

Wall Bracing Solutions for Footing and Grade Beam

| FOOTING | | | | | | | | |
|-------------------------------------|-----------|-------------|--------------|--------------|--------------|------------------------------------|--------------|--------------|
| Equivalent Wall Bracing Length (ft) | Load Type | Height (ft) | 1 story | | | 1st of 2 or 3 stories ¹ | | |
| | | | Width W (in) | Depth D (in) | Bottom Rebar | Width W (in) | Depth D (in) | Bottom Rebar |
| 8 | Wind | 8 to 12 | 18 | 12 | 2-#4 | 22 | 14 | 2-#4 |
| 12 | Wind | 8 to 12 | 20 | 14 | 2-#4 | 26 | 14 | 2-#4 |
| 20 | Wind | 8 to 12 | — | — | — | 30 | 16 | 3-#4 |
| 8 | Seismic | 8 to 12 | 22 | 14 | 2-#4 | 28 | 16 | 3-#4 |
| 12 | Seismic | 8 to 9 | 24 | 16 | 2-#4 | 32 | 16 | 3-#4 |
| | | 10 to 12 | 24 | 16 | 2-#4 | 36 | 16 | 3-#4 |
| 20 | Seismic | 8 to 9 | — | — | — | 38 | 18 | 3-#4 |
| | | 10 to 12 | — | — | — | 44 | 18 | 3-#4 |

| GRADE BEAM ² | | | | | | | | |
|--------------------------------|-----------|-------------|---------------|---------------|----------------------|------------------------------------|---------------|----------------------|
| Equivalent Wall Bracing Length | Load Type | Height (ft) | 1 story | | | 1st of 2 or 3 stories ³ | | |
| | | | Width W2 (in) | Depth D2 (in) | Top and Bottom Rebar | Width W2 (in) | Depth D2 (in) | Top and Bottom Rebar |
| 8 | Wind | 8 to 12 | 12 | 12 | 2-#4 | 15 | 14 | 2-#4 |
| 12 | Wind | 8 to 12 | 12 | 12 | 2-#4 | 15 | 14 | 2-#4 |
| 20 | Wind | 8 to 12 | — | — | — | 15 | 14 | 3-#4 |
| 8 | Seismic | 8 to 12 | 12 | 14 | 2-#4 | 15 | 14 | 2-#4 |
| 12 | Seismic | 8 to 12 | 12 | 14 | 2-#4 | 15 | 16 | 3-#4 |
| 20 | Seismic | 8 to 12 | — | — | — | 15 | 18 | 3-#4 |

| BALLON FRAMED SOLUTIONS | | | | | | | | |
|--------------------------------|-----------|-------------|--------------|--------------|--------------|---------------|---------------|----------|
| Equivalent Wall Bracing Length | Load Type | Height (ft) | Footing | | | Grade Beam | | |
| | | | Width W (in) | Depth D (in) | Bottom Rebar | Width W2 (in) | Depth D2 (in) | T&B Bars |
| 8 | Wind | 18 to 19 | 22 | 14 | 2-#4 | 12 | 12 | 2-#4 |
| 8 | Seismic | 18 to 19 | 32 | 16 | 3-#4 | 12 | 12 | 2-#4 |
| 12 | Seismic | 18 to 19 | 38 | 16 | 3-#4 | 15 | 14 | 3-#4 |

- Increase footing size by 6" on each side for 1st of 3-story application.
 - Grade beam shall meet minimum width of IRC Table R403.1 for brick veneer over light-frame application.
 - Grade beam for 1st of 3 stories shall meet minimum width of IRC Table R403.1.
- Footing and grade-beam design assumptions:
- Soil bearing pressure = 2000 psf (1500 psf with 1/3 increase for wind and seismic loads)
 - Concrete compressive strength, f'_c , = 2500 psi
 - Concrete reinforcement tensile strength, f_y = 60 ksi

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