



# OSHPD Special Seismic Certification Preapproval (OSP)

**Preapproval** of Special Seismic Certification by OSHPD  
is a **voluntary** program for Equipment Manufacturers!

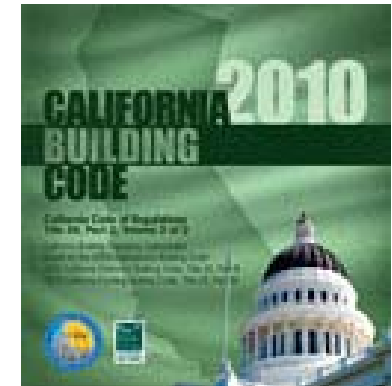
Office of  
Statewide Health Planning and Development 

Facilities Development Division  
The Building Department for California's Hospitals



## Scope of OSHPD Special Seismic Certification Preapproval (OSP)

- OSHPD Special Seismic Certification Preapproval (OSP) is limited to:
  - Components that require special seismic certification in accordance with the CBC 2010 Section 1708A.4.1.



OR

- Components that require special seismic certification in accordance ASCE 7-05 Section 13.2.2.





## Minimum Requirements for OSP

- For OSP of a product line with **similar structural configuration**, OSHPD requires:
  - Testing of at least two units (typically the smallest & largest units) and
  - Verification of similarities for interpolated units (see the CBC 2010 Section 1708A.4).



## Test of two Units Required for Each Structural Configuration

- If the units are to be qualified for **different support, mounting, or attachment conditions:**
  - With and without vibration isolators (Internal and External Isolators are NOT equivalent), or
  - Different mounting types, such as wall mounted vs. floor mounted, etc.
- **Test of two units** shall be required for **each anchorage or mounting configuration**



## Test of two Units Required for Each Material of Construction

- If the **units are made of different materials:** (e. g. Carbon Steel vs. Stainless Steel, etc.)
  - **Test of two units** shall be required for **each active and energized components/sub-components.**
  - **At least one test** is required for non-active sub-components (provided there are at least two component tests) such as sheet metal housing



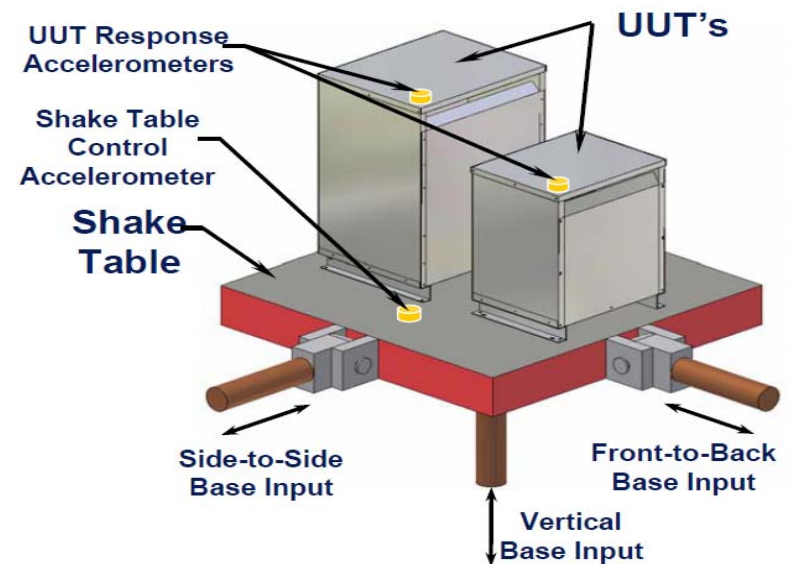
## Test of two Units Required for each Sub-Component Manufacturer

- If sub-components are made by different manufacturer's:
  - Test of two units shall be required for each manufacturer
  - Special Seismic Certification pre-approval is valid for components with design, construction, and quality control equivalent to units tested.



## Simultaneous Testing of Multiple Units on Shake Table is Permitted

- Multiple units can be tested on a single shake table simultaneously:
- Provided table is capable of achieving the Required Response Spectra (RRS) with total payload.



*Illustration by Jeff Gatscher & Scott Littler*



## Test Facility Requirements

- **Testing laboratory shall have ISO 17025 accreditation,**

or

- Testing shall be under the responsible charge of an independent California Licensed engineer.



## Test Report Requirements

- **Test reports shall be prepared by a California Licensed engineer,**
- and**
- Test reports shall be **reviewed and accepted by a independent California Licensed Structural Engineer**, unless it is prepared by one.



## Pre-Test Meeting with OSHPD is Recommended

- OSHPD strongly recommend that Manufacturer's representative and **California licensed structural engineer** in responsible charge of the OSP meet with OSHPD to review:
  - Test plan that will justify the scope of approval (OSHPD does not approve test plans).
  - Scope of pre-approval.
  - Test standard and reporting requirements.
  - Seismic Certification Label requirements.



## What is the Acceptance Criteria after Shake Table Testing?

- Post-test acceptance criteria for shake-table testing shall be as required by ICC-ES AC 156:
  1. **Structural Integrity** of components, supports, and attachments shall be maintained.
  2. **Functionality** of components shall be maintained.
    - ***Functionality test shall be similar to what manufacturer normally performs prior to delivery of the components for use.***



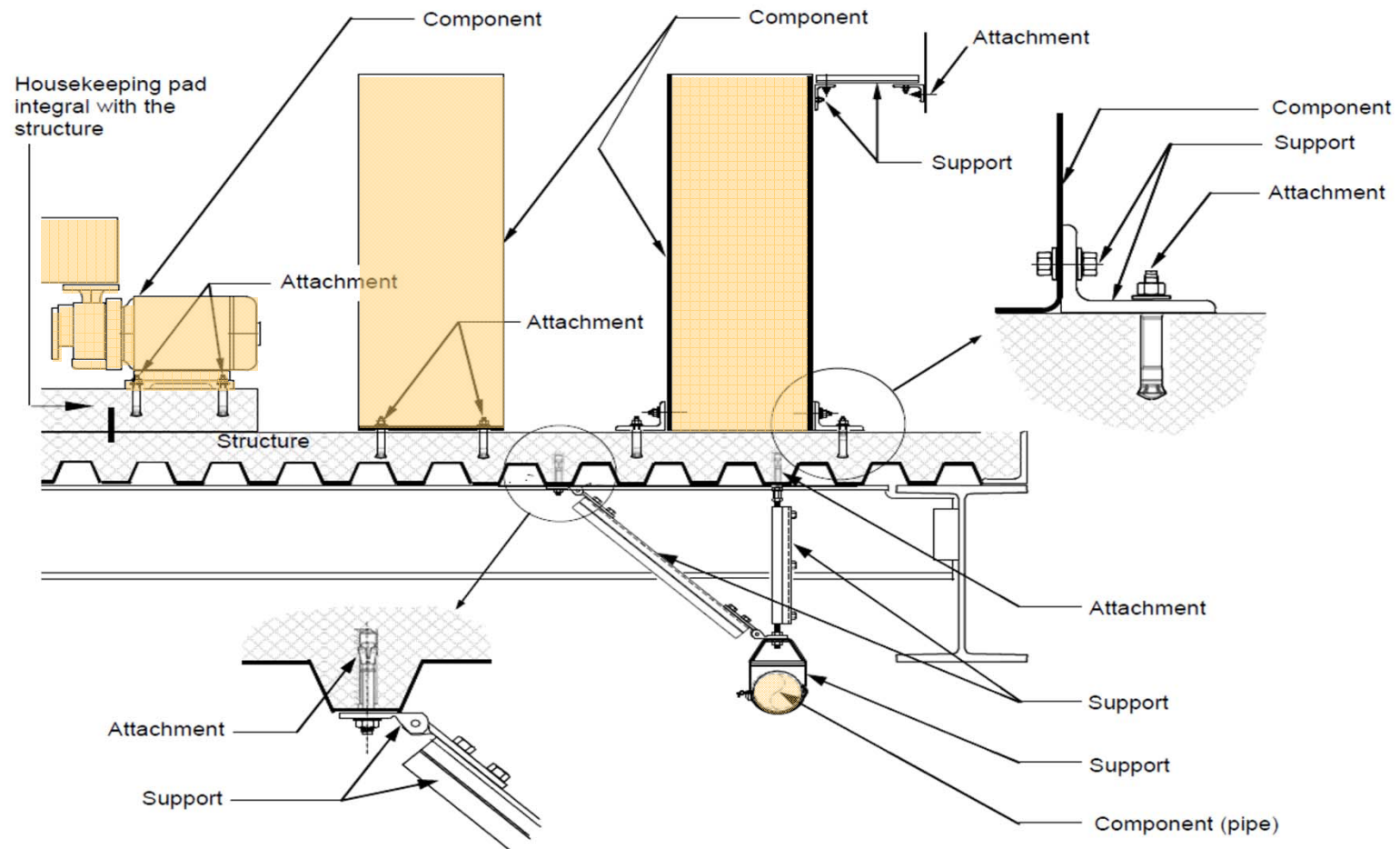
## Can the Active Mechanical and Electrical Equipment get an OSP by analysis?

- No!**

- Active and energized equipment/components shall be certified **exclusively** on the basis of shake table testing.
- ONLY** connecting elements, attachments, and supports can be justified by supporting analysis.



# What are Components, Supports, and Attachments?





## OSP Submittal Requirements

1. Completed **application in word format with signature attached in Section 3.0** of the application form.
2. Application review fee of \$5,000.00 payable to “OSHDPD”.
  - Renewal fee is \$1,000.00.
  - Application review and renewal fees are **nonrefundable**.
3. Complete test reports in electronic form that satisfy requirements of ICC-ES AC 156.
4. Verification of similarities for interpolated units in the form of manufacturer's catalog and/or schematic cut sheets.



## OSHPD Contact for Additional Information about OSP

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Facilities Development Division  
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## Does the Component Design need to Comply with the CBC 2010?

- **Yes!**

- Demand and capacity shall be based on the CBC 2010.



## Can the Analysis be Bookended Similar to Testing?

- No!**

- Analysis is only good for the unit analyzed (limited variations and/or grouping may be acceptable).



## What $R_p$ value can be used for Special Seismic Certification?

- $R_p/I_p = 1.0$  for Special Seismic Certification by testing in accordance with ICC-ES AC 156.
- $R_p = 1.0$  &  $I_p = 1.5$  shall be used for analysis part of Special Seismic Certification, since functionality can't be verified by analysis.
- ASCE 7-05 does not provide  $R_p$  and  $a_p$  values for special seismic certification.
- $R_p$  and  $a_p$  values in ASCE 7-05 can be used for design of supports and attachments.



# What Test Protocol should be used for Shake Table Testing?

## ICC-ES AC 156

Acceptance Criteria for Seismic Certification By Shake-Table Testing of Nonstructural Components  
(Effective November 1, 2010 and Editorially Revised February, 2012)

- ❖ ***Where normal operating conditions of equipment involve variation of contents (e. g. empty and full of operating fluid, etc.) or configuration, each operating condition or configuration shall be simulated in the tests.***
- ❖ ***If uniaxial or bi-axial tests are used for certification, a test at 45-degree to two horizontal orthogonal directions shall be required in addition to tests in two horizontal and vertical directions.***



## Can test of a Component with Rigid and Isolated Supports Justify Installation with Intermediate Support Conditions?

❖ **Yes!**

❖ *Provided mounting configurations (e.g. installation is wall mounted, etc.) are similar and only difference is in the attachments.*



**Are the tests in accordance with ICC-ES AC 156 by non-US Shake Table Test Facility Acceptable?**

**❖ Yes! *Provided:***

- ✓ *Test facility has ISO 17025 accreditation.*
- ✓ *Test report is available in English.*
- ✓ *Test report is prepared under the responsible charge of a California Licensed Structural Engineer.*



## What Systems/Components Require Special Seismic Certification for OSHPD 1 Buildings?

- **Following Systems Require Certification in accordance with CBC 2010 Section 1708A.4.1:**
  1. *Emergency and standby power systems.*
  2. *Elevator equipment (excluding elevator cabs).*



## What Systems/Components Require Special Seismic Certification for OSHPD 1 Buildings?

- **Following Equipment and Components Require Certification in accordance with the CBC 2010 Section 1708A.4.1:**

3. *Components with hazardous contents.*
4. *Smoke control fans.*
5. *Exhaust fans*
6. *Switchgear.*
7. *Motor control centers.*
8. *X-Ray machines in fluoroscopy rooms.*
9. *CT (Computerized Tomography) Scanners*



## What Systems/Components Require Special Seismic Certification for OSHPD 1 Buildings?

- **Following Equipment and Components Require Certification in accordance with the CBC 2010 Section 1708A.4.1:**
  10. *Air conditioning units.*
  11. *Air handling units.*
  12. *Chillers.*
  13. *Cooling Towers.*
  14. *Transformers.*
  15. *Electrical substations.*
  16. *UPS and batteries.*
  17. *Distribution panels.*
  18. *Control panels.*



## What Components are Exempt from Special Seismic Certification for OSHPD 1 Buildings?

1. *Equipment and components **installed in nonconforming buildings** unless they are required for SPC 3 or higher buildings.*
2. *Equipment and **components weighing not more than 20lbs. supported directly on structures** (and not mounted on other equipment or components).*



## Do the Components Mounted on or Supporting Equipment NOT Listed in the CBC 2010 Section 1708A.4.1 Require Special Seismic Certification?

- ❖ *Yes! All components listed in the CBC 2010 Section 1708A.4.1 require special seismic certification for OSHPD 1 buildings irrespective of their function or location.*
- ❖ *Components not listed in the CBC 2010 Section 1708A.4.1 may be rugged but not the components listed, hence will require special seismic certification.*
- ❖ *Certain components that are not rugged and are required for functionality of hospitals are not listed in the CBC 2010 Section 1708A.4.1, since requirements may not be enforceable at this time considering readiness of the industry.*



## Does Very Small Amount of Hazardous Content in a Component Trigger Special Seismic Certification Requirements?

❖ **NO!**

❖ *Special Seismic Certification is required for components containing enough hazardous contents to create a hazardous occupancy as defined in the CBC 2010 Chapter 3 or the CFC 2010 Chapter 27.*



## Do the Redundant or Optional Equipment Require Special Seismic Certification?

### ❖ **Yes!**

- ❖ *All equipment listed in the CBC 2010 Section 1708A.4.1 require special seismic certification for OSHPD 1 buildings even if they are considered redundant or optional.*
- ❖ *Redundancy and options are provided only because they are considered necessary/required.*
- ❖ *Consequential damage due to failure of redundant or optional components may cause failure of essential components.*



## Do the Equipment in Support Spaces in OSHPD 1 Buildings Require Special Seismic Certification?

### ❖ Yes!

- ❖ *All equipment listed in the CBC 2010 Section 1708A.4.1 require special seismic certification for OSHPD 1 buildings even when they are not directly required for patient beds.*
- ❖ *All support spaces in an OSHPD 1 building are considered essential for the operation of the hospital building.*



## Can the Supports and Attachments for Equipment with an OSP be Substituted?

- ❖ **Yes! Provided substituted supports and attachments have:**
  - ❖ *Similar installation configurations (e. g. Support, Mounting, Attachment, Orientation, etc.), and*
  - ❖ **Equivalent Strength and Stiffness to those tested and approved.**



## What does an Special Inspector Need to Verify in the Field for Special Seismic Certification?

*Special Inspector shall verify:*

- 1. **Label** for conformance with the certificate of compliance.*
- 2. **Anchorage or mounting** for conformance with the certificate of compliance and construction documents.*



## Can a Single Product with Absolutely No Variation be Certified by One Test Only?

### ❖ **Yes! Provided:**

1. Manufacturing process is ISO 9001 certified.
2. A single product (and not a product line with more than one product with variations) is certified.
3. Variations, if any, are limited to software and color/branding.



## What Systems/Components Require Special Seismic Certification for OSHPD 2 & 3 Buildings?

- *Special Seismic Certification is required for **components that are part of the Designated Seismic System** in accordance with the CBC 2010 Section 1708.4.1.*
- *All components with importance factor equal to 1.5 are part of the Designated Seismic System in accordance with the CBC 2010 Section 1702.1.*
- *Component importance factor shall be in accordance with ASCE 7-05 Section 13.1.3.*



## How much change can be made before OSP becomes invalid?

*OSP will be nullified when:*

- ❖ *Design, construction, or quality control/quality assurance method are **materially altered** as defined in the California Administrative Code, 2010 Section 7-111.*

**OR**

- ❖ *Strength, Stiffness, Size, Weight, Materials, Support, Orientation, or Manufacturer are changed/alterd so that they are no longer equivalent to what was approved in the OSP.*



## Where Do I Find an OSP Application form?

- **OSP application form is available at OSHPD Website:**

**<http://www.oshpd.ca.gov/FDD/Pre-Approval/index.html>**



## Can we Submit Multiple Products through a Single OSP Application?

- Yes!
  - How the product will be grouped for approval is completely up to the Manufacturer.



## Will OSHPD Distribute Approved OSP's?

- Yes!
- All approved OSP's will be posted at OSHPD website.
- OSHPD website shows all currently approved OSP at:

[http://www.oshpd.ca.gov/FDD/Pre-Approval/special seismic cert pre-approval.html](http://www.oshpd.ca.gov/FDD/Pre-Approval/special_seismic_cert_pre-approval.html)

- OSP list by category is available at:

[http://www.oshpd.ca.gov/FDD/Pre-Approval/OSP List by Category.pdf](http://www.oshpd.ca.gov/FDD/Pre-Approval/OSP_List_by_Category.pdf)



## Are Third Party Seismic Certification Subject to OSHPD Review?

- **Yes!**

- Required by Health and Safety Code Sections 129680 and 129770.

- Required by the CBC 2010 Section 1601A.2.



## How Long will it take for OSHPD to review the OSP Application once Submitted?

- **OSHPD has a 60/30/30 Goal!**

- New OSP Application Submittal shall be Reviewed within 60 days.

- Back Checks for OSHPD Comments will be Reviewed within 30 days.

- Renewal Request for OSP shall be Reviewed within 30 days.



## **Sample Certificate of Compliance and Label for Components with OSPs to Satisfy the CBC 2010!**

### **Certificate of Compliance Seismic Certification Label California Building Code**

**OSHPD Special Seismic Certification Preapproval: OSP-0XXX-10**

**Product Name: XXXX**

**Product Type: XXX**

**Anchorage: XXXXX**

**Seismic Performance Characteristics:  $S_{DS}(g) = x.xx$ ,  $z/h = 1.0$ ,  $I_p = 1.5$**

**Manufacturer's Identification Number: XXXXXXXXXXXXXXX**

**Company Logo**

**Label Tracking Number (IF any)**