

Advance Design 2012 / SP3



As announced during the launch of Advance Design 2012, this service pack 3 provides the American codes for concrete and steel design:

- The ASCE/SEI 7-10 for loads and combinations definition.
- The ACI318-08 and 318-08M for the concrete design.
- The ANSI/AISC 360-05 for the steel design.

This SP3 offers also more than 320 improvements and corrections

The service pack should be installed on Advance Design 2012 SP2 version.

The most significant improvements of this service pack are listed here below.

American concrete and steel design codes

Reinforced concrete design – ACI318-08

The new concrete design engine according the ACI318-08 is able to handle the following checks:

- Loads combination
- Material properties
- Tension design
- Simple and composed bending design
- Shear and torsion effects.
- Detailed beams check
- Column design
- Plate reinforcement design
- Plate cracks check



Steel design - ANSI / AISC 360-05

Steel design engine according to ANSI/AISC 360-05 as detailed here below:

- New libraries for cross sections and materials
- Updated loads combination engine
- Sections classification
- Steel members design



General improvements and corrections

General application improvements

- [13316] Improvement of the Allowed deformation function : pressing Ctrl after selecting elements will automatically turn the function off, enabling users to copy elements instead of stretching them.
- [13135] Improvement of the intersection snap-mode: can now be used on lines and polylines.
- [12686] Improvement of system management in the pilot: it is now possible to create subsystems in a hidden system.
- [13110] Improvement: a new “Pressure on selection” entry has been introduced in the contextual menu when selecting elements.
- [13000] Improvement: in the joint group definition window, pressing Enter will add the group in the grid. Previously, it would close the dialog without saving the joint group name.
- [13127] Correction of a problem when using the Edit–Coordinates–Length menu (Ctrl+D): the value was given in meters no matter which length unit was chosen.
- [13485] Correction of a problem with the multiple copy function: elements were not displayed in the workspace though they did appear in the pilot.
- [12870 & 13628] Correction of a problem regarding saved views: when using a specific display mode (example: color/ section or color/material, rendering options, annotations...), the display parameters were not saved.

- [12965] Correction of a problem: information in the left top corner would not be displayed on saved views if using the .jpeg file format.
- [13141] Correction of a problem regarding the calculation of G_{12} (in-plane shear modulus) for a transversely isotropic material.

$$G_{12} = \frac{\sqrt{E_1 E_2}}{2(1 + \sqrt{\nu_{12} \nu_{21}})}$$

- [12997] Correction of a problem preventing from setting hinged sides on a planar element.
- [12998] Correction of a problem: users could no longer select windwalls by clicking on their symbols or linear elements by clicking on their cross-section symbols.

Reports generation

- [13140] Correction of a problem when editing the Torsors on wall groups table: values were unreadable.

Eurocode 3

- [13049] UK appendix: Table 6.5 is now replaced with the table from NA.2.17.

Cross-section	Limits	Buckling curve
Rolled doubly symmetric I and H sections and hot-finished hollow sections	$h/b \leq 2$	b
	$2.0 < h/b \leq 3.1$	c
	$h/b > 3.1$	d
Angles (for moments in the major principal plane)		d
All other hot-rolled sections.		d
Welded doubly symmetric sections and cold-formed hollow sections	$h/b \leq 2$	c
	$2.0 \leq h/b < 3.1$	d

Eurocode 5

- [13531] The $F_{v,k}$ properties for timber materials have been updated.
Example: for C24, $F_{v,k}$ is now 4MPa instead of 2,50MPa previously.

Post-processing

- [13269] Correction of a problem: Advance Design would sometimes return #-1.J instead of 0 on linear elements.
- Correction of a problem when trying to postprocess the stresses on a envelop load cases. In some cases, AD was returning #-1.J instead of the right values.

Note:

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