| | |
|---|---|
| **Company** | **JOB TITLE** |
| Address | |
| City | **JOB NO.** **SHEET NO.** |
| Phone | **CALCULATED BY** **DATE** |
| Other | **CHECKED BY** **DATE** |

# TILT-UP CONCRETE WALL (ACI 318-99)

**DESCRIPTION:** PCA notes on ACI318-99 Example 23.4

## PANEL PROPERTIES

| | | | |
|---|---|---|---|
| Panel Height: Lc = | 20.0 ft | Conc Weight = | 150.0 pcf |
| Total Panel Thickness = | 8.00 in | f'c = | 4.0 ksi |
| Reveal Thickness = | 0.000 in | fy = | 60.0 ksi |
| Panel Thickness: h = | 8.000 in | Lt wt conc factor | |
| Strip Width: b = | 12.0 in | (NW=1, LW=.75) | 1.00 |
| Cover to Ext Vert Bar = | 0.750 in | | |
| Vert Bar Location : | Centered | Min Defl ratio = | 150 |
| Bar Depth: d = | 4.000 in | | |
| Vertical Bar Size = | # 4 | | |
| Vertical Bar Spacing = | 9.0 in | | |
| As = | 0.26 in2/ft | | |
| Parapet Height = | 0.00 ft | Horizontal Reinforcing: | |
| | | As = | 0.0020 Ag |
| Opening Width = | 0.00 ft | Centered | Each Face |
| EL Top of Opening = | 0.00 ft | #4@ 12.3 | #4@ 18.0 |
| EL Bottom Opening = | 0.00 ft | #5@ 18.0 | #5@ 18.0 |
| Opening Material Wt= | 10.0 psf | | |

## LOADING

**12" STRIP WIDTH**

| Lateral Loading | | | plf | Ms ('lb) |
|---|---|---|---|---|
| Wind Pressure = | 30.0 psf | | 30.0 | 1500.0 |
| Kd = | 1.00 | | | |
| Seismic Factor = | 0.000 | | 0.0 | 0.0 |
| Use this seismic moment instead : | | | | 0.0 |

| Uniform Vertical Loading | | eccentricity | plf | Ms ('lb) |
|---|---|---|---|---|
| Panel wt midht = | 1000 plf | 0.000 in | 1000 | 0.0 |
| Dead Load = | 2004 plf | 2.700 in | 2004 | 225.5 |
| Live Load = | 0 plf | 2.700 in | 0 | 0.0 |
| Roof Live Load = | 900 plf | 2.700 in | 900 | 101.3 |

| Concentrated Vertical Loading | | eccentricity | | |
|---|---|---|---|---|
| Dead Load = | 0.0 k | 2.000 in | 0 | 0.0 |
| Live Load = | 0.0 k | 2.000 in | 0 | 0.0 |
| Roof Live Load = | 0.0 k | 2.000 in | 0 | 0.0 |
| | | | 3904 | 326.7 |

## STRENGTH

| | 1.4D + 1.7L | 0.9D+ 1.3W or 0.9D+ 1.43E | 0.75(1.4D + 1.7L +1.7W) or 0.75(1.4D + 1.7L) +1.4E | |
|---|---|---|---|---|
| Mua = | 487.8 'lb | 2,152.9 'lb | 2,278.3 'lb | Wind Controls Strength |
| Pu = | 5735.6 lb | 2703.6 lb | 4301.7 lb | |
| Pu /Ag = | 59.7 psi | 28.2 psi | 44.8 psi | COMPRESSION OKAY |
| 0.06f'c = | 240.0 psi | 240.0 psi | 240.0 psi | |
| Ase = | 0.36 in2 | 0.31 in2 | 0.33 in2 | |
| Ec = | 3,605 ksi | 3,605 ksi | 3,605 ksi | |
| n = | 8.0 | 8.0 | 8.0 | |
| a = | 0.525 in | 0.451 in | 0.490 in | |
| c = | 0.618 in | 0.530 in | 0.576 in | |
| Icr = | 33.8 in4 | 30.3 in4 | 32.2 in4 | |
| ϕ = | 0.870 | 0.886 | 0.878 | |
| Ig = | 512.0 in4 | 512.0 in4 | 512.0 in4 | |
| yt = | 4.00 in | 4.00 in | 4.00 in | |
| fr = | 474.3 psi | 474.3 psi | 474.3 psi | |
| Mcr = | 5059.6 'lb | 5059.6 'lb | 5059.6 'lb | |
| Mu = | 722.2 'lb | 2587.0 'lb | 3052.4 'lb | |
| Capacity: ϕMn = | 5803.9 'lb | 5123.0 'lb | 5487.4 'lb | STRENGTH OKAY |

## DEFLECTION

| | | | | |
|---|---|---|---|---|
| Msa = | 0,326.7 'lb | 1,725.5 'lb | 1,826.7 'lb | Wind Controls Deflection |
| Ps = | 3904.0 lb | 3004.0 lb | 3904.0 lb | |
| Ie = | 512.0 in4 | 512.0 in4 | 512.0 in4 | |
| M = | 330.9 'lb | 1742.5 'lb | 1850.2 'lb | |
| Δs = | 0.013 in | 0.068 in | 0.072 in | |
| Defl Ratio = | L / 9999 | L / 3531 | L / 3325 | DEFLECTION OKAY |

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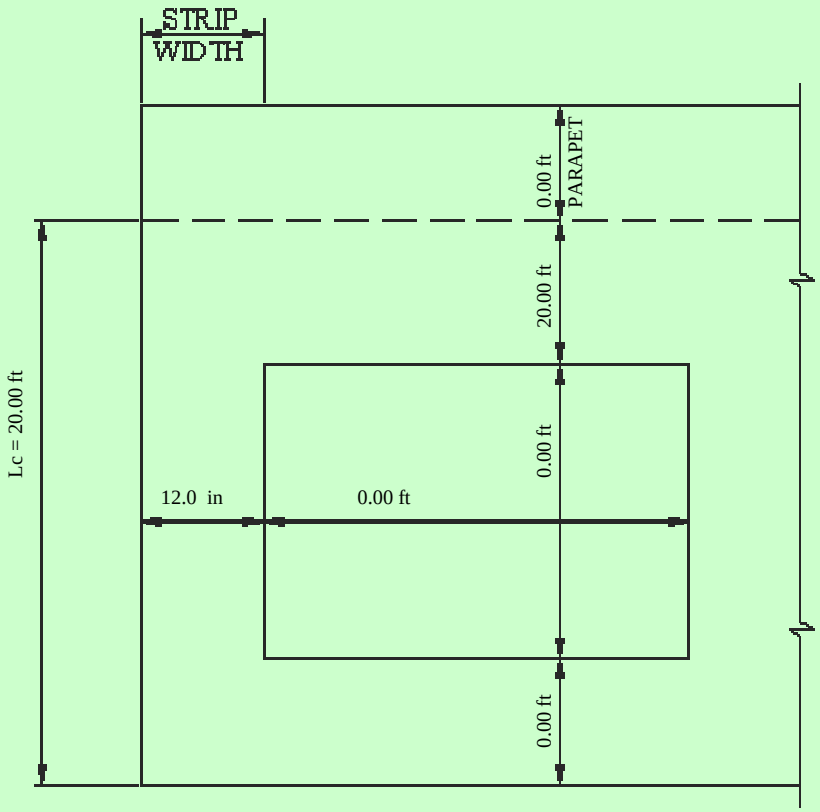


**PANEL ELEVATION**