



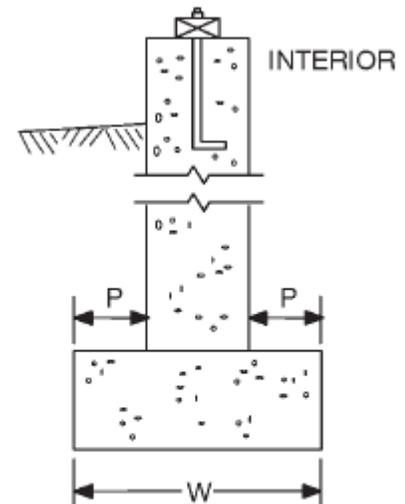
## RECOMMENDED MINIMUM STANDARDS FOR RESIDENTIAL FOUNDATIONS

Community Development Department – Building Services

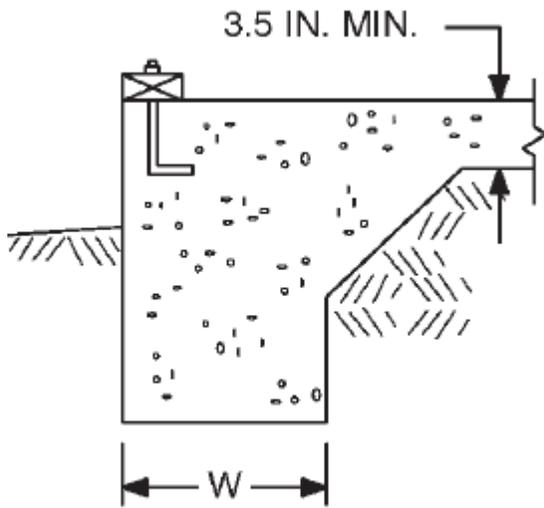
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Adherence to these standards does not preclude the right of the Building Official to require a foundation to be designed by a licensed architect or engineer. These recommendations apply only to situations not affected by groundwater. Recommendations assume horizontal ground surface and minimum surcharge on wall backfill.

- 1) All concrete shall be air-entrained; have a minimum compressive strength of three thousand (3,000) pounds per square inch (PSI) at twenty eight (28) days and be of an approved mix by MCIB or other approved agency.
- 2) Place reinforcing steel as shown on drawing. For eight foot (8') walls, use #4 bars on twenty four inch (24") centers vertically and four (4) #4 bars horizontally (top bar eight inches (8") down from the top of the wall, the bottom bar eight inches (8") up from the footing and all others equally spaced). For nine foot (9') walls, use #4 bars on eighteen inch (18") centers or #5 bars on twenty four inch (24") centers vertically and five (5) #4 bars horizontally. Provide continuous reinforcing around windows and other openings in the wall. All horizontal bars shall lap a minimum of eighteen inches (18") at ends, splices and around corners. Walls taller than nine feet (9') shall be designed by a licensed structural engineer with all appropriate calculations provided.
- 3) Do not backfill any foundation wall over four feet (4') in height until the floor framing has been set in place and anchor bolts tightened.
- 4) Do not backfill any wall before seven (7) days when average air temperature is above fifty (50) degrees and not before ten (10) days when average air temperature is below fifty (50) degrees.
- 5) Backfill with loose, uniform soil, preferably slightly damp. No heavy wheel loading adjacent to the wall will be allowed. Backfill high enough so that water will drain away from the house.
- 6) Seal tie holes, voids and honeycombed areas with sealant before damp-proofing. Install vertical drain to footing drain at all window wells.
- 7) One coat damp-proofing (minimum) shall be applied.
- 8) Install continuous drain tile adjacent to (8a) or on top of (8b) the entire perimeter of basement footings. Cover drain tiles with at least six inches (6") of coarse, clean rock. All drain tile shall be at least three inches (3") in diameter. Cover stone with felt, plastic or other approved material to reduce migration of dirt into the drain. Drain line shall connect to sump with pump or drain by gravity to outlet away from the house.
- 9) Do not place patio or driveway slabs on the fill next to the basement wall unless supported either on supporting ledges or on dowels or by supporting columns carried down to the basement footing.
- 10) To assure adequate drainage away from the foundation, grades away from the house shall slope at a rate of one inch (1") per foot with an absolute minimum rate of one quarter inch (1/4") per foot for the first six feet (6'). Positive drainage shall then be maintained to direct drainage off of the lot.
- 11) Set anchor bolts at the top of the wall four feet (4') on center. Anchor bolts shall be one half inch (1/2") in diameter (minimum) and embedded per applicable code requirements.
- 12) The basement floor shall be isolated from perimeter foundation walls. Interior columns shall be supported on a separate interior footing (not on top of the floor slab). The floor shall be isolation from the interior column.



BASEMENT OR CRAWL SPACE  
WITH CONCRETE WALL AND  
SPREAD FOOTING



- 13) Tighten anchor bolts to secure sill plates, and nail joist to the plates with three (3) 12d nails. Where joist run parallel to sill plates, install adequate header blocking and secure with glue and 12d nails to transfer lateral loads on the wall at the floor diaphragm.
- 14) Soil test and / or the assistance of a licensed structural and / or geotechnical engineer shall be obtained when unusual conditions are encountered. Unusual conditions include, but are not limited to:
  - a. Existing fill soils below footing level.
  - b. Sloping lots steeper than 2 ½ to 1 before grading.
  - c. Lots where some footings will bear on soil and others will bear on rock.
  - d. Lots where expansive soils are expected.
  - e. Areas where problems have occurred historically.
- 15) Inspections will be made in a timely manner. Ideally, contractors should be able to schedule inspections for footings and walls with a two (2) hour notice on a priority basis.