



# **USER MANUAL**

**PLPak Version 1.01**

**STRUCTURAL ANALYSIS SOFTWARE USING BOUNDARY  
ELEMENTS METHOD**

**PLPAK basic tutorials**

**Tutorial 23 – PLView input tables and .in input**

CONTACT DETAILS:

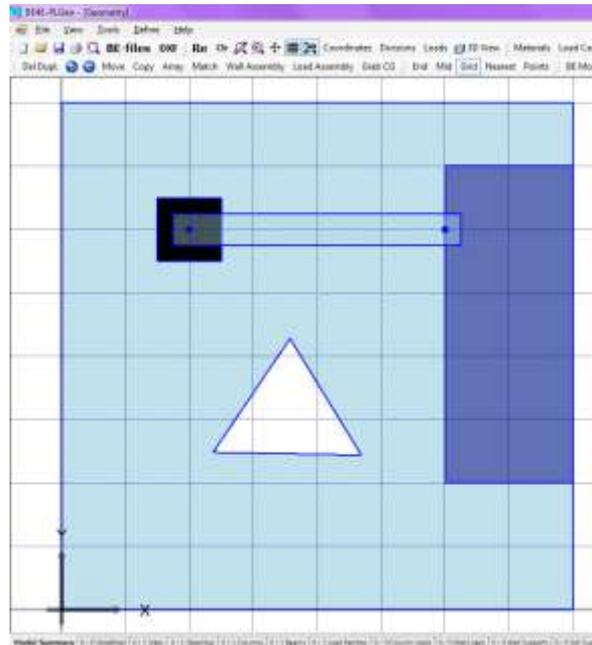
[www.be4e.com](http://www.be4e.com)

[support@be4e.com](mailto:support@be4e.com)

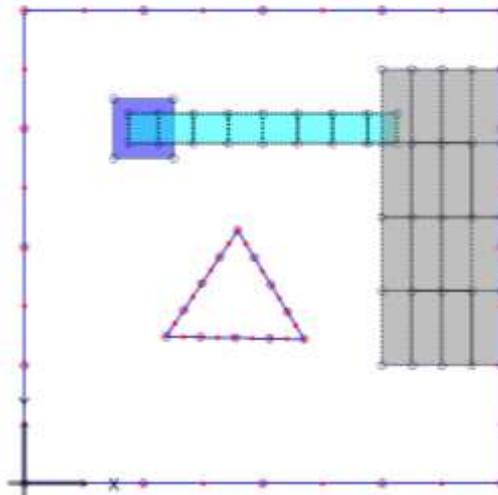
## Tutorial 23

The objective of this tutorial is to demonstrate how to use the input tables in the PLView.

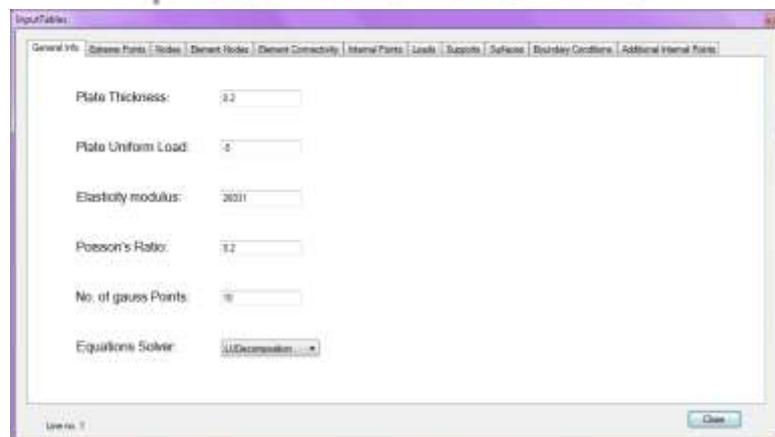
I – In PLGen, draw a slab, a column, an opening, a beam and a patch load.



II – Click on BE model to open the file in PLView. Click on the input file button to open the input table. Enable nodes and extreme points.



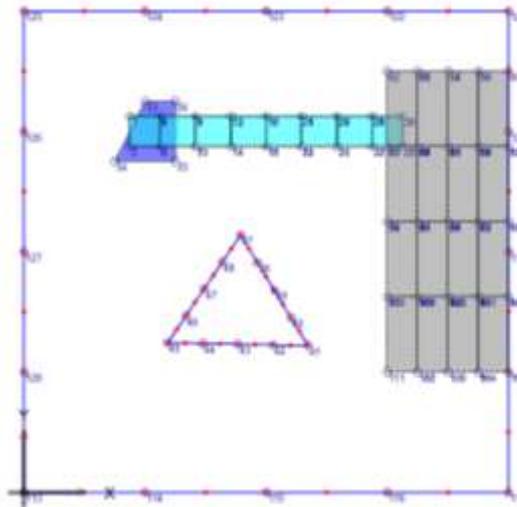
III – The shown window appears.



IV - The PLViewer can be used as an editor. The location of an extreme point can be changed. For example change extreme point 2.875 to a value 1. Discontinuous elements can be created by editing the coordinates of the extreme points through the creation of another extreme point.

Node ID	X	Y
16	2	-3.125
17	2	-3.125
18	2	-2.875
19	2.250007	-2.875
20	2.250007	-3.125
21	2.250007	-3.125
22	2.250007	-2.875
23	2.500010	-2.875
24	2.500010	-3.125
25	2.500010	-3.125
26	2.500010	-2.875
27	2.875	-2.875
28	2.875	-3.125
29	3.125	-2.875
30	3.125	-3.125
31	2.875	-3.125
32	2.875	-2.875
33	2.25	-3.25

V – The plot appears as shown.



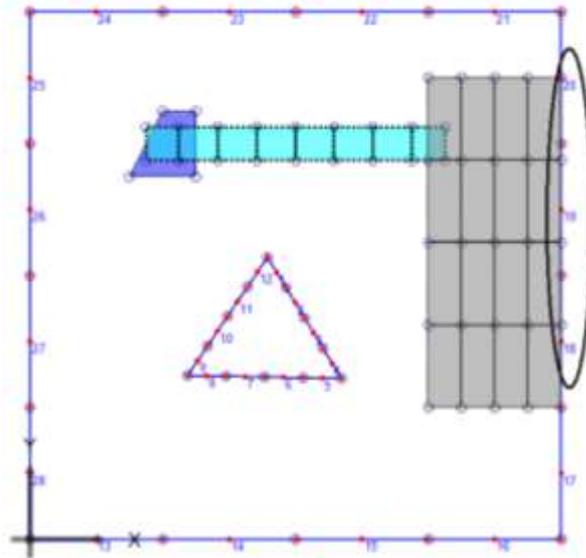
VI – Under the Boundary Conditions tab a boundary line load can simulate a glass panel or curtain wall that is on the edge of the slab and which thus puts a load on the slab.

There are two components for the three determinants of each node, the upward force  $U_z$ , and rotation about X and Y. The first column represents the node code, the node code can either be 0 or 1, 0 representing a fixed element thus the rotation  $R_x$  is known, 1 represents a free element thus the traction is known, the second column for that determinant is  $R_x$ .  $R_x$  value is the value of  $R_x$  or  $M_x$ . The second determinant is  $R_y$ , same case applies in terms of identifying the node, 0 representing  $R_y$  is known, 1 representing that

Node ID	Value Uz	Node 1Rx	Value Ry	Node 1Uz	Value Uz	Node 2Rx	Value Uz
1	0	1	0	1	0	1	0
2	0	1	0	1	0	1	0
3	0	1	0	1	0	1	0
4	0	1	0	1	0	1	0
5	0	1	0	1	0	1	0
6	0	1	0	1	0	1	0
7	0	1	0	1	0	1	0
8	0	1	0	1	0	1	0
9	0	1	0	1	0	1	0
10	0	1	0	1	0	1	0
11	0	1	0	1	0	1	0
12	0	1	0	1	0	1	0
13	0	1	0	1	0	1	0
14	0	1	0	1	0	1	0
15	0	1	0	1	0	1	0
16	0	1	0	1	0	1	0
17	0	1	0	1	0	1	0

the  $M_y$  is known. The last determinant is  $U_z$ , same case applies in terms of identifying the node, 0 representing  $U_3$  is known and 1 representing  $F_3$  is known.

V - To define a boundary condition, for example, place a line load of 30 kN/m along the side of the slab. First identify the elements so as to change the values accordingly. Take from element 18 to 20 for example.



VI - Change the Value1 $U_z$  and Value2 $U_z$  to -30.

Input Tables

General Info	Extreme Points	Nodes	Element Nodes	Element Connectivity	Internal Points	Loads	Supports	Surfaces	Boundary Conditions	Additional Internal Points
Value1 $U_z$	Node3 $U_z$	Value2 $U_z$	Node2 $U_z$	Value3 $U_z$	Node1 $U_z$	Value2 $U_z$	Node2 $U_z$	Value1 $U_z$	Node1 $U_z$	Value1 $U_z$
13	0	1	0	1	0	1	0	1	0	1
14	0	1	0	1	0	1	0	1	0	1
15	0	1	0	1	0	1	0	1	0	1
16	0	1	0	1	0	1	0	1	0	1
17	0	1	0	1	0	1	0	1	0	1
18	-30	1	0	1	0	1	-30	1	0	1
19	-30	1	0	1	0	1	-30	1	0	1
20	-30	1	0	1	0	1	-30	1	0	1
21	0	1	0	1	0	1	0	1	0	1
22	0	1	0	1	0	1	0	1	0	1
23	0	1	0	1	0	1	0	1	0	1
24	0	1	0	1	0	1	0	1	0	1
25	0	1	0	1	0	1	0	1	0	1
26	0	1	0	1	0	1	0	1	0	1
27	0	1	0	1	0	1	0	1	0	1
28	0	1	0	1	0	1	0	1	0	1

Line no. 20

VII - Change the Value3 $U_z$  to -30 as well. Bear in mind that after editing the model in the PLView through the input tables and you go back to the PLGen, the data will that was adjusted in the input tables will be reset in the original model done in the PLGen.

Input Tables

General Info	Extreme Points	Nodes	Element Nodes	Element Connectivity	Internal Points	Loads	Supports	Surfaces	Boundary Conditions	Additional Internal Points
Value2 $U_z$	Node3 $U_z$	Value3 $U_z$	Node3 $U_z$	Value3 $U_z$	Node3 $U_z$	Value3 $U_z$	Node3 $U_z$	Value3 $U_z$	Node3 $U_z$	Value3 $U_z$
11	0	1	0	1	0	1	0	1	Free	Free
14	0	1	0	1	0	1	0	1	Free	Free
15	0	1	0	1	0	1	0	1	Free	Free
16	0	1	0	1	0	1	0	1	Free	Free
17	0	1	0	1	0	1	0	1	Free	Free
18	-30	1	0	1	0	1	-30	1	Free	Free
19	-30	1	0	1	0	1	-30	1	Free	Free
20	-30	1	0	1	0	1	-30	1	Free	Free
21	0	1	0	1	0	1	0	1	Free	Free
22	0	1	0	1	0	1	0	1	Free	Free
23	0	1	0	1	0	1	0	1	Free	Free
24	0	1	0	1	0	1	0	1	Free	Free
25	0	1	0	1	0	1	0	1	Free	Free
26	0	1	0	1	0	1	0	1	Free	Free
27	0	1	0	1	0	1	0	1	Free	Free
28	0	1	0	1	0	1	0	1	Free	Free

Line no. 20