b. Stationary live loads. Stationary live loads are expressed in terms of maximum allowable pounds per square foot. These loadings are given in table 3-1. The method used to determine the allowable loads is based on the concrete flexural strength, the slab thickness, and the modulus of subgrade reaction. Entering table 3-1 with the flexural strength and the slab thickness, the allowable stationary live load can be selected. Based on the modulus of subgrade reaction, the load is adjusted using the constant factor given in the note (table 3-1).

c. Wall loads. Stationary-partition loads are expressed in terms of pounds per linear foot. These loadings are given in table 3-2. The method used to determine thickness, \( t \), of the thickened floor slab is based on the concrete flexural strength, the load, and the modulus of subgrade reaction. Entering table 3-2 with the flexural strength of the concrete and the load, the concrete thickness is selected, based on a modulus of subgrade reaction of 100 pci. The thickness is adjusted using the constant factor given in the note (table 3-2), for other subgrade moduli.

d. Design procedures for stabilized foundations.

(1) Soil stabilization or modification. Soils that have been treated with additives such as cement, lime, fly ash, or bitumen are considered to be either stabilized or modified. A stabilized soil is one that shows improvement in load-carrying capability and durability characteristics. A modified soil is one that shows improvement in its construction characteristics but which does not show an increase in the strength of the soil sufficiently to qualify as a stabilized soil. The principal benefits of soil modification or stabilization include a stable all-weather construction platform and a reduction of rigid pavement thickness requirements when applicable, swell potential, and susceptibility to pumping and strength loss due to moisture.

(2) Requirements. The design of the stabilized or modified layers will follow TM 5-822-4, and TM 5-818-2/AFM 88-6, Chap. 4. To qualify as a stabilized layer, the stabilized material must meet the unconfined compressive strength and durability requirements in TM 5-822-4; otherwise, the layer is considered to be modified.

(3) Thickness design. The thickness requirements for a rigid pavement on a modified soil foundation will be designed as if the layer is unbounded using the \( k \) value measured on top of the modified soil layer. For stabilized soil layers, the treated layer will be considered to be a low-strength base pavement and the thickness determined using the following modified partially bonded rigid overlay pavement design in equation 5-1:

\[
h_o = \sqrt{h^{1.4} - \left(0.0063 \times \sqrt{E_f h_s}\right)^{1.4}}
\]

where

- \( h_o \) = thickness of rigid pavements overlay required over the stabilized layer, inches
- \( h \) = thickness of rigid pavement from design chart (fig. 5-1) based on \( k \) value of unbound material, inches
- \( E_f \) = flexural modules of elasticity (as determined by ASTM C 78)
- \( h_s \) = thickness of stabilized layer, inches

e. Design Examples. Example design problems can be found in appendix C.

5-3. Subgrade.

a. Compaction. Compaction improves stability of most subgrade soils and provides a more uniform foundation for the floor slabs or base course. Method 100 of MIL-STD-621, Compaction Effort CE 55, should be used to determine the compaction characteristics of the subgrade soils. During construction, prolonged exposure of the subgrade to the atmosphere may allow overwetting or and drying therefore should not be allowed.

b. Cut sections. With the exception of areas of special soil, the top 6 inches of subgrade in cut sections should be scarified and moistened to approximately optimum moisture content and compacted. Cohesive subgrade soils should be compacted to a minimum of 90 percent of CE 55 maximum density and cohesionless soils to a minimum percent of CE 55 maximum density.

c. Fill sections. With the exception of fill composed of special soils, all fills composed of cohesive materials should be compacted to minimum of 90 percent of CE 55 maximum and all fills composed of cohesionless materials should be compacted to a minimum of 95 percent of CE 55 maximum density. Some adjustments, for compaction requirements may be necessary for fills of expansive soils.

d. Cut-to-fill sections. When a rigid floor slab is located partially on a fill area and partially on a cut area, the compaction requirements set forth in the preceding paragraphs should be followed. The depth of subgrade compaction in the cut area should be increased to 12 inches.