2006 IBC Structural/Seismic Design Manual, Vol. 2

ERRATA — FIRST, SECOND AND THIRD PRINTINGS

Page 4, under Seismic and site data, first 2 lines now read . . .

$S_s = 1.78g$
$S_1 = 0.55g$

Page 10, equation on line 6, under text paragraph, now reads . . . $S_s = 1.78$

Page 11, first text paragraph, line 2, change word "standard" to "simplified static"

Equation 12.14-11 now reads . . .

$$V = \frac{FS_{DS}}{R} W = \frac{1.1(1.0)}{6.5} W = 0.169W \; < \; 0.183W$$

under "where"
leave . . .

F = 1.1 for two-story buildings

add . . .

S_{DS} = $(^2/_3)\ 1.0 \times 1.5 = 1.0$

S_s = 1.5 max

F_a = 1.0 for $S_s \geq 1.25$ Table 11.4.1

The engineer can choose which method to use. This design example will illustrate the Equivalent Lateral Force Procedure.

Page 30, under figure . . .

$$\text{Number of 10d nails required each end} = \frac{560 \text{ lb}}{115 \text{ lb/nail} \times 1.6} = 3.0 \text{ nails}$$

(nailing does not control)

Page 33, 8 lines from page bottom . . .

$$\text{Number of 10d common nails required} = \frac{3800 \text{ lb}}{119 \text{ lb/nail}(1.2)(1.6)} = 16.6 \text{ nails}$$

where $C_D = 1.6$ for duration of load

Page 48, under Seismic and site data, first 2 lines now read . . .

$S_s = 1.78g$

$S_1 = 0.55g$

Page 101, under Seismic and site data, first 2 lines now read . . .

$S_s = 1.78g$

$S_1 = 0.55g$

Page 142, middle of page, under #9, text now reads . . .

Allowable load per nail is $ZC_D = 116(1.6) = 185$ lb/nail
Number of nails required = 1374/185 = 7.4 $\therefore$ use 8
With nails at 1.5 inches o/c the length of strap required is
2(0.75 in + 8 × 1.5 in) + 6 in = 31.5 in
$\therefore$ use 32-inch-strap

Page 143, bottom of page now reads . . .

$$ZC_D = 141(1.6) = 225 \text{ lb}$$

With 2 rows of 16d nails, the number of nails per row is 3088 lb/2 × 225 = 6.8 nails

∴ use 7 nails

Maximum spacing = 48 in/(7 + 1) = 6 in

∴ Use 6-inch o/c for the flat nailing

Page 144, under . . . For Douglas Fir-Larch No. 1

$$F_V' = F_V C_D = 180 \times 1.6 = 288 \text{ psi} \ldots \textit{o.k.}$$

Page 145, top of page . . .

$$F_b' = F_b C_D C_F = 1000(1.6)(1.3) = 2080 \text{ psi} \ldots \textit{o.k.}$$

mid page . . .

$$F_V' = F_V C_H C_D = 180(2.0)(1.6) = 576 \text{ psi} \ldots \textit{o.k.}$$

bottom of page

$$\text{Required spacing} = \frac{Z_{11} C_D}{v} = \frac{(1400)(1.6)}{690(0.7)} = 4.6 = 55 \text{ in}$$

Page 146, top of page . . .

∴Use $^3/_4$-in-diameter bolts at 48 inches o/c

Page 166, under Seismic and site data, first 2 lines now read . . .

$S_s = 1.78g$

$S_1 = 0.55g$

ERRATA — FIRST THROUGH FIFTH PRINTINGS

Page 10, mid page, add the word "where" after equation on line 4, under text paragraph

add new paragraph after next two equations . . .

> In Section 12.8.1.3 the code places a maximum value of C_s for regular structures that are five stories or less in height and have a period of less than 0.5 seconds. The maximum value of C_s is permitted to be calculated using a maximum S_s value of 1.5. This design example will use the full value of S_s = 1.78 and not the value of S_s = 1.5 permitted by the code. Using an S_s = 1.5 would produce a value of S_{DS} = 1.0 and a C_s = 0.154.

the capital "L" in the four equations following "but need not exceed" have been changed to "1"

the second equation following "but need not exceed" has been changed to read "S_1 = 1.0."

Page 11, add new text after fourth equation . . .

> In addition, equation (12.8-6) requires an additional check for C_s minimum for structures that are located where S_1 is equal to or greater than 0.6g:
>
> $$C_s = \frac{0.5\,S_1}{\left(\frac{R}{I}\right)} = \frac{0.5(1.0)}{\left(\frac{6.5}{1.0}\right)} = 0.07$$
>
> However, this condition does not control.

In paragraph immediately following, second line, the word "more" is changed to "not"

equation immediately following above paragraph now reads . . .

$$V = \frac{FS_{DS}}{R}W = \frac{1.1(1.0)}{6.5}W = 0.169W > 0.154W \qquad \text{Eq 12.14-11}$$

paragraph following next set of equations now reads . . .

> The engineer can choose which method to use. This design example will illustrate the Equivalent Lateral Force Procedure, and the actual C_s = 1.78.

Page 22, mid page, second paragraph after bold heading "**Diaphragms**" change "north-south" to "east-west"

Page 23, add new paragraph after 1st equation on page . . .

> The designer is required to check diaphragm forces in each direction. The design example has only performed the check in one direction.

Page 52, mid page, add the word "where" after line 4 of equations; change 6th equation to read . . .

$$S_s = 1.78$$

following equation 6, add new paragraph to read . . .

> In Section 12.8.1.3 the code places a maximum value of C_s for regular structures that are five stories or less in height and have a period of less than 0.5 seconds. The maximum value of C_s is permitted to be calculated using a maximum S_s value of 1.5. This design example will use the full value of S_s = 1.78 and not the value of S_s = 1.5 permitted by the code. Using an S_s = 1.5 would produce a value of S_{DS} = 1.0 and a C_s = 0.154.

the capital "L" in the four equations following "but need not exceed" have been changed to "1," and the second equation now reads . . .

$$S_1 = 1.0$$

Page 53, add new text after third equation . . .

In addition, equation (12.8-6) requires an additional check for C_s minimum for structures that are located where S_1 is equal to or greater than 0.6g:

$$C_s = \frac{0.5\,S_1}{\left(\frac{R}{I}\right)} = \frac{0.5(1.0)}{\left(\frac{6.5}{1.0}\right)} = 0.07$$

However, this condition does not control.

In paragraph immediately following, second line, change the word "more" to "not" and the word "standard" to "simplified static"

equation immediately following above paragraph now reads . . .

$$V = \frac{FS_{DS}}{R}W = \frac{F(1.0)}{6.5}W = 0.169W > 0.154W \qquad \text{§12.14.8.1}$$

new text added after line "where F = 1.1 for two-story buildings." reads . . .

$$S_{DS} = (2/3)\,1.0 \times 1.5 = 1.0$$

$$S_{S\ \max} = 1.5_{\ \max}$$

$$F_a = 1.0 \text{ for } S_S \geq 1.25$$

The engineer can choose which method to use. This design example will illustrate the Equivalent Lateral Force Procedure and the actual C_S = 1.78.

Page 85, after bold heading "**Diaphragm deflections and whether diaphragms are flexible or rigid**," third paragraph, second line, change "north-south" to "east-west"

after last equation on page, add new text . . .

The designer is required to check diaphragm forces in each direction. This design example has only performed the check in one direction.

Page 108, add the word "where" after line 4 of equations; change 6th equation to read . . .

$$S_s = 1.78$$

after 6th equation add new paragraph to read . . .

In Section 12.8.1.3 the code places a maximum value of C_s for regular structures that are five stories or less in height and have a period of less than 0.5 seconds. The maximum value of C_s is permitted to be calculated using a maximum S_s value of 1.5. This design example will use the full value of S_s = 1.78 and not the value of S_s = 1.5 permitted by the code. Using an S_s = 1.5 would produce a value of S_{DS} = 1.0 and a C_s = 0.154.

the capital "L" in the four equations following "but need not exceed" have been changed to "1";

add new text after third equation following "but shall not be less than" . . .

In addition, equation (12.8-6) requires an additional check for C_s minimum for structures that are located where S_1 is equal to or greater than 0.6g:

$$C_s = \frac{0.5\ S_1}{\left(\frac{R}{I}\right)} = \frac{0.5(1.0)}{\left(\frac{6.5}{1.0}\right)} = 0.07$$

However, this condition does not control.

Page 173, add the word "where" after line 4 of equations; change 6th equation to read . . .

$$S_S = 1.78$$

following equation 6, add new paragraph to read . . .

In Section 12.8.1.3 the code places a maximum value of C_s for regular structures that are five stories or less in height and have a period of less than 0.5 seconds. The maximum value of C_s is permitted to be calculated using a maximum S_s value of 1.5. This design example will use the full value of S_s = 1.78 and not the value of S_s = 1.5 permitted by the code. Using an S_s = 1.5 would produce a value of S_{DS} = 1.0 and a C_s = 0.154.

the capital "L" in the four equations following "but need not exceed" have been changed to "1," and the second equation now reads . . .

$$S_1 = 1.0$$

add new text after third equation following "but shall not be less than" . . .

In addition, equation (12.8-6) requires an additional check for C_s minimum for structures that are located where S_1 is equal to or greater than 0.6g:

$$C_s = \frac{0.5\ S_1}{\left(\frac{R}{I}\right)} = \frac{0.5(1.0)}{\left(\frac{6.5}{1.0}\right)} = 0.07$$

However, this condition does not control.

Page 209, add new text before figure . . .

(Per 12.8.1.3 S_s need not exceed 1.5. This was not used in this example.)

Page 213, equation at bottom of page, change small "w" to a capital "W"

Page 214, second equation towards bottom of page now reads . . .

$$W_{walls,\ long.} = 75 \text{ psf (2 walls)(90 ft)(19 ft)}\left(\frac{19 \text{ ft}}{2}\right)\left(\frac{1}{16 \text{ ft}}\right) = 75 \text{ psf (180 ft) } \frac{(19 \text{ ft})^2}{2(16 \text{ ft})} = 152 \text{ kips}$$