

**Quickie form to determine the SDC Factor**  
**For**  
**Residential, Conventionally-framed and simple projects**

**Step 1. Determine the latitude and longitude coordinate for the specific address where the building is located:**

Use [www.geocoder.net](http://www.geocoder.net) to arrive at the latitude and longitude.  
Enter the latitude as (36.826004)  
Enter the longitude as (-119.832292)

**Step 2. Determine the Ss, S1, Fa and Fv factors:**

Use <http://earthquake.usgs.gov/research/hazmaps/design/index.php> to arrive at the Ss, S1, Fa and Fv factors.

- \*Use Analysis Option: "International Building Code"
- \*Data Edition: "2006 IBC"
- \*Enter the latitude and longitude numbers calculated in step 1.
- \*Press "Calculate Sm and Sd factors"
- \*Set Site Class to "Site Class D" (default value)
- \*The S1, Sd, Fa and Fv factor will be calculated

**Step 3. Determine the Occupancy Group (Table 1604.5):**

- \*Use Occupancy Category I or II.

**Step 4. Determine the SDs factor:**

\*SDs=  $(2/3) \times Fa \times Ss$  (Note: The Java Applet in Step 2 will also provide you with SDs and SD1 factors)

**Step 5. Determine the SDC:**

\*Based on the calculated SDs (short period response acceleration) factor, enter Table 1613.5.6(1)- see below, using the SDs factor and Occupancy Category.

- \* **Determine the site's SDC factor.**

\*No need to consider Table 1613.5.6.1(2), based on SD1 (*Design spectral response at long periods*) per Section 1613.5.6.1.

**TABLE 1613.5.6(1):  
SDC BASED ON SHORT PERIOD RESPONSE ACCELERATION (SDC A–D)**

VALUE OF $S_{DS}$	OCCUPANCY CATEGORY		
	I or II	III	IV
$S_{DS} < 0.167g$	A	A	A
$0.167g \leq S_{DS} < 0.33g$	B	B	B
<b><math>0.33g \leq S_{DS} &lt; 0.50g</math></b>	<b>C</b>	<b>C</b>	<b>C</b>
<b><math>0.50g \leq S_{DS}</math></b>	<b>D</b>	<b>D</b>	<b>D</b>

**TABLE 1613.5.6(2):  
SDC BASED ON 1 – SECOND PERIOD RESPONSE ACCELERATION (SDC A–D)**

VALUE OF $S_{D1}$	OCCUPANCY CATEGORY		
	I or II	III	IV
$S_{D1} < 0.067g$	A	A	A
$0.067g \leq S_{D1} < 0.133g$	B	B	B
<b><math>0.133g \leq S_{D1} &lt; 0.20g</math></b>	<b>C</b>	<b>C</b>	<b>C</b>
<b><math>0.20g \leq S_{D1}</math></b>	<b>D</b>	<b>D</b>	<b>D</b>

**DETERMINATION OF SDC E AND F**

VALUE OF $S_1$	OCCUPANCY CATEGORY		
	I or II	III	IV
$S_1 > 0.75g$	E	E	E

Notes:

- 1) SDC “A” and “B” do not apply in California!
- 2) For SDC “E” and “F” to apply, the  $S_1$  factor must be greater than 0.75g!
- 3) CodeMaster- Seismic Design Category, 2006 IBC, publication by “Structures & Codes Institute” is a great and simple way to determine the SDC factor.

Imad naffa  
11/6/07

[www.NAFFAinc.com](http://www.NAFFAinc.com)