



Ftool

Tutorial for creation and analysis of a simple frame and result visualization

Version 4.01

Jane 2024

<http://www.ftool.com.br>

This tutorial:

<https://www.tecgraf.puc-rio.br/ftool/downloads/tutorialframe.zip>

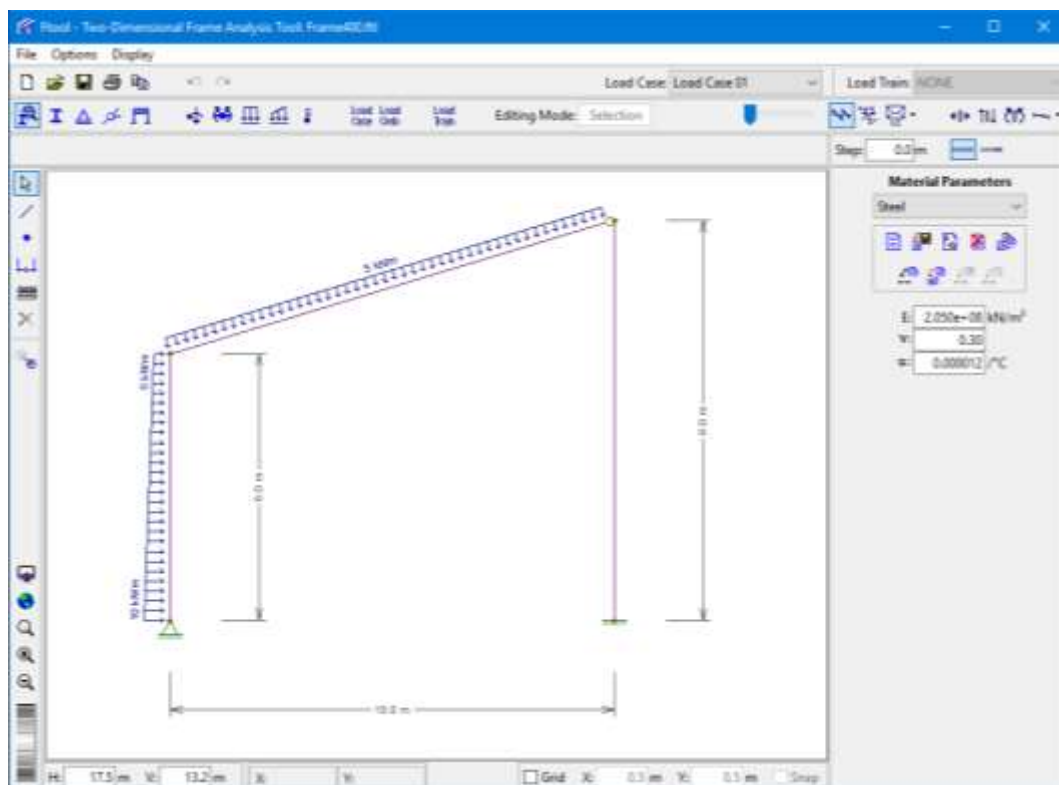


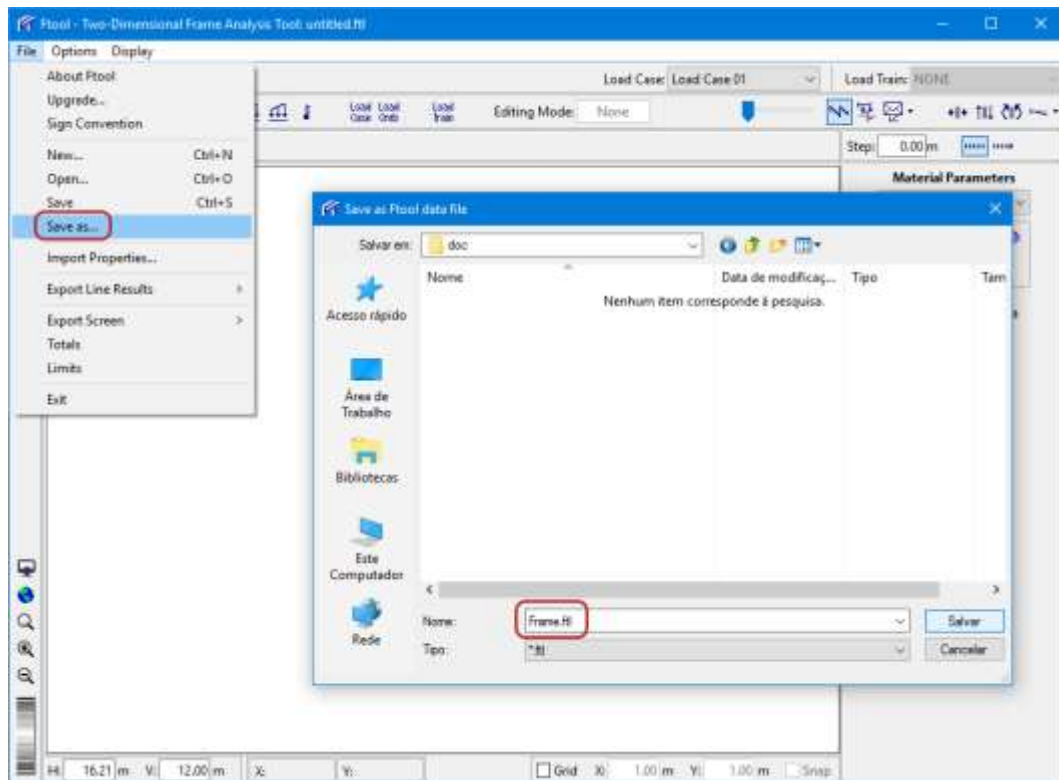


Table of Contents

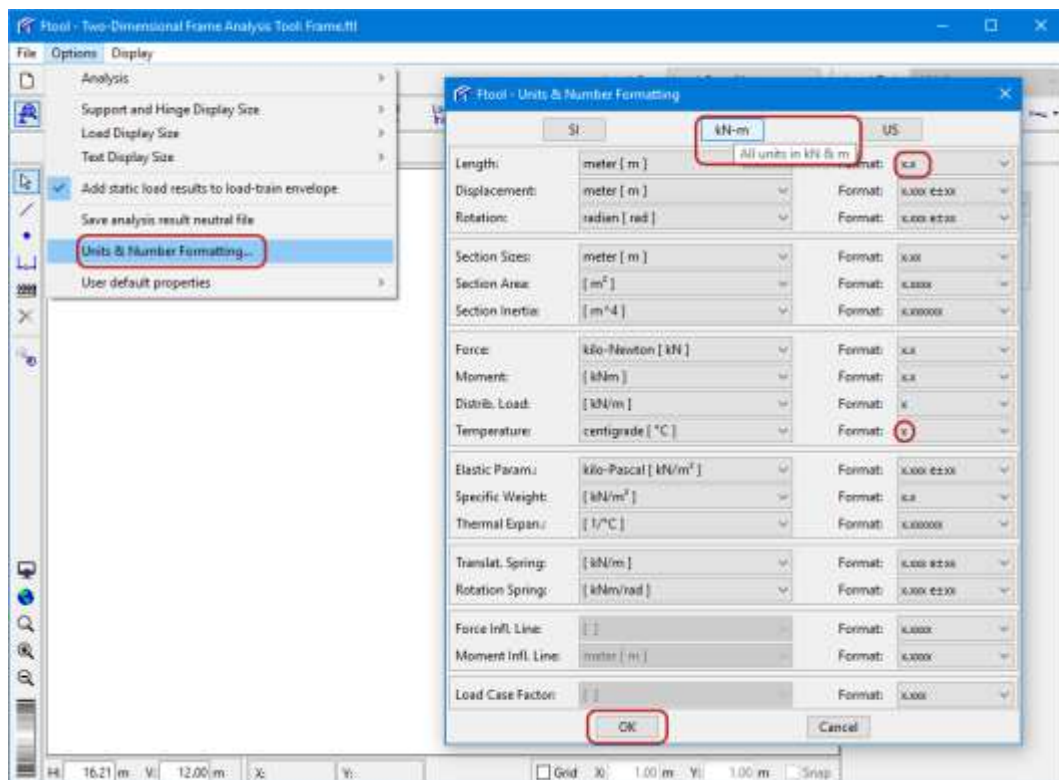
Create a file for plane frame model (command "Save as... ")	3
Specification of units and number formatting	3
Grid of coordinates and grid point spacing with attraction (<i>snap</i>)	4
Insertion of first member	4
Insertion of second member	5
Insertion of third member	5
Insertion of horizontal dimension line	6
Insertion of left vertical dimension line	6
Insertion of right vertical dimension line	7
Creation of new material	7
Selection of material type and name	8
Assignment of created material to all members	8
Verification of member parameters and attributes using mouse right button	9
Creation of new cross-section for beam member	9
Selection of welded I-shape (NBR standard) for beam member	10
Definition of specific welded I-shape and assignment to beam member	10
Selection of members by empty cross-section property set (<i>NONE</i>)	11
Creation of new cross-section for column members	11
Selection of welded I-shape (NBR standard) for column members	12
Definition of specific welded I-shape and assignment to column members	12
Definition of pin support and assignment to left inferior node	13
Definition of fixed support and assignment to right inferior node	13
Insertion of a hinge at right top node	14
Alternative: insertion of hinge at right end of beam member	14
Member deformation constraints menu and fence selection of all members	15
Turn on shear deformation and assignment to selected members	15
Creation of uniformly distributed force load for beam member	16
Definition of value of uniformly distributed force load and assignment to beam member in local system	16
Creation of linearly distributed force load for left column	17
Definition of values of linearly distributed force load and assignment to right column member in global system	17
Salve complete model in the same created file (command "Save")	18
Visualization of model deformed configuration response	18
Visualization of model axial force diagram response	19
Visualization of model shear force diagram response	19
Visualization of model bending moment diagram response	20
Visualization of support reactions	20



Create a file for plane frame model (command "Save as... ")



Specification of units and number formatting

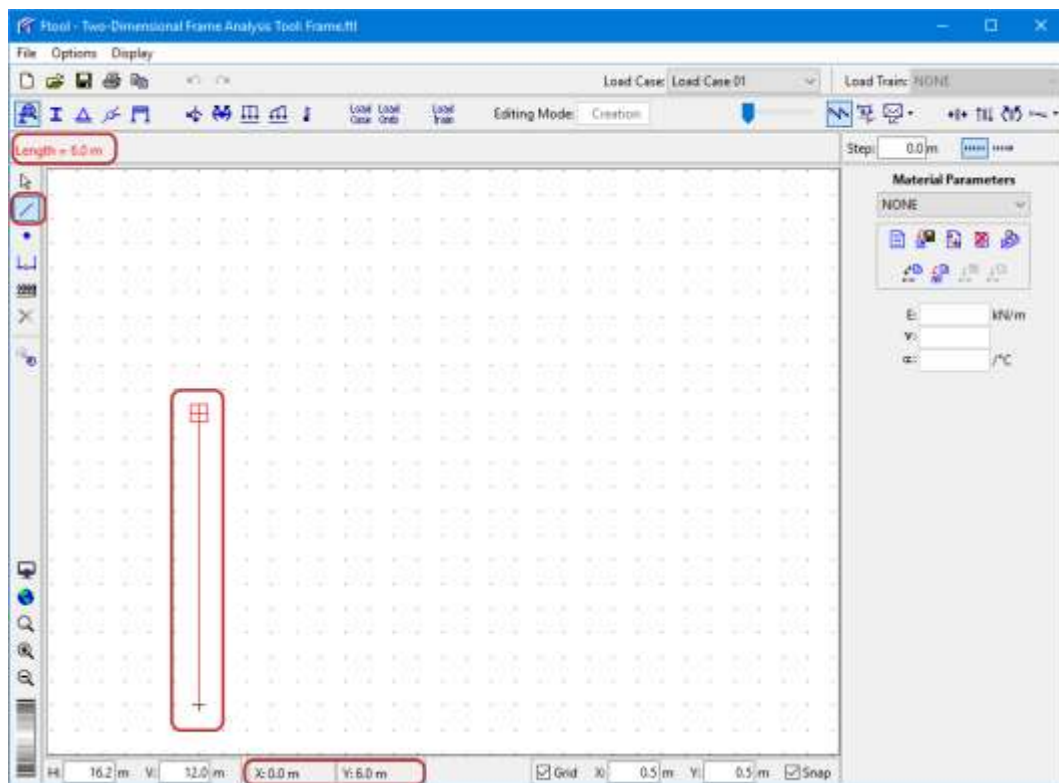




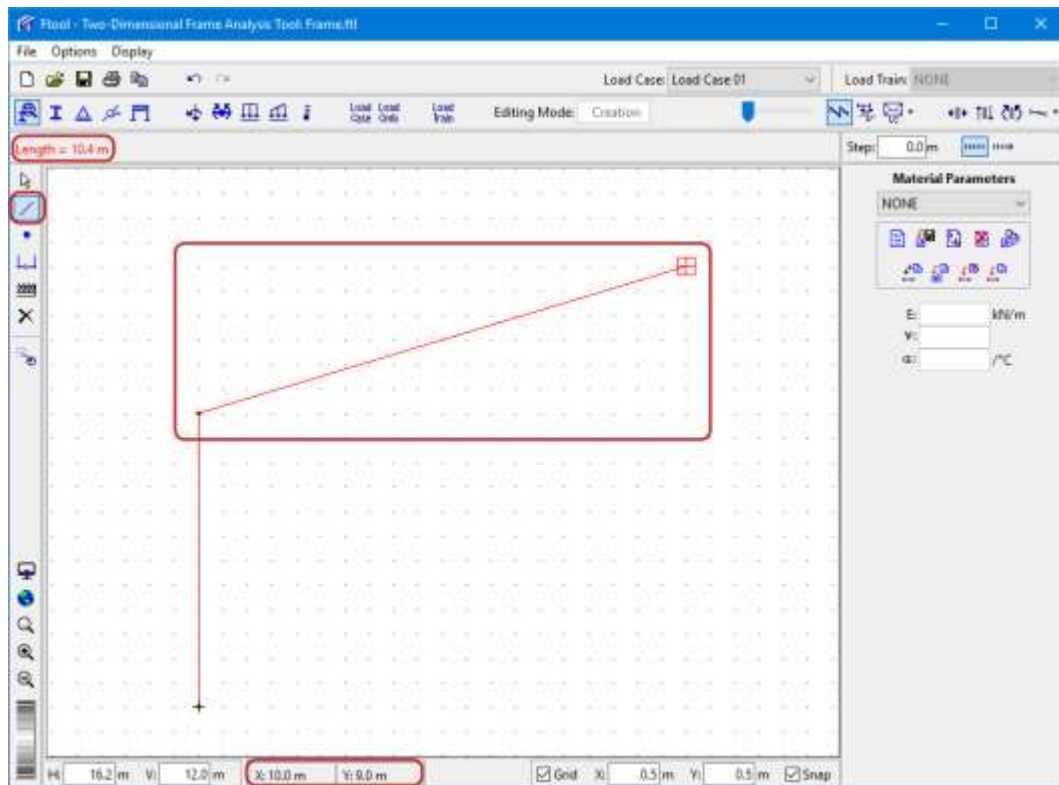
Grid of coordinates and grid point spacing with attraction (*snap*)



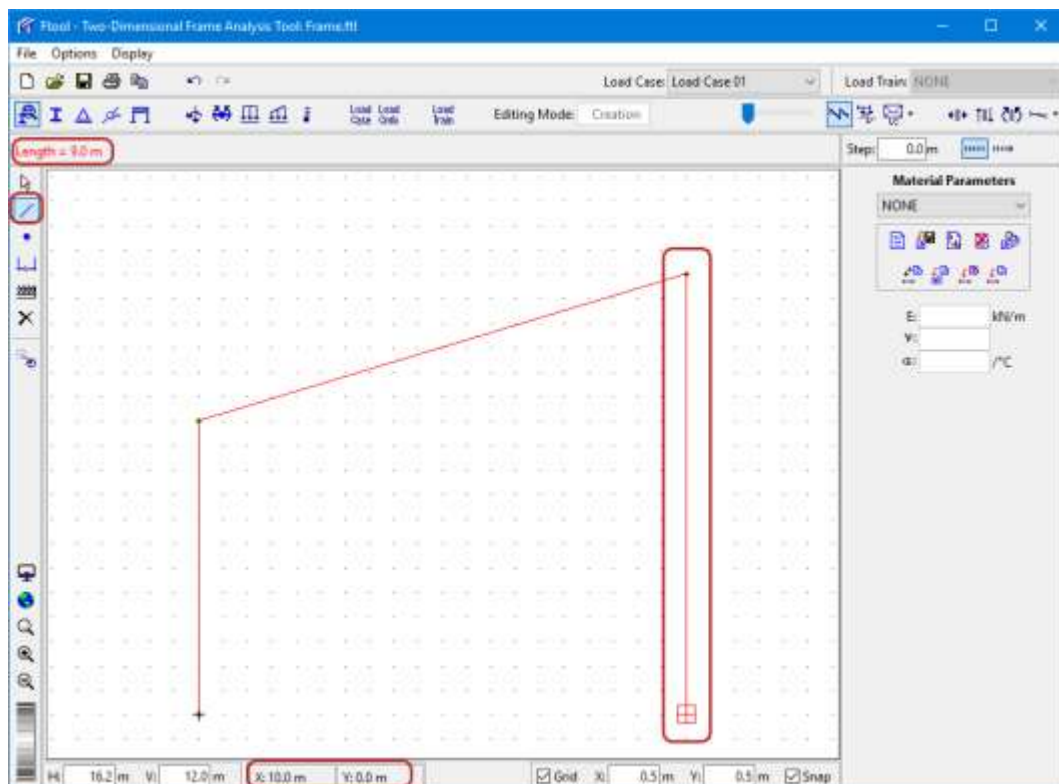
Insertion of first member



Insertion of second member

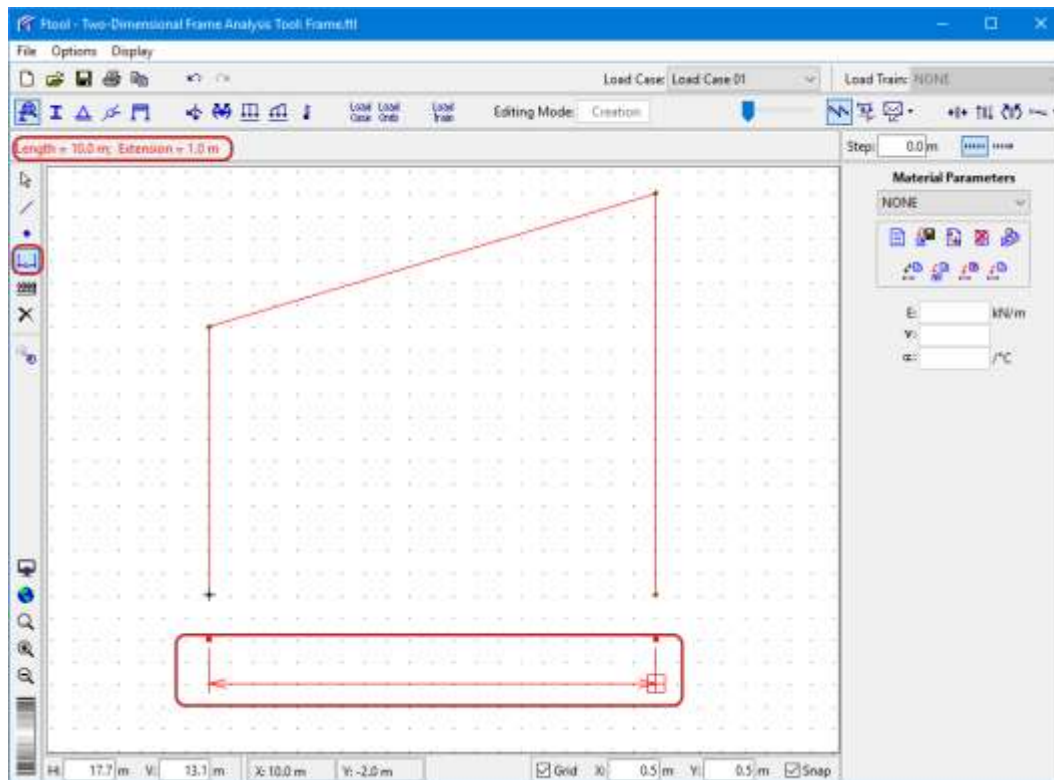


Insertion of third member

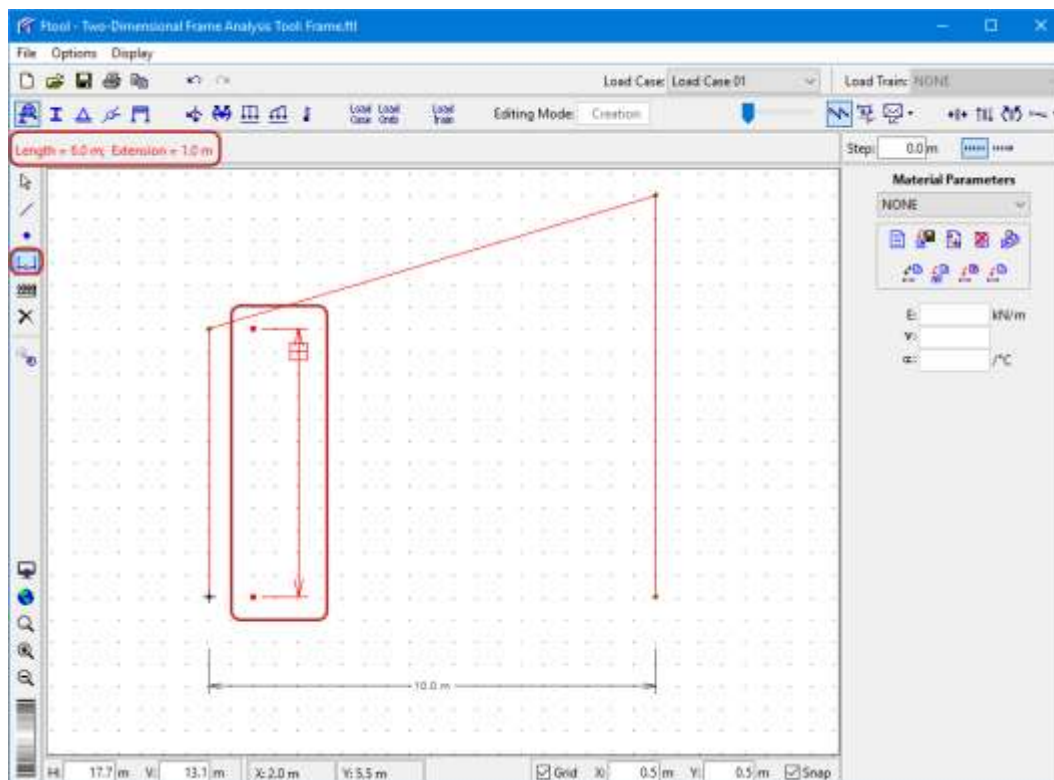




Insertion of horizontal dimension line

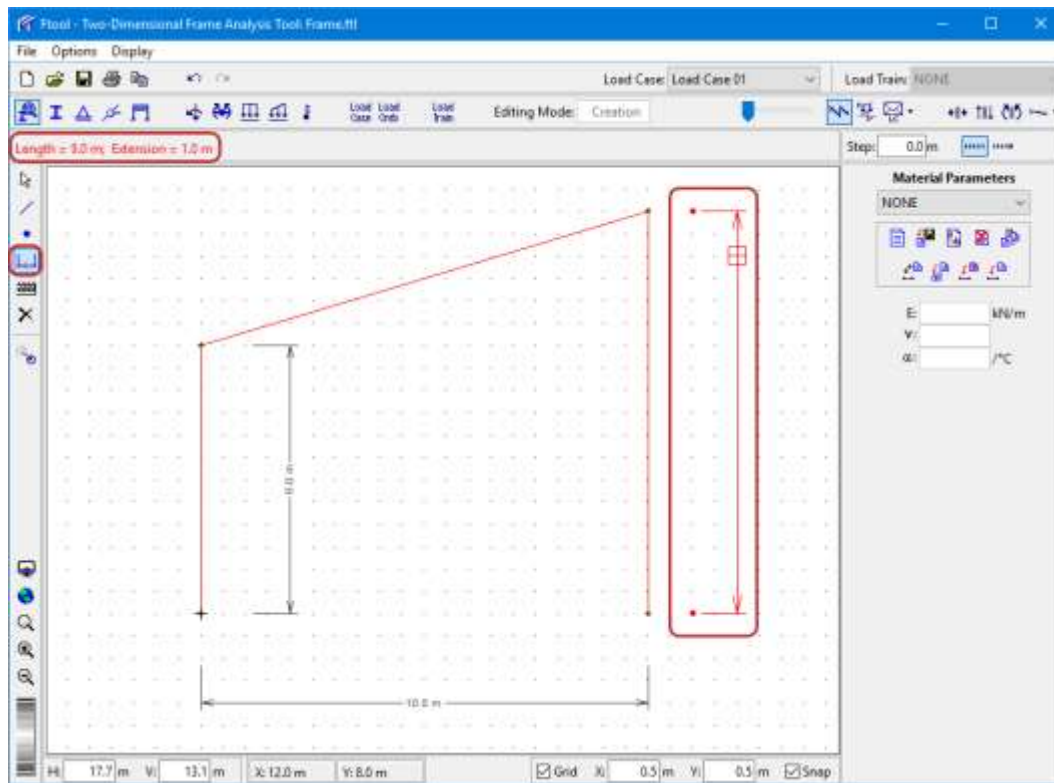


Insertion of left vertical dimension line

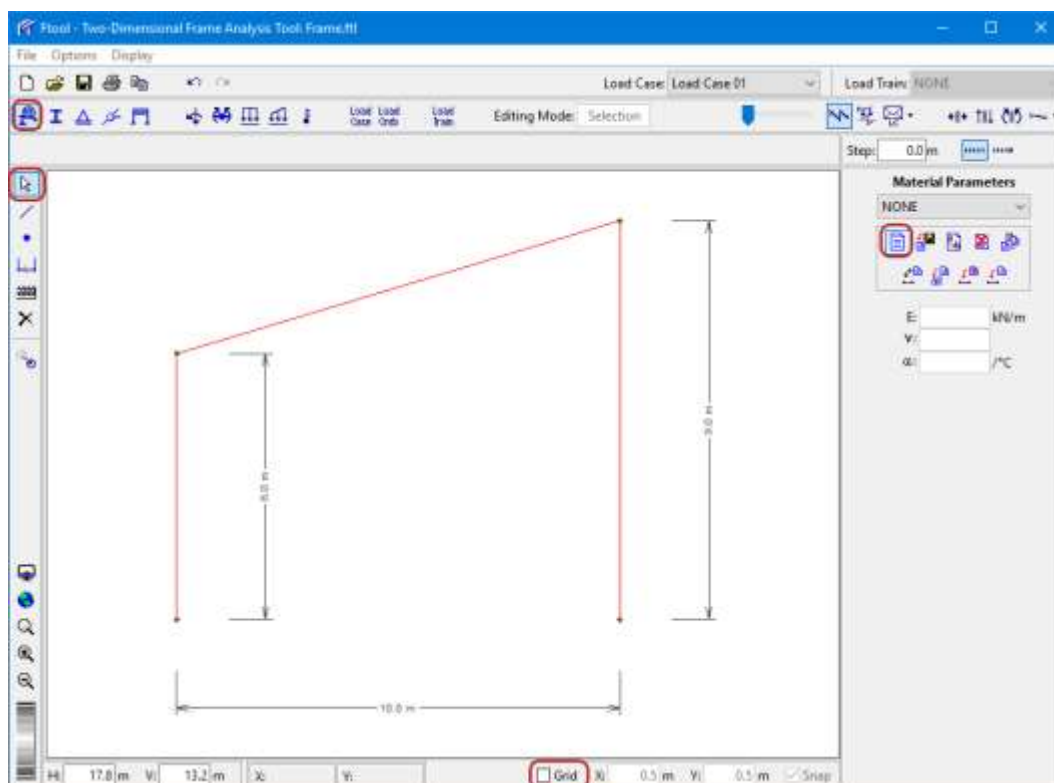




Insertion of right vertical dimension line

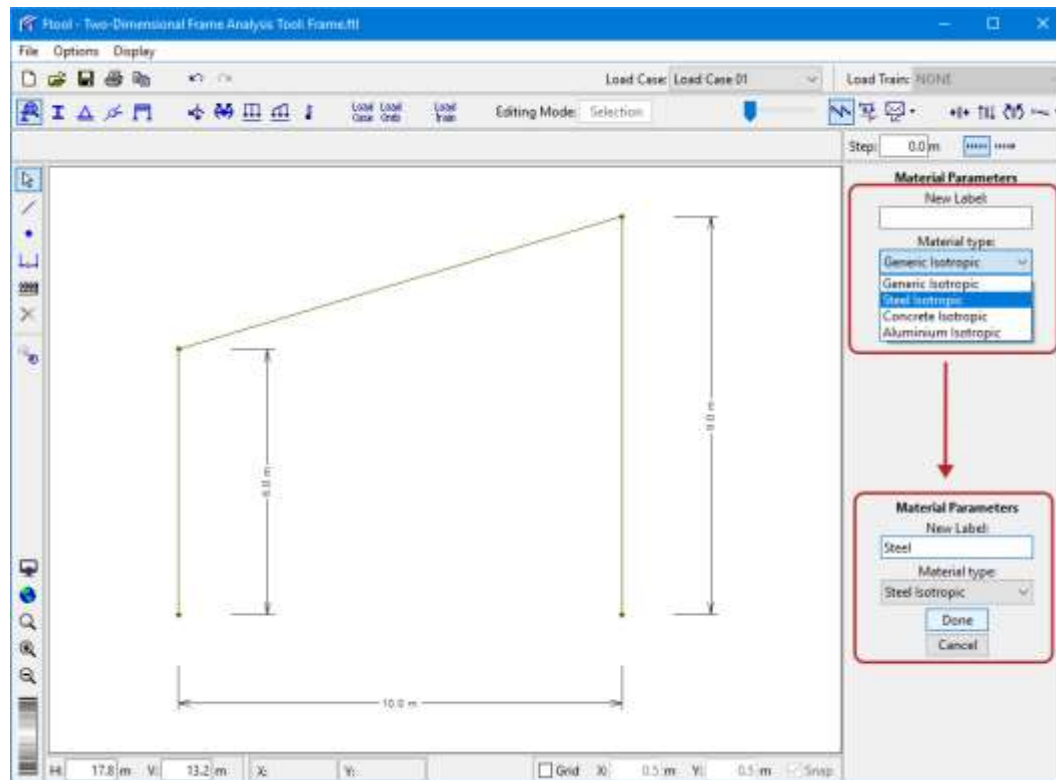


Creation of new material

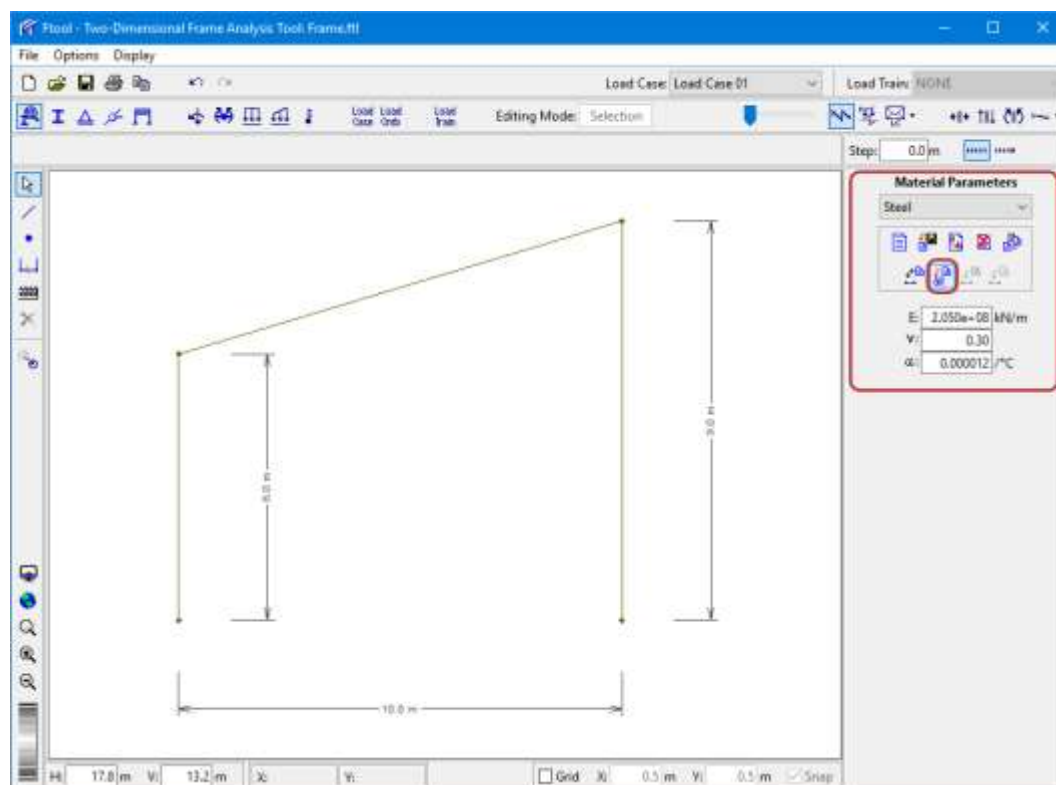




Selection of material type and name

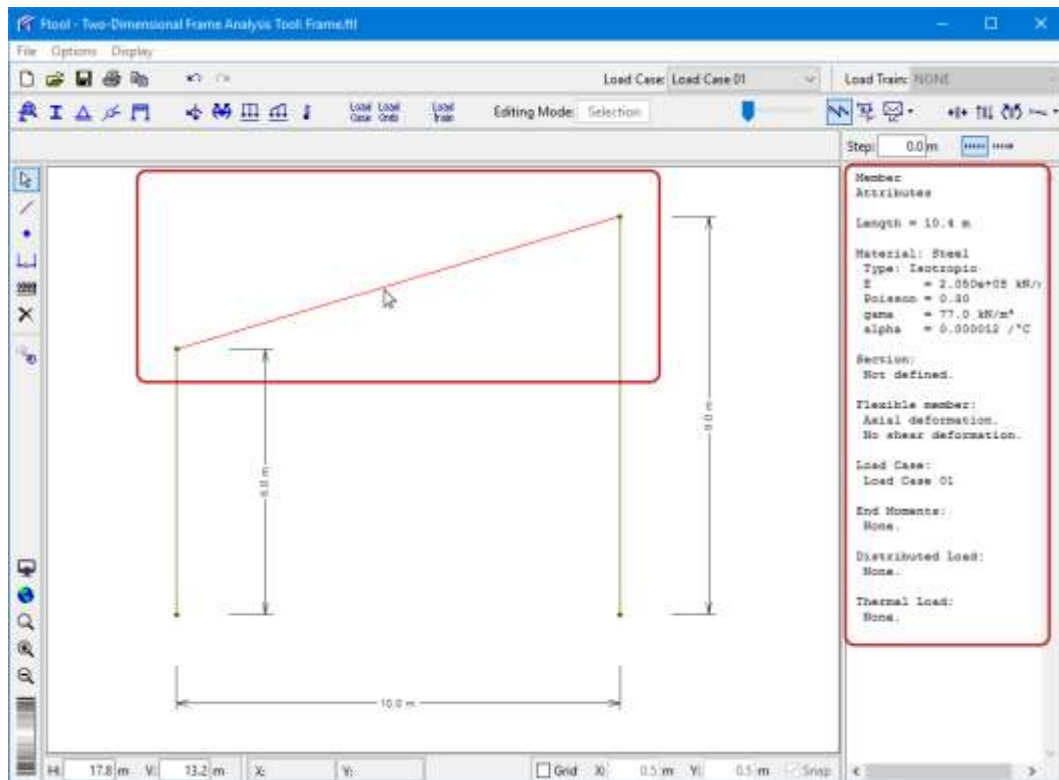


Assignment of created material to all members

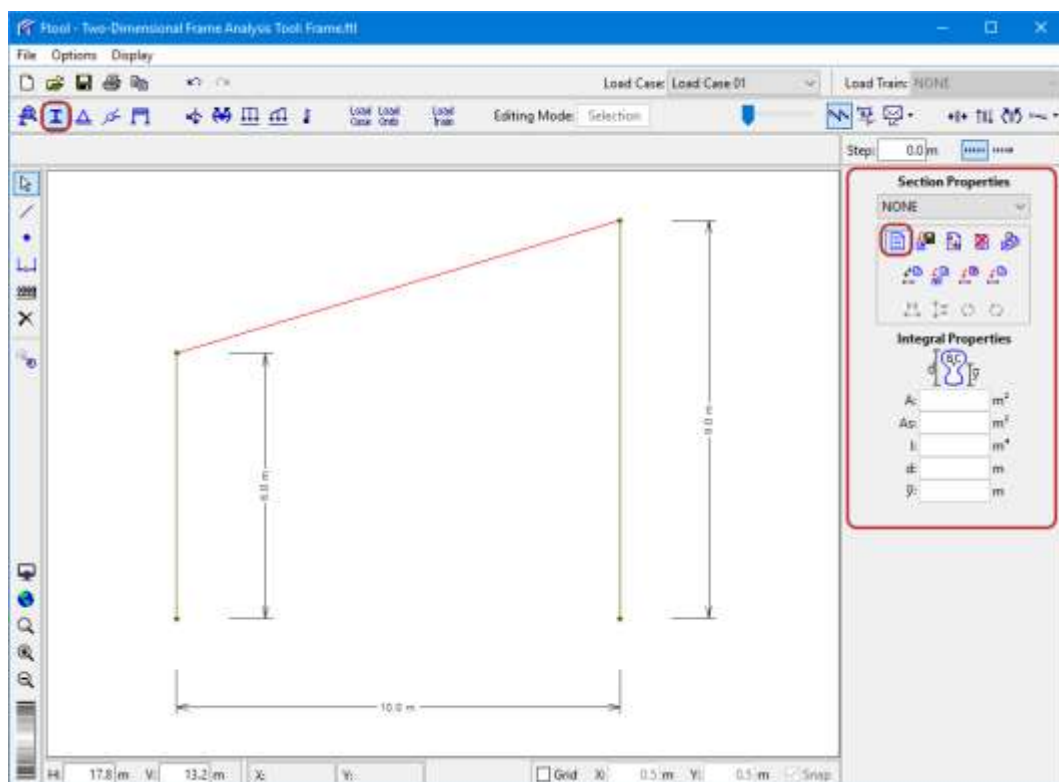




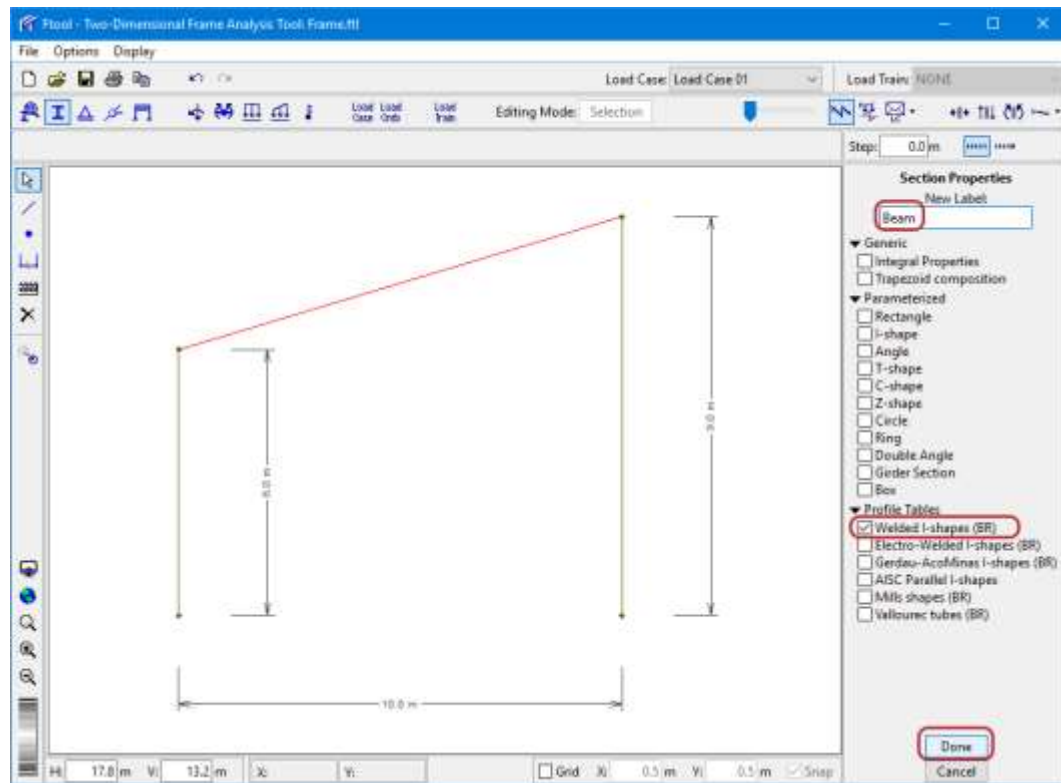
Verification of member parameters and attributes using mouse right button



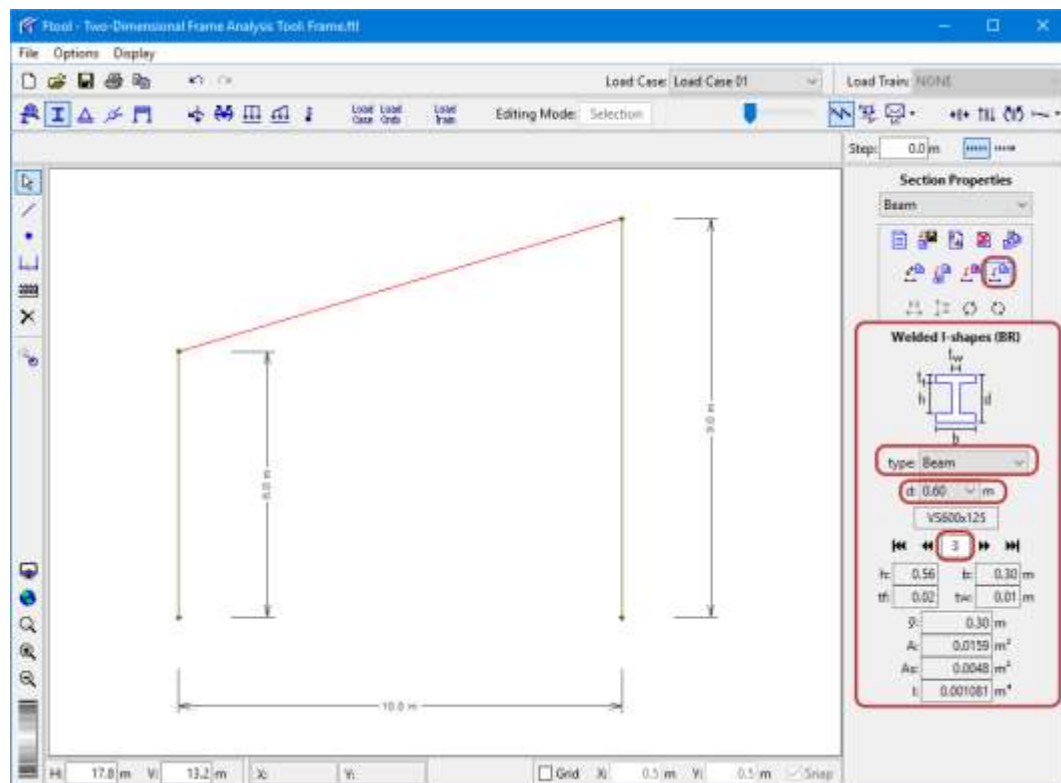
Creation of new cross-section for beam member



Selection of welded I-shape (NBR standard) for beam member

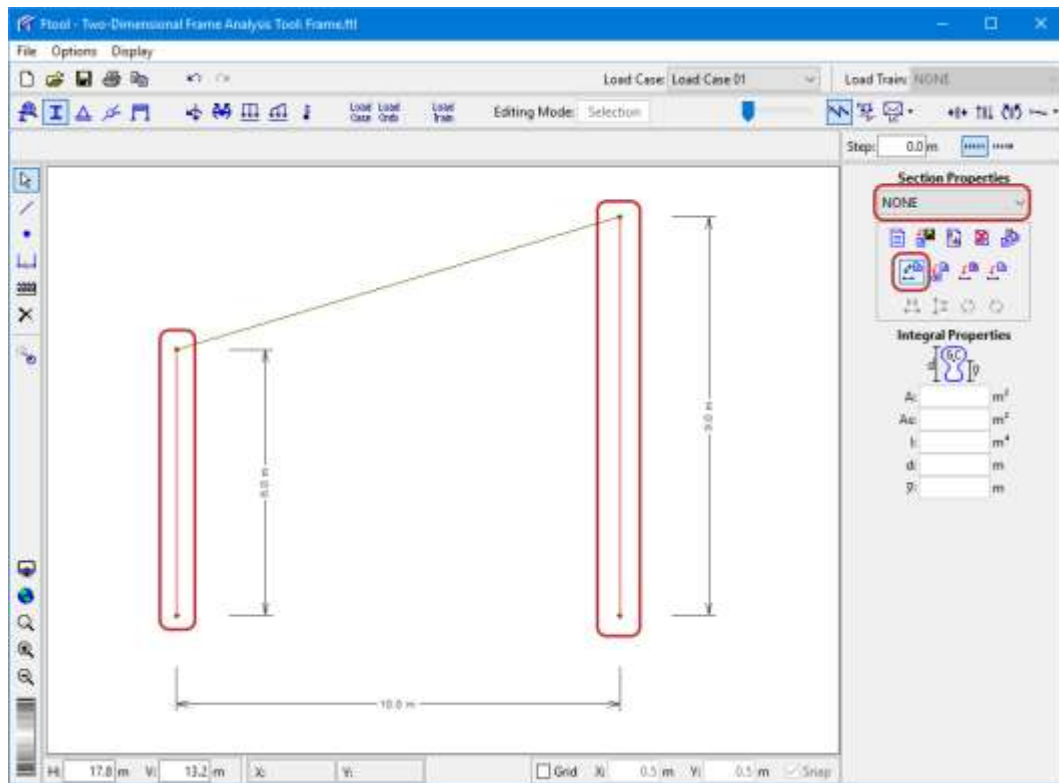


Definition of specific welded I-shape and assignment to beam member

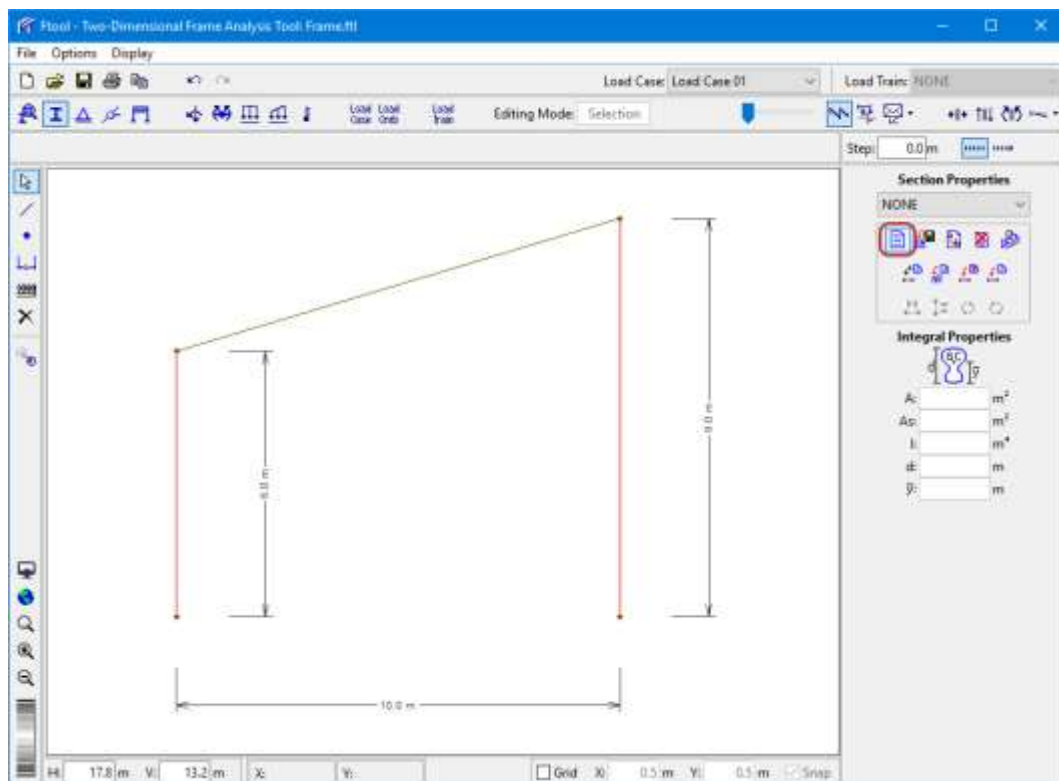




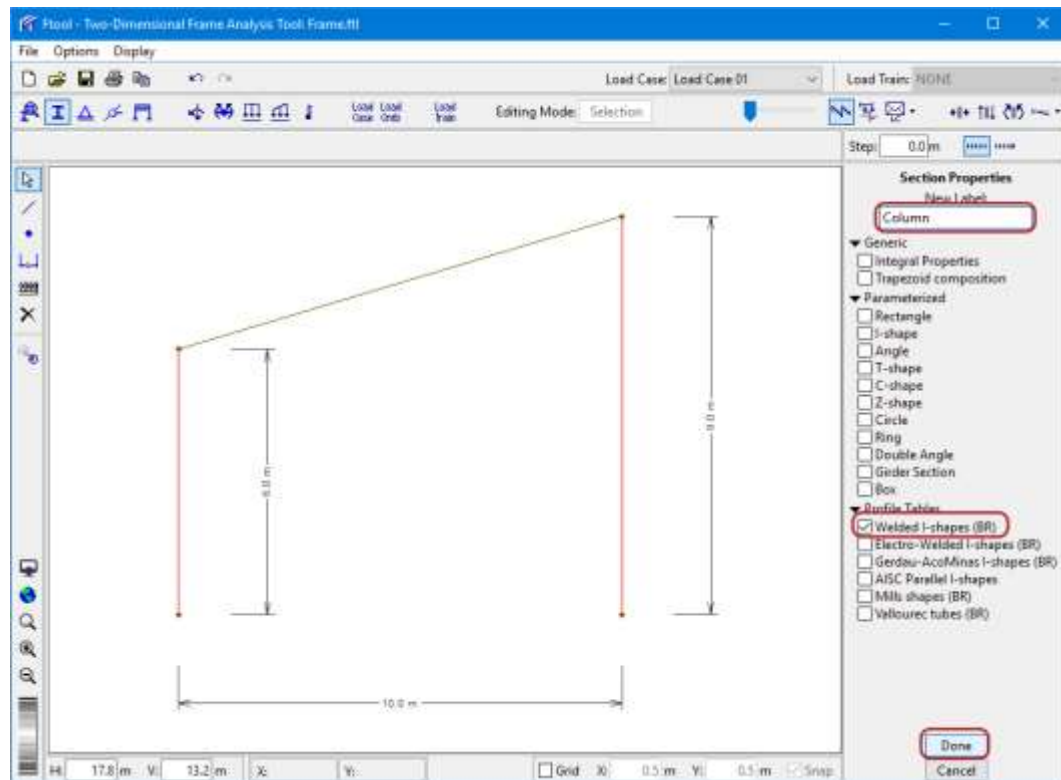
Selection of members by empty cross-section property set (*NONE*)



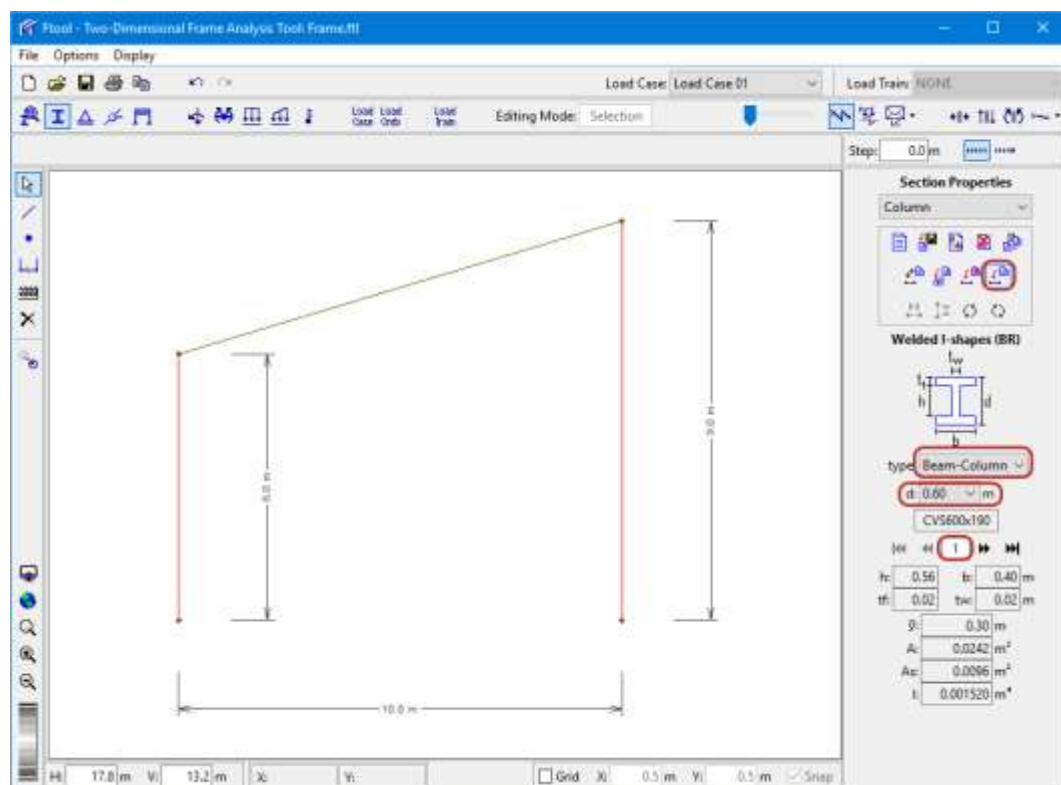
Creation of new cross-section for column members



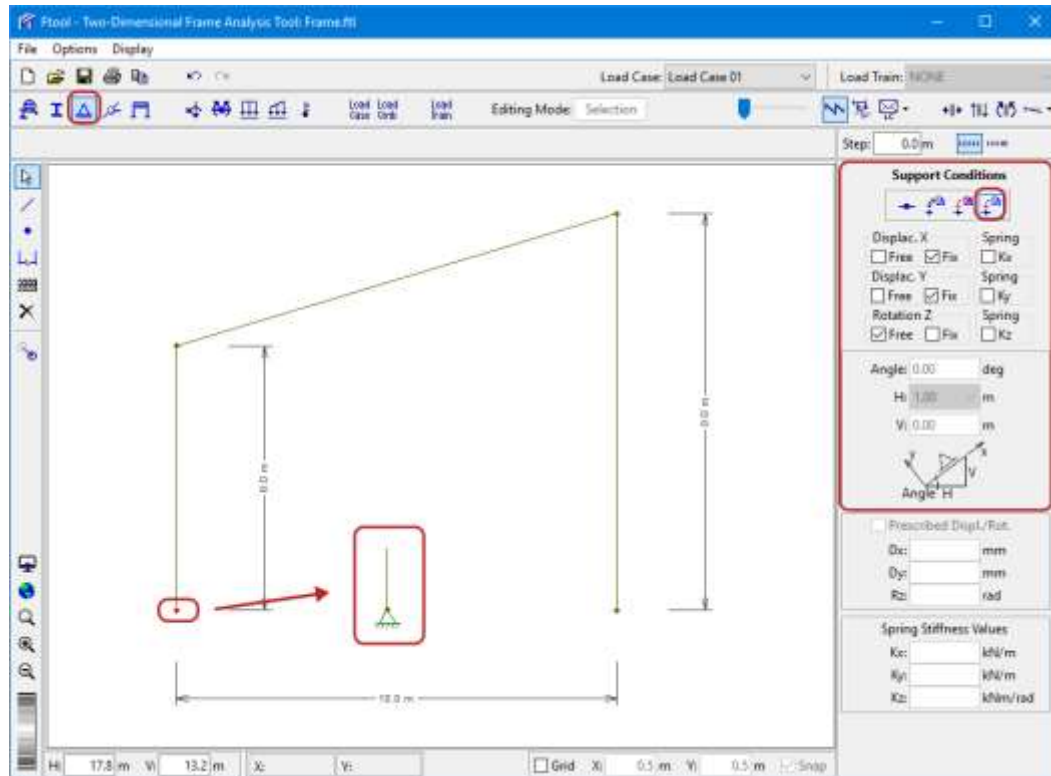
Selection of welded I-shape (NBR standard) for column members



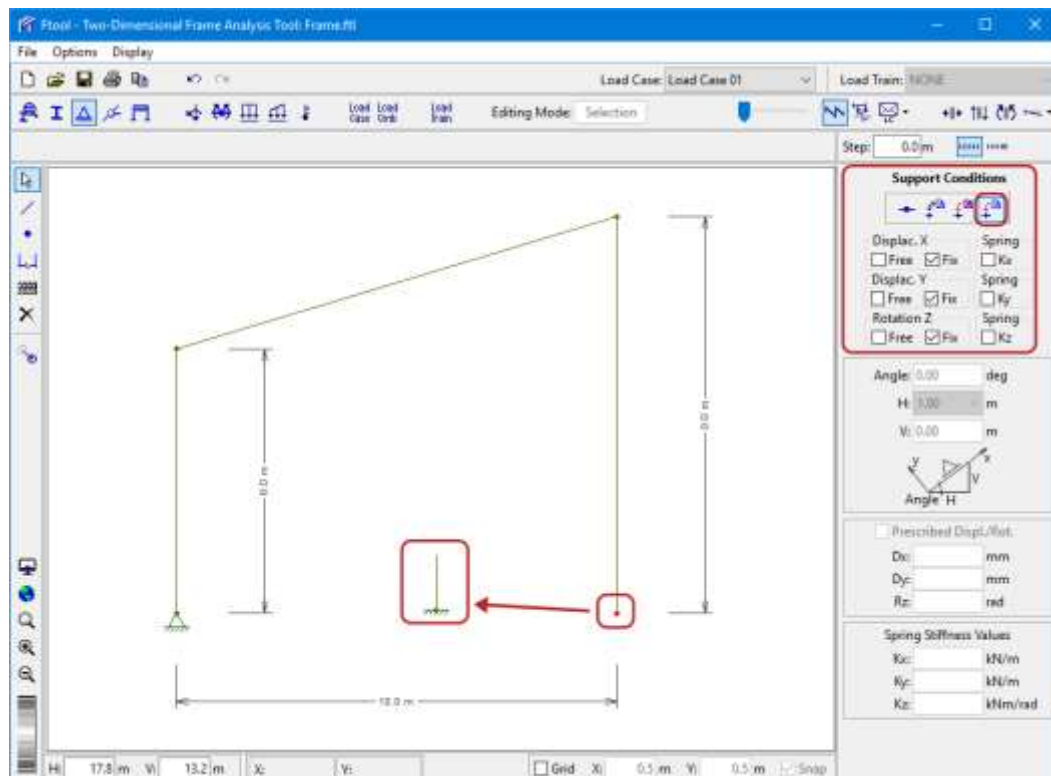
Definition of specific welded I-shape and assignment to column members



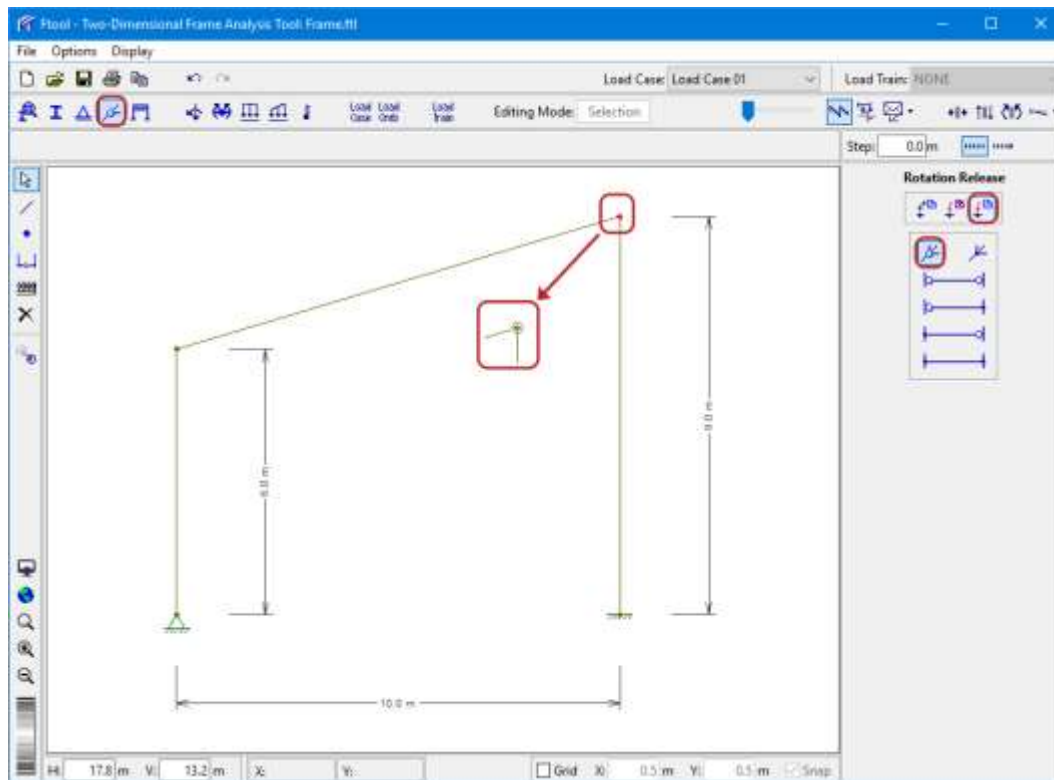
Definition of pin support and assignment to left inferior node



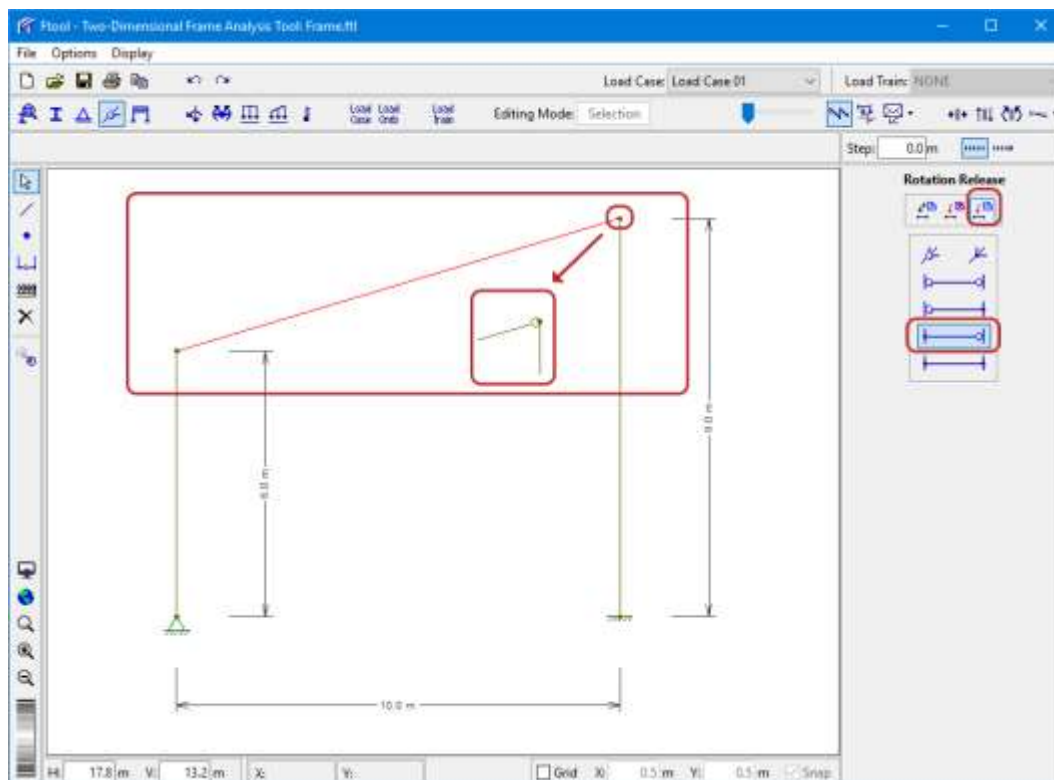
Definition of fixed support and assignment to right inferior node



Insertion of a hinge at right top node

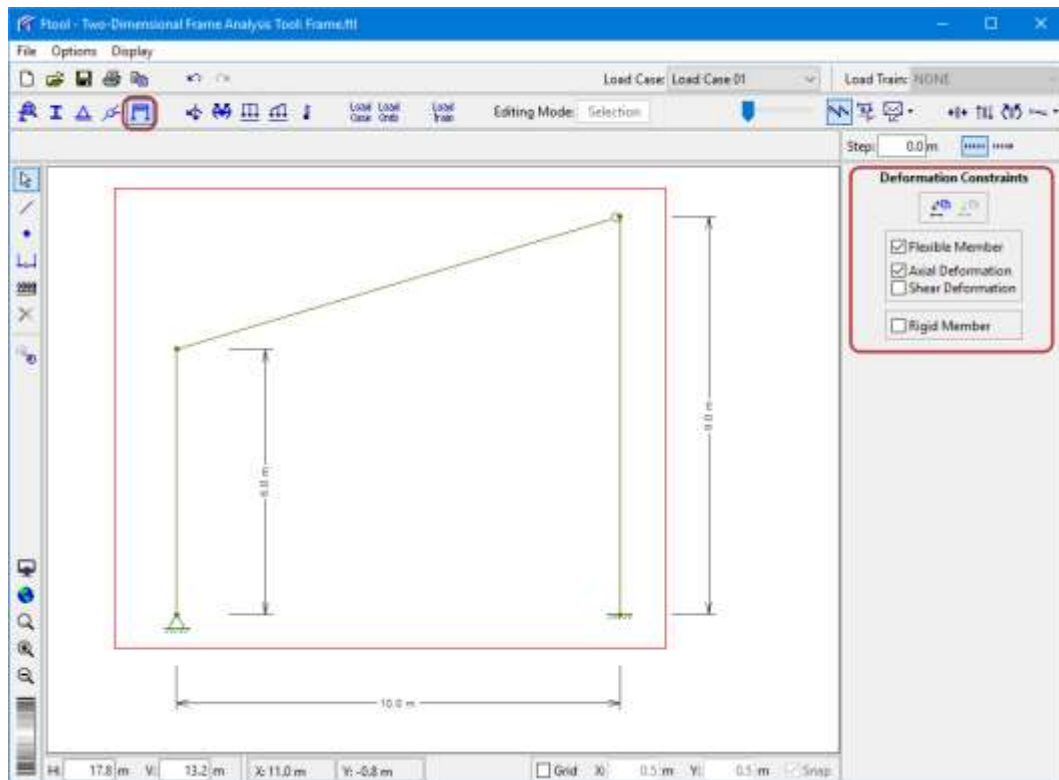


Alternative: insertion of hinge at right end of beam member

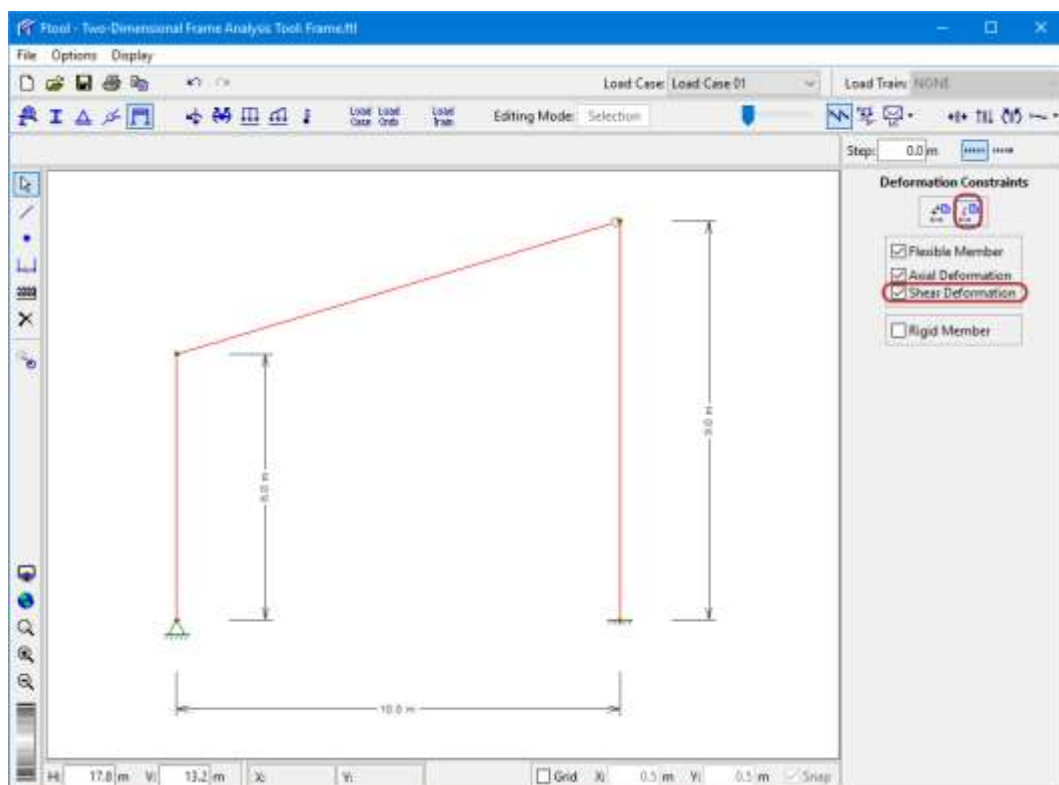




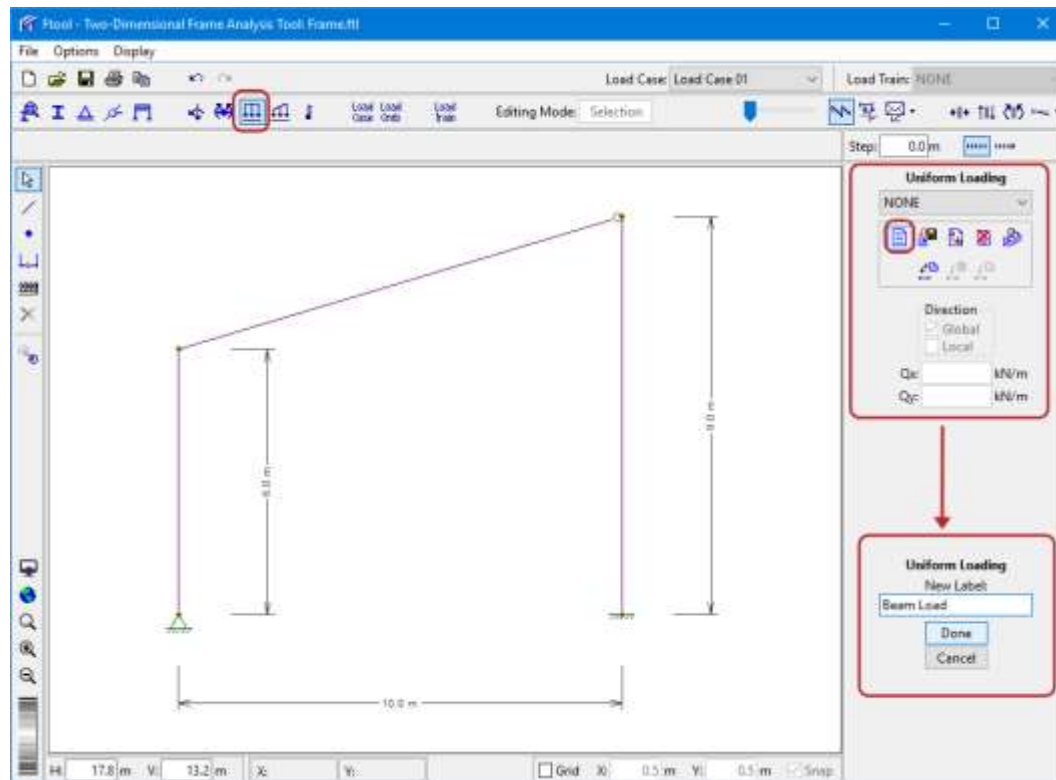
Member deformation constraints menu and fence selection of all members



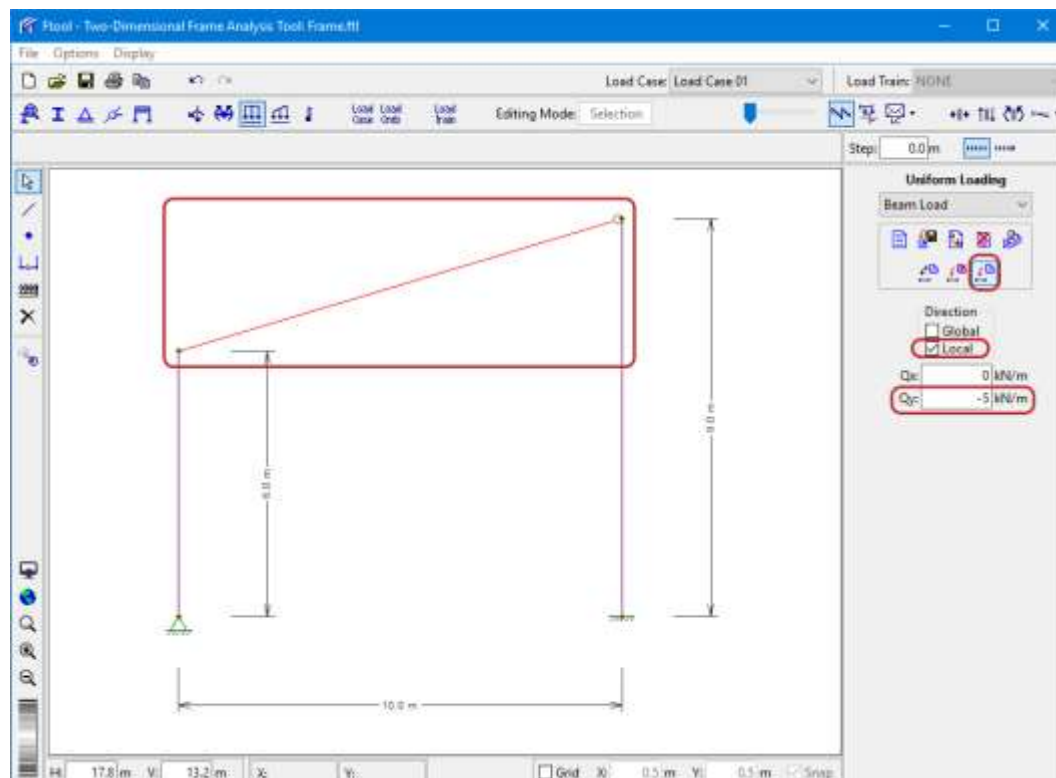
Turn on shear deformation and assignment to selected members



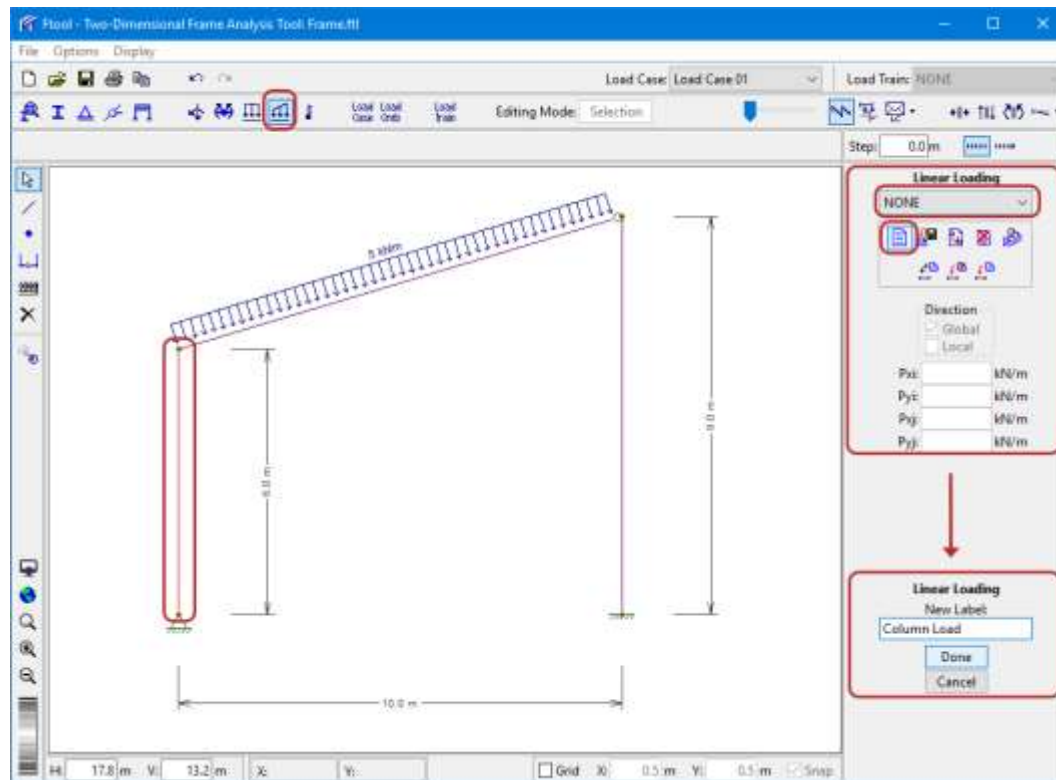
Creation of uniformly distributed force load for beam member



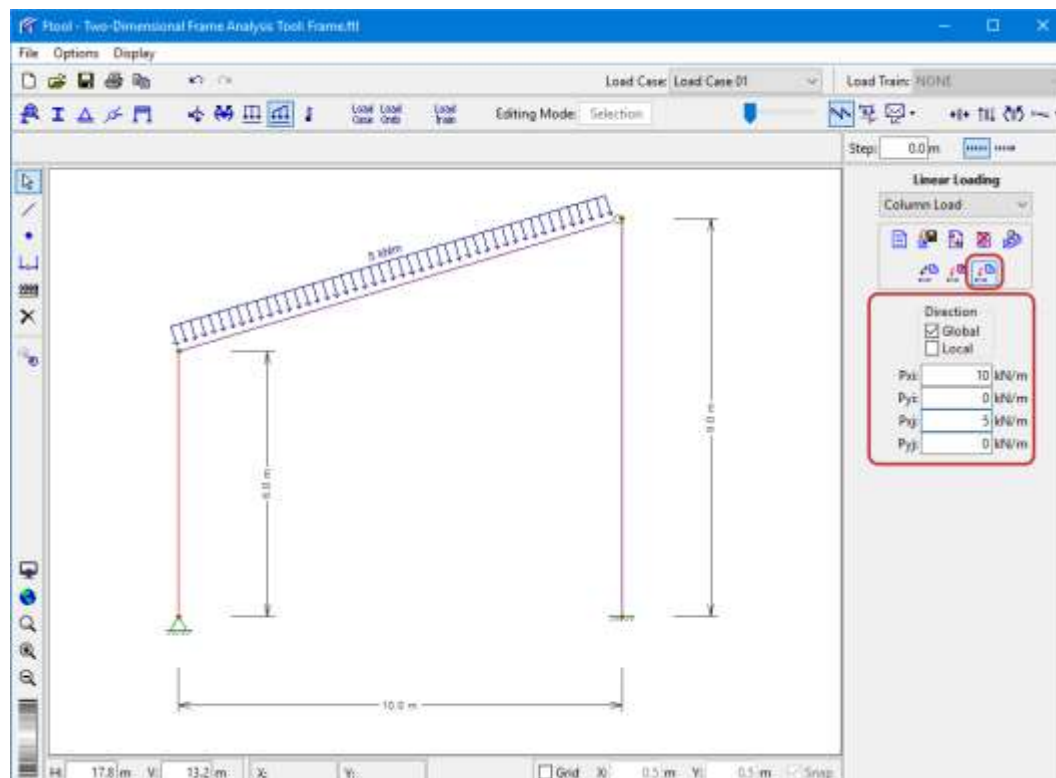
Definition of value of uniformly distributed force load and assignment to beam member in local system



Creation of linearly distributed force load for left column

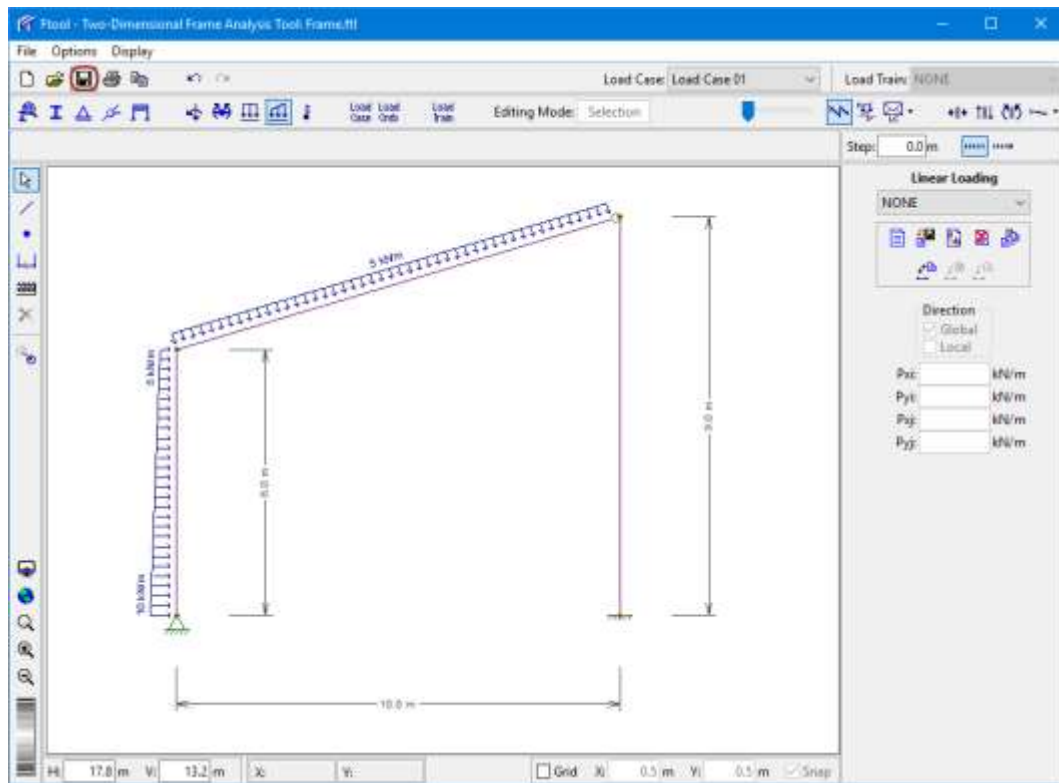


Definition of values of linearly distributed force load and assignment to right column member in global system

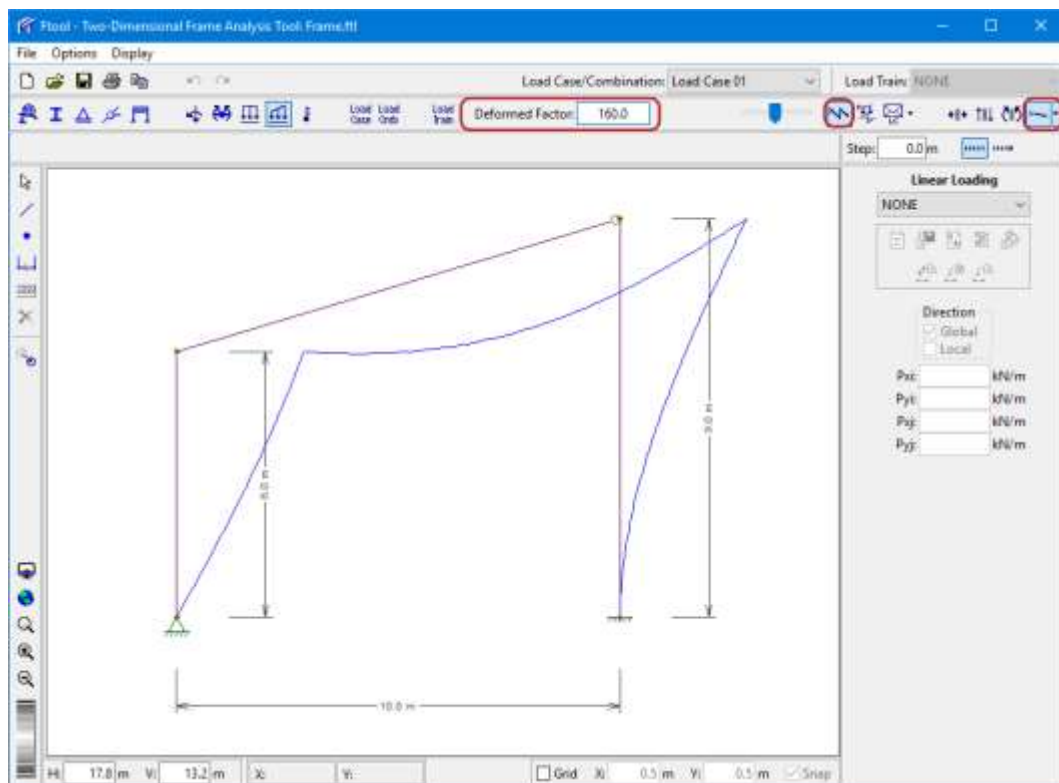




Salve complete model in the same created file (command "Save")

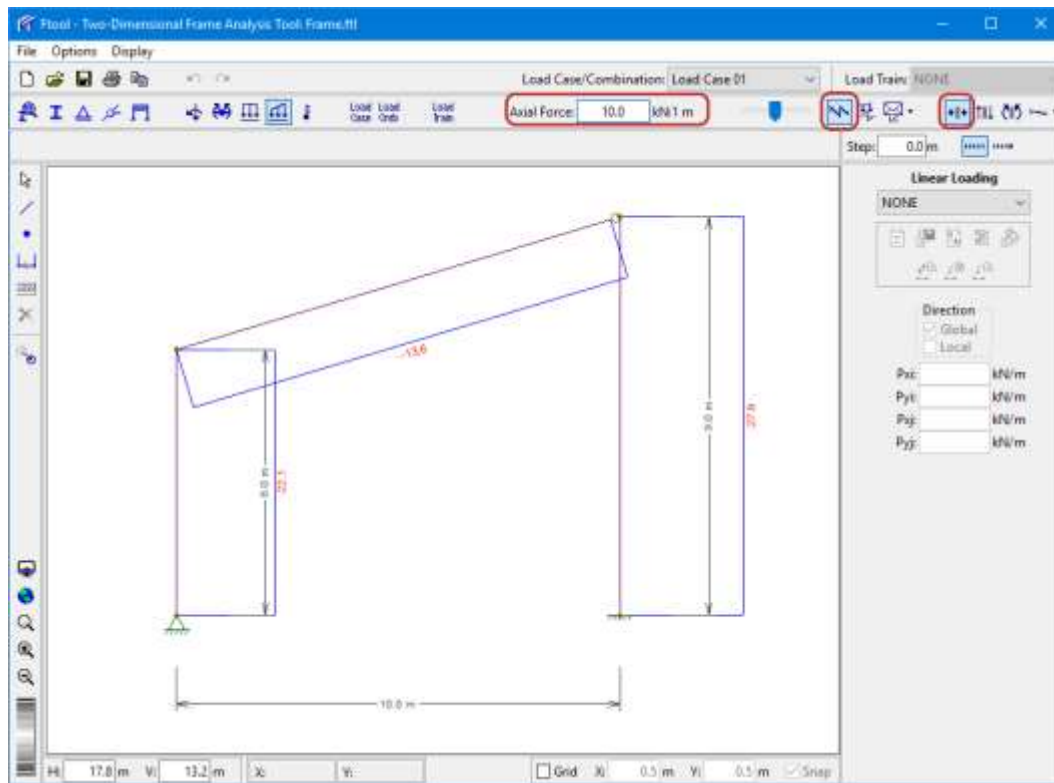


Visualization of model deformed configuration response

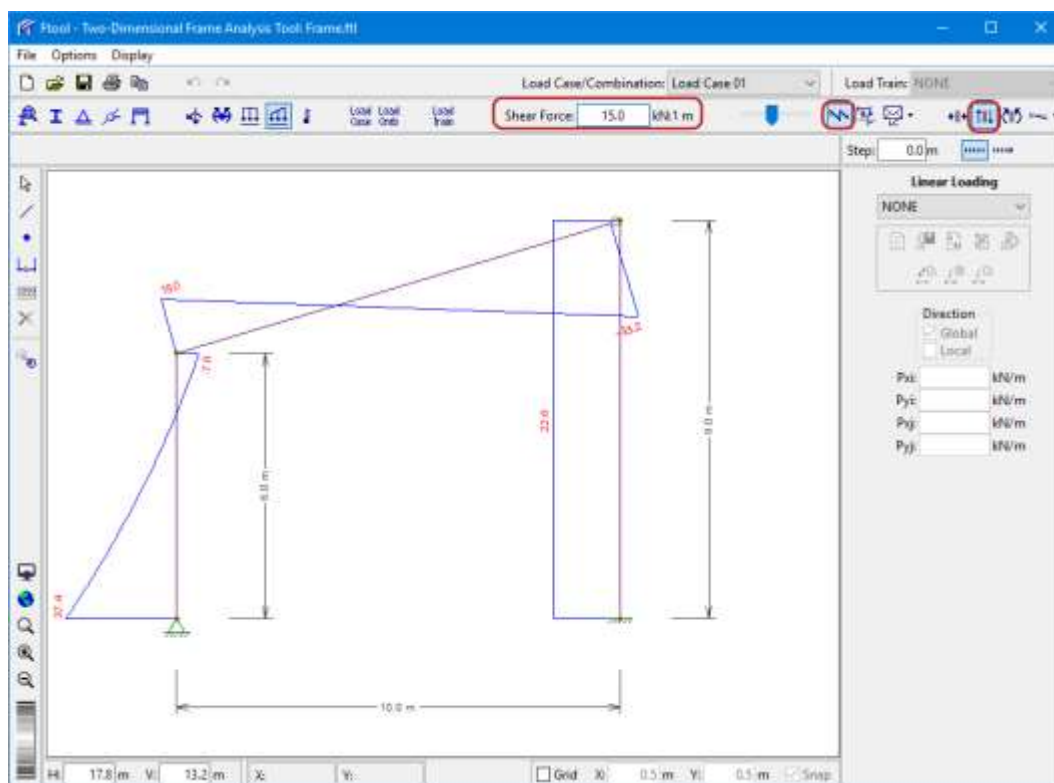




Visualization of model axial force diagram response

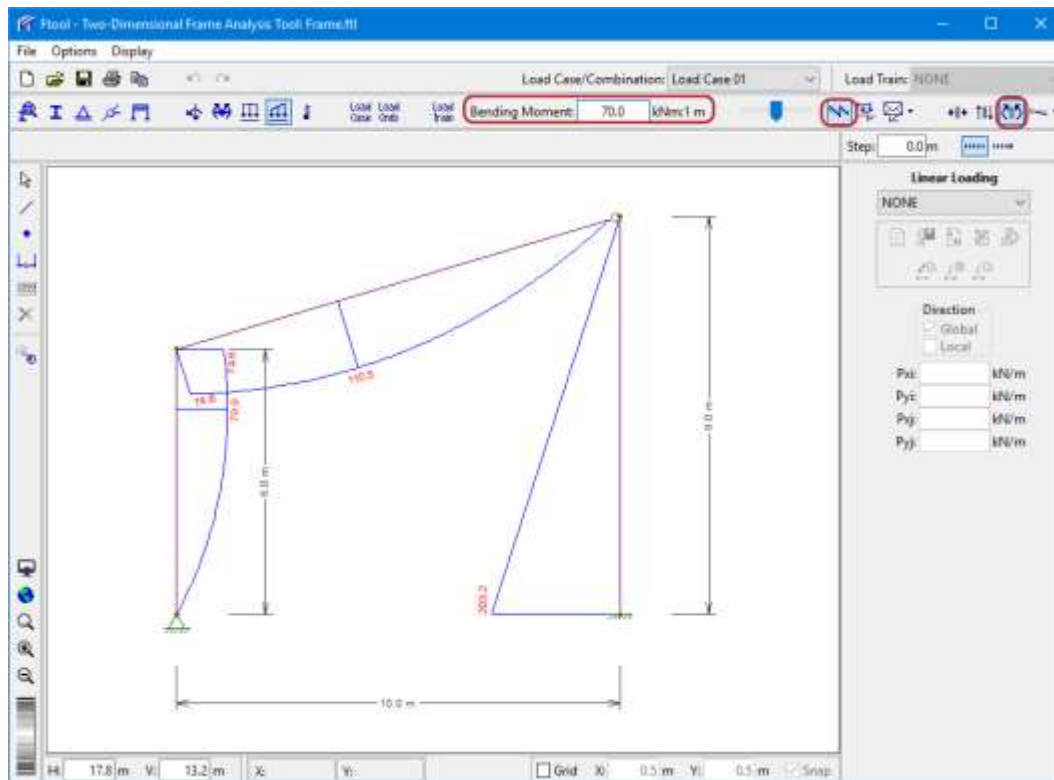


Visualization of model shear force diagram response





Visualization of model bending moment diagram response



Visualization of support reactions

