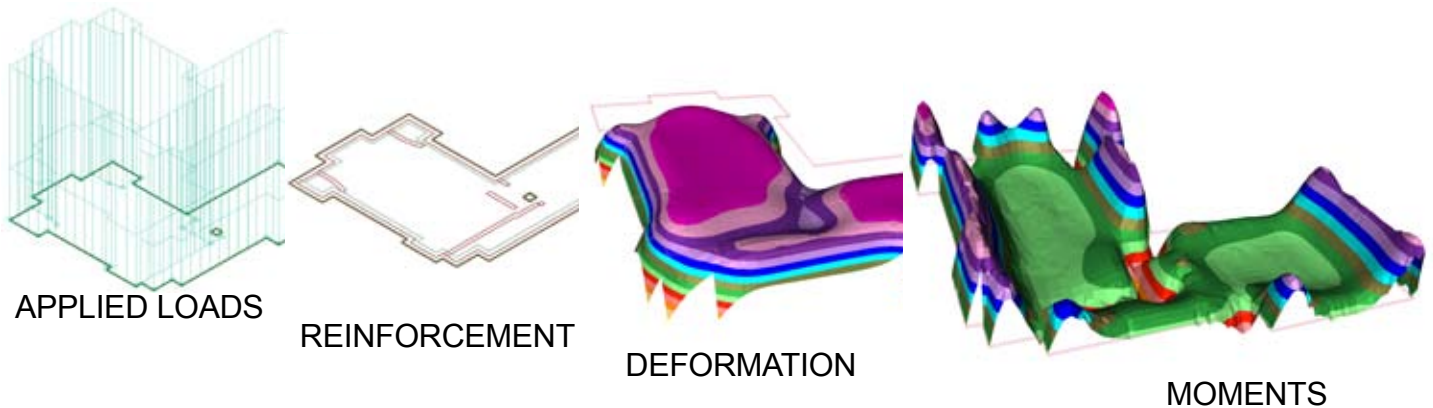


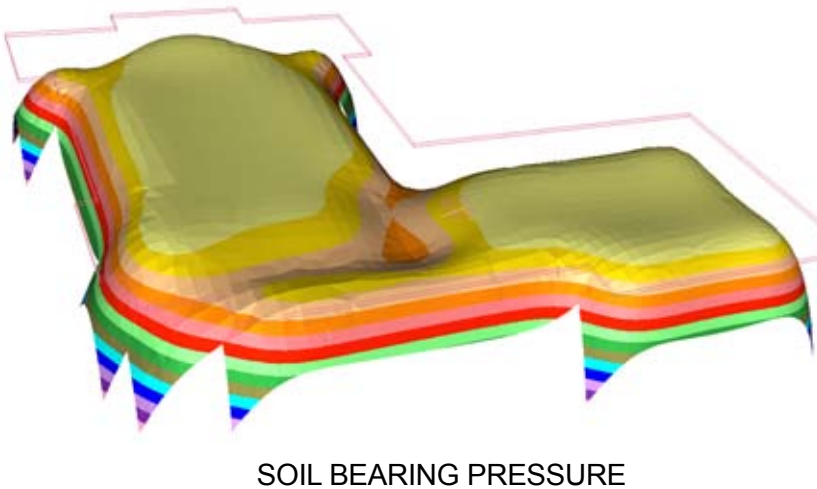
The LEGALETT Engineered GEO-Slab (Frost Protected Structural Foundation) makes it possible to build in all soil types. The robust GEO-Slab design approach makes it suitable for a multitude of ground types. In addition to good quality soils, this includes soil types that are simply not practical with traditional foundation designs, thus allowing the builder to make good, profitable use of areas that would otherwise have to be abandoned. Poor soils that would only be encountered at the depth of traditional foundations are also avoided by the GEO-Slab System at the surface.

STRUCTURAL SLAB



A Legalett GEO-Slab is a modified raft foundation and is a composite design based on a combination of reinforced and non-reinforced concrete and integral structural Expanded Polystyrene (EPS) insulation. A relatively low combined modulus of sub-grade reaction (spring constant) is used for steel design to include all typical soil types including soils with low bearing capacities. The raft-style foundation allows edge and interior point loads to be spread out to keep native-soil interface bearing pressures very low, in contrast with a typical strip footing that concentrates the edge load on a narrow strip foundation. GEO-Slabs are thermally stable and are not in contact with the sub-grade material, eliminating the need for saw cuts or construction joints, even in slabs up to 15,000 sq.ft. The design includes full finite element structural modeling to verify site specific reinforcing requirements in accordance with the Building Code.

SOIL LOADING



Typical soil bearing requirements for a traditional footing are 150 kPa (3,000 psf). For most designs, LEGALETT specifies 50 kPa (1,000 psf) as the maximum loading at the native soil interface which covers most soils. If soils with a lower bearing capacity are encountered, the design soil bearing pressure is specified, which is generally in the order of 20 kPa (400 psf) depending on building configuration. If lower bearing pressures are desired, a combination of techniques can be used to lower the applied bearing pressure even more.

PROBLEM SOILS

LEGALETT recommends that a qualified geotechnical engineer investigate the building site to establish the existing sub-grade characteristics for a cost effective LEGALETT solution in areas of poor quality soils.

UNCONSOLIDATED FILL

Poor soil sometimes include areas with uniform but unconsolidated fill. Normal foundation designs would require that the unconsolidated material be removed and replaced with engineered fill. A LEGALETT foundation can be designed for the available soil bearing capacity.

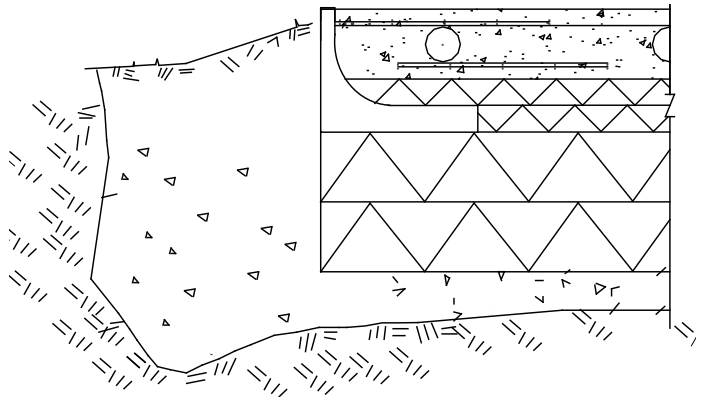
EXPANSIVE SOILS

Expansive soils are clays that swell and shrink with varying water content. Traditional foundations influence the 'active zone' by changing the natural heat and moisture flow within the clay in a non-uniform fashion, causing localized disturbances, especially at the building edge, causing building edges to lift or fall. LEGALETT's Water Shield Design stabilizes heat and moisture flow under the structure by using EPS wing insulation which extends the effective building boundary to prevent edge effects under the building. A Legalett foundation behaves in a uniform fashion, just like the native soil. Refer to the [Expansive Soils PDS](#)

COMPENSATED FOUNDATIONS

If further-reduced soil loading is desired due to very poor soils, or for higher building loads on marginal soils, then Legalett employs a compensated foundation. The load or weight of the building is established and an equal weight of soil is removed. This creates a Zero Net Load on the native material. Foundation compensation is accomplished by thickening the EPS layer under the slab system to fill the void left by the removed soil. Expensive, complicated and time consuming foundation systems such as piling are no longer necessary.

LEGALETT also gives a cost effect solution for building in Northern areas, where bog and muskeg are present.



PERMAFROST

LEGALETT can be designed for Permafrost, using similar techniques to a compensated foundation. Permafrost areas typically have very poor soils when thawed. The low bearing pressure of the slab prevents settlement of the foundation. The use of a super-insulated slab means that the active layer will not be affected by the building. The slab can also be designed to store domestic water and wastewater in remote areas.



HIGH GROUND WATER TABLES

Many areas have soils with high ground water tables. Legalett can be built ON the ground instead of in it. Normal deep foundations, and their required sump pumps, are eliminated with LEGALETT. LEGALETT only requires that the top of the slab be 20" above the high water table.