

Product System: INNO_APS

covers aluminium prop systems (APS)

Example of

FFC-Task Processing

with

Formwork Priority

(from Clearance)

Given: Baywidths plus Loads plus Clearance-Layout

Clearance: Top = Base
x = 2000 mm
y = 2500 mm

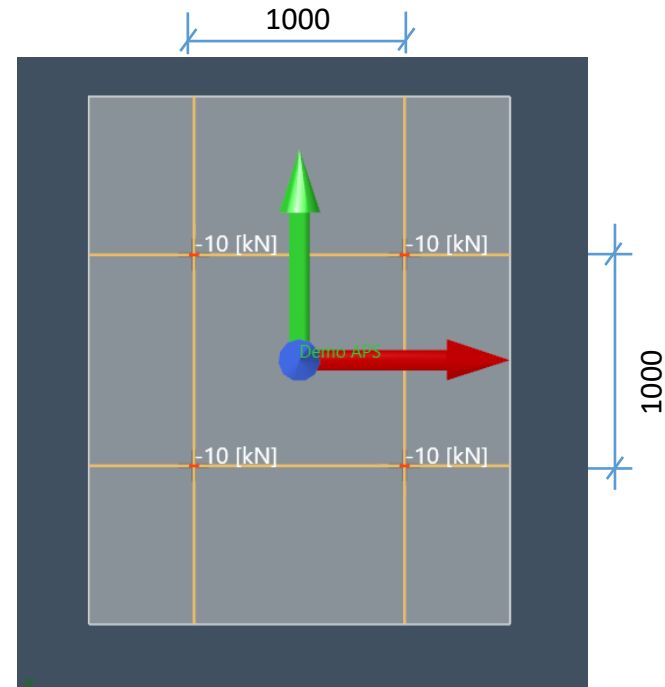
Baywidths: x = 1000 mm
y = 1000 mm

Height: 4500 mm

Legloads: -10kN

Bearing: Top Held x y
Base Restraints acc. to DIN 12811

(LDB: hinged at spindles)



First: Choose your Product System

The screenshot shows a software interface with a ribbon menu at the top containing tabs: File, Project, BIM, Task Object, Clearance, Propping Plan, Falsework Configuration, Formwork Configuration, Falsework Structural Design, Issuing, and Tools. The main window is titled 'Untitled [MasterData.ffcl] - FFC 2.1.9.1 *DEVELOP*'. A yellow warning box on the left states: 'No shoring section defined. Please initially create a shoring section in global operation mode within Ribbon Tab "BIM" either by manual input or out of a traverse grid axis.' Below this is the 'Shoring Section' panel with fields for Section Name, Description, and Origin (X, Y, Z in mm). The Origin values are X: 0, Y: 0, Z: 0. Below are fields for x-Axis (1, 0, 0) and y-Axis (0, 1, 0). A red arrow points from the 'Insert' button in the Shoring Section panel to the 'Product System' dropdown in the bottom status bar, which is currently set to 'INNO_APS'. A large grey dialog box in the center of the main window says 'Choose your product system'. The bottom status bar also shows 'Global', 'Local', 'Axis grid altitude', 'Default', 'Show', 'Section Planes', 'Building Alignment Planes', 'Select All', and 'View' options. A message log at the bottom right shows: 'Message : Representation: Transparent', 'Message : Loaded master data: MasterData.ffcl (v1.0.9.9 - 19.02.2019 16:09:23)', 'Message : Active Product System: INCUP', 'Message : Created new project.', and 'Message : Active Product System: INNO_APS'.

File Project BIM Task Object Clearance Propping Plan Falsework Configuration Formwork Configuration Falsework Structural Design Issuing Tools

Properties

No shoring section defined.
Please initially create a shoring section in global operation mode within Ribbon Tab "BIM" either by manual input or out of a traverse grid axis.

Shoring Section

Section Name:

Description:

Origin

	X	Y	Z	mm
Origin	0	0	0	
x-Axis	1	0	0	
y-Axis	0	1	0	

Select/Insert Insert

Properties Parts

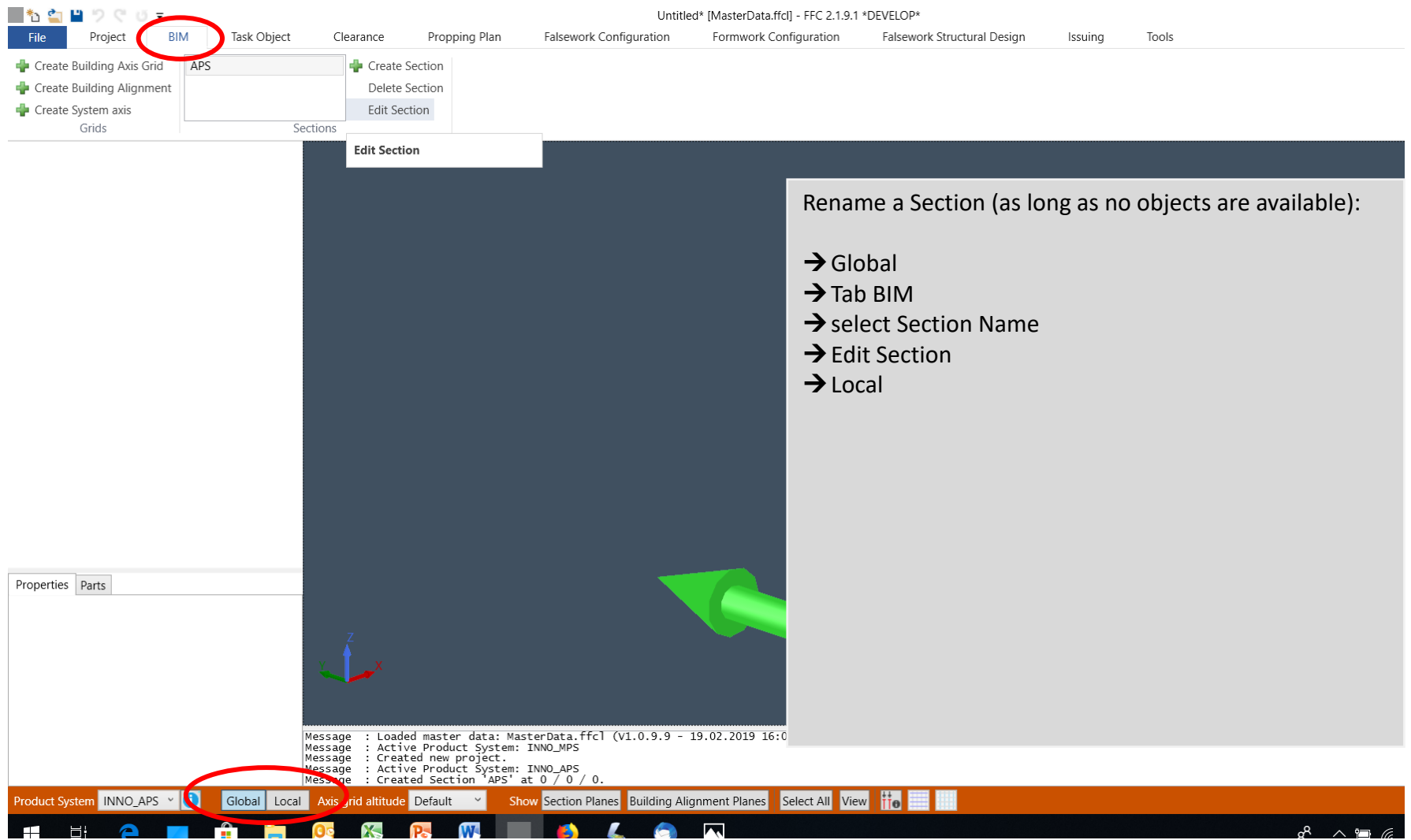
Message : Representation: Transparent
 Message : Loaded master data: MasterData.ffcl (v1.0.9.9 - 19.02.2019 16:0
 Message : Active Product System: INNO_MPS
 Message : Created new project.
 Message : Active Product System: INNO_APS

Product System INNO_APS Global Local Axis grid altitude Default Show Section Planes Building Alignment Planes

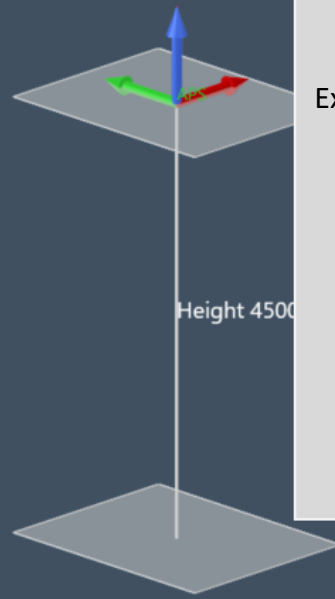
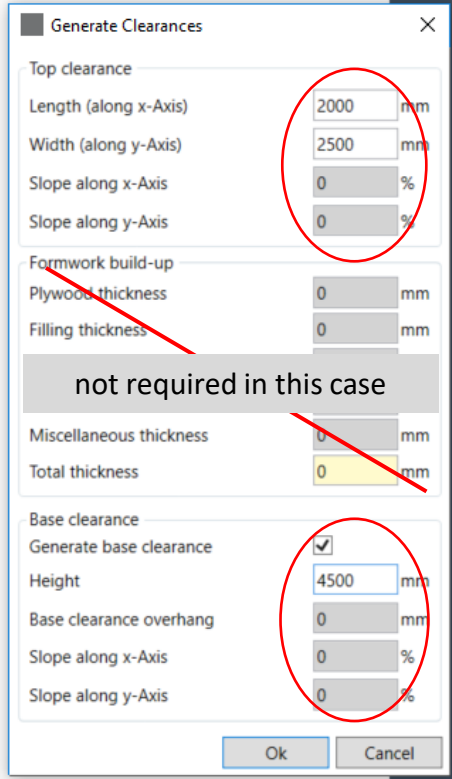
unless you change the data here:
global = local

Hint:
Best would be to establish a FFC-file when starting a „Project“.

A section is defined by its location, represented by the origin of its local coordinates and its area eg. width along x, width along y. The extend of a section area will be defined under Clearance respectively entering the Task Object if given.



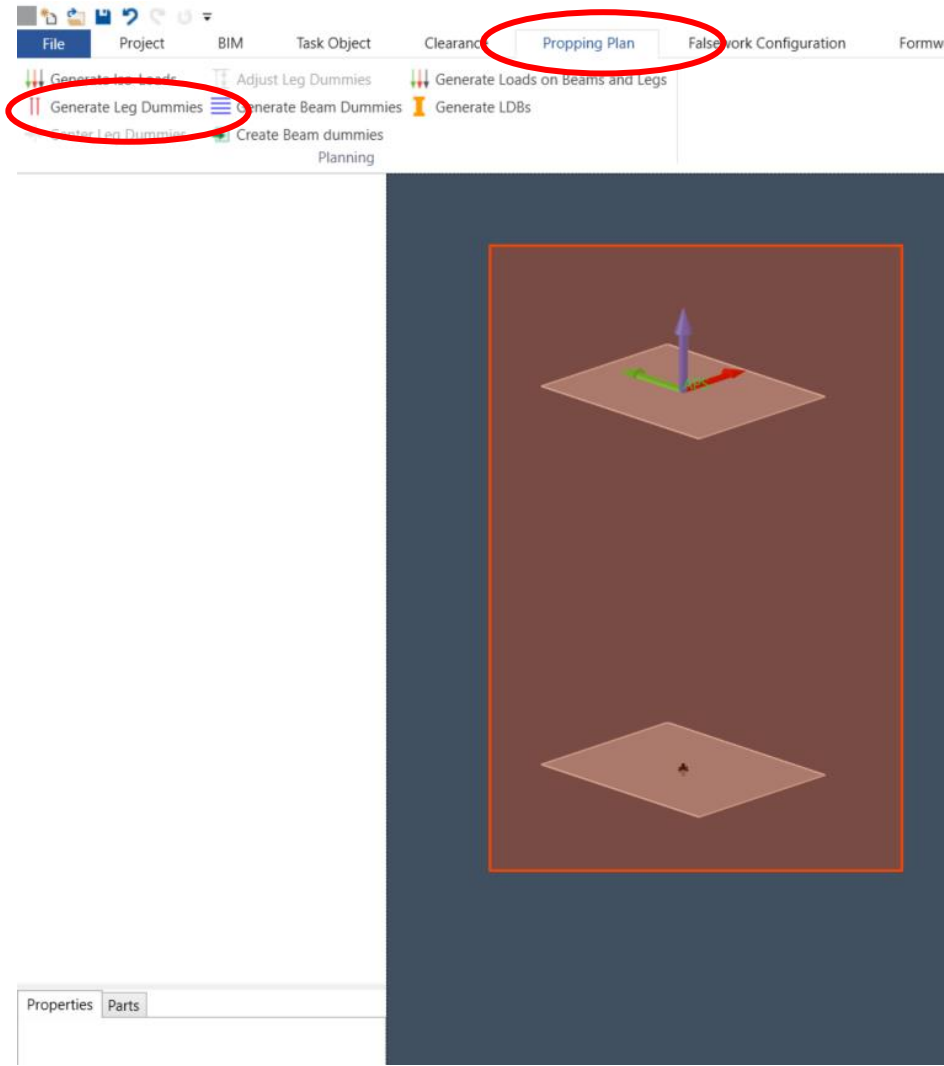
Clearance: "Generate Clearance"



One may generate simply flat planes in the distance of a supporting height while editing the measures. More complex shapes must be imported or edited point for point!

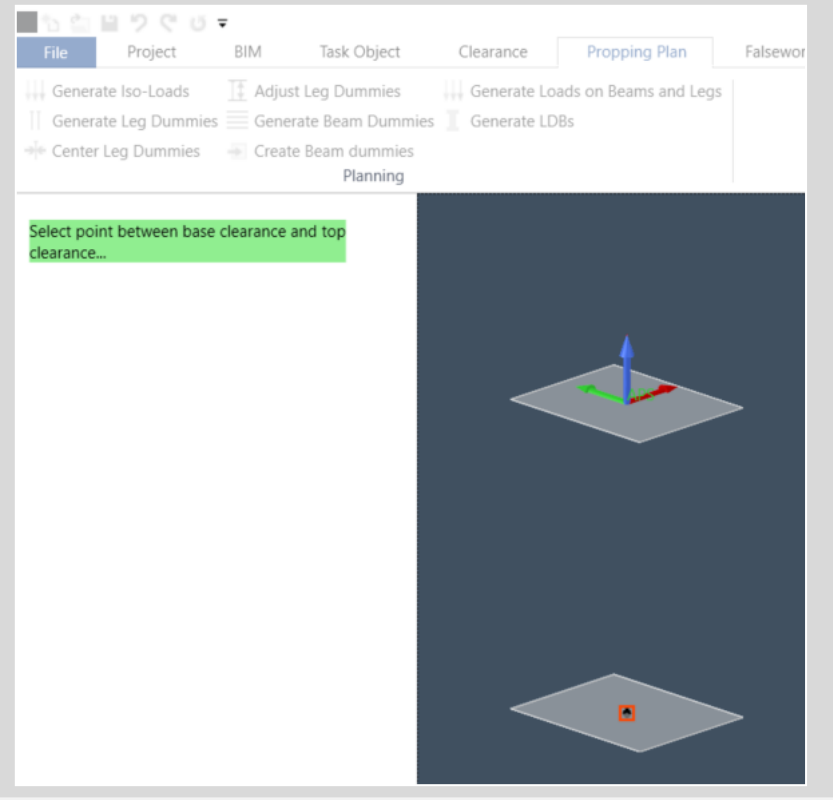
Example : no Object, no Formwork Build-Up available

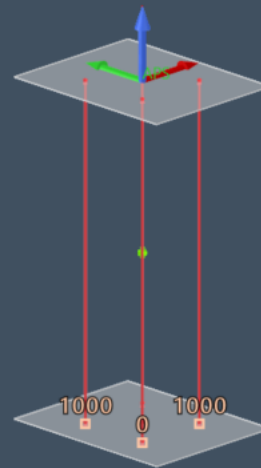
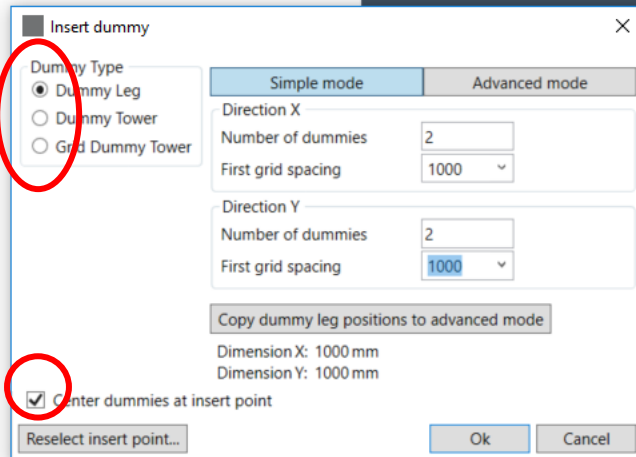
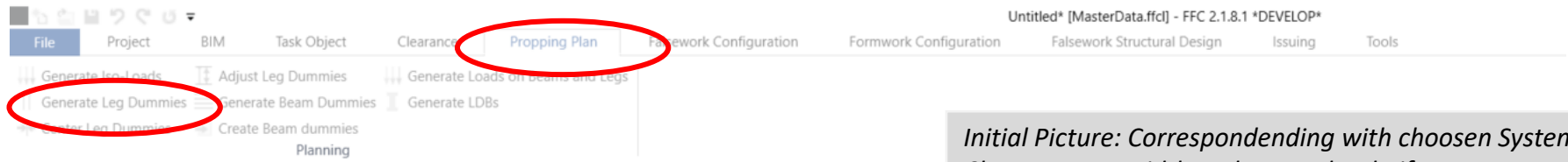
Propping Plan: „Generate Leg Dummies“



Proposal: open a window which includes top and base clearance. Propping will automatically centered in origin of local coordinates

Alternatively: Select breakthrough of coordinates at the foundation



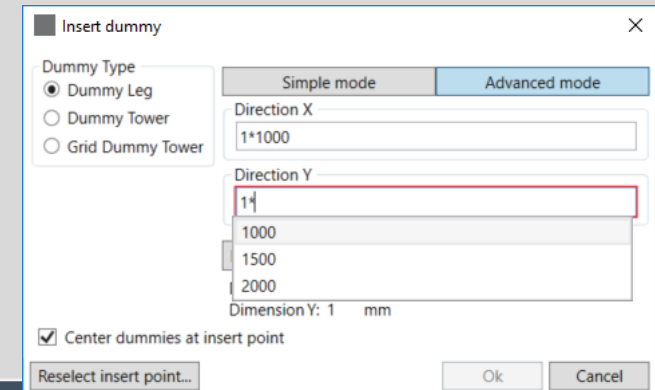


*Initial Picture: Corresponding with chosen System
Choose tower width and tower depth, if towers are desired, and go ahead with:*

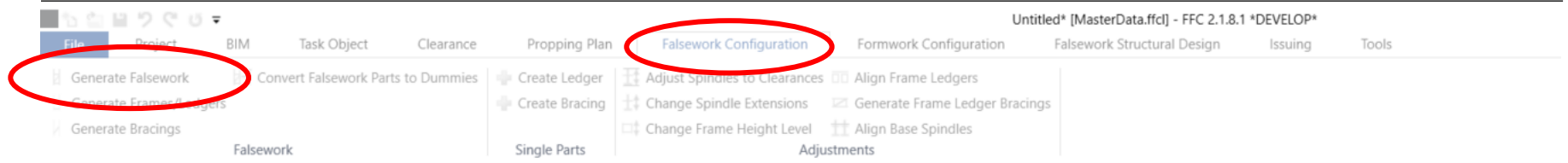
- **Simple mode:**
Insert a desired number of dummy towers with a preset distance once in x-direction and once in y-direction (other distance possible than in x-direction)

or

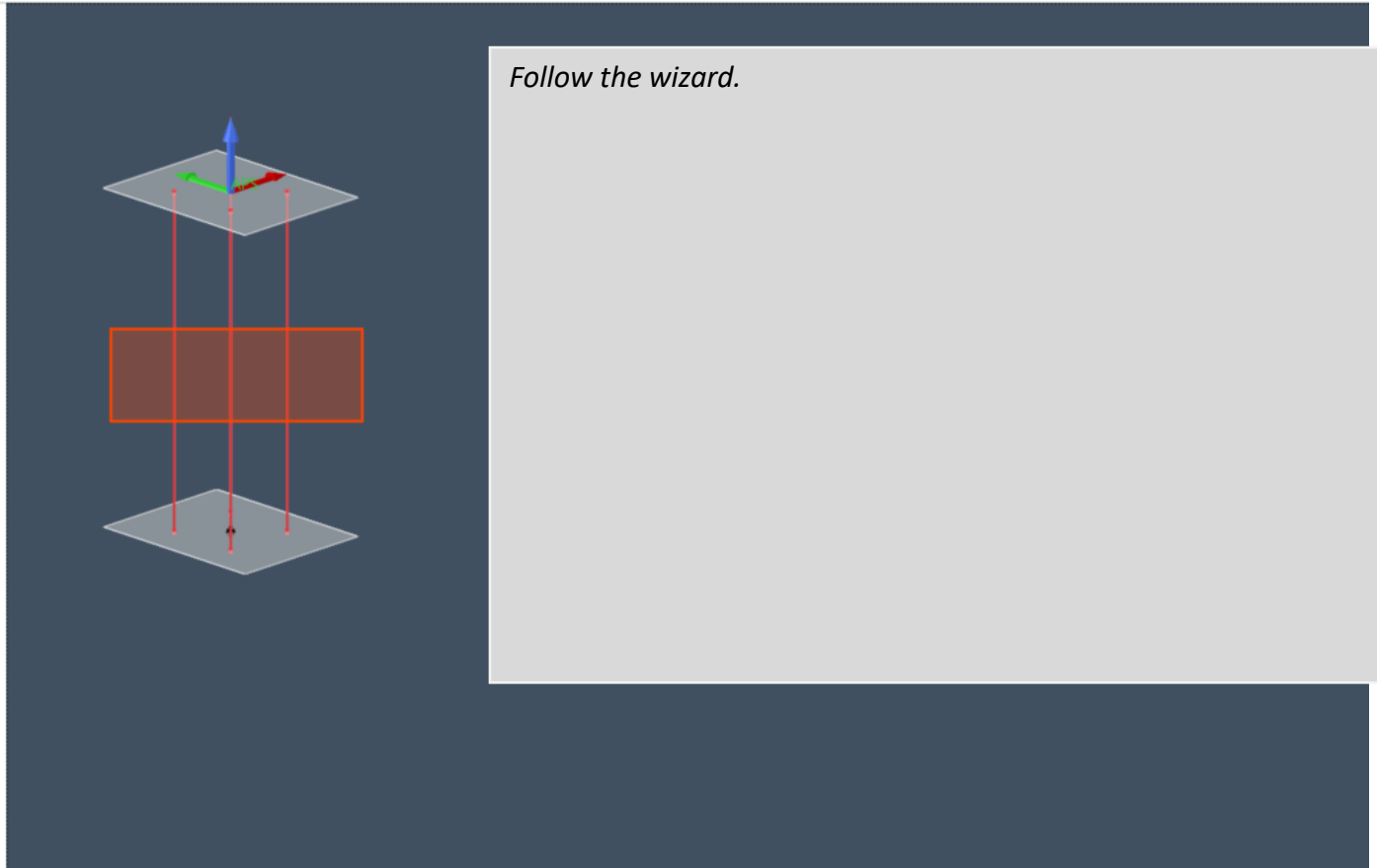
- **Advanced mode:**
Insert a sequence of dummy towers with desired distances in x- and y-directions.



Falsework Configuration: „Generate Falsework“



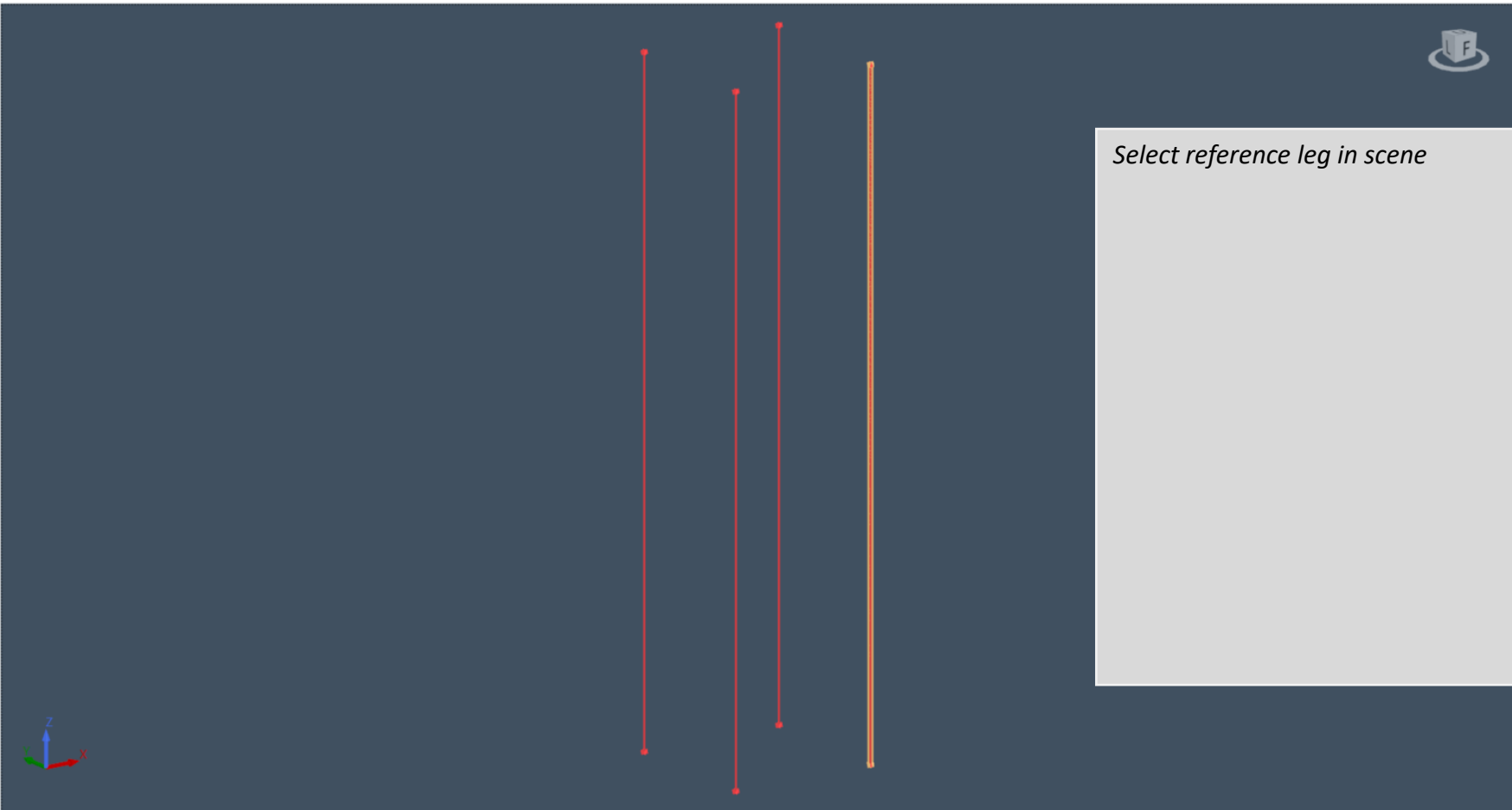
Select leg dummies in scene...



Follow the wizard.

InnoScaff AluPropSystem Configuration

Select Reference Leg in Scene



The image shows a 3D visualization of four vertical legs. Three legs are colored red and one is colored orange. A semi-transparent dialog box is overlaid on the right side of the scene, containing the text "Select reference leg in scene". In the bottom left corner of the 3D view, there is a 3D coordinate system with X, Y, and Z axes. In the top right corner of the 3D view, there is a small icon of a cube with the letter 'F' on it. At the bottom of the window, there are four buttons: "Cancel", "< Back", "Next >", and "Finish".

Falsework Configuration via wizard: „Generate Falsework“

InnoScaff AluPropSystem Configuration
✕

Configuration

Type0

Head component
InnoAPS Spindle (80 mm - 1320 mm)

Legs

- InnoAPS ADD-Prop 1000
- InnoAPS ADD-Prop 1250
- InnoAPS ADD-Prop 1500
- InnoAPS ADD-Prop 1875

Base component
InnoAPS Spindle (80 mm - 1320 mm)

Altitude of

Leg Joint Disc Level

Relative Absolute

Leg Joint

80 4420

80 mm

Extension Lengths

Head

80 420

250 mm

Base

80 420

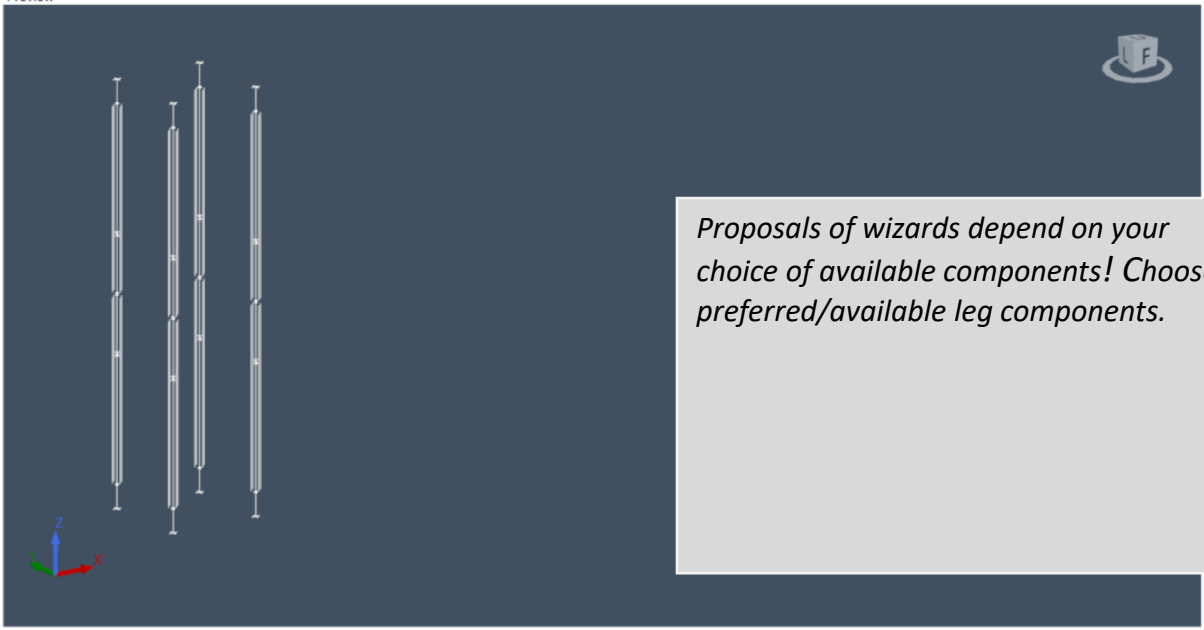
250 mm

Resulting Extension Lengths

Base 250 - 250 mm

Head 250 - 250 mm

Preview



Possible Combinations

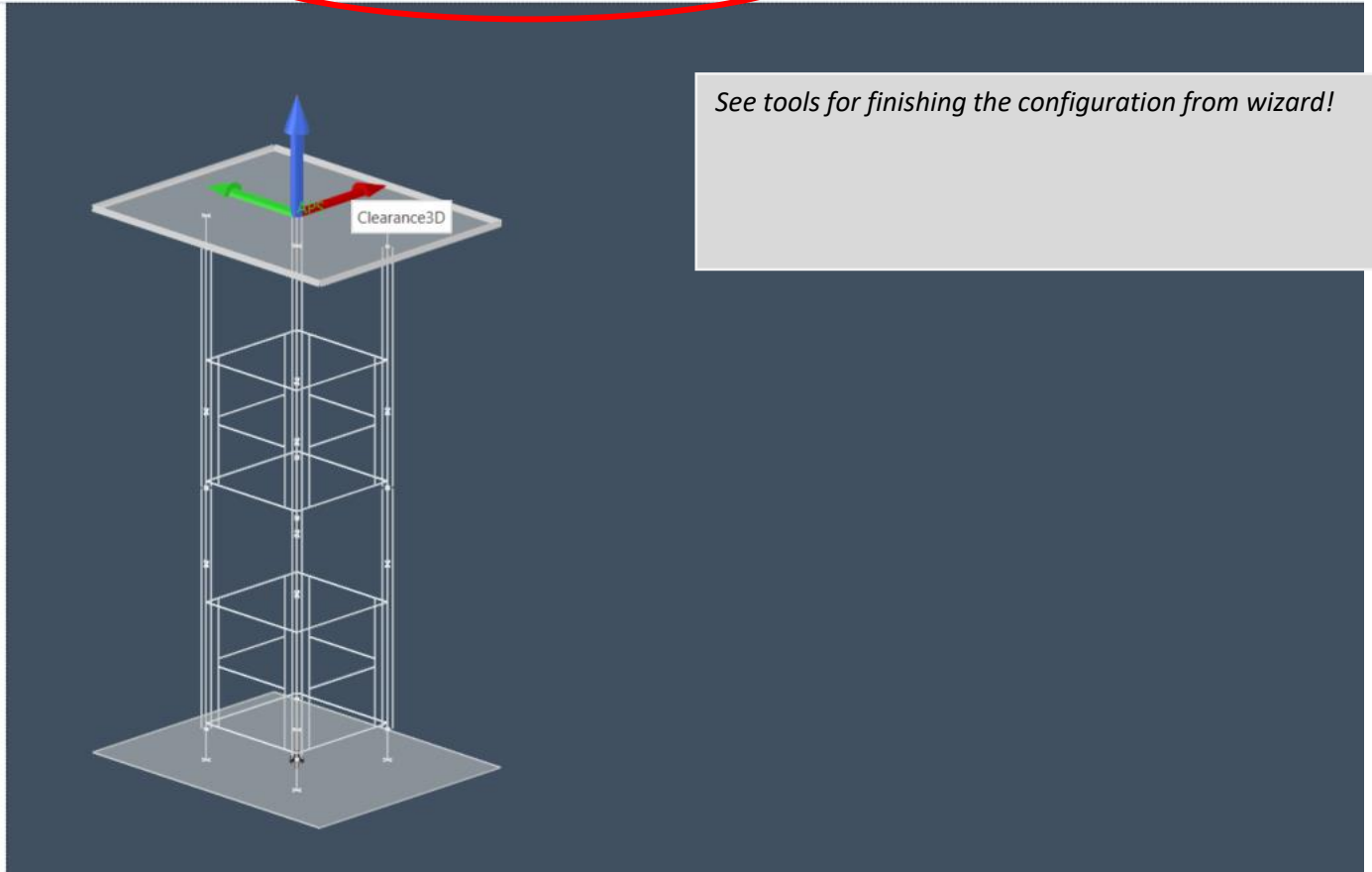
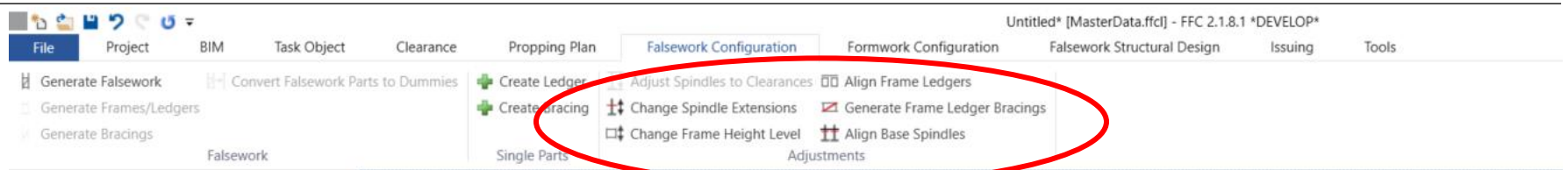
Combination	Extn. Len.	#Frms	Std. Hgt.
InnoAPS Spindle (80 mm - 1320 mm), 1x InnoAPS ADD-Prop 3750, InnoAPS Spindle (80 mm - 1320 mm)	750	1	3750
InnoAPS Spindle (80 mm - 1320 mm), 1x InnoAPS ADD-Prop 3000, InnoAPS Spindle (80 mm - 1320 mm)	1500	1	3000
InnoAPS Spindle (80 mm - 1320 mm), 1x InnoAPS ADD-Prop 2500, InnoAPS Spindle (80 mm - 1320 mm)	2000	1	2500
InnoAPS Spindle (80 mm - 1320 mm), 1x InnoAPS ADD-Prop 2000, InnoAPS Spindle (80 mm - 1320 mm)	2500	1	2000
InnoAPS Spindle (80 mm - 1320 mm), 2x InnoAPS ADD-Prop 2000, InnoAPS Spindle (80 mm - 1320 mm)	500	2	4000
InnoAPS Spindle (80 mm - 1320 mm), 1x InnoAPS ADD-Prop 1875, 1x InnoAPS ADD-Prop 2000, InnoAPS Spindle (80 mm - 1320 mm)	625	2	3875
InnoAPS Spindle (80 mm - 1320 mm), 1x InnoAPS ADD-Prop 1875, InnoAPS Spindle (80 mm - 1320 mm)	2625	1	1875
InnoAPS Spindle (80 mm - 1320 mm), 2x InnoAPS ADD-Prop 1875, InnoAPS Spindle (80 mm - 1320 mm)	750	2	3750
InnoAPS Spindle (80 mm - 1320 mm), 1x InnoAPS ADD-Prop 1500, 1x InnoAPS ADD-Prop 2500, InnoAPS Spindle (80 mm - 1320 mm)	500	2	4000
InnoAPS Spindle (80 mm - 1320 mm), 1x InnoAPS ADD-Prop 1500, 1x InnoAPS ADD-Prop 2000, InnoAPS Spindle (80 mm - 1320 mm)	1000	2	3500
InnoAPS Spindle (80 mm - 1320 mm), 1x InnoAPS ADD-Prop 1500, 1x InnoAPS ADD-Prop 1875, InnoAPS Spindle (80 mm - 1320 mm)	1125	2	3375
InnoAPS Spindle (80 mm - 1320 mm), 2x InnoAPS ADD-Prop 1500, InnoAPS Spindle (80 mm - 1320 mm)	1500	2	3000
InnoAPS Spindle (80 mm - 1320 mm), 1x InnoAPS ADD-Prop 1250, 1x InnoAPS ADD-Prop 3000, InnoAPS Spindle (80 mm - 1320 mm)	250	2	4250

Cancel < Back Next > Finish

Proposals of wizards depend on your choice of available components! Choose preferred/available leg components.

The screenshot displays the 'InnoScaff AluPropSystem Configuration' window. The title bar includes a close button. The main window is titled 'Ledger Configuration' and has two tabs: 'Configuration' and 'Preview'. The 'Configuration' tab is active, showing a 'Type0' dropdown menu and a 4x4 grid of cells, which is circled in red. The 'Preview' tab shows a 3D wireframe model of a scaffolding structure with a vertical ledger. A tooltip points to the ledger with the text 'InnoAPS ADD-Prop 2000 (InnoAPS_ADDProp_2000)'. A 3D coordinate system with X, Y, and Z axes is visible in the bottom left. A text box on the right contains the message: 'A wizard controlled proposal will be established. You may finish it at your choice after finalizing the wizard.' At the bottom right, there are buttons for 'Cancel', '< Back', 'Next >', and 'Finish'.

Option: Adjustments



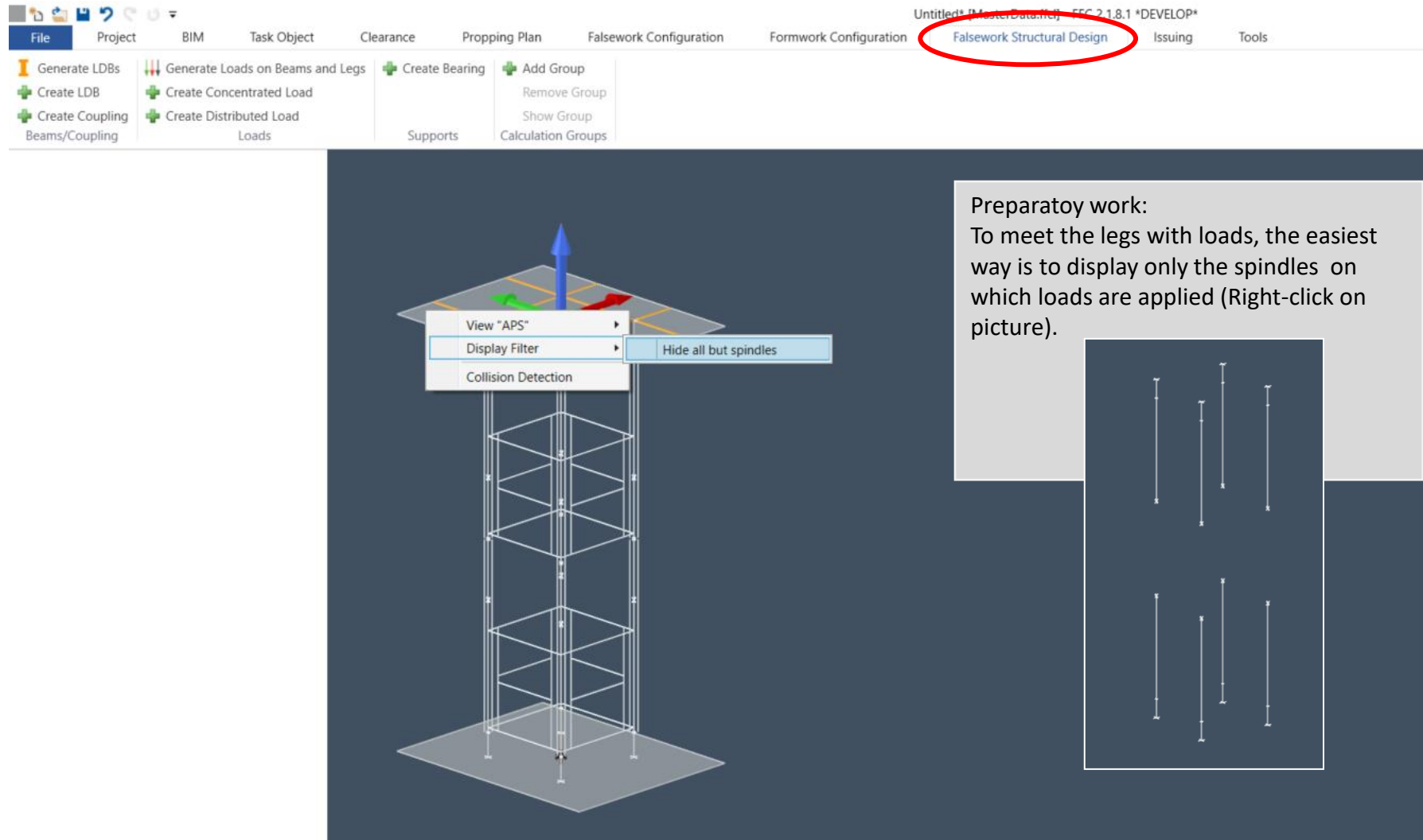
The screenshot displays the software interface for Falsework Structural Design. The 'Formwork Configuration' tab is active, and the 'Generate LDBs' button is highlighted. A dialog box titled 'Generate LDBs' is open, showing the following parameters:

- E: 10000 kN/cm²
- I.: 1000 cm⁴
- A: 100 cm²
- G: 0 kN/cm²

Options for hinge placement:

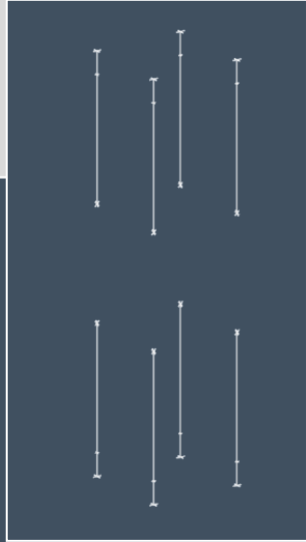
- Hinge at the beginning:
- Hinge at the end:
- Hinge at the spindles:
- Variable:

The 3D model shows a falsework structure with a highlighted area on the top surface. A text box on the right states: *LDBs represent beam dummies structurally!*



The screenshot shows the InnoScaff software interface. The top menu bar includes 'File', 'Project', 'BIM', 'Task Object', 'Clearance', 'Propping Plan', 'Falsework Configuration', 'Formwork Configuration', 'Falsework Structural Design' (highlighted with a red circle), 'Issuing', and 'Tools'. Below the menu bar, there are several tool icons and labels: 'Generate LDBs', 'Generate Loads on Beams and Legs', 'Create Bearing', 'Add Group', 'Create LDB', 'Create Concentrated Load', 'Remove Group', 'Create Coupling Beams/Coupling', 'Create Distributed Load', 'Show Group', 'Supports', and 'Calculation Groups'. The main workspace displays a 3D model of a falsework structure. A context menu is open over the model, showing options: 'View "APS"', 'Display Filter' (with a sub-menu 'Hide all but spindles'), and 'Collision Detection'. To the right of the 3D model, there is a text box with the following content:

Preparatory work:
To meet the legs with loads, the easiest way is to display only the spindles on which loads are applied (Right-click on picture).



The screenshot displays the software interface for Falsework Structural Design. The top menu bar includes options like File, Project, BIM, Task Object, Clearance, Propping Plan, Falsework Configuration, Formwork Configuration, Falsework Structural Design (highlighted with a red circle), Issuing, and Tools. The ribbon contains various toolsets, with 'Generate Loads on Beams and Legs' and 'Create Concentrated Load' (both highlighted with red circles) being the active tools. The 'Concentrated Load' panel on the left shows input fields for 'Load on local Axis' (0, 0, -10 kN, highlighted with a red circle), 'Load on LDB' (unchecked), 'Variable Load' (checked), and 'Load cause' (WOC (%Q2.1c%)). Below this, there are 'Multiple Mode' and 'Single Mode' buttons, and a 'Select points in scene by rectangle...' section with 'Select/Insert' and 'Insert' buttons (both highlighted with red circles). The main workspace shows a 3D view of a falsework structure with several vertical supports. A red rectangle highlights a specific area where three concentrated loads are being applied, and a white rectangle highlights another area with three more supports.

Execution

File Project BIM Task Object Clearance Propping Plan Falsework Configuration Formwork Configuration **Falsework Structural Design** Issuing Tools

Generate LDBs Generate Loads on Beams and Legs **Create Bearing** Add Group
Create LDB Create Concentrated Load Remove Group
Create Coupling Beams/Coupling Create Distributed Load Loads Show Group
Supports Calculation Groups

Bearing
Target
LDBs Legs
Template
Top Held x y
Advanced configuration
Multiple Mode Single Mode
Select points in scene by rectangle ...
Select/Insert Insert

All bearings required are available as templates.
(Template = default settings of the program)

- Top held x/y = held laterally

File Project BIM Task Object Clearance Propping Plan Falsework Configuration Formwork Configuration **Falsework Structural Design** Issuing Tools

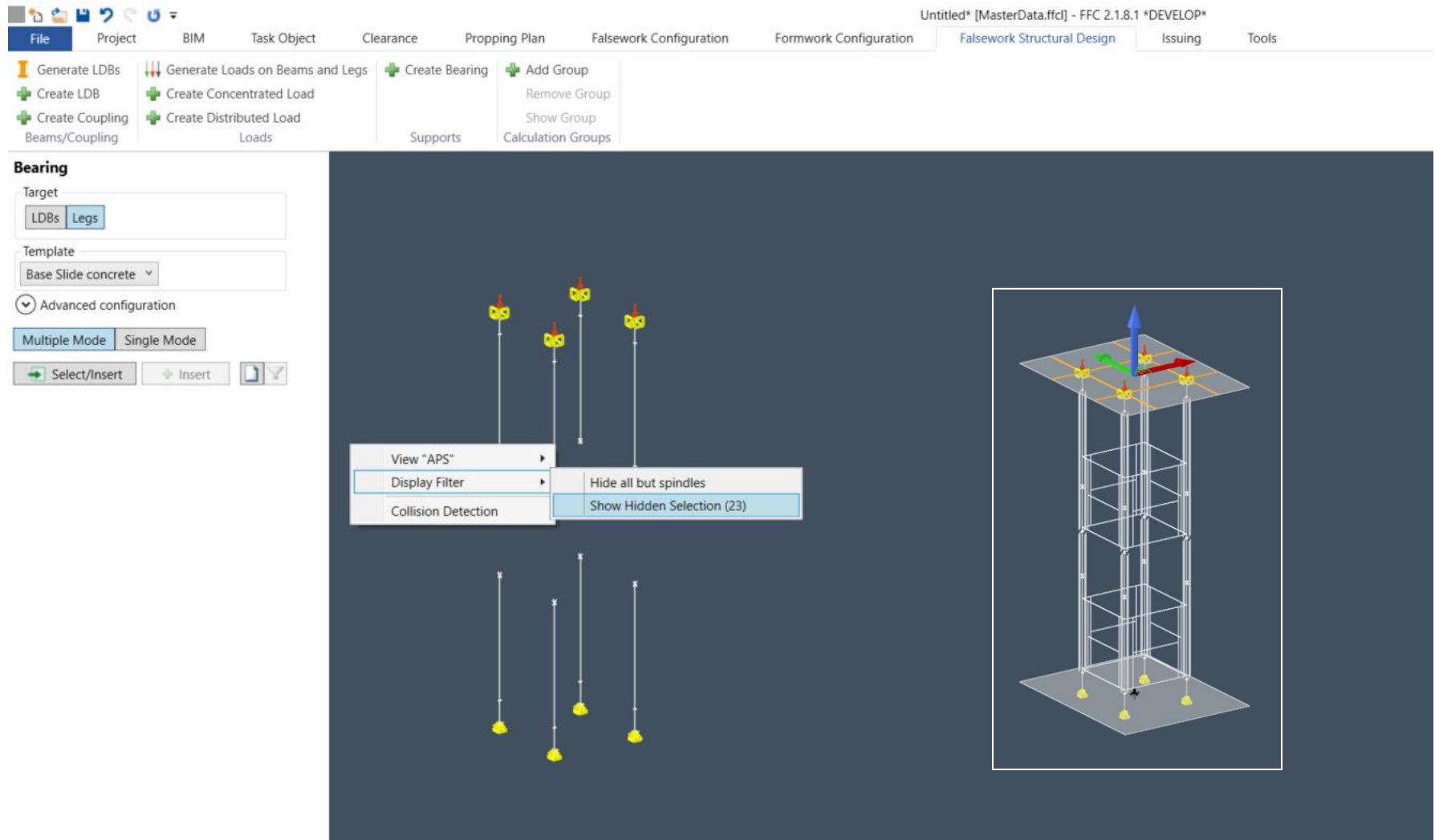
Generate LDBs Generate Loads on Beams and Legs **Create Bearing** Add Group
 Create LDB Create Concentrated Load Remove Group
 Create Coupling Beams/Coupling Create Distributed Load Show Group
 Loads Calculation Groups

Bearing
 Target: LDBs Legs
 Template: Base Slide concrete
 Advanced configuration
 Multiple Mode Single Mode
 Select points in scene by rectangle ...
 Select/Insert Insert

All bearings required are available as templates.
 (Template = default settings of the program)

Base 12811 x y means:

- Vertically fixed
- Laterally sliding: steel/concrete
- Bending restraint according to DIN EN 12812



Falsework Structural Design: „Add Calculation Group“

The screenshot displays the software interface for Falsework Structural Design. The top menu bar includes options like File, Project, BIM, Task Object, Clearance, Propping Plan, Falsework Configuration, Formwork Configuration, Falsework Structural Design, Issuing, and Tools. The 'Falsework Structural Design' menu is open, showing options such as Generate LDBs, Create LDB, Create Coupling Beams/Coupling, Generate Loads on Beams and Legs, Create Concentrated Load, Create Distributed Load, Create Beams, Add Group, Remove Group, Show Group, and Calculation Groups. A red circle highlights the 'Add Group' option. Below the menu, a 3D model of a falsework structure is shown. A red oval highlights a vertical line representing a calculation group. The model includes a central vertical beam with a green arrow pointing up and a red arrow pointing right. Four yellow square markers are placed at the corners of a rectangular area, each labeled '10 [kN]'. A dimension of '2500' is indicated for the height of the calculation group.

Falsework Structural Design: „Start Calculation“ and save Project

