

Advance Design 2014 / SP1

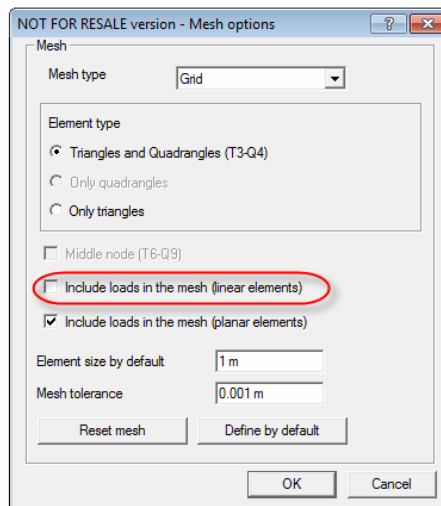


This first service pack for **ADVANCE Design 2014** offers more than 240 improvements and corrections.

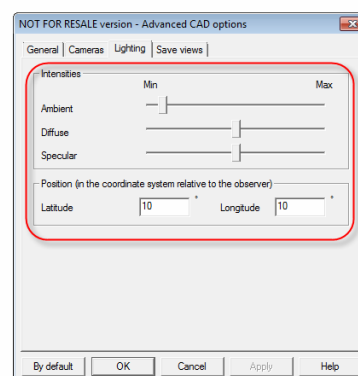
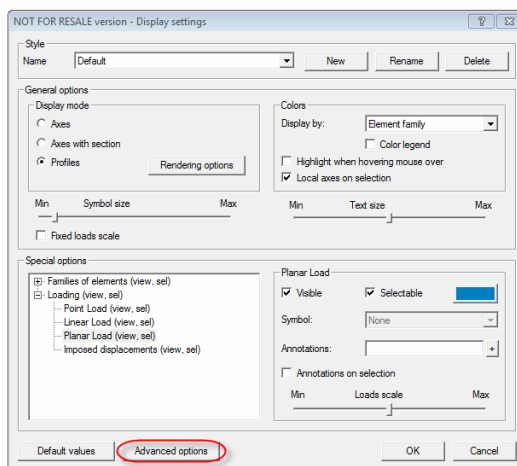
The most significant improvements are listed here below:

GENERAL APPLICATION

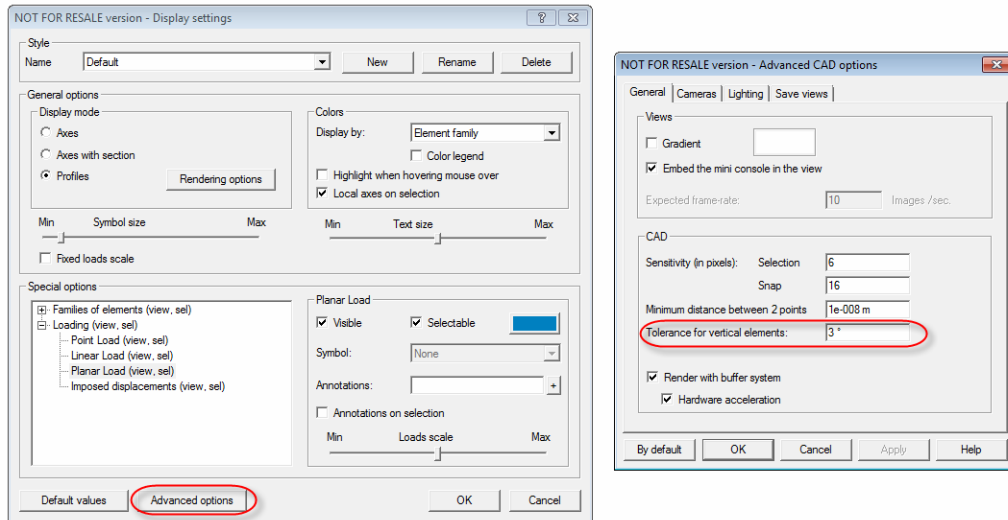
- [15251] New feature: There is now a distinct option to include loads in the mesh for linear elements. That way, users can deactivate this option for linear elements and activate it only for planar elements, since results on planar elements are strongly dependant on mesh size.



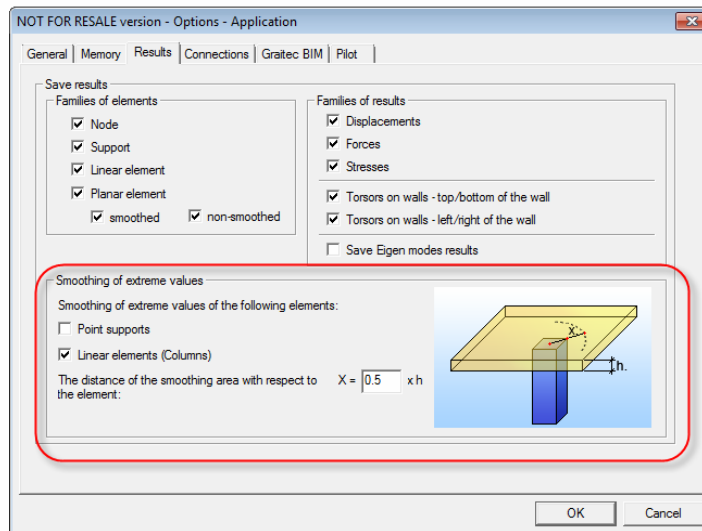
- [13033] Correction: Annotation properties (position and text size) were not properly saved.
- [15136] Correction: After displaying a stress envelope on screen, there was no way to hide it.
- [15156] Correction: The lighting parameters from the Display Settings menu had no effect.



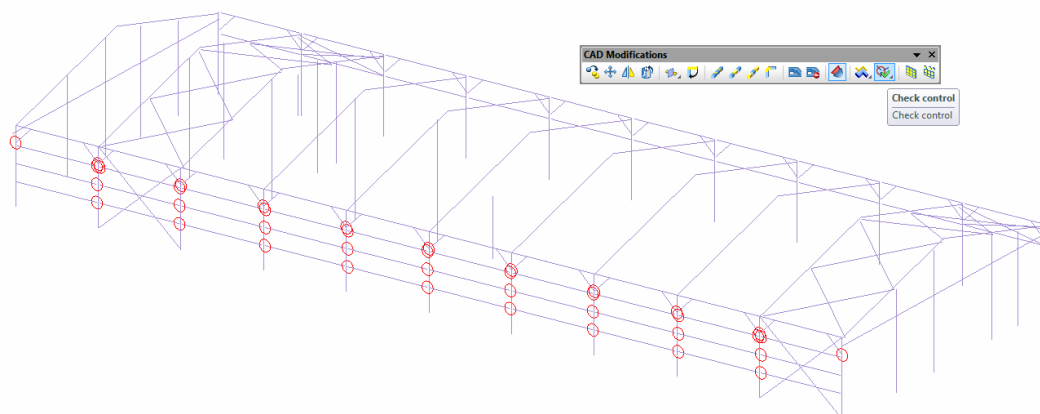
- [15161] Correction: $W_{el,z,sup}$ was incorrect on user-defined L-shapes.
- [14581] New feature: A new “Tolerance for vertical elements” option has been implemented in the Display settings menu.



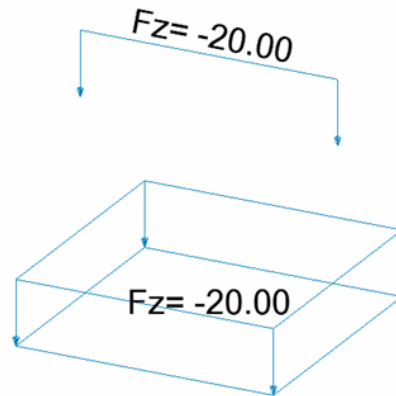
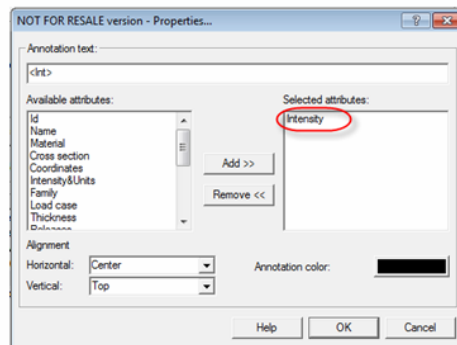
It enables users to benefit from advanced functionalities, such as smoothing of extreme values on column heads, even when columns are not perfectly perpendicular to the supported slab.



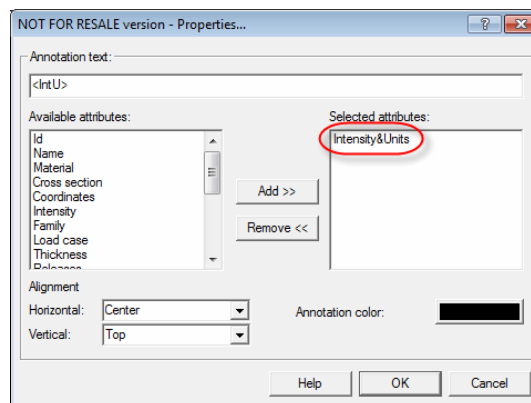
- [15104] Red circles showing incorrect connections between elements (after using the “Check control” function) can now be hidden by pressing “Esc” for a few seconds.



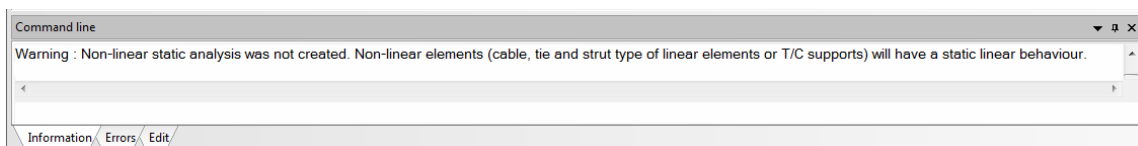
- [15130] Annotation showing intensity on loads has been made shorter by no longer displaying units.



Units can still be displayed by using the new “Intensity&Units” annotation.



- [15105] Releases on planar elements could be displayed using the “Releases” annotation but then, they could not be hidden.
- [15255] Advance Design now returns a warning message when user creates non linear elements (cable, tie, strut, Traction/Compression supports) but forgets to activate non linear calculation.



IMPORT / EXPORT

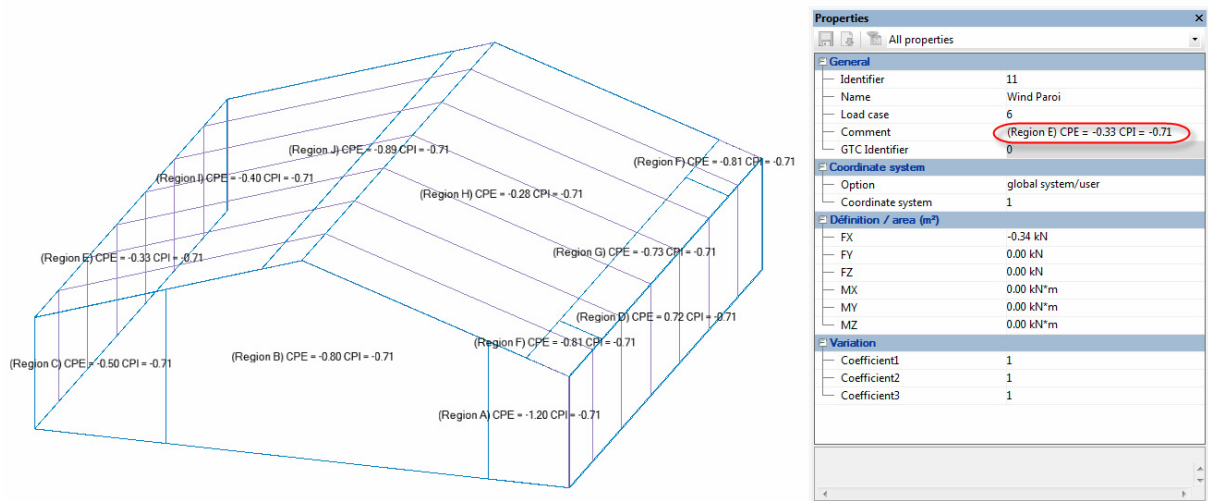
- [11131] Exporting a file to Arcelor Cellular Beams software now creates a .ACB file to be compliant with the latest version of the software.
- [12078] When creating a .GTC or .GTCX file, the list of combinations used for concrete or steel design is no longer erased.
- [14973] IFC export was not functional on some models.

EUROCODE 0

- [14859] French NA: New live load categories have been implemented to be compliant with the latest version of French appendix.

EUROCODE 1

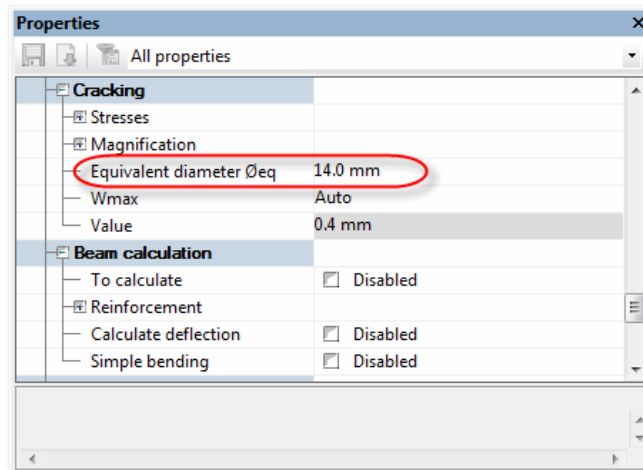
- [11124] New information (showing wind area, C_{pe} and C_{pi} values) is now available in the “Comment” field of planar loads coming from wind forces. This information can even be displayed on screen using the appropriate annotation.



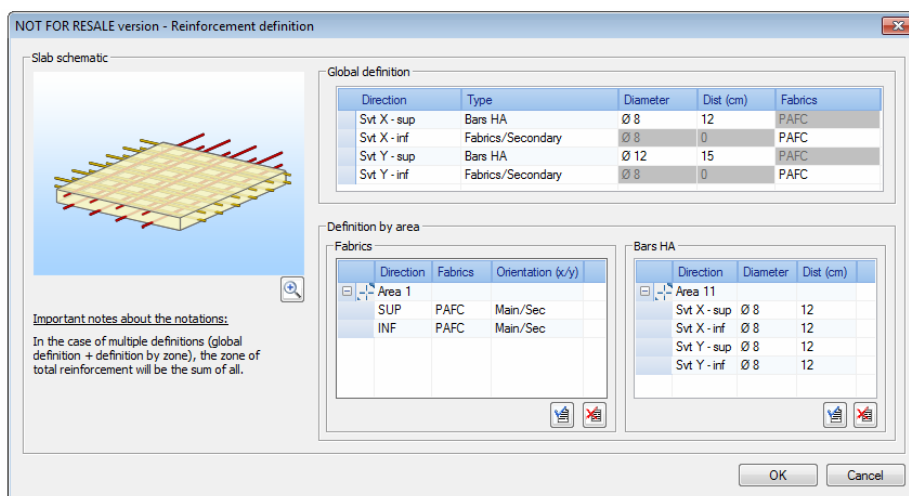
- [15307] Dupitch roofs with 5 degree-slope now have their C_{pe} taken from table 7.2 (flat roofs) as stated in Eurocode 1.
- [13320] Problem causing some roof windwalls to get no wind load was fixed.
- [15328] Openings were not correctly taken into account when using the 2D climatic generator.

EUROCODE 2

- [13311] Boundary values were extended for concrete cover when entering values through the design template manager.
- [15186] User no longer needs to activate the detailed rebar definition on beams to access the \varnothing_{eq} field (used in cracking analysis) from the property sheet.

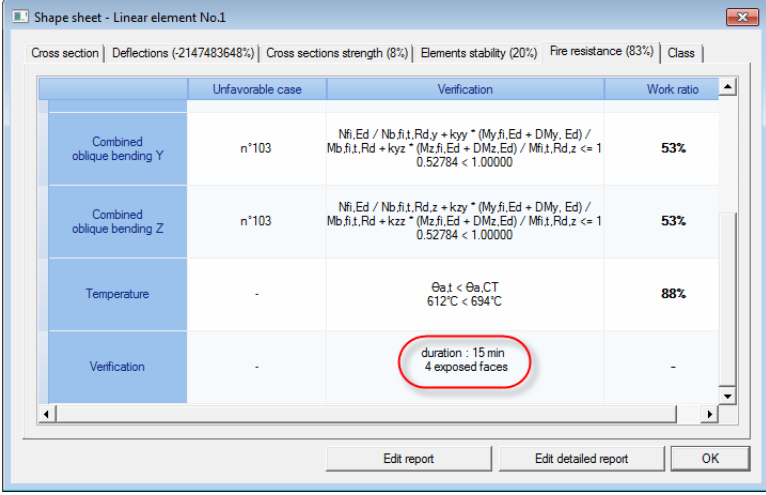


- [14486] Reinforcement defined by user on planar elements was not properly saved leading to incorrect values for real reinforcement.



EUROCODE 3

- [14966] Shape sheet now shows fire assumptions (duration and exposed faces) on the Fire resistance tab.



	Unfavorable case	Verification	Work ratio
Combined oblique bending Y	n°103	$\frac{N_{fi,Ed} / N_{b,fi,t,Rd,y} + k_{yy} * (M_{y,fi,Ed} + DM_{y,Ed}) / M_{b,fi,t,Rd} + k_{yz} * (M_{z,fi,Ed} + DM_{z,Ed}) / M_{fi,t,Rd,z} \leq 1}{0.52784 < 1.00000}$	53%
Combined oblique bending Z	n°103	$\frac{N_{fi,Ed} / N_{b,fi,t,Rd,z} + k_{zy} * (M_{y,fi,Ed} + DM_{y,Ed}) / M_{b,fi,t,Rd} + k_{zz} * (M_{z,fi,Ed} + DM_{z,Ed}) / M_{fi,t,Rd,z} \leq 1}{0.52784 < 1.00000}$	53%
Temperature	-	$\Theta_{e,t} < \Theta_{e,CT}$ 612°C < 694°C	88%
Verification	-	duration : 15 min 4 exposed faces	-

- [15178] Fixed an error leading to incorrect work ratio for formula (6.62) in the shape sheet.

EUROCODE 8

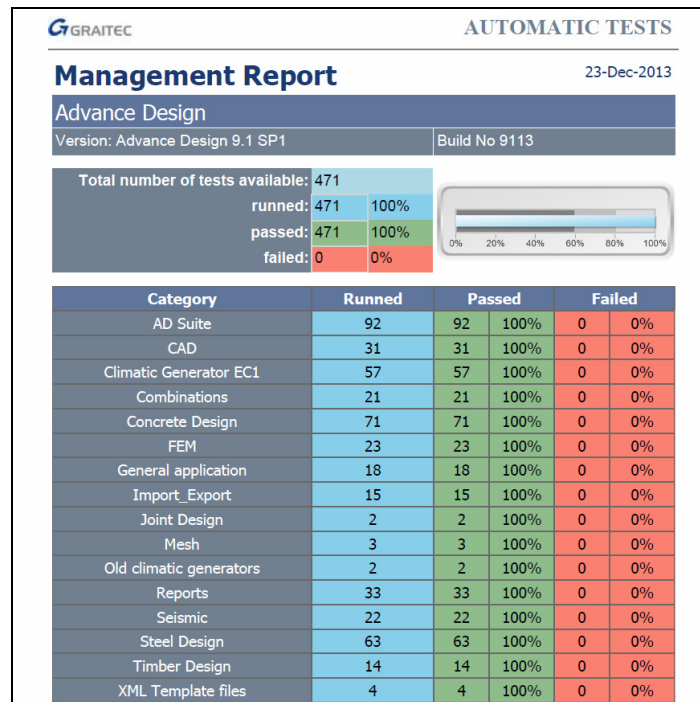
- [15145] Damping values were not correctly taken into account when different from 5%.
- [14828] Values given in the “Sum of actions on supports” were incorrect for seismic loadcases. Advance Design 2014 SP1 now computes these values per mode and then it uses the CQC method.

VALIDATION

As all the other versions or major service packs, the SP1 has been submitted to a validation process.

It represents 465 tests passed automatically, each of them have a detailed validation report.

Here is the synthetic validation report:



The complete validation guide has been updated and is available for download on the Graitec Advantage website, under the chapter "Downloads \ Documentation \ Advance Design").

Note: The reference number [xxxx] refers to an index of the internal GRAITEC Database.
