

## Pads, Piles & Caissons, Rafts,

---

---

---

---

---

---

---

## Shallow Foundations

- Purpose is to distribute building loads into the soil, below the frost depth, in a way that doesn't overload the soil.
- Two common types
  - Spread footing (a.k.a. strip footings) with stemwall foundations
  - Pad footings with column foundations

---

---

---

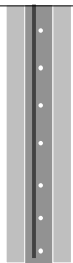
---

---

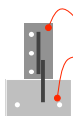
---

---

## Stemwall & Strip Footing



Stemwall & Spread Footing  
Plan view



Section view

- For light loads
- For fairly uniform loads (such as a masonry or wood stud wall)
- When soil with adequate bearing isn't too deep (<16')
- Reinforcing uniformly distributed

---

---

---

---

---

---

---

## Stemwall & Strip Footing relative costs

- Excavation, form/reinforce/pour footing
  - 24" wide and 12" deep \$23.50/lf
- Form/reinforce/pour foundation wall
  - 4 feet high 12" wide \$36.45/lf
  - 6 feet high 12" wide \$66.50/lf
  - 10 feet high 12" wide \$98.50/lf

---

---

---

---

---

---

---

---

## Finding the right strata

- As buildings get taller, or floors are more heavily loaded, or carry the concentrated load of a column the stemwall and strip footing become less efficient at distributing the building loads to the soil.

---

---

---

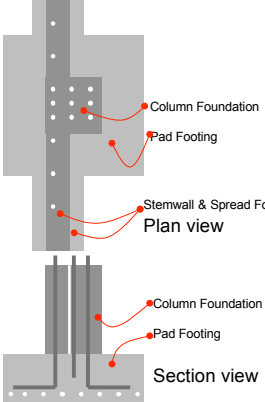
---

---

---

---

---



The diagram illustrates two foundation types: Pad Footings and Stemwall & Spread Footings. The top part shows a plan view where a stemwall is connected to a spread footing, with individual pad footings shown as small squares. The bottom part shows a section view where the stemwall is a vertical wall on top of a wide spread footing, with pad footings shown as small rectangular blocks. Red arrows point from labels to the corresponding parts in both views.

### Pad footings

- Often combined with spread footings especially where columns occur in the exterior wall
- Larger dimension spreads load over more soil area
- Reinforcing more dense in pad and column footing

Labels in diagram:  
Plan view: Column Foundation, Pad Footing, Stemwall & Spread Footing  
Section view: Column Foundation, Pad Footing

---

---

---

---

---

---

---

---

### Pad and Strip footing



---

---

---

---

---

---

---

---

### Pads in progress



---

---

---

---

---

---

---

---

### Jitterbug compaction...in lifts



---

---

---

---

---

---

---

---



Compaction testing with radioisotopes

---

---

---

---

---

---

---

---

Rebar kit for column pads



---

---

---

---

---

---

---

---



Positioning prefab column pad forms

---

---

---

---

---

---

---

---

Column bars, forms ready to pour



---

---

---

---

---

---

---

---

Reinforcing 2



---

---

---

---

---

---

---

---



Keep rebar off the grade

---

---

---

---

---

---

---

---

### Rebar support



---

---

---

---

---

---

---

---

### Fill and vibrate



---

---

---

---

---

---

---

---

### Completed Pour



---

---

---

---

---

---

---

---

### Completed column pads



---

---

---

---

---

---

---

### Pad costs

- 3 foot square, 12" deep \$105.00
- 10 foot square 25" deep \$1,445.00
- 17 foot square 37" deep \$4,900.00

---

---

---

---

---

---

---