

ADVANCE Design 2012
SP1
What's new



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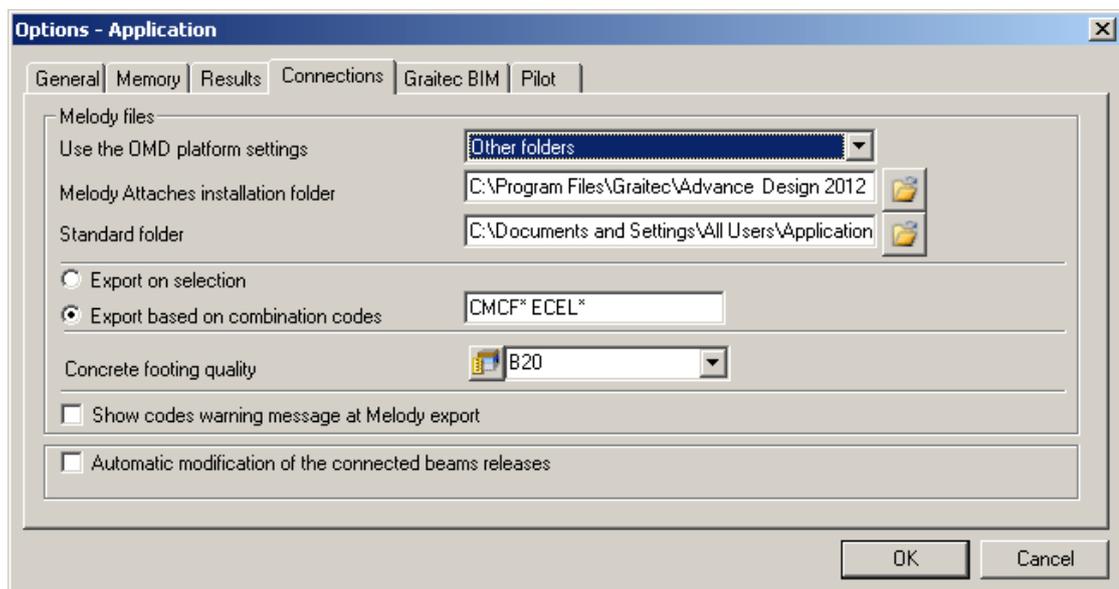
This first service pack for ADVANCE Design 2012 offers more than 150 improvements and corrections.

The service pack should be installed on Advance Design 2012 SP0 version that was delivered on the DVD.

The most significant improvements of this service pack:

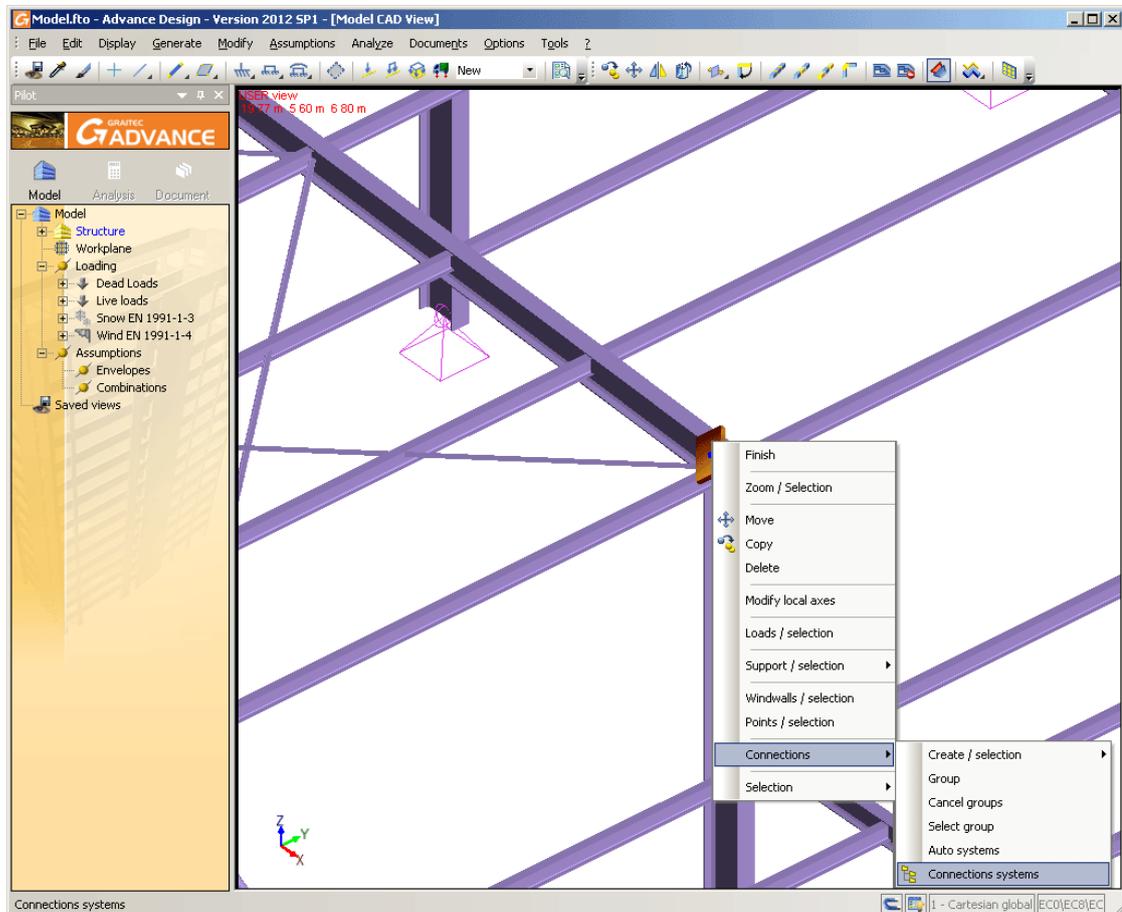
General application

- Correction: in the definition window of the application's general parameters, the path to Melody 2012 was incorrectly defined, making it impossible to export to Melody Attaches. (Ref. 12955)



- Correction of a problem that occurred during the export of windwalls from Advance Design to Effel Structure. (Ref. 12936)
- Correction of the loads symbols orientation display when converting an Advance Design model saved with a previous version. (Ref. 12946)
- The “Cracked section inertia coefficient” parameter is grayed out when the user defines any other material than “concrete”. (Ref. 12858)
- Correction of the graphical display of releases on bar elements. (Ref. 12856)

- Improvement: in the connections context menu, there is a new option that gives direct access to the Connections System Manager.



Finite elements results post-processing

- Improvement: in the results settings dialog box (ALT + Z), the user defines the combinations considered for the finite elements results display (displacements, forces, stresses). In previous versions, these settings were not considered for the curves display of the section cut, so the user had to redefine them. (Ref. 12973)
- Correction: the seismic results became inaccessible on models with a large number of modes to calculate and for which the “automatic calculation of damping” option by mode was enabled. (Ref. 12836 & 12874)
- Correction: on some models, the torsor force value on walls (N) was incorrect, after the first calculation (in case of additional iterations, the value was correctly displayed). This problem was related to the wrong initialization of a variable during the first calculation. (Ref. 12843)
- Correction: in Advance Design 2012, on some models, the displacements as a function of time (dynamic temporal analysis) were incoherent when the value of instant “t” was user-defined. The results were not affected in case of an automatic detection of an unfavorable instant “t”. (Ref. 12926)

- Correction: on some models, the seismic cases and the corresponding combinations were not displayed in the “Sum of actions on supports and nodes restraints” table. (Ref. 12706)

Eurocode 1

- Correction of a problem regarding the management of the climatic loads properties during the import/export of a GTC file: the national appendix applied before exporting the GTC file is now correctly saved.
- Correction: the snow accumulation according to clause 5.2(6) of the French national appendix (water retained in the snow drift) is now correctly generated even on the most complex roofs. (Ref. 12878 & 12835)
- Improvement: the accumulations due to the water retained in the snow drift - clause 5.2(6) of the French national appendix are generated only in the presence of an obstacle (parapet wall, neighboring building, etc.). (Ref. 12841)

Eurocode 2

- Correction of a problem regarding the design of columns with circular sections: the theoretical reinforcement sections were not symmetrical. (Ref. 12864)
- Correction of a problem: the formula for calculating a coefficient (columns calculation according to EC2) is now displayed on the detailed calculation report. In previous versions, only the B3.a formula was displayed. (Ref. 12849)

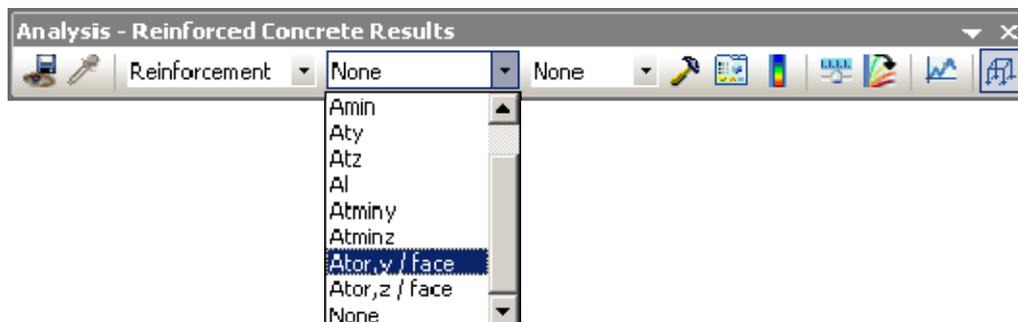
Advance Design 2012 - concrete calculation

Calculation of column - Linear element No.1(Linear element label)	
1) Calculation assumptions	
Quality of concrete (§3.1.2 / §3.1.6 / §3.1.8 / §3.1.9)	C25/30 - $f_{ck} = 25.00\text{MPa}$ - $f_{ctd} = \frac{f_{ck}}{\gamma_c} = 16.67\text{MPa}$ $f_{cm} = 0.30 \cdot f_{ck}^{2/3} = 2.56\text{MPa}$ - $\sigma_c = 0.60 \cdot f_{ck}$ Confined concrete- $\sigma_2 = \sigma_3 = 0.00\text{MPa}$
Steel grade (§3.2.2 / §3.2.4 / §3.2.7 / §3.3.6) Annex B	$f_{yk} = 500.00\text{MPa}$ - Ductility class A ($k=1.05$) - $\sigma_s = 0.80 \cdot f_{yk}$ Horizontal elasto-plastic diagramm
Exposure class (§4.2)	Exposure class XD Wmax= 0.4mm
Covers (§4.4.1)	Ebottom = 3.00cm ; Etop = 3.00cm ; Eleft = 3.00cm ; Eright = 3.00cm $\Delta c_{dur,st} = 0.0\text{mm}$; $\Delta c_{dev} = 10.0\text{mm}$
2) Creep coefficient	
Assumptions	RH= 50% - t0= 28 days
$\beta(f_{cm})$ (Annex B - §B.4)	$\beta(f_{cm}) = \frac{16.80}{\sqrt{f_{cm}}} = \frac{16.80}{\sqrt{33.00}} = 2.92$
$\beta(t_0)$ (Annex B - §B.5)	$\beta(t_0) = \frac{1}{0.1 + t_0^{0.20}} = \frac{1}{0.1 + 28.00^{0.20}} = 0.488$
h_0 (Annex B - §B.6)	$h_0 = \frac{2 \cdot A_c}{u} = \frac{2 \cdot 0.06}{1.00} = 120.0\text{mm}$
ϕ_{RH} (Annex B - §B.3a)	$\phi_{RH} = 1 + \frac{1 - RH/100}{0.1 \cdot \sqrt[3]{h_0}}$
$\phi(\infty, t_0)$ (Annex B - §B.2)	$\phi(\infty, t_0) = \phi_{RH} \beta(f_{cm}) \beta(t_0) = 2.01 \cdot 2.92 \cdot 0.488 = 2.88$

- Improvement: the limit of the cracking opening is now updated, in conformity with the UK national appendix EN1992-1-1:
 - for exposure classes X0, XC1 and XC2, we consider $w_{max} = 0.3$ mm
 - the minimum values of the concrete cover are considered according to Table NA.2

- Improvement: the detailed reinforced concrete calculation of beams is now faster, even for models with a large number of combinations.

- Improvement of the display of the transverse reinforcement under the effects of torsion: the program displays “Ator,y/face” or “Ator,z/face” in order to specify that the displayed theoretical values (in cm²/ml) are given for each face of the section (contrary to transverse reinforcement):



Eurocode 3

- Correction of a problem regarding the calculation according to the UK appendix: the value of the lateral-torsional buckling (C1) is now correct, according to the method from article 6.3.2.3. (Ref. 12987)

- Correction of a problem regarding the calculation according to the UK appendix: the η value, used for shear verification, is now in conformity with clause 2.4 of the UK appendix. (Ref. 12959)

- Correction of a problem at the calculation according to the UK appendix: the k_c parameter, used for the lateral torsional buckling reduction is now calculated. (Ref 12951)

Eurocode 5

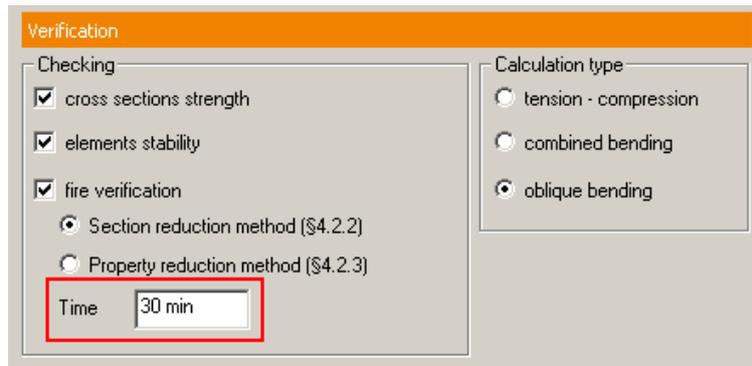
- Correction: the k_{mod} coefficient for combinations including only dead loads (e.g., 1.35xG) is now correct. (Ref. 12932)

- Correction: the work ratio displayed in the sections optimization window was different from the work ratio displayed in the shape sheet (Ref. 12907).

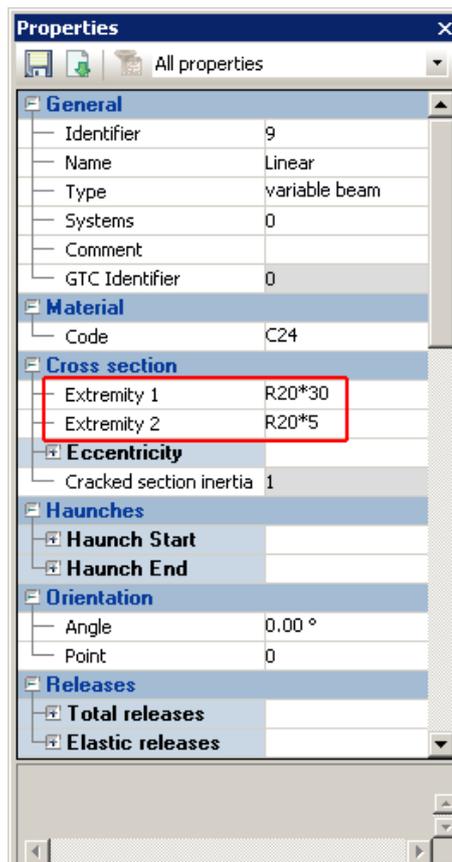
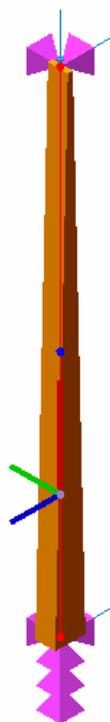
- Correction: the chain optimization is now possible. (Ref. 12884)

- Correction: the name of the combination used for verifying the instant deflection ($W_{inst,Q}$) is now correct. (Ref. 12432)

- Improvement: the fire resistance period as global parameter is now displayed in the elements properties window. (Ref. 12896)



- Correction: the suggested sections from the optimization dialog box were incorrect when they were displayed in mm. (Ref. 12773)
- Correction of a problem on variable sections: in Advance Design 2012 SP1, the verifications are made on the extremity with the smallest section. Previously, the calculations were made systematically on extremity 1, which could lead to overevaluated stresses if extremity 1 had the biggest section. (Ref. 12934)



Note: The reference number (Ref. xxxx) refers to an index of the internal GRAITEC Database.