GE
Electrical Distribution

## IBC-2006 Seismic Rating

# What's Shakin'?

What you need to know about seismic requirements and GE compliance

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# What you need to know about GE compliance with IBC-2006

- GE has established consolidated IBC-2006 seismic capable product lines
- Products were 3D shake table tested in accordance with ICC-ES-AC156
- Products are rated to perform successfully during and after seismic activity
- Developed for areas with stringent seismic requirements
- Needed in essential facilities (data centers, hospitals, etc.)

## Equipment Ratings

The GE product lines listed below were certified to ASCE 7.05, IEEE-693-2005 and IBC-2006 3D shake table testing as set forth in the *"Acceptance Criteria for Seismic Qualification by Shake-Table Testing of Nonstructural Components and Systems"* (ICC-ES-AC156). Samples of the most seismically vulnerable constructions were tested to qualify each product line.

| Product Line | Std/ Opt | IBC-2006 | | | | |
|---|---|---|---|---|---|---|
| | | Ip = 1.5 z/h >0 | | Ip = 1.5 z/h =0 | | Certification Report |
| | | Ss | Sds | Ss | Sds | |
| Panelboards | | | | | | |
| A-Series Lighting Panels | | | | | | |
| AQ, AQP & AL | Std | 200% | 1.3g | 300% | 2.0g | 10095950 |
| AE & AEP | | 300% | 2.0g | 300% | 2.0g | |
| AD & ADP | | 150% | 1.0g | 240% | 1.6g | |
| Spectra Series Power Panelboards | Std | 240% | 1.63g | 300% | 2.0g | 10095805 |
| Switchboards | | | | | | |
| Spectra & Jiffy Series Switchboard | Opt | 158% | 1.05g | 250% | 1.67g | 10095999 |
| Integrated Switchboards | | | | | | |
| Without Transformer | Opt | 300% | 2.0g | 300% | 2.0g | 10095999 |
| With Transformer | Opt | 150% | 1.0g | 240% | 1.6g | |
| PowerBreak II/AV3 Switchboard | Opt | 300% | 2.0g | 300% | 2.0g | 10096054 |
| Switchgear | | | | | | |
| AKD-10 LV Switchgear | Opt | 206% | 1.4g | 300% | 2.0g | 10095954 |
| AKD-20 LV Switchgear | Opt | 200% | 1.33g | 300% | 2.0g | |
| Entellisys LV Switchgear | Opt | 206% | 1.4g | 300% | 2.0g | 10095844 |
| PowerVac MV Switchgear | Opt | 165% | 1.1g | 265% | 1.77g | 10095952 |
| PowerVac DB MV Distribution Breaker | Opt | 200% | 1.3g | 300% | 2.0g | 10095951 |
| Motor Control Center | | | | | | |
| Evolution LV Motor Control Center | Std | 200% | 1.33g | 300% | 2.0g | 10095801 |
| LimitAmp MV Motor Control Center | Opt | 300% | 2.0g | 300% | 2.0g | 10095800 |
| BreakMaster Load Interrupter Switch | Opt | 300% | 2.0g | 300% | 2.0g | 10095791 |
| Enclosed Drives | Std | 300% | 2.0g | 300% | 2.0g | 10095809 |
| Spectra Series Busway | Std | 250% | 1.7g | 300% | 2.0g | 10095806 |
| Transformers (LV) | | | | | | |
| TransforMore & QL | | | | | | |
| Floor Mounted | Std | 200% | 1.3g | 300% | 2.0g | 10095845 |
| Wall Mounted | | 150% | 1.0g | 240% | 1.6g | |
| QMS, IP & QB | | 300% | 2.0g | 300% | 2.0g | |

## Test Criteria

### IBC-2006 Test Criteria

**$I_p$** Equipment importance factor (from 1.0 to 1.5). All GE equipment with IBC-2006 certification is qualified to an $I_p$ level of 1.5, indicating the equipment will be fully functional during and after a seismic event.

**z/h** The ratio of equipment mounting height (z) to roof height (h) (From 0 to 1). Ground and roof mounted equipment, for example, would have z/h levels of 0 and 1, respectively

**$S_s$** Mapped maximum considered earthquake response at short periods [%g]. Values are assigned based upon geographic location, probability, and severity of seismic activity; provided on maps in IBC-2006. (From 0% to 300%).

**$S_{ds}$** Design spectral response acceleration at short periods [g]. Adjusted value based upon $S_s$ and installation site characteristics. (From 0.0 to 2.0) $S_{ds} = 2/3 * Fa * S_s$ (where $0.8 < Fa < 1$)

IBC seismic testing qualified each product line to specific $S_{ds}$ levels for ground- and roof-level installation. Equipment $S_{ds}$ levels must equal or exceed the $S_{ds}$ levels of the installation location.

## Certification

Seismic certification and analytical work was performed by "W. E. Gundy & Associates, Inc., Registered Professional Engineers," William E. Gundy, Registered Professional Engineer, California license #CE-26539. As shown, a typical report includes verification of test results as well as qualification to IBC-2006 and IEEE-693-2005 standards.

Information provided is subject to change without notice. Please verify all details with GE. All values are design or typical values when measured under laboratory conditions, and GE makes no warranty or guarantee, express or implied, that such performance will be obtained under end-use conditions.

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