

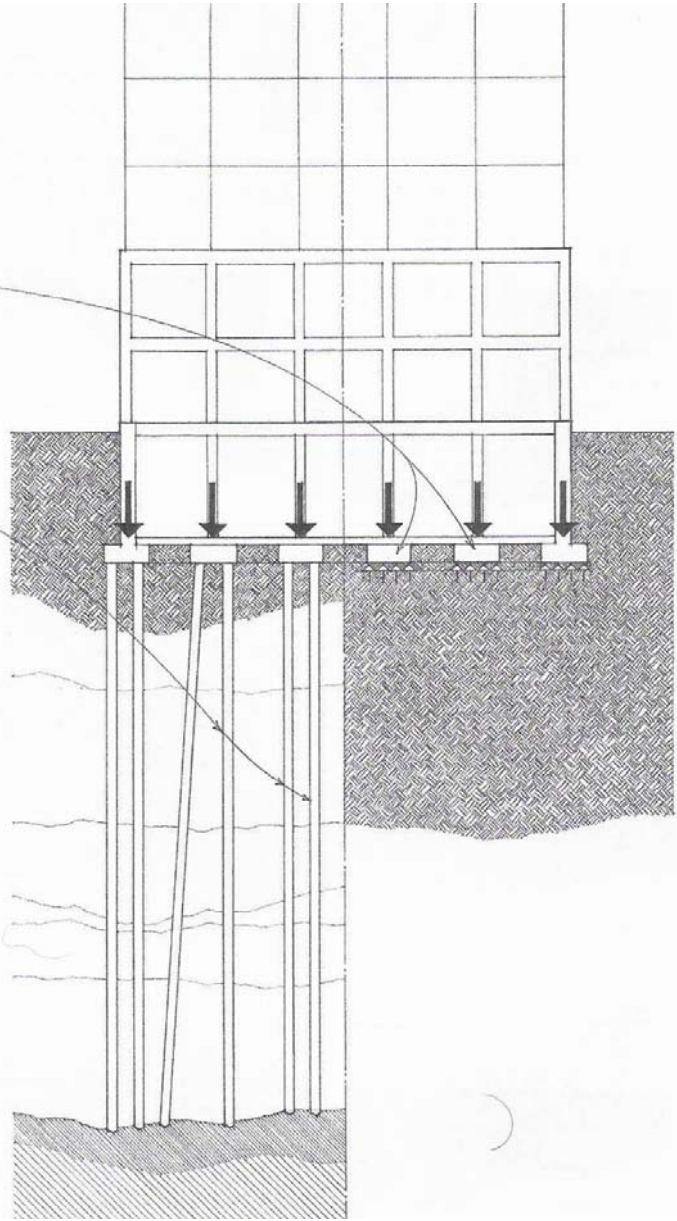
**Class #4 Lab:**  
**Foundation drawings**  
**Case Studies**

1230- Building Tech II  
NYC College of Technology  
Professor: Daniel Friedman AIA LEED AP  
Fall 2012

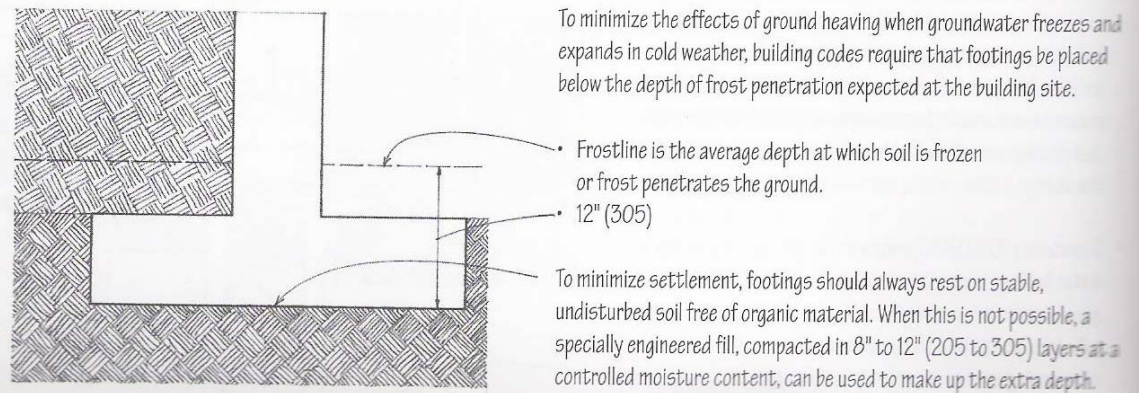
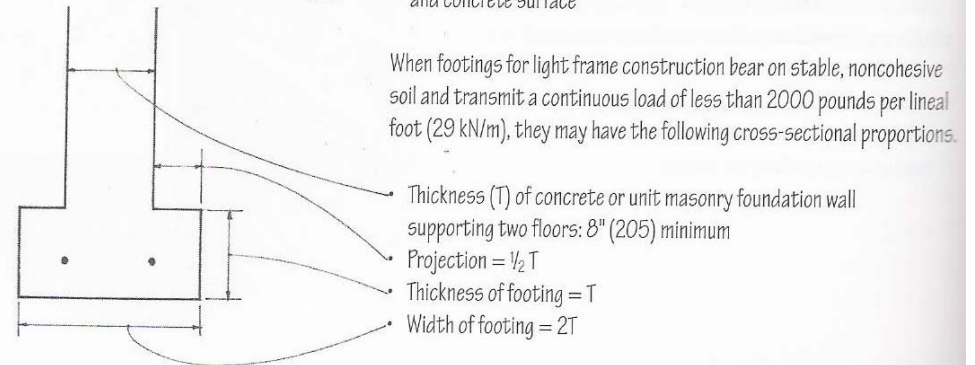
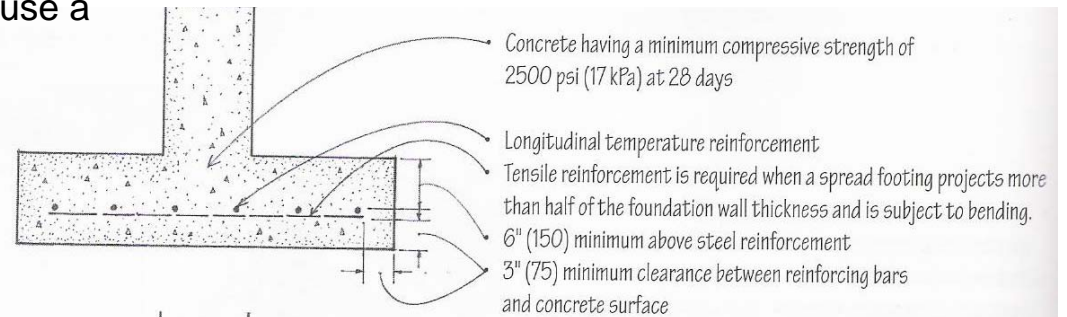
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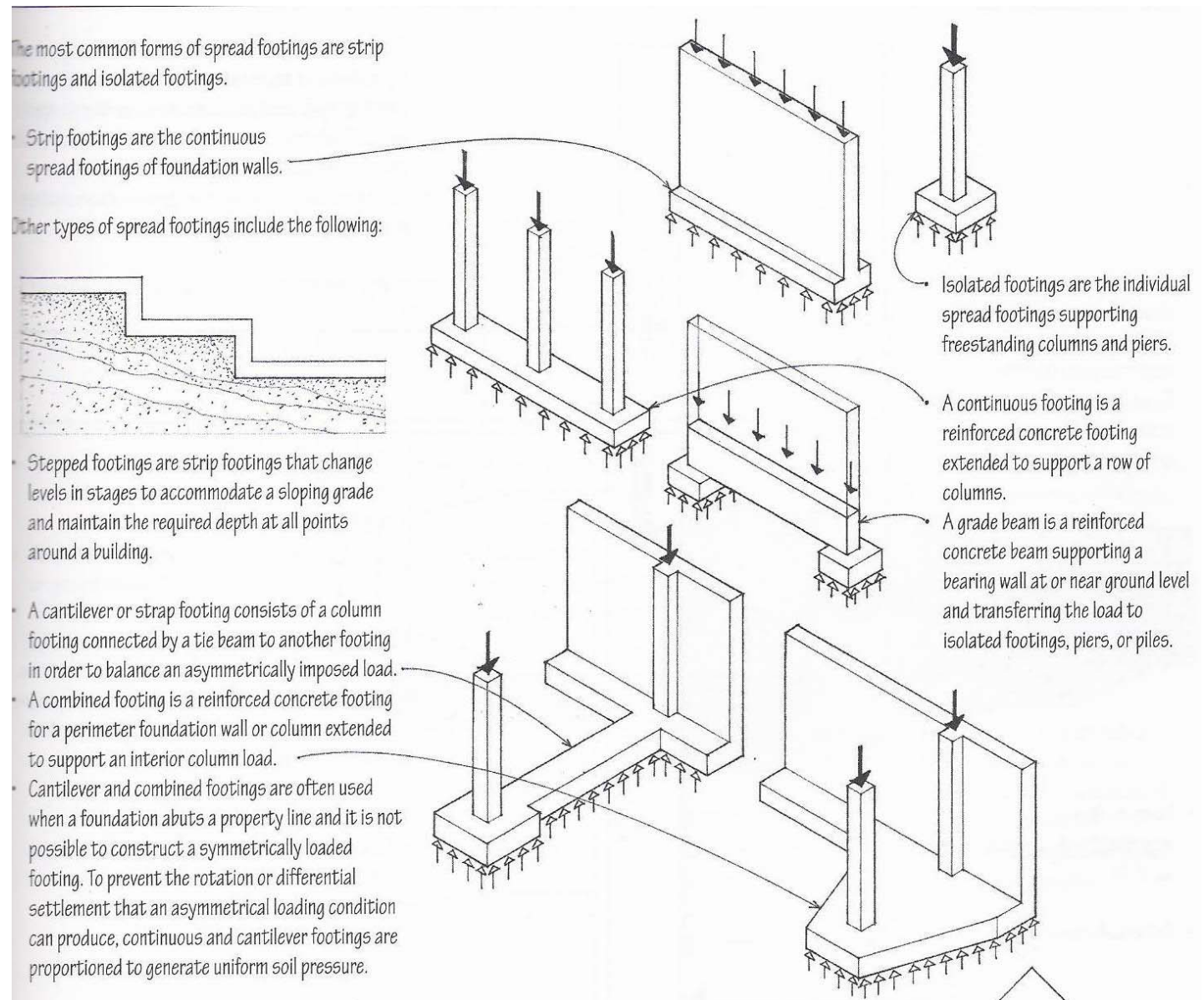
Shallow Foundations

Deep Foundations



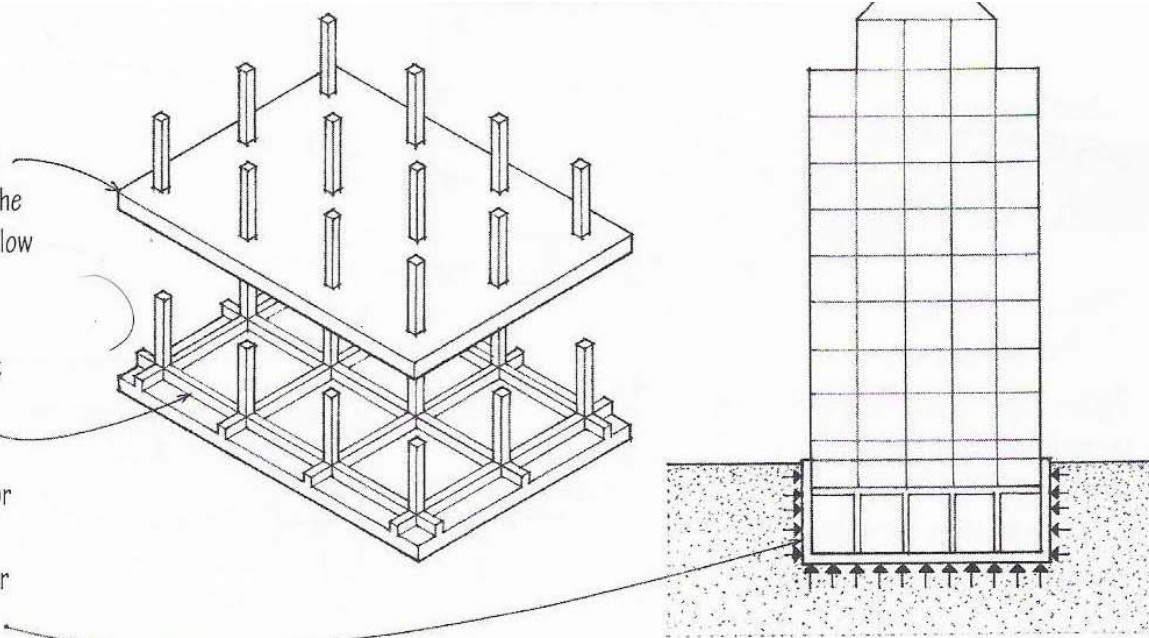
If you have stable soil close to the surface that can carry the weight of the building, then you can use a **Shallow Foundation**...



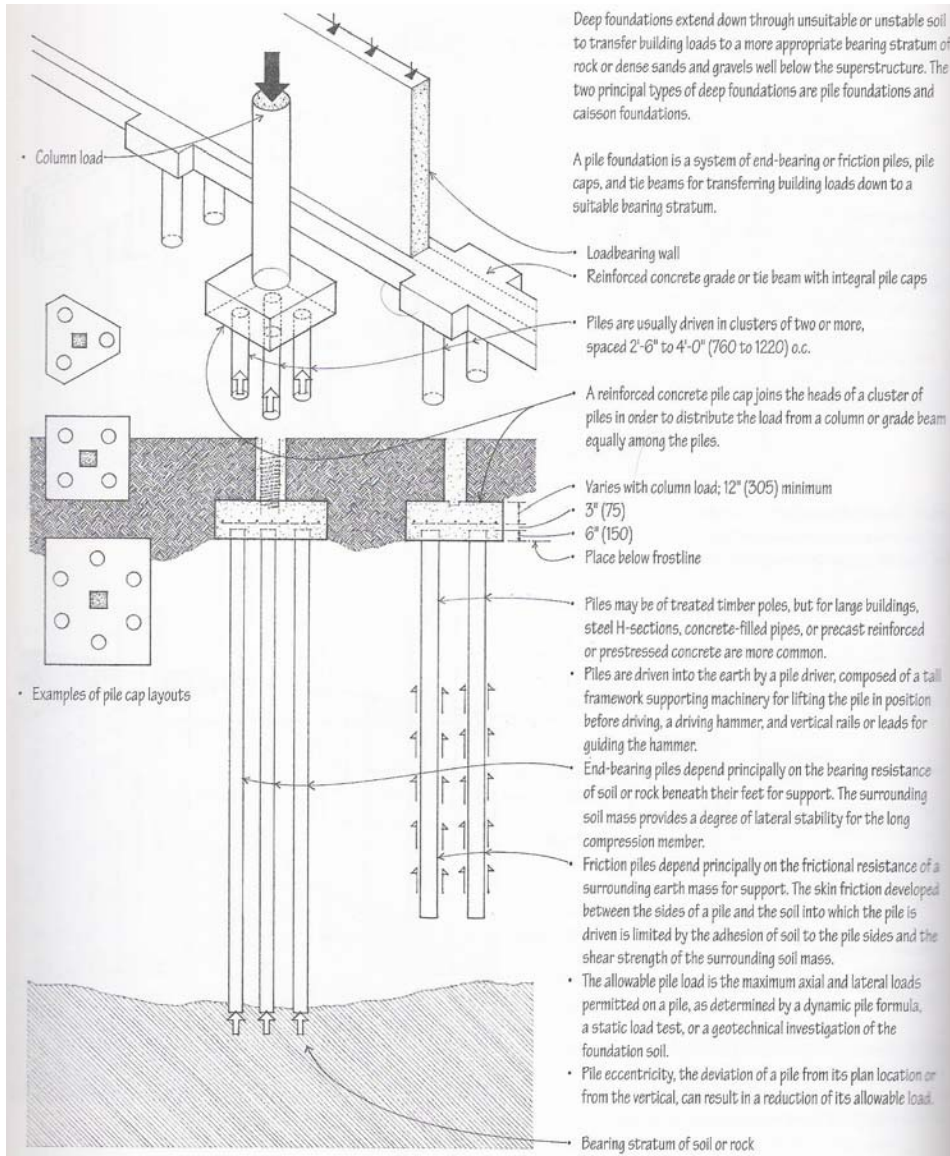


If the soil under the building is unsuitable for carrying the building weight, and stable soil is too far down below the building, then you can use a **mat or raft foundation**...

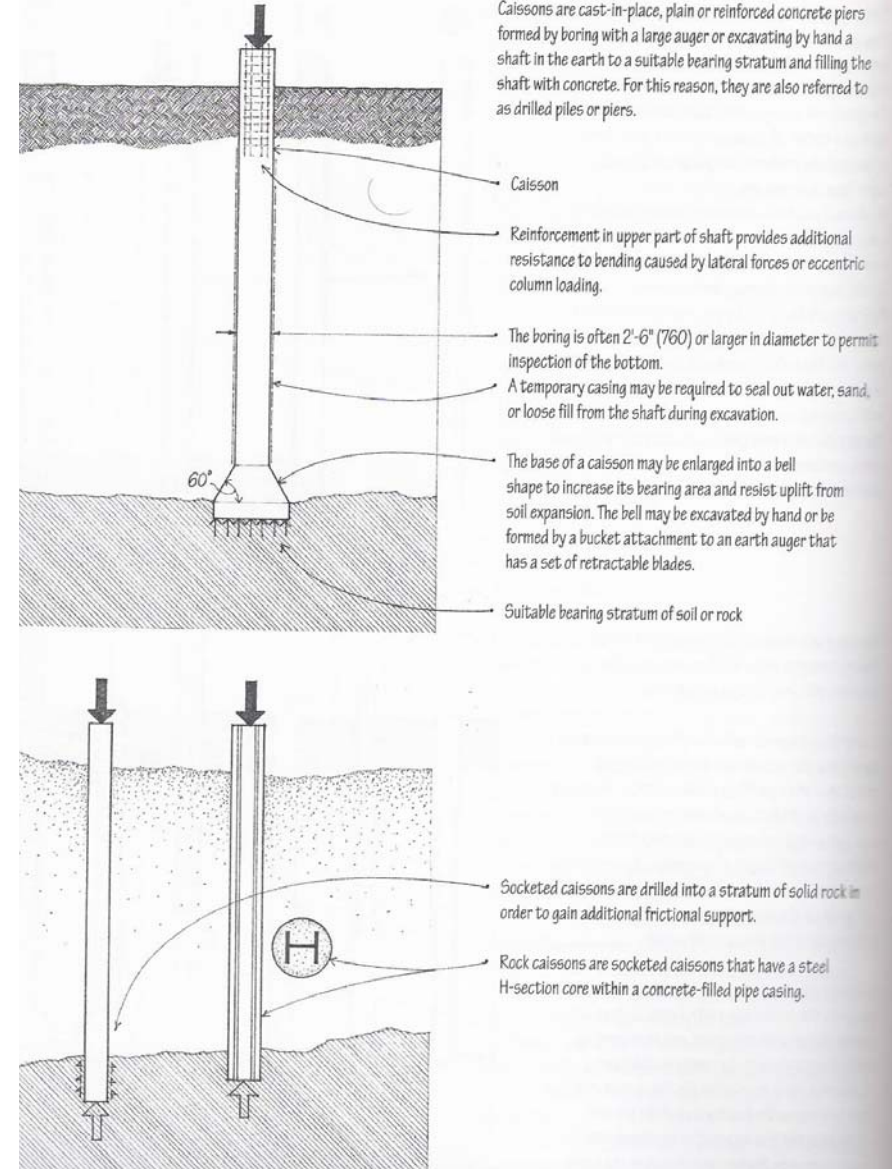
- A mat or raft foundation is a thick, heavily reinforced concrete slab that serves as a single monolithic footing for a number of columns or an entire building. Mat foundations are used when the allowable bearing capacity of a foundation soil is low relative to building loads and interior column footings become so large that it becomes more economical to merge them into a single slab. Mat foundations may be stiffened by a grid of ribs, beams, or walls.
- A floating foundation, used in yielding soil, has for its footing a mat placed deep enough that the weight of the excavated soil is equal to or greater than the weight of the construction supported.



### Deep Foundation- Piles



### Deep Foundation- Caissons

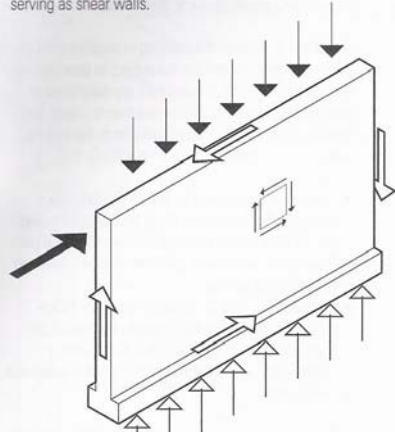


## Foundation Walls

### Concrete Walls

Concrete walls may be precast, either on site or off site; more often, they are cast in place. The advantage of precast walls is in the high quality of concrete finishes that can be achieved and that they can be prestressed. Typically, precast panels are used when the concrete wall will provide the finish wall surfaces. Precast wall panels are particularly appropriate for low-rise buildings that are not subject to high lateral loads.

- Site-cast concrete walls may be used as the primary vertical loadbearing elements of a structure or in conjunction with steel or concrete frames.
- The high fire-resistance of concrete makes it an ideal material for enclosing building cores and shafts, and for serving as shear walls.



- Door and window openings require reinforcement along their edges and corners.

