Foundation Maintenance Program Bulletin

Foundation problems associated with expansive clay are usually caused by a moisture imbalance in the expansive soils which expand when wet and shrink when dry resulting in foundation deflections and differential settlements. The chances of foundation distress and failure are reduced significantly when the moisture content of the active supporting soil layer at the perimeter of the foundation is maintained uniformly.

Before any foundation maintenance can be effectively implemented, it is imperative that proper drainage be provided. This could necessitate re-contouring existing grade, placing fill dirt at perimeter grade beams, placing splash blocks at downspouts to prevent soil erosion, extending downspouts beyond landscaping beds, and other specifics unique to a particular site. Water should always be directed away from the house and there should be no ponding of water near the foundation. Care should be taken to insure that soil is from approximately six inches below the top of the perimeter grade beams. The soil should be sloped approximately one inch per foot to direct water at least three feet away from the perimeter of the foundation, from that point water should be directed off the property with no ponding. Drainage changes over time due to landscaping and erosion. The yard should be periodically observed during precipitation and areas with poor drainage should be improved.

The moisture content of the soil at the perimeter of the foundation should be slowly increased and maintained uniformly during all seasons. This is best accomplished by placing a soaker hose two to three feet from the foundation and regulated to a flow of one-fourth (1/4) inch in height until water is observed standing on the ground. The volumetric expansion of the active soil will now provide uniform support for the foundation. Watering should be repeated when drying cracks are observed or when the soil is evidently dry.

Trees and shrubbery can produce an adverse effect on the foundation. Their roots sap moisture from the soil both at the perimeter and under the slab. This lowers the moisture content of the active supporting soil layer that can cause differential movement of the foundation. In certain instances, severing roots at the foundation may be necessary.

Guttering is an extremely helpful tool in water containment; however, it is normally not necessary where proper drainage is provided. On gabled ends or sides of the house where there is no runoff, more watering will probably be required than at other locations. During hot, dry seasons, the south and west sides of a house may require more watering than the north and east sides which are shaded and therefore not exposed to as much direct sunlight.

The possibility of major foundation movement can be reduced if the supporting soil is well maintained. Through implementation of sound maintenance concepts, the extent of distress transmitted to the structure will be reduced.