

# Foundation Construction, Insulation, Defects and Repairs

## Course Guide

### Course Objective:

Seldom do we give much thought to what goes on below floor level in the homes that we live in or homes that we build. We are going to look at several aspects of foundation construction, the required installation of foundations, as well as discuss the causes and effects of foundation damage. We will explore what happens when the earth and foundation move beneath our feet. We will end the course with the many methods that have been developed to repair those foundation defects.

### Learning Objectives:

At the end of this course, home inspection professionals will:

1. Define terminology and principles of footings as well as foundation types and requirements.
2. Gain an understanding of foundation insulating systems and materials.
3. Identify the reasons for foundation deficiencies.
4. Describe current foundation repair methods and materials.

### Course Description:

This course begins by reviewing the 3 main types of foundations; basement, crawlspaces, and slab on grade. We then move into foundation building codes for footing requirements, such as the sizes and depths. We will also look at the different types of footings in this section. Next, we will explore foundation walls. We will discuss concrete and masonry walls along with the requirements for backfilling around each type of wall.

We will then shift our focus a bit from dealing with the construction of footings and foundations to a subject that has been widely debated through the years. Is it better to ventilate traditional crawlspace foundations, or to encapsulate them? This debate has raged on for years so we will take a brief look at the two possibilities in this course. Our objective during this section of the course is to make a comparison, to consider current methods and theories on which method is best, and to compare the positive and negative aspects of each.

Since we are dealing with what goes on below floor level it is imperative that we take a quick look at insulation requirements for crawlspaces and basements. Insulation requirements in North Carolina are determined by the climate zone where the structure is located. We will review several of the insulation options available.

The final segment in this course deals with foundation defects, deficiencies and some of the repair techniques which are now available. Although the evaluation of structural deficiencies and defects in foundations should be left to professional engineers; as general contractors it is imperative that we realize what causes the defects and what some of the repair techniques are.