

$S_1$  = The mapped spectral accelerations for a 1-second period as determined in Section 1613.5.1.

**1613.5.4 Design spectral response acceleration parameters.** Five-percent damped design spectral response acceleration at short periods,  $S_{DS}$ , and at 1-second period,  $S_{D1}$ , shall be determined from Equations 16-39 and 16-40, respectively:

$$S_{DS} = \frac{2}{3} S_{MS} \quad \text{(Equation 16-39)}$$

$$S_{D1} = \frac{2}{3} S_{M1} \quad \text{(Equation 16-40)}$$

where:

$S_{MS}$  = The maximum considered earthquake spectral response accelerations for short period as determined in Section 1613.5.3.

$S_{M1}$  = The maximum considered earthquake spectral response accelerations for 1-second period as determined in Section 1613.5.3.

**1613.5.5 Site classification for seismic design.** Site classification for Site Class C, D or E shall be determined from Table 1613.5.5.

The notations presented below apply to the upper 100 feet (30 480 mm) of the site profile. Profiles containing dis-

TABLE 1613.5.3(1)  
VALUES OF SITE COEFFICIENT  $F_a$  <sup>a</sup>

| SITE CLASS | MAPPED SPECTRAL RESPONSE ACCELERATION AT SHORT PERIOD |              |              |              |                 |
|------------|---|--------------|--------------|--------------|-----------------|
|            | $S_s \leq 0.25$                                       | $S_s = 0.50$ | $S_s = 0.75$ | $S_s = 1.00$ | $S_s \geq 1.25$ |
| A          | 0.8   | 0.8          | 0.8          | 0.8          | 0.8             |
| B          | 1.0   | 1.0          | 1.0          | 1.0          | 1.0             |
| C          | 1.2   | 1.2          | 1.1          | 1.0          | 1.0             |
| D          | 1.6   | 1.4          | 1.2          | 1.1          | 1.0             |
| E          | 2.5   | 1.7          | 1.2          | 0.9          | 0.9             |
| F          | Note b  | Note b       | Note b       | Note b       | Note b          |

- a. Use straight-line interpolation for intermediate values of mapped spectral response acceleration at short period,  $S_s$ .
- b. Values shall be determined in accordance with Section 11.4.7 of ASCE 7.

TABLE 1613.5.3(2)  
VALUES OF SITE COEFFICIENT  $F_v$  <sup>a</sup>

| SITE CLASS | MAPPED SPECTRAL RESPONSE ACCELERATION AT 1-SECOND PERIOD |             |             |             |                |
|------------|--|-------------|-------------|-------------|----------------|
|            | $S_1 \leq 0.1$   | $S_1 = 0.2$ | $S_1 = 0.3$ | $S_1 = 0.4$ | $S_1 \geq 0.5$ |
| A          | 0.8  | 0.8         | 0.8         | 0.8         | 0.8            |
| B          | 1.0  | 1.0         | 1.0         | 1.0         | 1.0            |
| C          | 1.7  | 1.6         | 1.5         | 1.4         | 1.3            |
| D          | 2.4  | 2.0         | 1.8         | 1.6         | 1.5            |
| E          | 3.5  | 3.2         | 2.8         | 2.4         | 2.4            |
| F          | Note b   | Note b      | Note b      | Note b      | Note b         |

- a. Use straight-line interpolation for intermediate values of mapped spectral response acceleration at 1-second period,  $S_1$ .
- b. Values shall be determined in accordance with Section 11.4.7 of ASCE 7.

TABLE 1613.5.5  
SITE CLASSIFICATION<sup>a</sup>

| SITE CLASS | $\bar{v}_s$         | $\bar{N}$ or $\bar{N}_{ch}$ | $\bar{s}_u$        |
|------------|---------------------|-----------------------------|--------------------|
| E          | < 600 ft/s          | < 15                        | < 1,000 psf        |
| D          | 600 to 1,200 ft/s   | 15 to 50                    | 1,000 to 2,000 psf |
| C          | 1,200 to 2,500 ft/s | > 50                        | > 2,000            |

For SI: 1 foot per second = 304.8 mm per second, 1 pound per square foot = 0.0479 kN/m<sup>2</sup>.

- a. If the  $\bar{s}_u$  method is used and the  $\bar{N}_{ch}$  and  $\bar{s}_u$  criteria differ, select the category with the softer soils (for example, use Site Class E instead of D).