



City of Houston Public Works Department
Code Enforcement Division

CODE WORD

INTERPRETATIONS & APPLICATIONS OF THE ADOPTED UNIFORM CODE

PAGE 1 of 4

PUBLICATION: July 15, 1986 (Original November 8, 1985)
SUBJECT: Policy - Repairs and/or Leveling
Concrete Building Foundations
CODE: Building
CHAPTER: 23, 24, 25, 26, and 27
SECTION: 104 and 301

The purpose of this policy is to establish a minimum standard for foundation repair permits as required by the Houston Building Code and to establish minimum design criteria for repairs and/or leveling concrete building foundations as a substitute for engineer sealed designs and plans.

SCOPE

All repairs without engineer seals must be performed in accordance to the City of Houston Building Code and the requirements of this policy. Engineered designs with appropriate soil test data and calculation will be approved when code compliance is demonstrated.

PERMITS REQUIRED

No person, firm or corporation shall erect, construct, enlarge, alter, repair, move, improve, remove, convert or demolish any building or structure in the city, or cause the same to be done, without first obtaining a separate building permit for each such building or structure from the Building Official.

To obtain a permit the applicant shall first file an application therefor in writing on a form furnished for that purpose by the Code Enforcement Division located at 900 Bagby Street.

REPAIRS AND/OR LEVELING CONCRETE
BUILDING FOUNDATIONS

PAGE 2 of 4

PLANS AND SPECIFICATIONS

With each application for a building permit two sets of plans and specifications shall be submitted to the Building Official. These drawings and/or specifications shall be of sufficient clarity to indicate the nature and extent of the work proposed and show in detail that it will conform to the provisions of the Building Code and the requirements of this policy.

The first sheet of each set of plan shall give the house and street address of the work and the name and address of the owner and person who prepared them. Plans shall include a plot plan showing the locations of the building on the property, including the dimensions of the building, the required leveling and the necessary details and commentary. If the slab, the walls or grade beams are cracked, the location of such cracks should be detailed on plans and elevations indicating the approximate crack widths.

MINIMUM DESIGN REQUIREMENTS

FOOTINGS:

- a. Drilled footings shall be spaced not more than eight (8') feet on centers for one-story wood frame construction with wood siding and not more than six foot (6') on centers for one-story brick or two-story wood frame construction with wood siding.
- b. At least one test boring, fifteen feet deep, shall be made. If possible, it should be located where the worst soil condition is anticipated. The boring shall be located so as to not affect the foundation of the existing building by becoming a water entry source location (locate approximately five or more feet away from building). All strata of the boring shall be identified and located on a boring log. (See example figure #1 a.) Soil identification should be in accordance with the unified soil classification system (see attachment figure #2). A copy of the log of the boring shall be available for review and/or submission to the City of Houston inspector at the time the footings are inspected. Test boring should remain open and fully protected until inspected and approved. It should be immediately filled with compacted material or cement stabilized fill.

REPAIRS AND/OR LEVELING CONCRETE
BUILDING FOUNDATIONS

PAGE 3 of 4

- c. All footings shall be drilled to an approved bearing soil. The bottom of the drilled shaft shall not be less than eight feet (8') below natural grade or a approved by the Building Official. A report from a licensed professional engineer specializing in geotechnical engineering may be required to establish the depth of an approved bearing soil.
- d. Drilled footing shafts shall preferably be nine inches (9") or more in diameter, but no smaller than eight inches (8"). Drilled shaft size verifications shall be made by measurement of auger used and not on hole provided.
- e. Bells for drilled footings shall have a minimum diameter of twenty inches (20").

REINFORCING STEEL:

- a. These No. 4 reinforcing bars shall be used in eight inch (8") diameter shafts. The minimum reinforcement in a nine inch (9") shaft shall be two No. 4 bars and shafts larger than nine inches (9") will require a minimum of three No. 4 bars.
- b. Reinforcing steel for drilled shafts shall be placed no closer than three inches (3") nor more than six inches (6") from the bottom of the reamed bell and shall extend no closer than two inches (2") nor more than six inches (6") below the top of the shaft.
- c. Reinforcing steel extending from the shaft flare into the top of the footing cap. This may be accomplished by providing a lapped splice of not less than twelve inches (12") between the footing cap reinforcement and the longitudinal steel in the shaft.
- d. Reinforcing steel for shafts shall be tied with at least a No. 2 tie spaced not more than eighteen inches (18") on center.

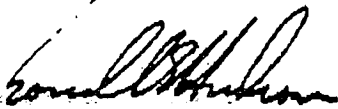
FOOTING CAPS:

- a. Footling caps over drilled footings shall be a minimum of thirty inches by thirty inches (30" x 30") not less than ten inches (10") thick along the edges and bottom of footing cap and shall slope to a minimum thickness of twelve inches (12") at the ace of the shaft.
- b. Reinforcing steel or footing caps shall be two No. 3 horizontally closed ties twenty-four inches by twenty-four inches (24"x 24") placed three inches (3") on center, three inches (3") below top of footling. Two No.3 bars shall bars provided as indicated in attached sketch.

REPAIRS AND/OR LEVELING CONCRETE
BUILDING FOUNDATIONS

CONCRETE:

- a. Ready-mixed concrete shall be used with a minimum of five (5) sacks of cement to one (1) cubic yard of concrete.
- b. If concrete blocks are used in conjunction with the establishment of the final bearing elevation at each pier location the concrete block shall be a minimum of eight inches by eight inches by twelve inches (8" X 8" x 12") with sand and gravel (normal weight concrete) composition with a minimum compressive strength of 3,000 pounds per square inch (psi).
- c. Any contemplated methods utilizing mud or grout jacking, double drilled shafts, soil neutralizing or stabilization agents, friction piers or other techniques shall be noted at the time of plan submittal and must be specified and detailed on the plans.



Ronald E. Hudson, P.E.
Deputy Building Official

Attachment - 4