

VERSAT - S2D & VERSAT - D2D

Version 2010

STATIC AND DYNAMIC 2-DIMENSIONAL FINITE ELEMENT ANALYSIS OF CONTINUA

- USING WINDOWS XP, VISTA, & WINDOWS 7

Revision Bulletins

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A. VERSAT-S2D:

1. It is the same as Version 2009, i.e., there is no change made in this version.

B. VERSAT-D2D:

The following changes are made in addition to Version 2009

2. NRVSUB is moved from the main input file (*.dyn) to the acceleration input file (*.eq1). NRVSUB = number of sub time step [default=1]: 0 for no modification to the ground motion data and time interval provided in *.eq1, 1 for inserting one point, 2 for inserting two points, 3 for inserting three points, and so on, to two consecutive data. All sub time steps are created by linear interpolation of acceleration data and time interval DT.

Setup Dynamic Run

number of elements having stresses (NPRE)

Locations of motions/Loads (NBF)

Hori Base Shaking

Hori + Vert Base Shaking

Forces at Nodal Points

viscous damping (% mass)

viscous damping (% stiffness)

time interval (s) for saving output

time interval (s) to update viscous damping

PWP not generated after this time (sec)

static iterations at end of dynamic loads

NOTES:

*EQ1 (hori base accelerations, or forces)

*EQ2 (vert. base accelerations), and

*PRX (existing stresses when NPRE>0)

are to be prepared manually.

Format for EQ1 & EQ2:

Line 1: Title

Line 2: NPOINT, DT, FAMPL, NRVSUB

Line 3: NLINE, NoPerLine

... data separated by comma (m/s², ft/s²

for accelerations, or kN/m for forces)

To modify

List A List B List C List D

A. List of Nodes/Elements for Time Histories

node/element no. & response code(1 to 6 for node; -1 to -6 for elem)

B. List of Nodes on Free Field Stress Boundaries

nodes with free field stress boundary=0

C. Define Locations of Dynamic Loads

ndof & fdof

D. Applying Water Tables

point x-coor y-coor of water table

Node Num	Fx	Mxy	Fy
(null)	(null)	(null)	(null)

SPECIFY water level for updating with time water loads on an under-water surface, ywt0 (0, function not used)

3. A new material type of **Silt** is added in the window for "Input material parameters". The associated input parameters include r_{u0} , gam_{H0} , $gamm_H$. The **Silt** model has been turned off in the commercial version 2010. This model is only available for certain research projects.
4. The pore water pressure (PWP) model parameters corresponding to **Sand** should be used in a non-linear effective stress analyses for granular soils.
5. The end.

