CADS Link: SCIA Engineer-Westok Cellbeam

Manual (British Standards)

CADS LINK

SCIA ENGINEER ⟷ Westok Cellular Beams

Revision history

Date	Version	Description	Author
08.12.2016	16.012		KS
16.05.2017	17.002	Diagrams updated to match minor updates in SCIA Engineer	KS
29.06.2017	17.1.4	Manual amended – composite beams added	KS
25.10.2017	17.1.5	Minor typing mistakes fixed	KS

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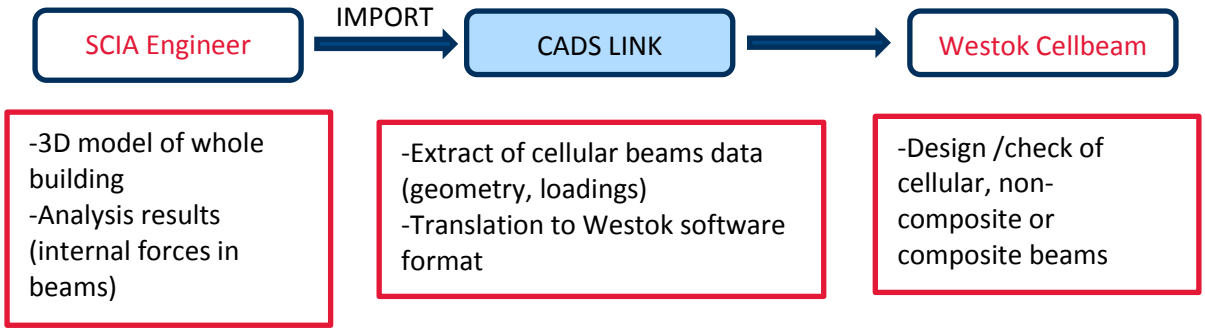
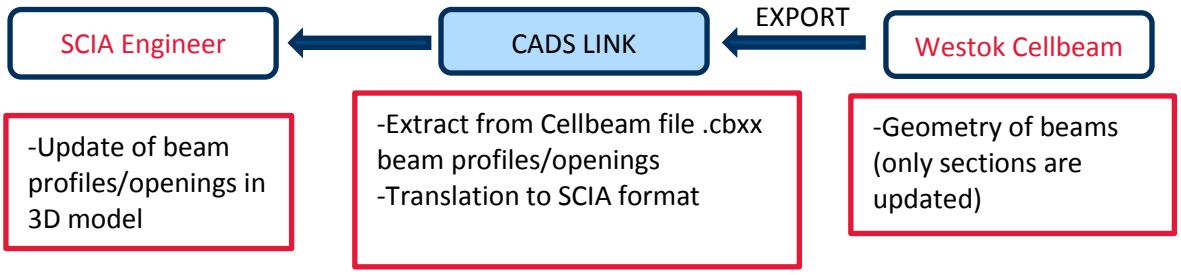
1 CADS Link SCIA Engineer-Westok Cellbeam

1.1 General information

The link is a tool made by CADS (and embedded in SCIA Engineer version 17.01 or later), which allows the transfer of geometry of Celullar non-composite and composite beams and loadings from SCIA Engineer to Westok Cellbeam software. After the design/update of beam sections (or openings), the modified beam geometry can be then transferred back to SCIA Engineer.

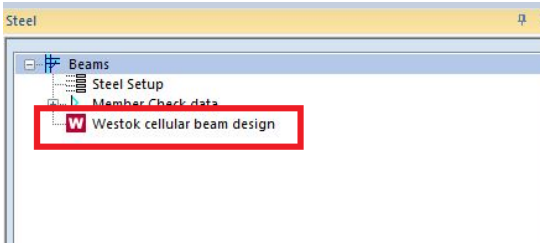
The short diagrams below illustrate how the options “Export” and “Import” work.





1.2 Running CADS link

After the 3D model of the building is created and analysed, the link can be run from:
Main tree menu-> Steel->Beams:

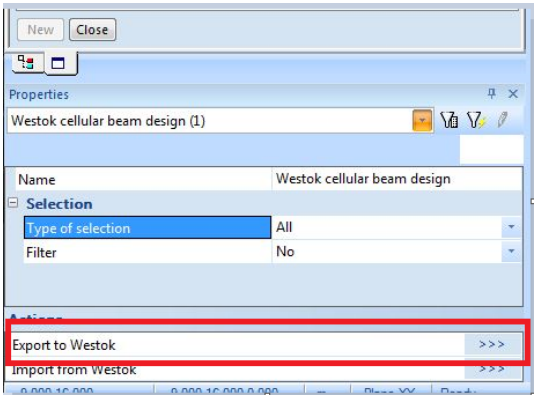


In the Properties window options will appear about the Westok transfer: “Selection” options, and “Action” buttons.

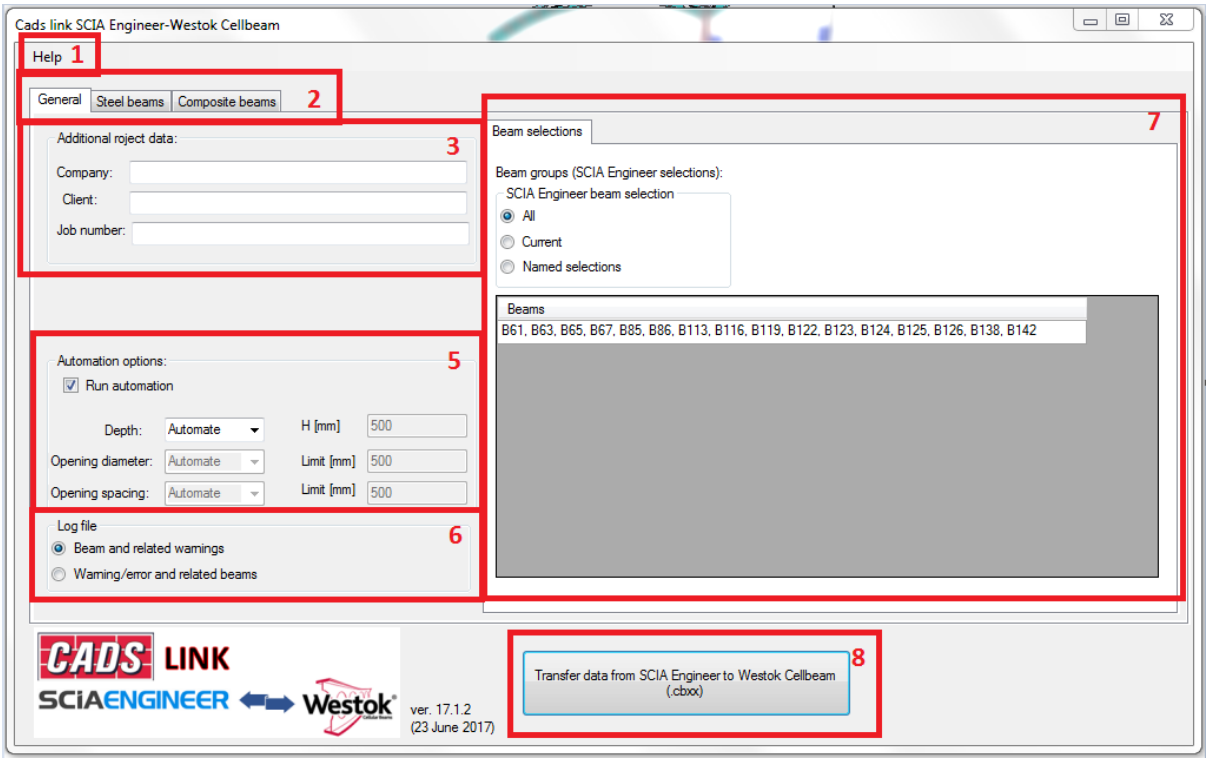
“Selection” is a standard SCIA Engineer option, but using it with the link, only two options should be used:

- Current: if the current selection of beams is to be transferred.
- All: If all cellular beams are to be transferred, or beams in named selections are to be transferred
- Option “Filter” is not used in the link.

1.2.1 Export to Westok Cellbeam



After clicking the “Action” button “Export to Westok”, the CADS link window will appear:



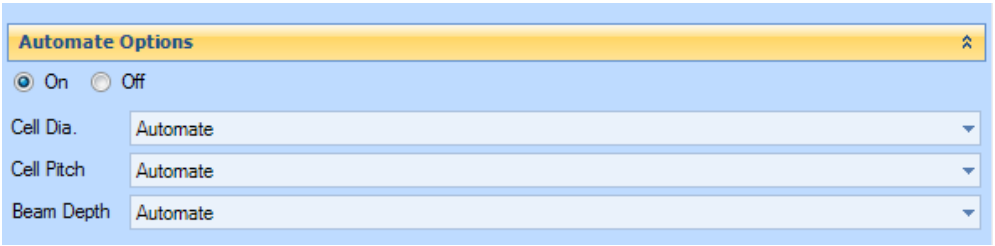
- 1: Help- manuals.

- 2: Tabs with software options.

1.2.1.1 Tab “General”

-3: Additional project data: These options allow the user to set up some project information, which will be shown in the Westok Cellbeam report.

- 5: Automation options: These options allow the user to set up the default automation options for all transferred beams (these settings can be amended later in Cellbeam for each beam separately).



- 6: Log file options: It allows the user to specify how error and warning messages are displayed in the file:

- Beam and related errors/warnings:

```
-----------------------------------
Beam related errors/warnings:

Beam: B1
W6, W30
-----------------------------------
Beam: B2
W6, W30
-----------------------------------
Beam: B3
W6, W30
-----------------------------------
Beam: B4
W6, W30
-----------------------------------
```

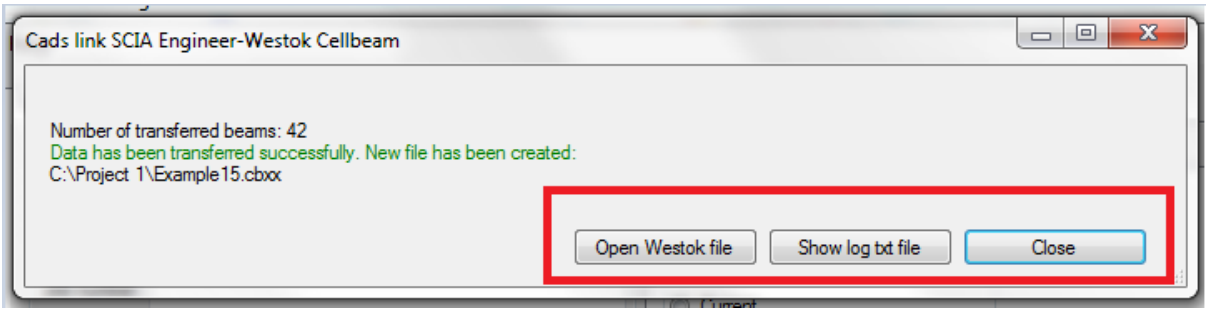
- Error/warning and related beams:

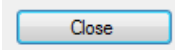
```
-------------------------------------------------------------------------------------------------
-------------------------------------------------------------------------
(W6)
Beam in SCIA Engineer has incorrect steel grade (not allowed in Westok Cellbeam).
Min steel grade S275 has been used.
See SCIA Engineer beams:
B1, B2, B3, B4, B5, B6, B7, B8, B9, B10, B11, B13, B14, B15, B17, B18, B19, B20, B21, B22, B23,
B126, B136, B140, B145, B146, B147, B148, B149, B153, B240, B241, B242, B246, B247, B248, B249,
B283, B284, B285, B286, B287, B288, B289, B290, B298, B299, B300
-------------------------------------------------------------------------
(W10)
Negative reactions from supported beams for load cases other than wind, have been ignored.
See SCIA Engineer supporting beams:
B126, B300
```

- 7: Beam selections: It gives the user three options about selected SCIA Engineer beams that are being transferred.

- All: transfers all cellular beams from SCIA Engineer (ignoring any selections set up in SCIA Engineer) .
- Current: transfers only currently selected beams in SCIA Engineer. (Option “Current” has to be chosen in the Selection options in SCIA Engineer). In case, when no beams have been selected in SCIA Engineer as current selection, all “Westok” beams are shown in this option.
- Named selections: transfers only beams in SCIA Engineer named selections (the User can choose named selections in the table below Selection options).

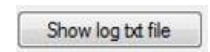
- 8: After clicking on the button, the link will transfer the data and create the Westok “.cbxx” file. Depending on the size of the project, it can take a couple of seconds, up to a couple of minutes. Once the data transfer is complete, an information window with three buttons should appear, as shown below.





Closes the link.

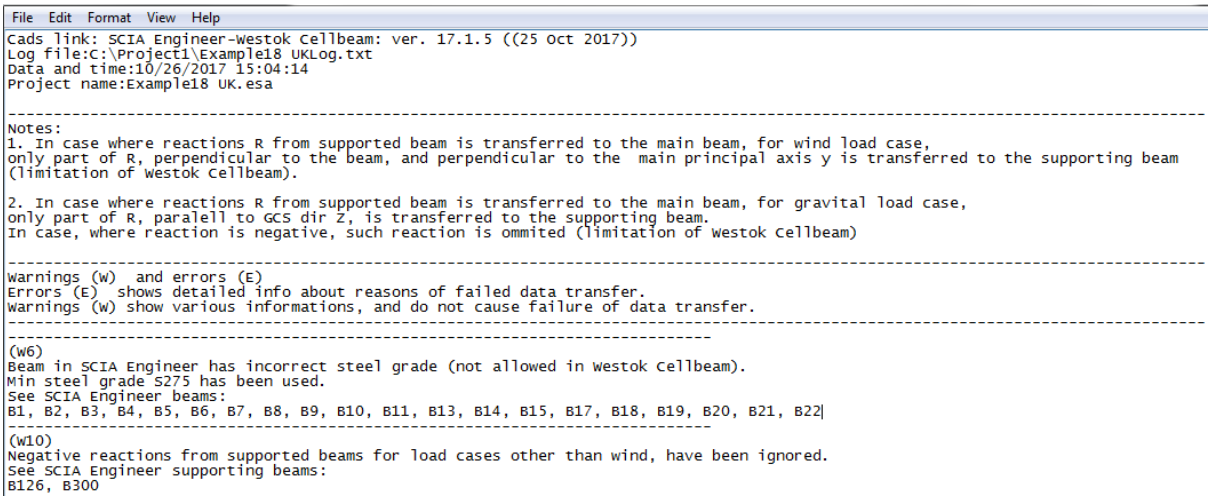
Opens the created file in Cellbeam software.



Opens the txt log file with detailed information about warnings and errors messages.

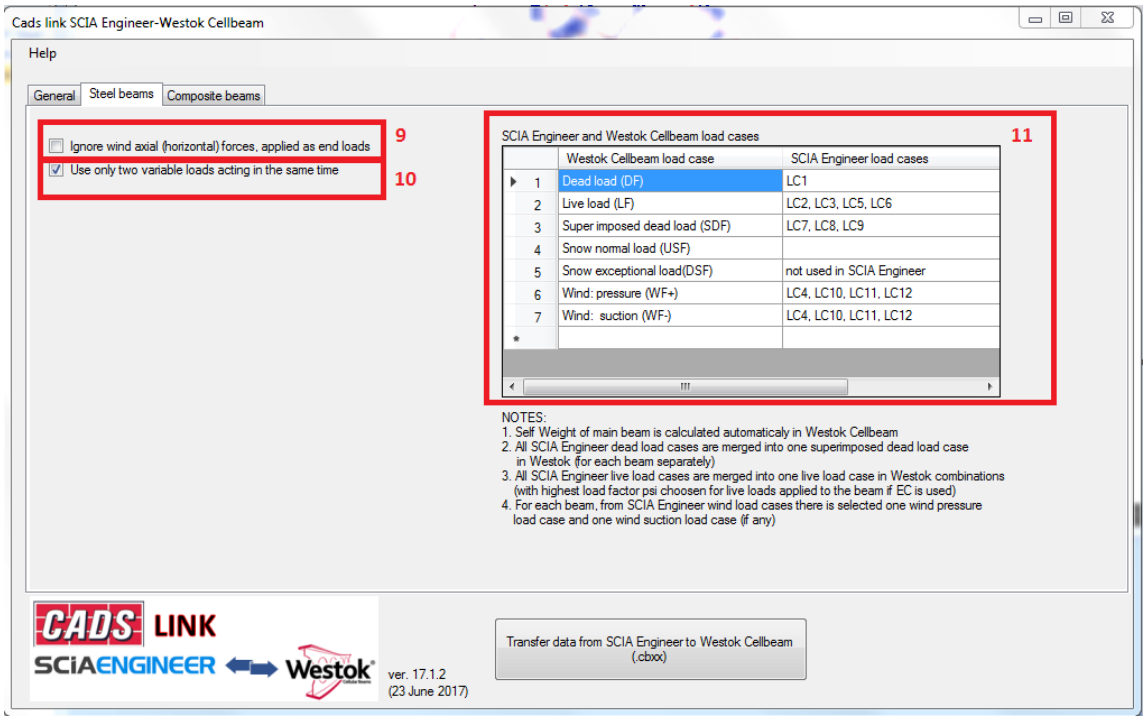
The log file contains a list of warnings and error messages.

- Warnings (W): information about beams, where some properties/loadings have been amended because of incompatibility between SCIA Engineer and Westok Cellbeam. Warnings do not cause failure of data transfer, but often they have important information about beams, so they have to be read carefully.
- Errors (E): information about the reason of unsuccessful data transfer.



For the table with errors and warnings, please refer to section 3.

1.2.1.2 Tab “Steel beams”

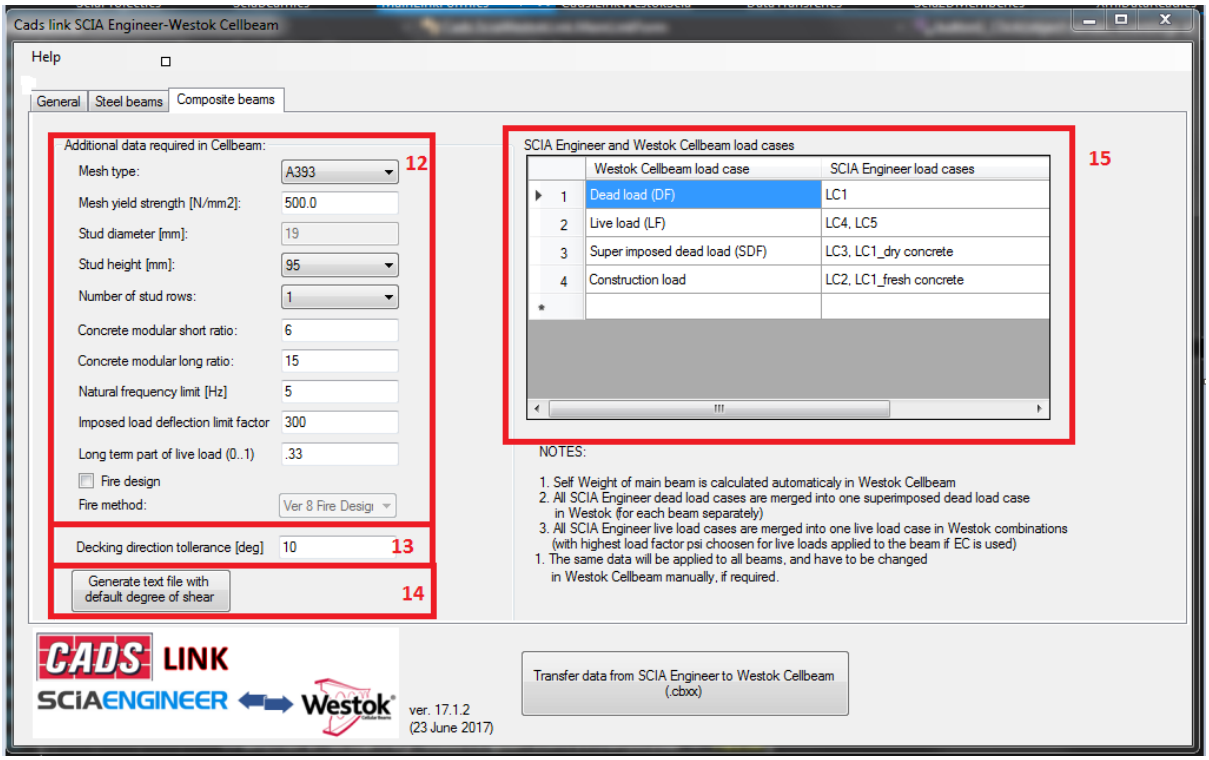


-9,

10: Options are explained in Load combinations (see section 2.7).

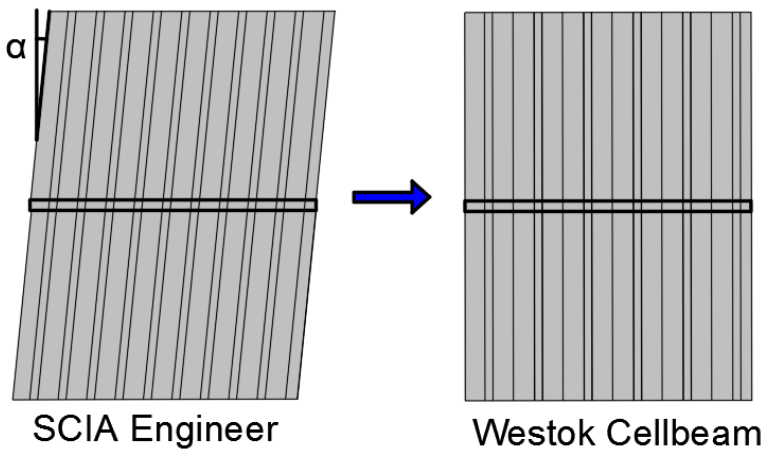
-11: Load cases in Westok Cellbeam and equivalent load cases in SCIA Engineer (see section 2.6).

1.2.1.3 Tab "Composite beams"



-12: Default data required by Westok Cellbeam. For more detailed help, please refer to Westok Cellbeam help/manuals. All data set up in this window will be applied to all transferred beams in the project. If some beams have different data, they have to be updated manually in Westok software.

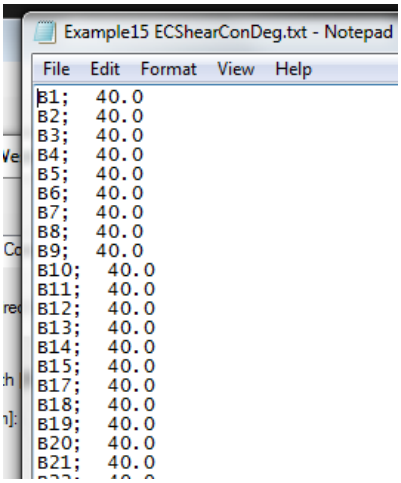
-13: Decking direction tolerance angle. In Westok Cellbeam, there are only two possible metal decking arrangements: with troughs perpendicular or parallel to the beam. However, in SCIA Engineer it is possible to model decking, where angle between decking troughs and beam may be different from 90°. If difference between the SCIA Engineer angle and 90° is small, in practical solutions it may be neglected. CADS link allows user to set up such tolerance angle.



-14: Generation of text file with default shear connection degrees. One of composite beam properties is degree of shear connection. In current version of Westok Cellbeam it is not possible to transfer such values to the SCIA Engineer through the link.

There are two possible solutions:

- The link transfers the default value 40.0% for every beam, and then the user has to change values manually in SCIA Engineer, based on values from Westok Cellbeam reports.
- Instead of updating values in SCIA Engineer, the CADS link can read values from txt file, and transfer them to SCIA Engineer. Button 14 generates the txt file with default values 40.0%, in the folder, where the SCIA Engineer project has been saved, and the user can update values manually.

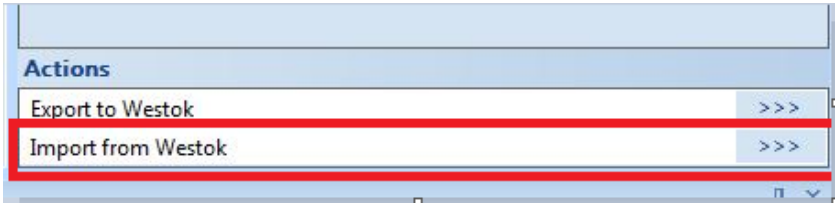


In case, where the link cannot find txt file with connection degree, it will transfer default value 40.0% for every beam.

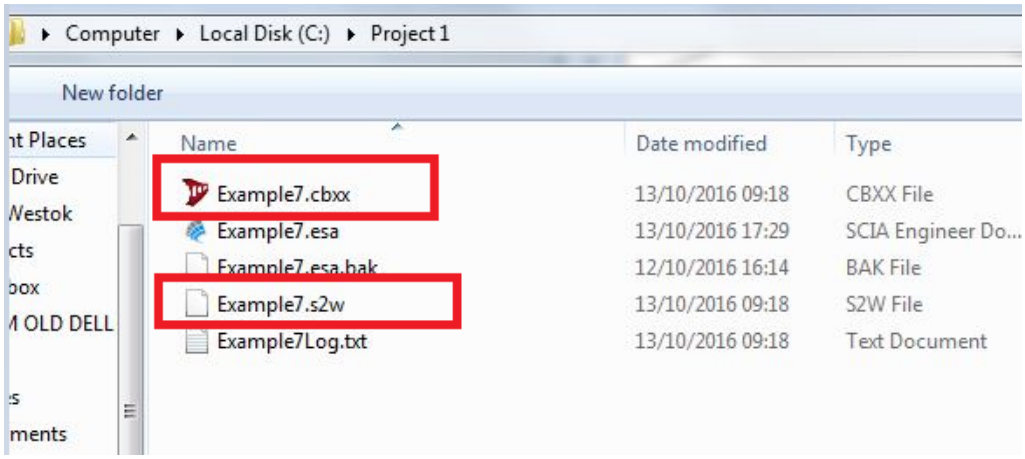
-15: Load cases in Wetok Cellbeam and equivalent load cases in SCIA Engineer (see 2.6).

1.2.2 Import from Westok Cellbeam

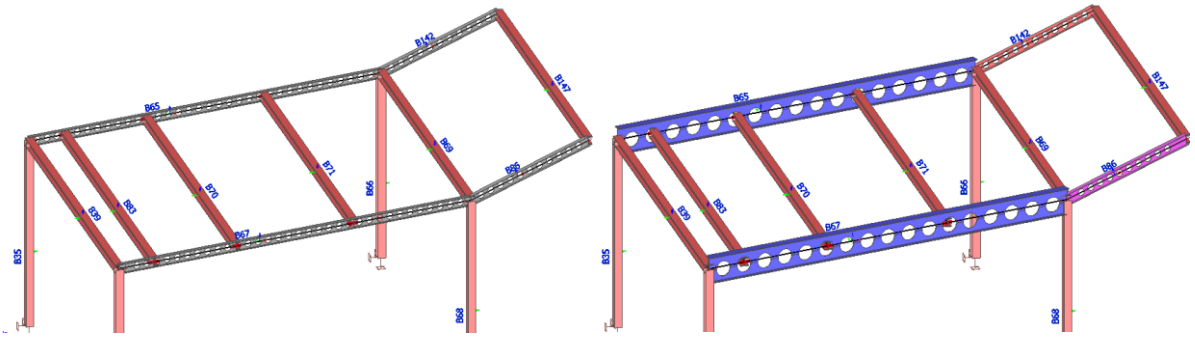
Data import is possible, provided, that the SCIA Engineer model has not been changed since exported to Westok.



After clicking on “Import from Westok” button, the user should choose the “.cbxx” file with updated Cellbeam project file:



Please note, that related ".s2w" file has to be saved in the same folder, as chosen ".cbxx" file. Originally these two files have been created in the SCIA Engineer project folder, but if the user has moves the ".cbxx" file, the associated ".s2w" file, also needs to be moved.
If the data transfer is successful, the SCIA Engineer model and beam profiles should be updated. Below there is the SCIA Engineer 3D model before and after import from Westok.



2 3D model in SCIA Engineer vs beam models in Westok Cellbeam

2.1 General information

In SCIA Engineer, the building model is complex and the software takes into account:

- different types of structure: columns, beams, plates, walls, trusses…;
- different materials in one project (steel, concrete…);
- more complex geometry shapes;
- different types of support or releases between members;
- practically unlimited number of load cases (with relations between them);
- many load types;
- automatic code combinations (without the necessity of defining separated combination cases);
- nonlinearity (material and geometry).

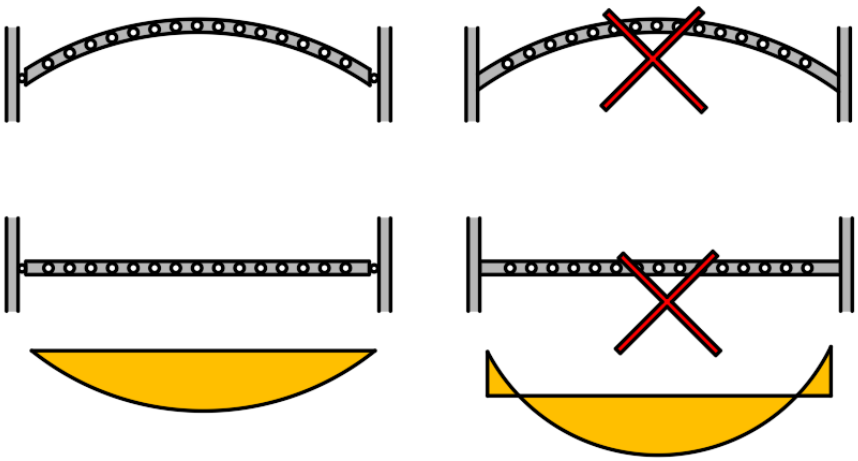
The Cellbeam focuses only on cellular beams and their design.

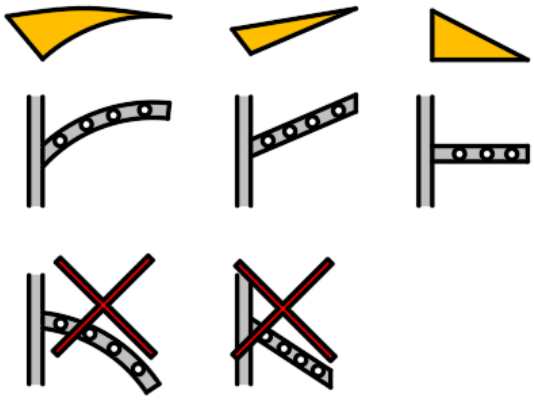
Because of different software functionality, two programmes cannot exchange all geometry or results data, and the user has to be aware of software limitations and assumptions made in CADS link.

2.2 Supported beam types

The link transfers geometry of simple supported beams, connected to other members in SCIA Engineer by hinges, or cantilever types, shown below: (bending moment diagrams are shown to illustrate fixity).

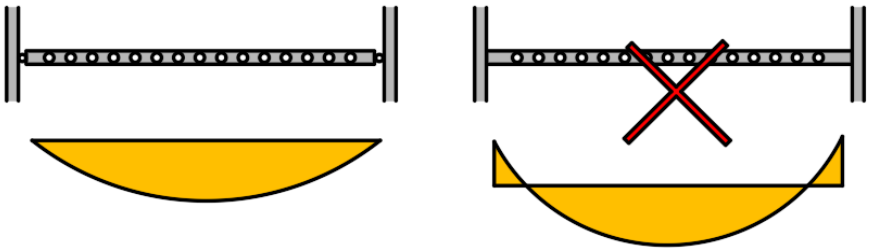
2.2.1 Non-composite beams.





2.2.2 Composite beams.

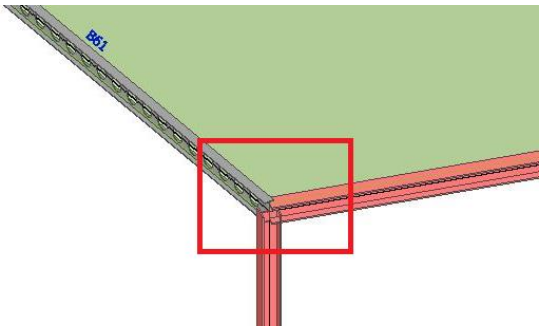
Only simple supported composite beams can be transferred to Westok Cellbeam.

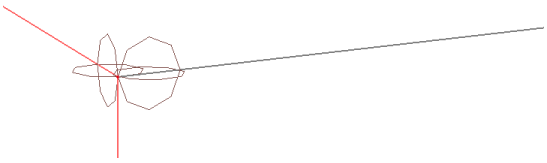


Cantilevered, sloping, or curved beams are not allowed to be transferred to the Westok Cellbeam.

2.3 Beam support (connections)

To transfer information about beam end support, in SCIA Engineer correct 1D member hinge options have to be added to member ends:



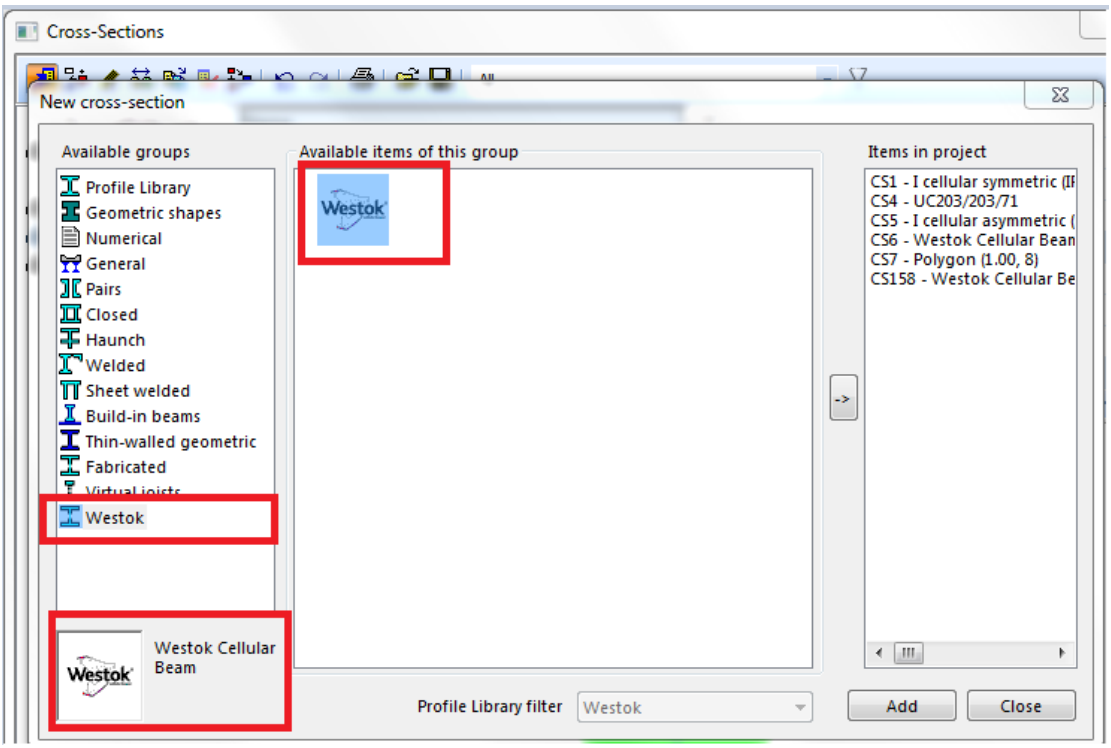


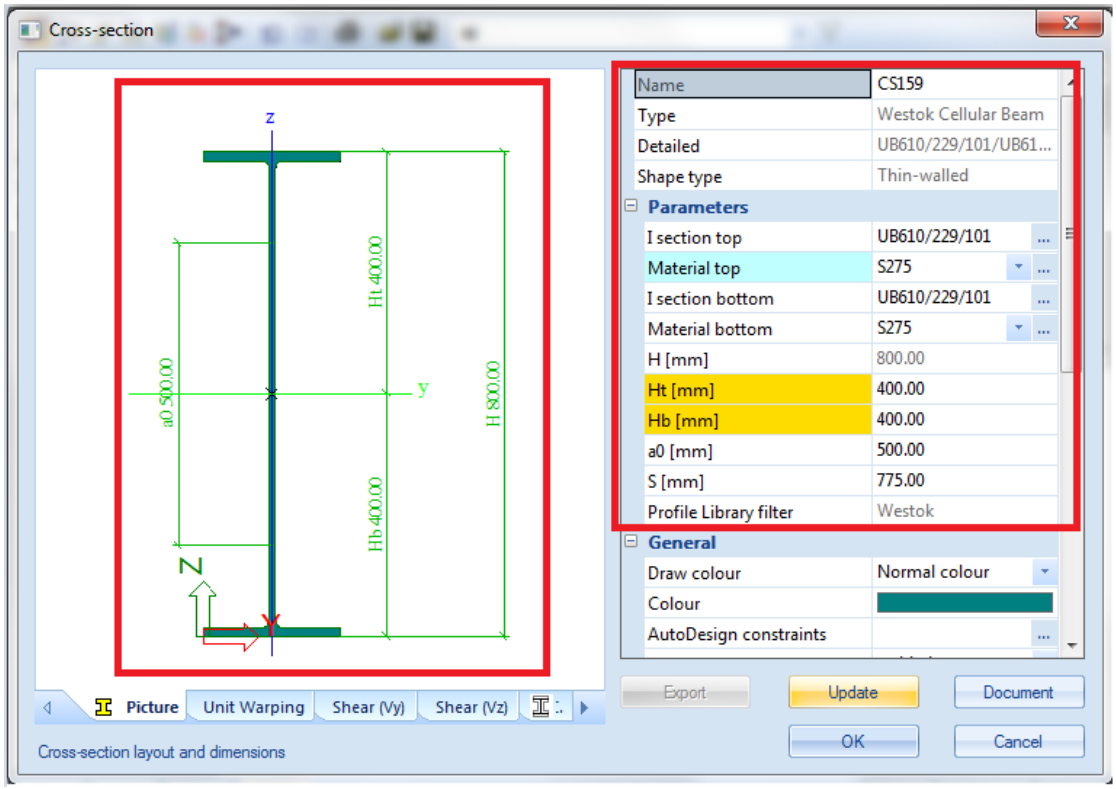
The end support condition in Westok beam is created, based on highlighted hinge properties in SCIA Engineer. Information other than highlighted above, is not important for Westok Cellbeam, as there is no possibility to analyse beams for biaxial bending.

Cases, where a beam is supported on 2D members (slab or wall) or point supports are defined on beam ends, are not supported in the link.

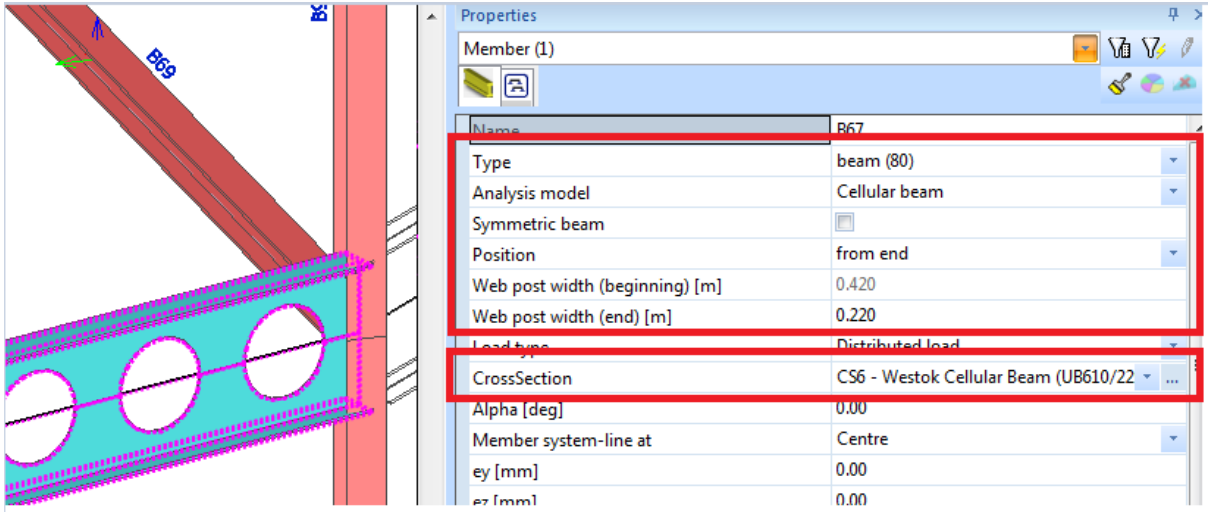
2.4 Creating Westok profiles in SCIA Engineer

To define cellular beam section in SCIA Engineer, a new Westok compatible section should be created, using: Libraries->Cross-sections->Westok.





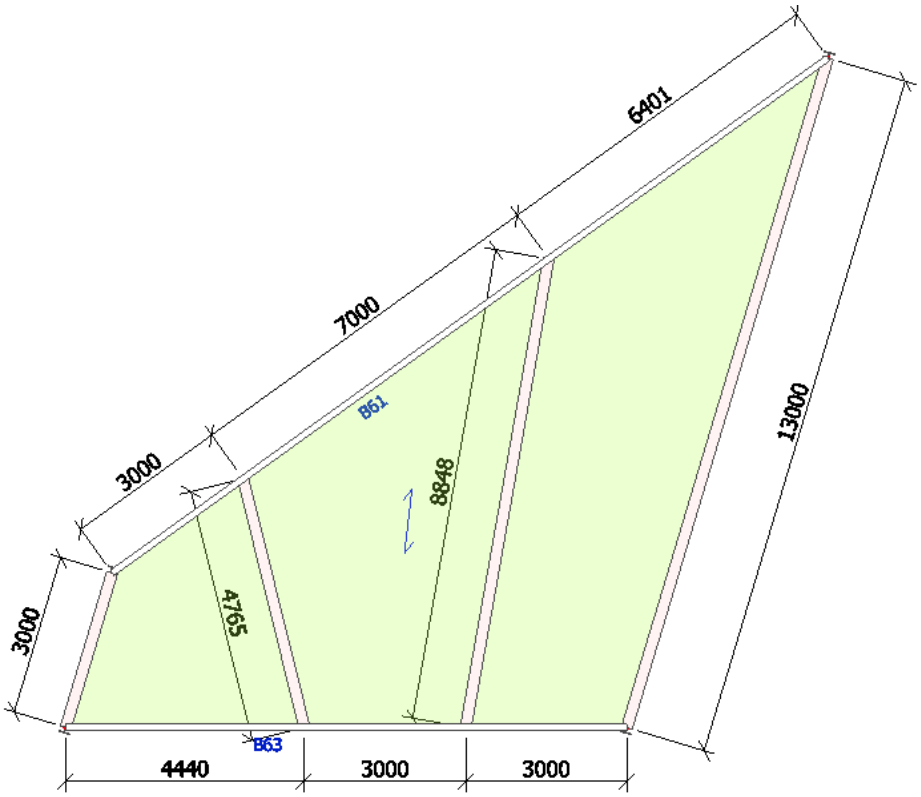
Other data in 1D member properties are similar to SCIA Engineer cellular beams (for more detailed information please refer to SCIA Engineer help).



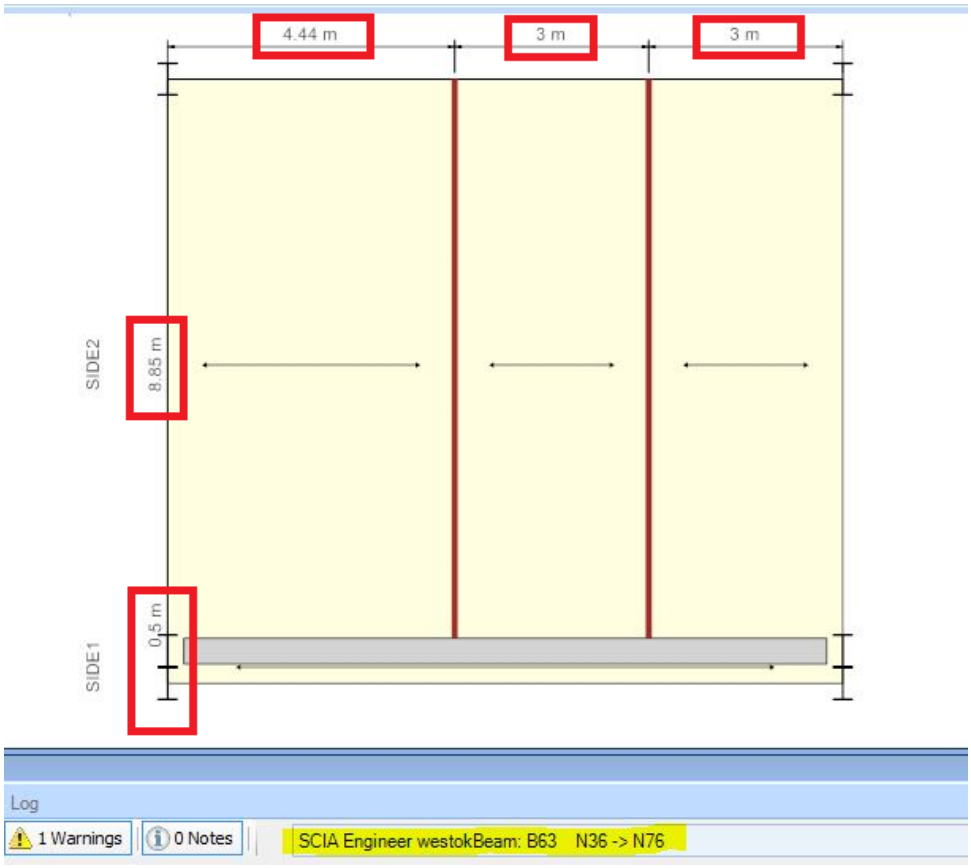
2.5 Floor bays geometry

2.5.1 Non-composite beams.

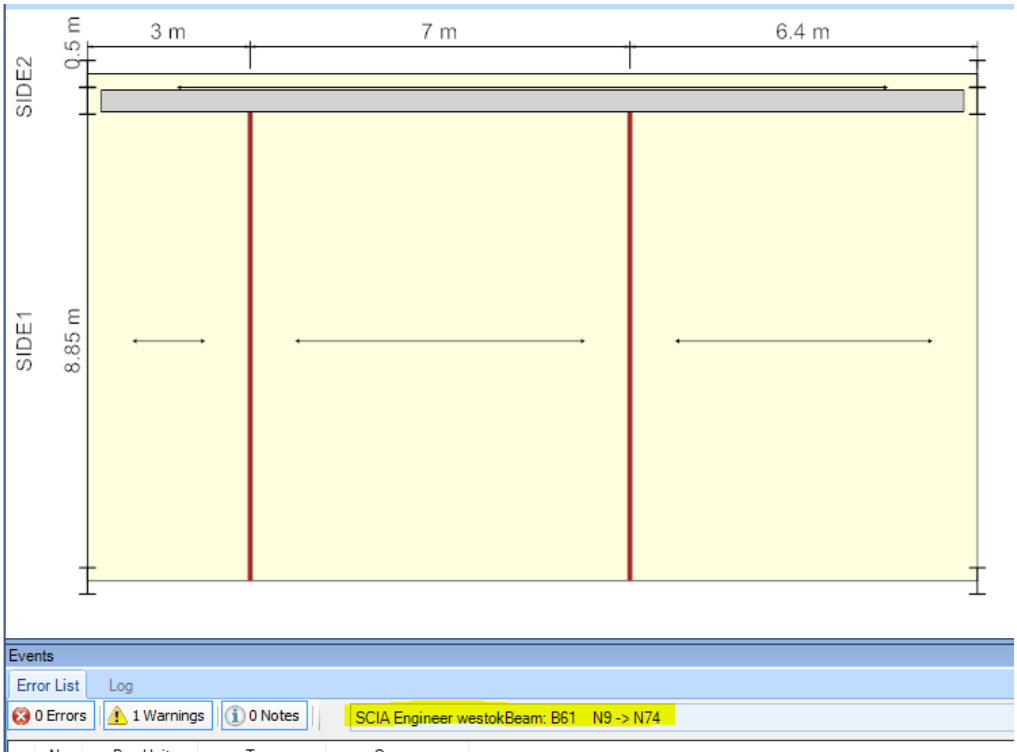
In Westok Cellbeam, it is possible to model only rectangular floor bay (and transfer the uniformly distributed load from floor panel to the beam). As all loadings transferred through link are applied only to the beam (including loadings generated from floor load panels), floor bays dimensions in Westok are only indicative, and do not affect beam results. Below, there are explained rules, for irregular shape bay with edge Westok cellular beams B61, B62.



After the data transfer to Westok Cellbeam, beams B61 and B63 arrangement slab/panel and beam arrangement looks like:

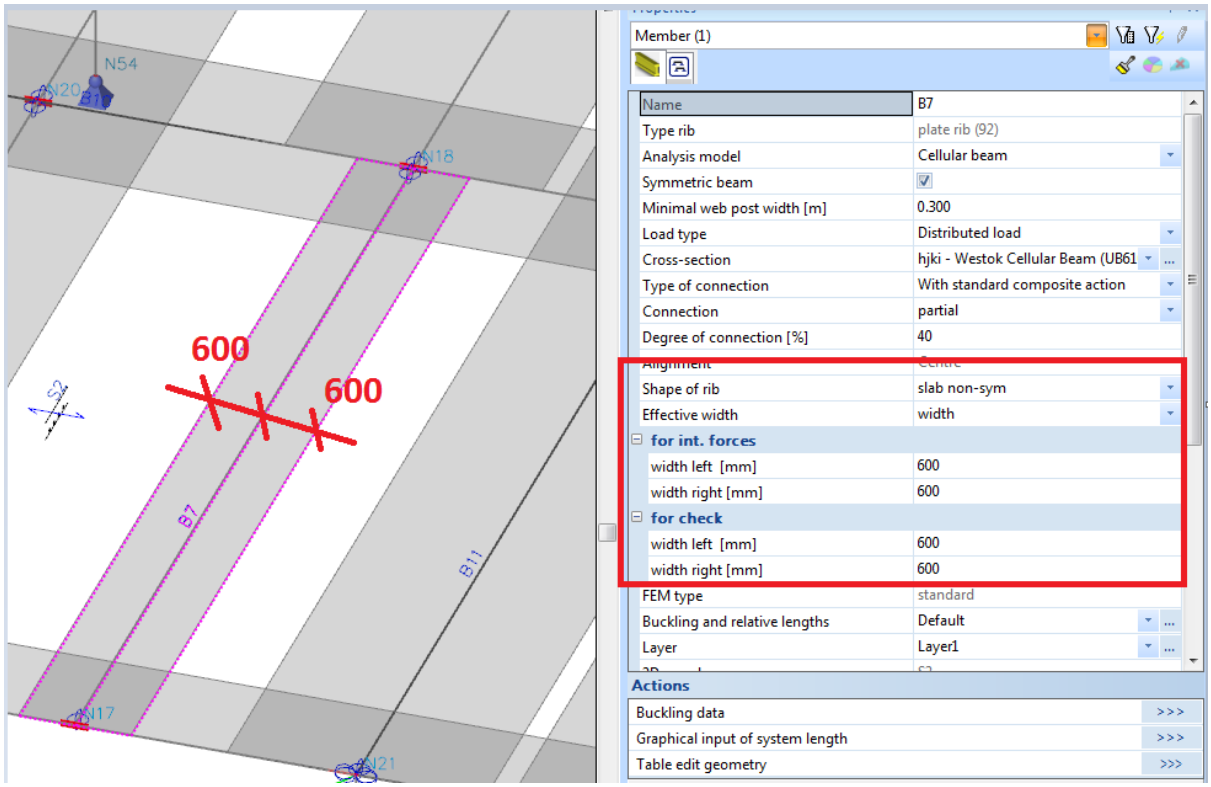


Length of panel bay sides, shown above are: 8.85 for side 2 (which is assumed to be a span of the longest intermediate beam), and 0.5 for side 1.
Because we did not transfer any slab/panel loads, those dimensions are irrelevant.
The important dimensions: 4.44m, 3m, 3m have been transferred correctly, and they are important, as they show beam reaction positions, as well as top restraint positions.
Note: 0.5m is the min slab bay length we can add in Cellbeam. Slab bay with 0.5m length will be shown, where we have no slab on beam side, or we have a slab, but without beams supported on the main beam.
Similarly, we have the beam B61 in Cellbeam:

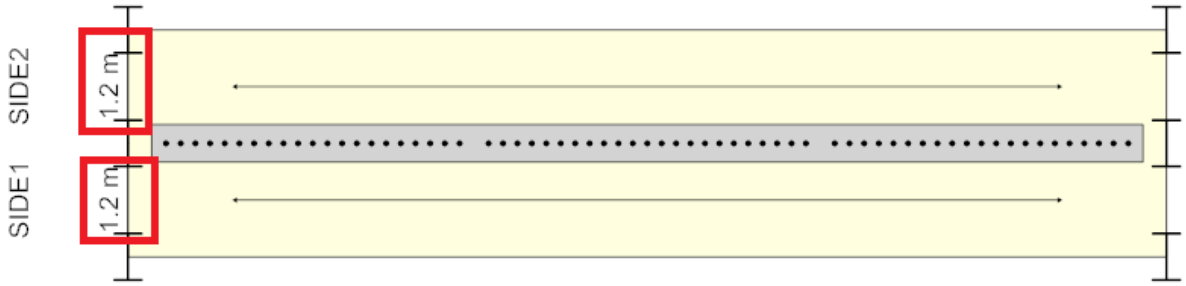


2.5.2 Composite beams.

For composite beams all loadings are transferred as additional loads on the beam, so floor bay dimensions are not important to transfer the loads. However decking spans are used to control concrete slab effective width in composite section. It is important in the case when user defines in SCIA Engineer own effective widths.
In Westok software, concrete slab effective width is always calculated automatically based on EC formula, and it cannot be changed by the user. To achieve the same effective width in Westok software, as defined by the User in SCIA Engineer, false floor spans are used.
In the example below user specified effective width 600+600 for beam B7.
In this case Westok Cellbeam will calculate effective width, with limitation to 0.5 slab span on each side of the beam, which will be the same 1200 mm width, as defined in SCIA Engineer.



SCIA Engineer



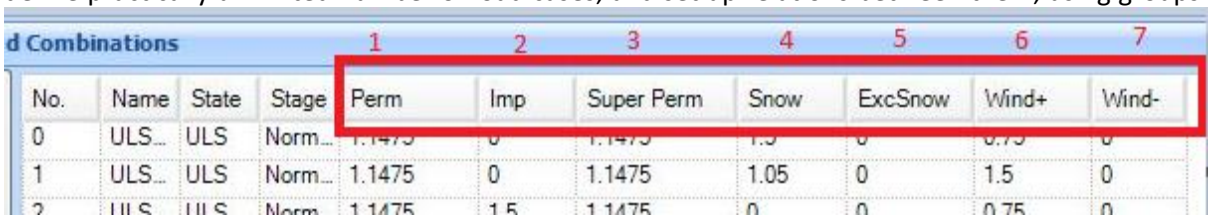
Westok Cellbeam

In case where user uses "Shape of rib": Automatic, in SCIA Engineer, the same formula for effective slab width is used in both software.

2.6 Load cases

2.6.1 General rules

There are limited number of load cases in Cellbeam software, whereas in SCIA Engineer the user can define practically unlimited number of load cases, and set up relations between them, using groups.



d Combinations

				1	2	3	4	5	6	7
No.	Name	State	Stage	Perm	Imp	Super Perm	Snow	ExcSnow	Wind+	Wind-
0	ULS...	ULS	Norm...							
1	ULS...	ULS	Norm...	1.1475	0	1.1475	1.05	0	1.5	0
2	ULS...	ULS	Norm...	1.1475	1.5	1.1475	0	0	0.75	0

In the tab “Load cases”, in the link, there are displayed Westok load cases, and similar load cases in SCIA Engineer (before merging and transfer to Cellbeam).

For loads defined in Westok load cases, there are also some restrictions about sign and direction of loads, whereas in SCIA Engineer, we can apply loads without such restrictions.
To make load data transfer possible, some assumptions and simplifications, have been made to transfer data.

Generally, we can group Westok load cases into two groups:

- Gravitational load cases (1, 2, 3, 4), where the direction of load is allowed to be vertical only (direction Z in SCIA Engineer GCS).
- Wind load cases (6, 7), where the direction of load has to be perpendicular to the member (direction Z in SCIA Engineer member LCS).

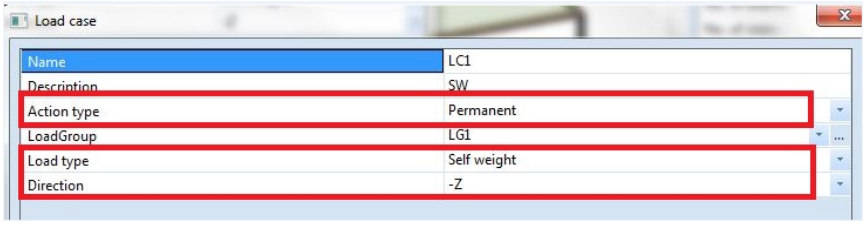
There are general rules, about load transfer to Westok Cellbeam:

- In Cellbeam, it is possible to apply only forces with positive sign to the beam. In cases where in SCIA Engineer there are forces for gravitational load cases, which are directed upwards, such forces are omitted in data transfer.
- All loads cases and groups have to have correct properties setup (i.e. description, load type…), to be translated to the equivalent Cellbeam load types.
- No axial forces caused by gravitational loads are transferred from SCIA Engineer to Westok Cellbeam. It may happen that significant axial forces occur in beams from gravitational loads, (i.e. in the case of unsymmetrical buildings). In such cases it has to be judged by the user if such axial forces must not be neglected, and they have to be applied to beams, manually, as end point forces.
- Because all loadings are transferred to Westok Cellbeam, as additional loadings on the beam, all floor loadings are set up to 0 [kN/m^2] (as well as concrete densities in composite beams are set up to 0 [kg/m^3]), to avoid double load transfer.

2.6.2 Non-composite beams.

2.6.2.1 Westok “Permanent” load case (1)

This load case is equivalent to dead load “Self weight” load case in SCIA Engineer. Typical settings of such load case for EC in SCIA Engineer, is shown below:

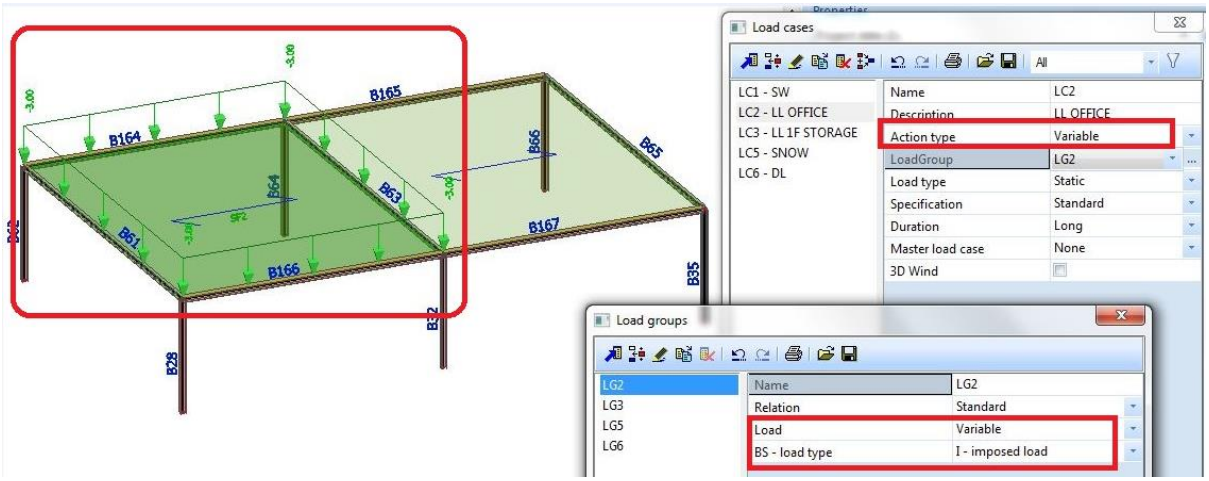


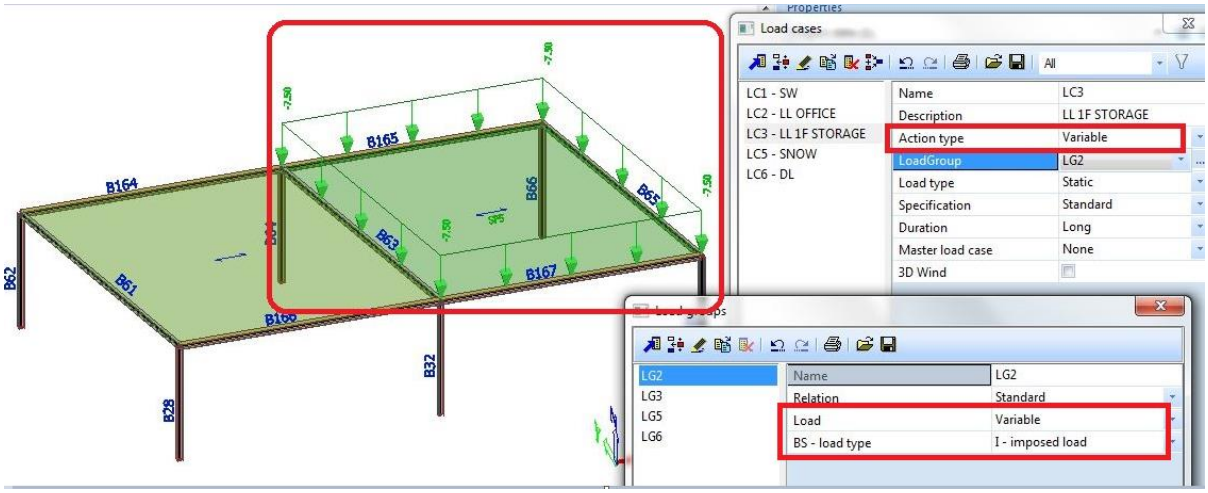
As SCIA Engineer calculates self-weight loads automatically, it is recommended to not change such settings.

2.6.2.2 Westok “Imposed” load case (2)

This load case is equivalent to variable standard load cases in SCIA Engineer.
It is possible to apply many standard variable load cases in SCIA Engineer. They are translated into one load case in Westok software, merging all load cases (with applied loads).
Note: only load cases where loads are applied directly to the beam are merged.

The example below, with two different SCIA Engineer live load types, illustrates, how loads are merged in the link.



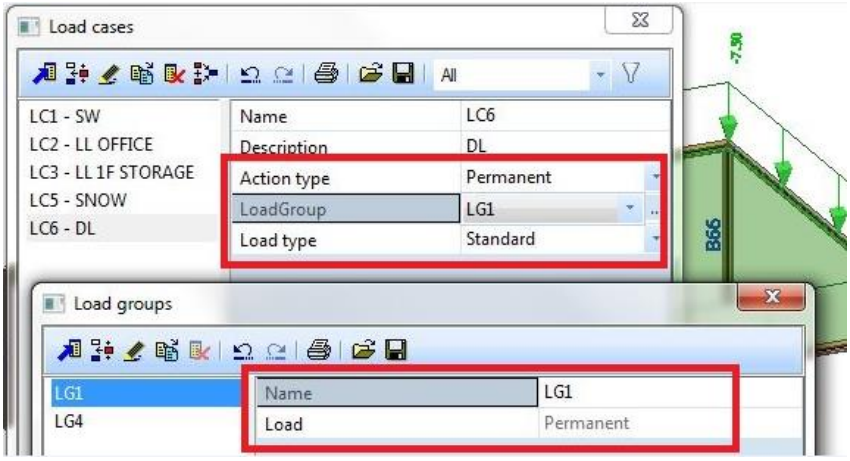


The resultant load case in Westok Cellbeam, will include line loads on the beam, from both SCIA Engineer load cases

Westok Cellbeam allows to apply only loads parallel to SCIA Engineer GCS axis Z and directed downwards. Any loads in SCIA Engineer, which do not match these rules, will not be transferred to Westok software, and a warning message will be shown in the log text file.

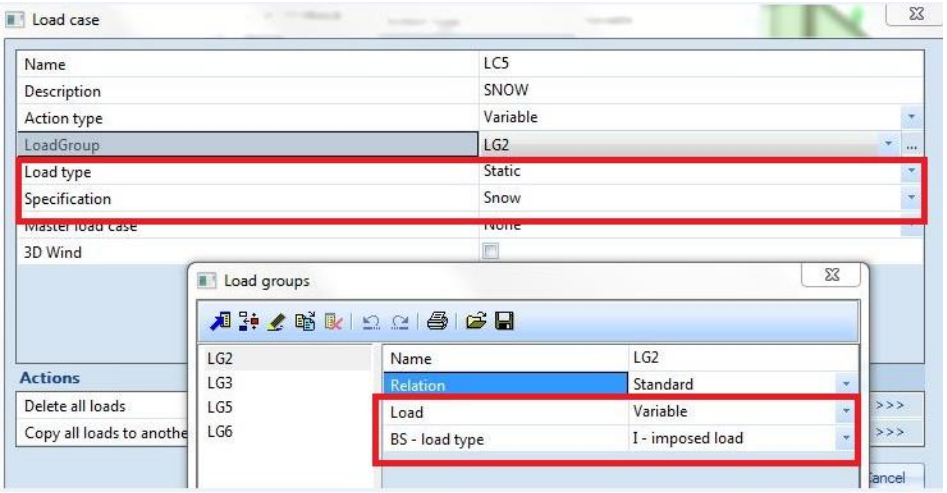
2.6.2.3 Westok "Super imposed dead" load case (3)

All dead load cases defined in SCIA Engineer (other than self-weight) are merged into one load case and transferred to Cellbeam. Loads which do not match rules for gravitational loads described in the section 2.6.1, will be not transferred to the Westok software, and a warning message will be shown in the log text file.



2.6.2.4 Westok "Snow" load case (4)

All snow load cases defined in SCIA Engineer, as variable snow load cases, are merged into one load case and transferred to Cellbeam. Loads which do not match rules for gravitational loads described in the section 2.6.1 will not be transferred to the Westok software, and a warning message will be shown in the log text file.



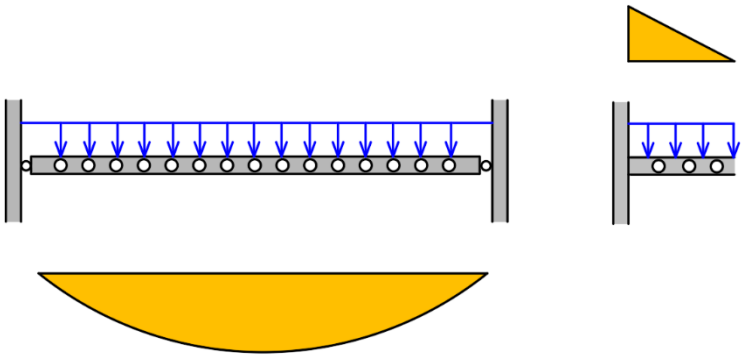
2.6.2.5 Westok "Exceptional snow" load case (5)

This load case has not been used in SCIA Engineer and the link.

2.6.2.6 "Wind pressure +" load case (6)

This load case is equivalent to variable wind load cases in SCIA Engineer.
It is possible to apply many wind load cases in SCIA Engineer, so we have to translate them into one load case in Westok software.
The table below shows algorithm rules, used to find Westok wind load cases.

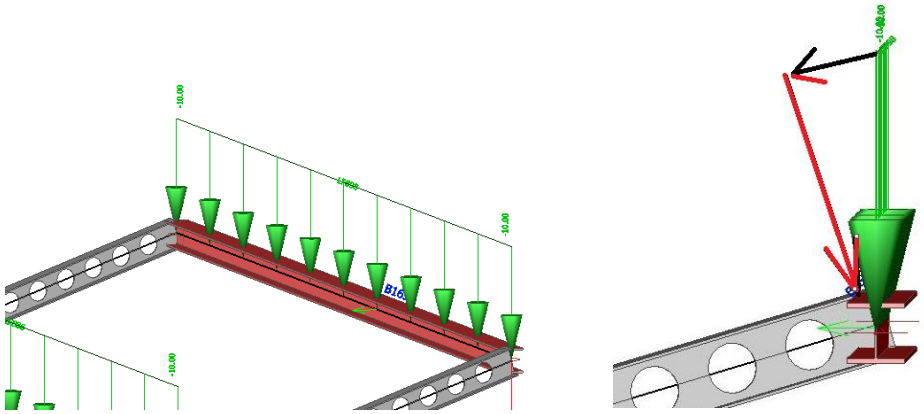
	Case	Notes
1	All wind load cases cause bending moments (and axial forces) on the beam	-Pressure case is the case, which causes max span moment for simple supported beam (min fixity moment for cantilever) -Suction case is the case, which causes min span moment for simple supported beam (max fixity moment for cantilever)
2	All wind load cases cause only axial forces (and no bending moments) on the beam	-Pressure case is the case, which causes max compression force in the beam -Suction case is the case, which causes max tension force in the beam
3	Some wind load cases are causing bending moments, and some only axial forces	Critical cases cannot be recognised by the link. In this case no wind loads will be transferred to Cellbeam



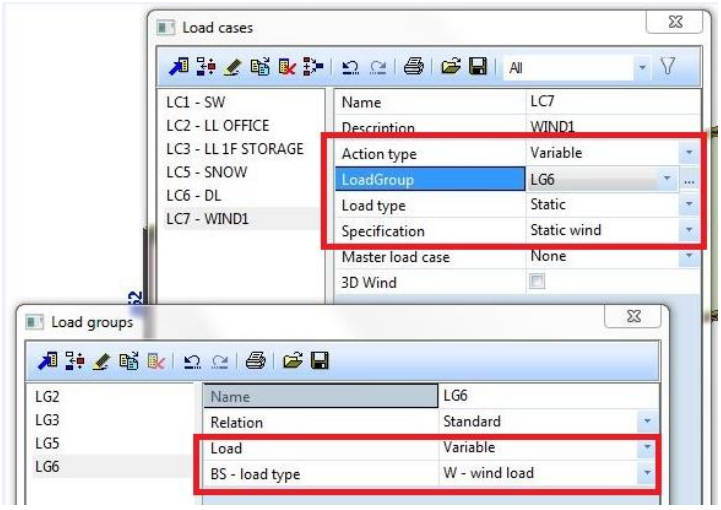
Beam examples with pressure wind and bending moment diagrams

There are rules about wind load in the Westok software:

- It is possible to apply on the beam only loads perpendicular to longitudinal axis of the beam (loads parallel to the axis Z in SCIA Engineer member LCS). Because of that, any other loadings applied to beams, which do not match this rule, are not transferred to the Cellbeam, and a warning message is shown in the text log file.
- Loads applied to the beam in this load case are transferred to the Cellbeam as positive values
- Exception to the rules above is the case where the main beam is supporting other beams- then only part of the reactions, perpendicular to the main beam is transferred to the main beam. Such situations can occur, when we have a sloping or curved main beam.

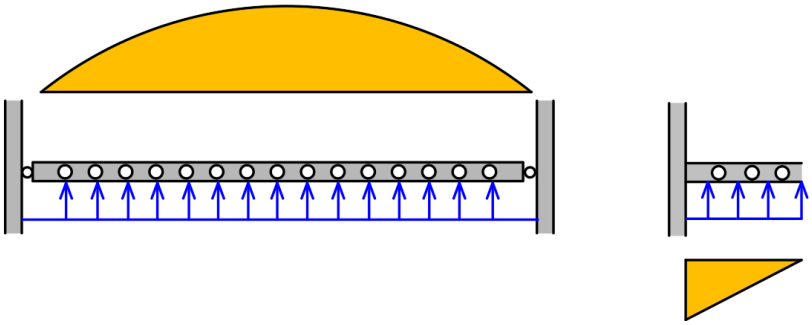


On the picture above, only the vertical part (shown as red) of the beam reaction (shown as green) will be transferred to the cellular beam.



2.6.2.7 “Wind suction -” load case (6)

This load case is similar to Wind pressure load case.
But in suction case, there is selected load case, which causes min span moment on the simple supported beam (or max fixing moment at the cantilever end).



Beam examples with suction wind and bending moment diagrams

2.6.3 Composite beams.

2.6.3.1 Westok "Permanent" load case (1)

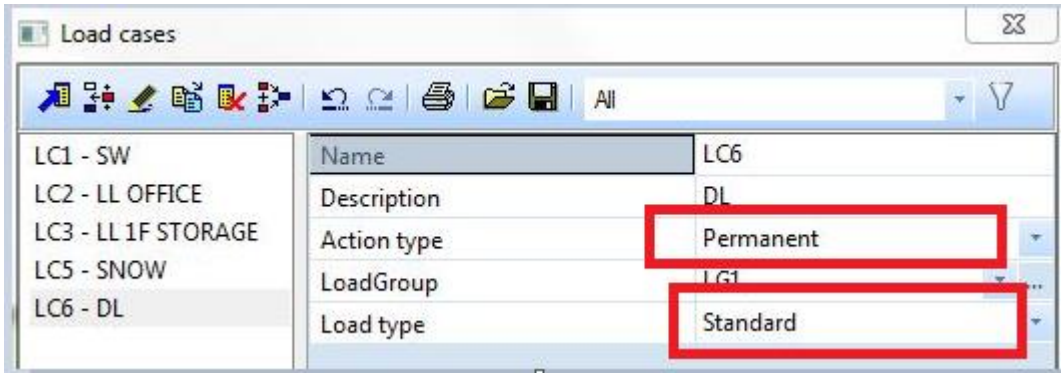
In case of composite beams, in additions to cases described in the section 2.6.2.1, permanent load case includes: self weight of metal decking transferred to the main beam, self weight reactions from beams supported on the main beam.

2.6.3.2 Westok "Imposed" load case (2)

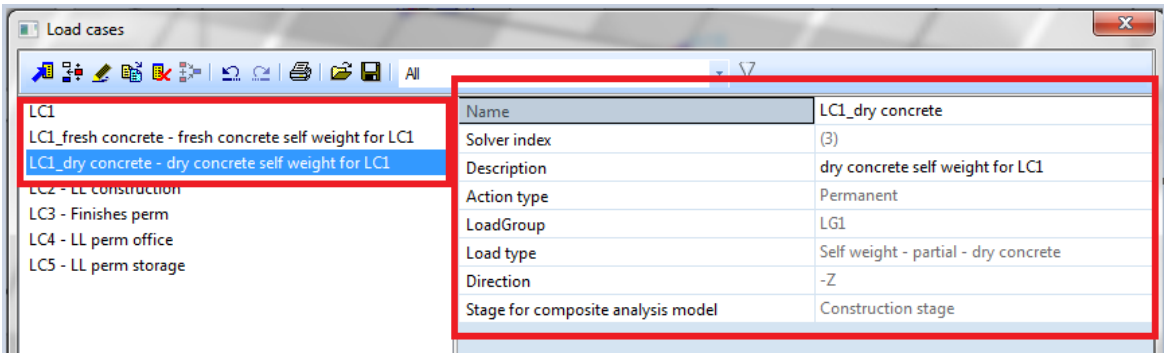
The loadings are the same as described in the section 6.2.2.2.

2.6.3.3 Westok "Super imposed dead" load case (3)

All dead load cases defined in SCIA Engineer (other than self-weight) are merged into one load case and transferred to Cellbeam. Loads which do not match rules for gravitational loads described in 2.6.1, will not be transferred to the Westok software, and a warning message will be shown in the log text file.



SCIA Engineer generates two partial Concrete weight load cases for composite buildings:



Automatically generated dry concrete load case will be transferred to Westok Cellbeam as superimposed dead load case, in addition to mentioned earlier user defined SCIA Engineer cases. The link recognize that SCIA Engineer load case searching for words “dry” and “concrete” in the description or in the load case name.

2.6.3.4 Westok “Construction” load case (4)

Westok construction load case is the imposed load applied to the structure in the construction stage. Only load cases in SCIA Engineer which have load group “Construction” will be transferred to the Westok Cellbeam. In case where, in the project, load group has different name (e.g. “temporary load”, the name should be changed to the “Construction”.
In addition to such loads, automatically generated Fresh concrete load case will be transferred to the Westok software, as a construction load case.
In Westok Cellbeam combinations imposed loads, and construction loads, are used alternatively, depending on the combination stage: Normal or Construction.

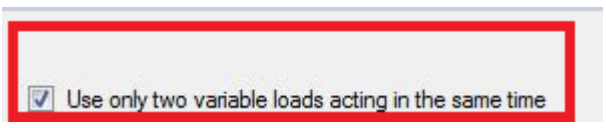
2.6.3.5 “Snow” and “Wind” load cases

All snow or wind loads transferred to Westok cellular composite beams in SCIA Engineer, are ignored during the transfer to Westok software, as Westok Cellbeam does not allow to design composite beams for roof.

2.7 Load Combinations

As the load cases are not fully compatible in SCIA Engineer and Westok Cellbeam, the link generates in Cellbeam all possible combinations of loads, for Westok load cases.
Those combinations can be reviewed by the user, and updated in Cellbeam.
In the link the user can change two options:

- The tick box, which allows the user to limit ULS combinations number



In the case of composite beams, it is possible to define accidental “Fire combination”- see link main window tab “Composite beams”.

2.8 Loadings

2.8.1 Normal forces applied to the beam

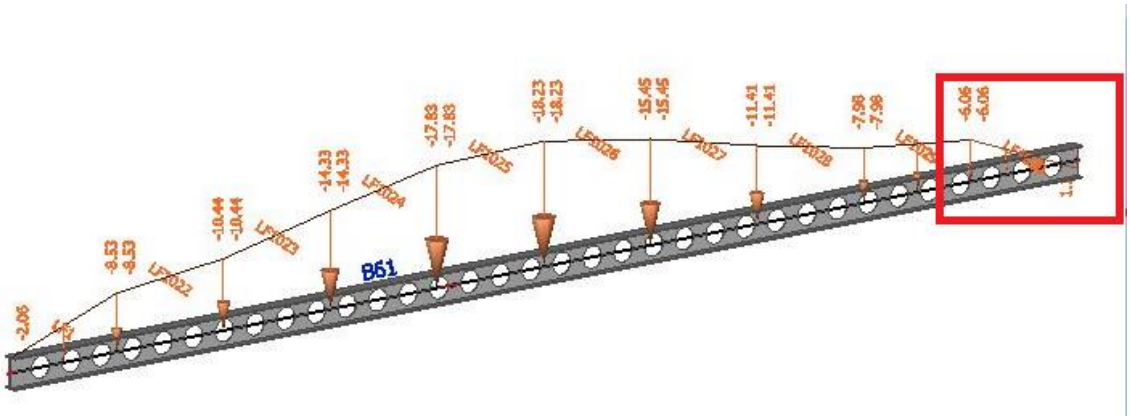
In Cellbeam, the user can define rectangle slab bays, supported on beams. Load can be applied to the slab and (or) line and point loads can be applied directly to the beam.

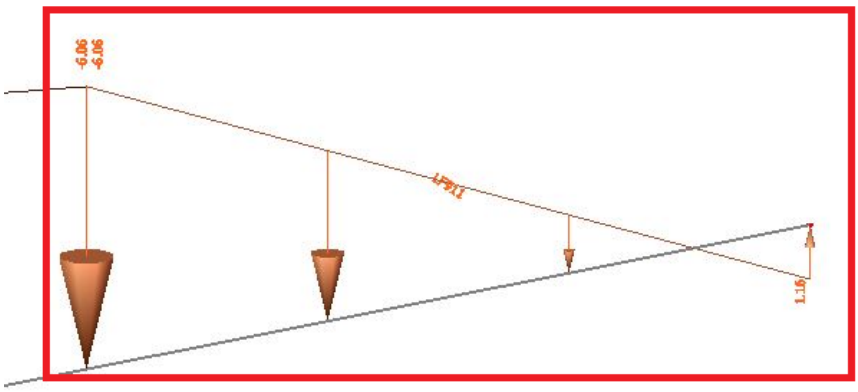
Because applying load on slab has limitations in Cellbeam (geometry limited to rectangular bay, uniformly distributed load only allowed), only loadings which are applied to the beams are transferred to the Cellbeam from SCIA Engineer.

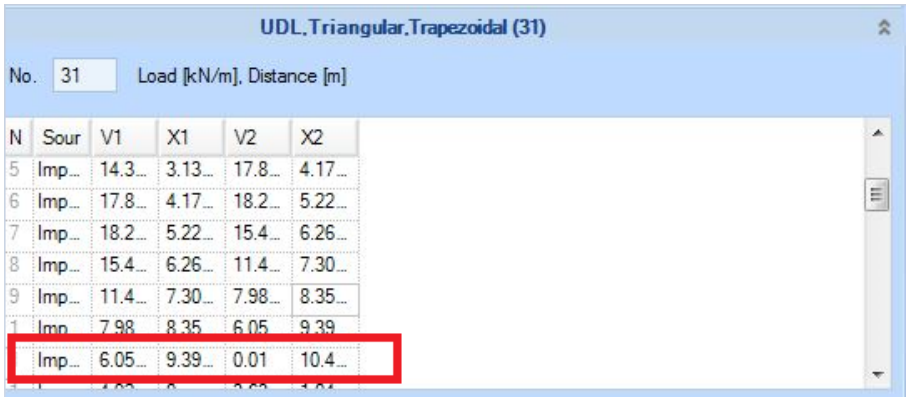
Those loadings include:

- Point forces applied by user on the beam.
- Trapezoidal (or uniformly distributed) line forces applied by the user on the beam.
- Reactions from beams connected to the considered beam. Those forces are calculated automatically by the link, based on the SCIA Engineer project analysis results (internal forces in beams).
- Loads on beams generated from supported load panels.

Please note, that reactions from 2D members (other than load panels), are not generated on the beams as loads, so they cannot be transferred to the Cellbeam.
Because we cannot apply loadings with different signs for one load case in Westok software, all negative forces are not transferred to the Cellbeam, or are replaced with zero values.
In the pictures below is shown the example of beam loads generated from load panel.
It may happen that small load impulses directed upwards, may occur, if FEM is used as load transfer method in SCIA Engineer.

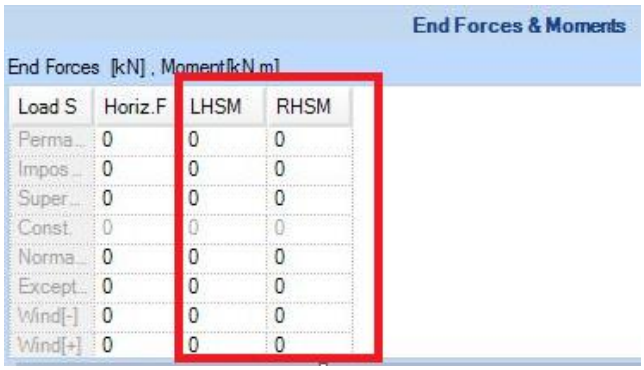






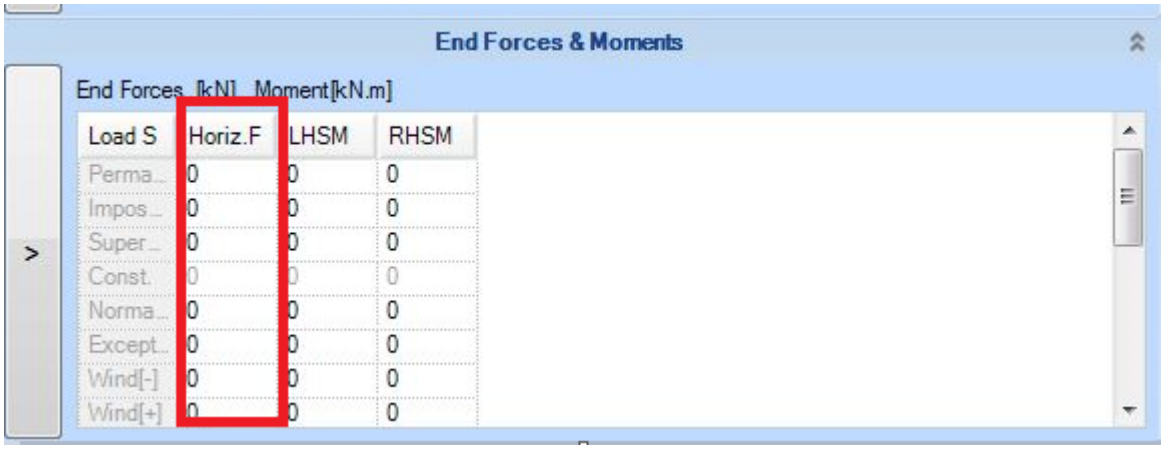
The “trapezoidal load” from SCIA Engineer, with values q1=-6.06 and g2=1.16 has been replaced with “trapezoidal load” with values q1=6.06 and g2=0.01 (~0.00) in Westok.

- In cases where the user would like to model beams with fixed supports, it is possible in Cellbeam to add end moments to simple supported beams, but they have to be added by the User manually.



2.8.2 Axial forces applied to the beam ends

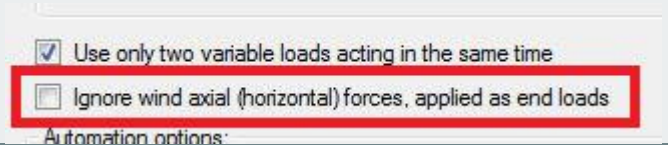
It is possible to apply in Westok Cellbeam only one set of horizontal forces (for each load case) applied to the ends of the beam.



- Gravitational loads: In case of unsymmetrical buildings modelled in 3D, it may happen that forces applied to beams at one floor may have impact on internal forces in beams on other floors. Because of limited number of load cases in Cellbeam, no axial forces from gravitational loads are transferred through the link. In most cases stresses from “gravitational” axial forces, are relatively small compared to stresses from bending moments. However the User, has to check it, and judge, if axial forces from gravitational cases have to be applied manually.
- Wind loads: If link recognises critical “pressure” and “suction” load case (see sections 2.6.2.6 and 2.6.2.7), axial loads from such load cases will be transferred to Cellbeam. It may happen that in SCIA Engineer axial forces are not constant. As in Westok software we can apply only one horizontal force value. Such force will be calculated, as $0.5(N_{beg}+ N_{end})$.

3 Errors and warnings

Name	Description
E0	Top profile type is not Westok profile. Please refer to Westok Cellbeam for supported profile types.
E1	Bottom profile type is not Westok profile. Please refer to Westok Cellbeam for supported profile types.
E2	Top profile size defined in SCIA Engineer is not supported in Westok Cellbeam.
E3	Bottom profile size defined in SCIA Engineer is not supported in Westok Cellbeam.
W4	Cantilever beams sloping down are not supported in Westok Cellbeam.
W5	Some beams have been transferred to Westok Cellbeam, as mirrored.
W6	Beam in SCIA Engineer has incorrect steel grade (not allowed in Westok Cellbeam). Min steel grade S275 has been used.
E7	National code not supported in Westok Cellbeam.
E8	National annex not supported in Westok Cellbeam.
E9	Beam is duplicated in SCIA Engineer saved selections. Each beam can be used only once in selections.
W10	Negative reactions from supported beams for load cases other than wind, have been ignored.
W11	Steel grade for top part of section has been replaced with equivalent simple grade. (e.g. SCIA Engineer steel “S 355 J0 (EN 10025-2)” replaced with “S355”).
W12	Steel grade for bottom part of section has been replaced with equivalent simple grade (i.e. SCIA Engineer steel “S 355 J0 (EN 10025-2)” replaced with “S355”).
W13	Line force, for wind load cases applied to the curved beam is ignored. It has to be given in SCIA Engineer member LCS: direction Z, with angle of rotation Rx the same as beam angle of rotation, and Ry=0,Rz=0).
W14	Some line forces, (for load cases other than wind) applied to the curved beam, have been ignored: to be given in GCS, direction Z, with angles of rotation Rx=0, Ry=0,Rz=0).
W15	Only line forces (for wind load case), parallel to the beam principal axis Z have been transferred to Westok Cellbeam. Other forces, parallel to beam axes Y and X, have been omitted in data transfer (due to limitations of Westok software).
W16	Only line forces (for load cases other than wind), parallel to the GCS axis Z have been transferred to Westok Cellbeam. Other forces, parallel to GCS axises Y and X, have been omitted in data transfer (due to limitations of Westok software).
W17	Some point forces, for wind load cases, applied to the curved beam, have been ignored. They have to be given in SCIA Engineer member LCS, direction Z, with angle of rotation Rx the same as beam angle of rotation, and Ry=0, Rz=0.
W18	Some point forces, for load cases other than wind, applied to the curved beam, have been ignored. They have to be given in SCIA Engineer GCS, direction Z, with angles of rotation Rx = 0,Ry = 0 and Rz = 0.

W19	Some point forces, (for wind load cases), applied to the beam, have been ignored. Only point forces parallel to the beam principal axis Z have been transferred from SCIA Engineer to Westok Cellbeam.
W20	Some point forces, for load cases other than wind, applied to the beam, have been ignored. Only forces, parallel to SCIA Engineer GCS axis Z, have been transferred from SCIA Engineer to Westok Cellbeam.
W21	SCIA Engineer saved selections, which do not contain Westok cellular beams, have been excluded from selections in the link.
W22	Wind loads have not been transferred to some of beams (axial and normal loads). Please apply wind loads manually in Westok Cellbeam.")
W23	"Axial forces in beams from wind load cases (applied as horizontal forces to beam ends) have not been transferred to Cellbeam. If axial loads have to be transferred, please tick check box on link main form. 
W24	"One of wind load cases has positive and negative forces on the beam. As it is not possible to apply loads with different signs in one wind load case, in the Westok Cellbeam, such loads and load cases have not been transferred from SCIA Engineer. User has to decide, how to apply such loads manually.
W25	Beam does not have pinned both ends, and is not cantilever. Such beam has not been transferred to Westok Cellbem software.
E26	Composite beam is not horizontal (The coordinate 'z' of begin node is not the same as coordinate 'z' of end node).
E27	Composite beam in Westok Cellbeam cannot be cantilevered.
E28	Composite beam in Westok Cellbeam cannot be curved.
W29	Composite beam have been transferred to Westok Cellbeam, as mirrored.
W30	Incorrect decking concrete grade has been used in SCIA Engineer. Min allowable Westok Cellbeam grade has been used instead (BS:C30, EC:C20/25).
W31	Metal sheeting on the beam is not standard Westok Cellbeam deck type.