ENSOFT, INC.
ENGINEERING SOFTWARE
3003 West Howard Lane
Austin, Texas 78728

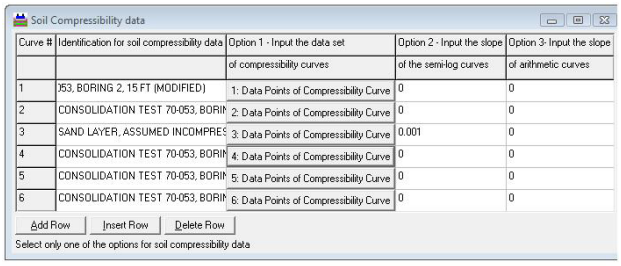
Phone: 512-244-6464
Fax: 512-244-6067
E-mail: sales@ensoftinc.com
www.ensoftinc.com

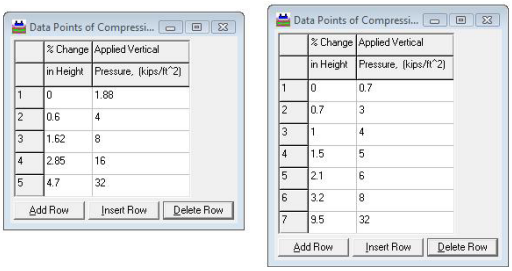
SETOFF v3

A Program for the Analysis of Foundation Settlement

PROGRAM DESCRIPTION

The computer program SETOFF analyzes foundation settlement of shallow and deep foundations by commonly-accepted procedures. Settlement of structures supported on footings and mats was a mystery to designers and constructors for a long time. In 1925 Karl Terzaghi published his book "Erdbaumechanik" where an explanation of the settlement phenomenon was given. This initiated increased activity in the observation of actual structure settlement and in the development of computational procedures to predict such settlements. The computation of settlement for structures supported on soil-supported footings or mats has become a required procedure in geotechnical engineering.





The total settlement of a foundation is generally considered to consist of two parts, elastic and consolidation settlement. Elastic settlement occurs because of the pseudo-elastic nature of most soils and it occurs immediately on application of the foundation load. Consolidation settlement takes place as the pore space in the soil is reduced under the foundation loading and it may require a period of time to be fully developed. The elastic settlement may not be important because it takes place during construction as the structural loads are added. Because of this, some compensation for the elastic settlement may take place during construction. This does not mean, however, that elastic settlement should be overlooked.

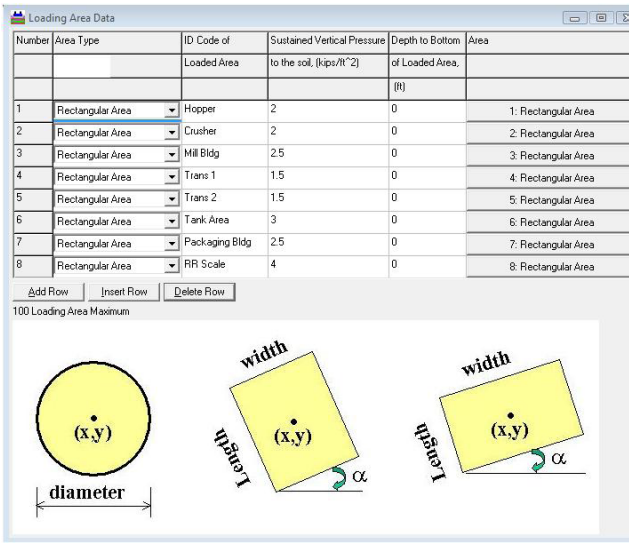
SETOFF computes the settlement under 100% consolidation, but will not provide the information for the percentage of consolidation versus time.

METHOD OF SOLUTION

The computations in SETOFF follow a conventional settlement analysis in which the soil profile is divided into a number of layers, the average stress increase from all of the foundation-loaded area is determined for each layer, and the change in thickness for each layer is computed using the appropriate compressibility for the layer. The foundation settlement is the sum of the changes in the layer thickness.

Analyses of consolidation settlement may be divided into three parts. The first part is the determination of the soil stratigraphy and the representative properties of the soil in each stratum. The second part is the computation of the stress increase at pertinent points in the subsurface soils due to the foundation loading. The third part is the computation of settlement using the data from the first two parts. The computer program SETOFF will perform the last two parts.

Foundation settlement is always very specific. The actual settlement observed in the field will depend on actual foundation loads and soil conditions and not on values assumed for design. The foundation loading used should be the actual sustained loads and not the maximum design loads. If the rebound from an excavation is to be computed, the input soil compressibility should adequately represent the action of the soil under reducing stress as well as increasing stress; this may not be the unmodified results from consolidation tests.



SETOFF v3

A Program for the Analysis of Foundation Settlement

PROGRAM FEATURES

• Subsurface conditions can be specified by up to 50 layers and by up to 50 soil compressibilities.

• The soil compressibilities can be defined in three ways:

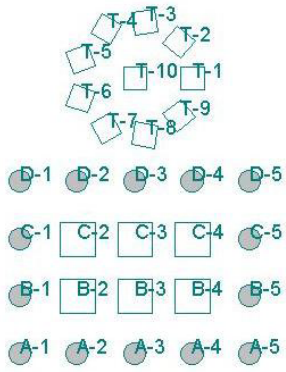
(a) Semi-log percent vertical strain vs. log applied pressure curve defined by up to seven straight-line segments which in turn are defined by up to eight points on the curve.

(b) The slope of a semi-log percent vertical strain vs. log applied pressure curve.

(c) the slope of an arithmetic percent vertical strain vs. applied pressure curve.

• Settlement may be computed at up to 25 points due to loads from up to 50 loaded areas.

• The loaded areas may be rectangular and/or circular in shape, in any order and combination, and they may be placed at any depth.



Example of Foundation Layout Plan

• The applied pressure for a loaded area may be negative to represent excavation.

• The program accepts either S.I. units or English units.

• The program allows users to enter shallow foundations as well as deep foundations. Each foundation loaded area is identified by a name with up to four alphanumeric characters. For deep foundations, the pile cap dimension and the depth of deep foundation are required. The shape of each loaded area is represented by either rectangular or circular. The maximum number of the loading area including both shallow and deep foundations is 100.

• The files of input data and output data are text based and may be directly accessed from within the SETOFF program, employing the user's preferred text editor or word processor.

• The Graphics menu contains quick observations of results contained in the output file.

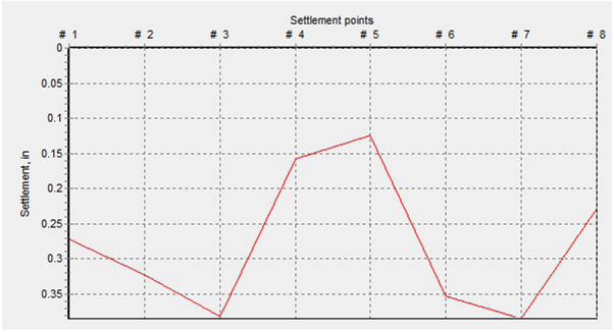
• The program displays a three dimensional model of the soil stratigraphy and layout of foundations. This is a very useful view to check the locations and number of foundations and the soil stratigraphy. The 3D View toolbar allows you to manipulate the view of the soil and foundation model from different angles.

• A well-documented manual is provided with the relevant theoretical background and guidance to input screens.

• The computer program SETOFF was written for Windows-95/98/NT/2000/Vista/7/8 platforms and uses a graphics interface for data entry.

SOFTWARE SUPPORT

All users are strongly supported in technical aspects related to the proper usage of our computer software. The initial purchase of the program includes the cost of software support that is usually provided by competent engineers and software programmers. However, support is only provided to users of the latest version of our programs. Upgrade costs cover new program enhancements as well as renewed technical support. Software is usually upgraded in cycles of 12 to 18 months.



COMPANY BACKGROUND

ENSOFT, INC. uses modern computational techniques and broad experience to obtain fast and reliable solutions to engineering problems. Thousands of private companies, government agencies, and universities from the United States and 90 other countries have selected software developed by ENSOFT, INC. for their various engineering projects.