:

- quality seismic designs specific to local & regional locations
- inspection after initial installation
- storage rack systems maintenance and repair
- additions, alterations and reconfigurations
- scheduled inspections and recertifications
- post disaster inspections

At Caribbean Racking Solutions Ltd. the safety of your staff, customers and merchandise is of utmost priority. We aim to provide the most efficient and feasible options as we commit to **MODEL | MODIFY | MAXIMIZE** YOUR SPACE!

### CONTACT US



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