The Facts About Seismic Racks and Cabinets

When I'm not helping customers with their Data/Comm enclosure requirements at Hammond Manufacturing, I spend my time observing the weather and major events on our Earth. From chasing tornados to watching celestial events, I find our Earth fascinating. The day that followed my 30th birthday, I learned of the tragedy that had occurred at the opposite side of the Earth. A rare 9.0 magnitude earthquake had hit Northeastern Japan, triggering one of the most destructive tsunamis in over a century. I was shocked by the video footage of the waves carving a path of destruction. I was amazed that the most earthquake-prepared people on the planet were caught off-guard by the quake's raw power.

Last Summer, I met with a client to discuss cabinets for their Data Centre. The Data Centre is located in Canada's largest city on the West coast; Vancouver, British Columbia. Vancouver is located along the coast of the Pacific Ocean opposite to Japan. The city runs parallel to the Cascadia Subduction Zone, a seismic fault that runs along the West coast of North America, from Vancouver Island down to Northern California.

My client and I were comparing Hammond Data Centre cabinets to a competing line when I brought up the question of Seismic rating. The Cascadia Subduction Zone is included in an large area that is often referred to as Zone 4. My client assured me the competing line held a UBC Zone 4 Seismic rating and that was sufficient.

I have come to realize that very few Data Centre Professionals understand the true difference between UBC and Telcordia Zone 4 ratings. The difference being that within a Zone 4 environment a cabinet, certified by Telcordia, has a much greater chance of surviving a strong earthquake than a cabinet with a UBC or similar rating.

Many of our competitor's cabinet lines hold a rating for UBC (Uniform Building Code) or IBC (International Building Code). In fact, our own C4 cabinet series has a UBC Zone 4 Rating. The UBC and IBC seismic ratings are prepared by an engineer using an analytical calculation. The problem is that these tests do not test the actual enclosure itself but instead determine the weakest point of the cabinet frame. As a result, Hammond Manufacturing decided to develop a product line that would meet or exceeded the Telcordia certification.

In 2012, Hammond launched the DCZ4 and DRZ4 Seismic Zone 4 2-Post Rack and Enclosure Cabinet. These new products were designed and tested to meet and exceed Telcordia Technologies GR-63-CORE (formerly Bellcore GR-63). The cabinet and rack were shipped to Telcordia's lab where they endured a week of horizontal and vertical seismic shake table tests. The tests replicate an actual seismic event with cabinet components installed. Over the course of a week, our DCZ4 and DRZ4 endured over thirty separate tests with varying weight capacities. With the provided test video and report from Telcordia we are able to factually state that our Seismic rack and cabinet meet and exceed the Telcordia's GR-63-CORE specifications.

When considering purchasing a seismic rack or cabinet be sure to ask for the following information:

1. The Seismic Test Report from Telcordia or other Independent Test Lab provide the details about the seismic test. Without the report there is no way of confirming how the product was tested.

2. The product's true weight load capacity is included within the test report and will should be noted by the manufacturer.
   - Our DCZ4 Cabinet has a weight capacity is 1000 lbs with an additional 100 lbs of simulated overhead cable.
   - Our DRZ4 Rack has a weight capacity is 800 lbs with an additional 50 lbs of simulated overhead cable.

3. Throughout the week, Telcordia recorded a video during the testing of our seismic rack and cabinet. The manufacturer should be able to provide a video showing the product during the test.

The fact is that any manufacturer with a legitimate tested product should be able to provide the above information. Unfortunately, many manufacturers claim that a UBC Zone 4 certified rating is equivalent to one tested to Telcordia GR-63-CORE but this is completely false and misleading. Be sure to know your seismic requirements and when in doubt, I would always recommend a product tested to the Telcordia GR-63-CORE standards with a weight capacity meeting your requirements.

If you have Zone 4 rack or cabinet requirements, feel free to contact us at Hammond. We will be pleased to share with you our seismic report and video. Unlike most of our competition, we provide all the facts about our seismic racks to help you make an informed procurement decision.

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Learn more about Hammond's Seismic Cabinet and Rack line:
https://www.hammfg.com/dci/products/cabinet-systems/dcz4
https://www.hammfg.com/dci/products/open-frame/drz4

Learn more about the Cascadia Subduction Zone at:
http://www.earthquakescanada.nrcan.gc.ca/zones/westcan-eng.php#Cascadia