

# **ACCEPTABLE DESIGN AND ANALYSIS METHODS FOR USE OF EXISTING SLABS-ON-GRADE AS FOUNDATIONS**

## **A. PURPOSE**

This information Bulletin establishes a list of acceptable analysis method for using existing Slabs-On-Grade (SOG) as foundations.

## **B. ACCEPTABLE DESIGN METHODS**

1. The following are acceptable methods to design and analyze slabs-on-grade as foundations:

a. Equivalent Footing

Analysis of allowable loads is modeled by assuming a “saw-cut” square unreinforced section using the conventional working stress method.

b. Integral Footing

Analysis of SOG’s strength using empirical equations developed by the American Concrete Institute. (Design and Construction of Concrete Slabs on Grade, ACI SCM-11(86), American Concrete Institute, Detroit, 1986.)

c. Empirical Method

A method of design and analysis based on a nationally approved or equivalent standard may be used to design slabs-on-grade as foundations. A one-time modification approval from the Department shall be obtained to use this method.

## **C. DESIGN ASSUMPTIONS**

The above methodologies may be used after the engineer has evaluated the limitations of a chosen method for the intended application based on assumptions documented on the plans. The following parameters must be given consideration in the design and the proper documentation shall be supplied to justify assumptions of field conditions:

1. Specified Compressive Strength of Concrete,  $f'_c$ :

a. Assumed to be 2,500 psi., or

b. Core test conducted as per ACI 318-14, Sections 27.3.1.3 and 27.3.1.4.

2. Soil Capacities:
  - a. Assume Allowable Soil Bearing Pressure to be 500 psf., or
  - b. Assume Standard Modulus of Subgrade Reaction, K30, to be 60 pci, or
  - c. Foundation investigation (soil report) approved by the Department, or
  - d. Verified by documentation of approved compacted fill as determined by ASTM D 1557 in Section 7011.3 of the Los Angeles Building Code (LABC) and on file with the Department.
3. Reinforcement steel location, size, and spacing:
  - a. SOG load capacity may be analyzed assuming unreinforced concrete, or
  - b. SOG reinforcement verified by documentation from drawings on file with the Department, or
  - c. SOG reinforcement verified by a test.
4. Slab thickness verified by:
  - a. Information from drawings on file with the Department, or
  - b. Test methods listed in the Code, or
  - c. Interior SOGs of commercial or industrial buildings may be assumed to be 3 inches thick without testing, or
  - d. Interior SOGs of residential buildings may be assumed to be 2 inches thick without testing.

#### **D. INSPECTION**

1. Structural Observation:

The Structural Observer shall use the criteria established on the plans to confirm the installation of structural members supported by SOGs relative to cracks, slab edges, piping, conduit, and other slab openings. The Structural Observer shall report findings to the Building Inspector pursuant to Section 1704.6.1, item #5 of the LABC.

2. Field Verification by the Building Inspector:
  - a. The thickness of new SOGs will be confirmed during inspection of holes drilled in the concrete slabs for attaching anchor bolts shown on plans.
  - b. The size, location, and spacing of reinforcement in existing SOGs shall be confirmed using methods approved by the Department as indicated on the approved plans.