

**CODE APPLICATION NOTICE****CAN NO.** 2-1614A.1.2**Subject:** Site-Specific Ground Motion Procedures**EFFECTIVE:** 1/26/09**CODE SECTIONS**

Section 1614A.1.2  
2007 California Building Code (CBC)

Sections 11.4.7 and 21.4  
American Society of Civil Engineers/Structural Engineering Institute (ASCE/SEI)  
7-05 Minimum Design Loads for Buildings and Other Structures

**2007 California Building Code**

**1614A.1.2 ASCE 7, Section 11.4.7** *Replace ASCE 7 Section 11.4.7 as follows:*

*11.4.7 Site-specific ground motion procedures. The site-specific ground motion procedure set forth in ASCE 7 Chapter 21 as modified in Section 1802A.6 of this code is permitted to be used to determine ground motion for any structure.*

*Unless otherwise approved, the site-specific procedure per ASCE 7 Chapter 21 as modified by Section 1802A.6 of this code shall be used where any of the following conditions apply:*

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**ASCE/SEI 7-05 Minimum Design Loads for Buildings and Other Structures****11.4 SEISMIC GROUND MOTION VALUES**

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**11.4.7 Site-Specific Ground Motion Procedures.** The site-specific ground motion procedures set forth in Chapter 21 are permitted to be used to determine ground motions for any structure. A site response analysis shall be performed in accordance with Section 21.1 for structures on Site Class F sites, unless the exception to Section 20.3.1 is applicable. For seismically isolated structures and for structures with damping systems on sites with  $S_1$  greater than or equal to 0.6, a ground motion hazard analysis shall be performed in accordance with Section 21.2.

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## 21.4 DESIGN ACCELERATION PARAMETERS

Where the site-specific procedure is used to determine the design ground motion in accordance with Section 21.3, the parameter  $S_{DS}$  shall be taken as the spectral acceleration,  $S_a$ , obtained from the site-specific spectrum at a period of 0.2 s, except that it shall not be taken less than 90 percent of the peak spectral acceleration,  $S_a$ , at any period larger than 0.2 s. The parameter  $S_{D1}$  shall be taken as the greater of the spectral acceleration,  $S_a$ , at a period of 1 s or two times the spectral acceleration,  $S_a$ , at a period of 2 sec. The parameters  $S_{MS}$  and  $S_{M1}$  shall be taken as 1.5 times  $S_{DS}$  and  $S_{D1}$ , respectively. The values so obtained shall not be less than 80 percent of the values determined in accordance with Section 11.4.3 for  $S_{MS}$  and  $S_{M1}$  and Section 11.4.4 for  $S_{DS}$  and  $S_{D1}$ .

### PURPOSE

The purpose of this Code Application Notice (CAN) is to provide an approved alternative method for complying with the site-specific ground motion procedures as permitted by Section 1614A.1.2 of the 2007 CBC.

### INTERPRETATION

The site-specific ground motion procedures set forth in ASCE 7-05 Chapter 21 and as modified by Section 1802A.6 of the 2007 CBC are not required unless the building is assigned to Seismic Design Category F, required by ASCE 7-05 Section 11.4.7, or otherwise required by the Office.

When using the site-specific design acceleration parameters in accordance with ASCE 7-05 Section 21.4, the parameter  $S_{D1}$  shall be taken as the spectral acceleration,  $S_a$ , at a period of 1 second. For use with the Equivalent Lateral Force Procedure, the site-specific spectral acceleration,  $S_a$  at T shall replace  $S_{D1}/T$  in ASCE 7-05 Equation 12.8-3 and  $S_{D1}T_L/T^2$  in Equation 12.8-4. The parameter  $S_{DS}$  calculated in accordance with ASCE 7-05 Section 21.4 shall be permitted to be used in Equations 12.8-2 and 12.8-5. The mapped value of  $S_1$  shall be used in Equation 12.8-6.

Original Signed	1/26/09
<hr/> John D. Gillengerten	Date