masterSERIES

Release Notes 29/09/2026

New Features and Improvements during the 2025 major verion cycle

This document summarises the new features and improvements delivered during the 2025 release cycle after its initial launch in August 2025. Each entry shows the version in which the change was introduced.

Highlights

- Non-linear member axial and moment limits with automatic plastic redistribution
- Simpler alternate loading set-up for FE analysis
- New Node IDs for stable node referencing in output
- Additional Eurocode base plate prying checks
- New and updated Kingspan Multideck and SMD composite deck profiles
- Crack width calculations to EN 1992-1-1 for concrete design and pile caps

Analysis and Modelling

Enhancements to MasterFrame and the analysis engines.

Node ID indexing

Version 2025.14.19

New Node ID options are available under Viewing > Global member and node referencing. Like member references, node IDs give a stable reference to each node that does not change when the analysis node numbering changes. They can optionally be used in tabular and design output in place of node numbers.

Separate FE meshing options for columns and walls

Version 2025.14.19

In Global FE Meshing options, the slab column/wall stiff region setting has been split into two separate options, giving independent control for columns and for walls.

Load case labels on envelope results

Version 2025.13.29

In graphical output for envelope cases, a new option annotates the maximum and minimum envelope values with the load case number that governs each value.

10,000 year wind risk factor

Version 2025.15.05

The 10,000 year wind site risk factor is now supported in the SCIPHYR site-wide analysis engine.

Member axial plastic limit

Version 2025.10.06

A new member attribute, ‘Axial Limit’, sets a non-linear axial plastic limit so that a member cannot attract an axial force larger than the value entered. A negative value sets a tension limit and a positive value sets a compression limit. Using the attribute automatically invokes a non-linear analysis that redistributes forces using a Newton-Raphson iterative approach.

Member moment limit

Version 2025.10.06

A new member attribute, ‘Moment Limit’ (UT Mom-Limit, kN.m), specifies the plastic moment capacity of a member and overrides the automatically generated plastic moment for class 1 steel ‘I’ sections. It requires potential plastic hinges to be placed and the second-order plastic analysis option to be activated for the load case.

Effective nodal mass per mode shape

Version 2025.18.12

The effective X, Y and Z direction mobilised mass in each mode shape can now be calculated for every node, with export to Excel.

User Defined Response Sepctrum

Version 2025.10.20

In MasterFrame Dynamic Response Specturm Analysis, a user defined response spectrum can be defined by inputting the time T(s), acceleration Se(g) (m/s^2) values

Control of patch and line load discretisation

Version 2025.13.29

MasterFrame Pro distributes patch and line loads through area loading panels using a default resolution of 0.1 m. Where a load crosses several panels and members this could cause unexpected variations in distribution, although the total load was always correct. The resolution can now be set in MasterSeries Preferences (Defaults) > MasterFrame tab, down to a minimum of 0.025 m.

Simpler alternate loading for FE analysis

Version 2025.13.29

Earlier versions expected both permanent (dead) and variable (live) loads to be defined as alternate (DA and LA). Since Eurocode does not require patterning of permanent loads, self-weight and applied surface dead loads can now stay on standard load groups (D0–D9) with only live loads using the alternate type (LA). This simplifies load case set-up and makes the error ‘No Alternate Load Set Regions found in area loading of # finite elements in load case #’ less likely.

Elastic critical load factor in models with FE concrete shear walls

Version 2025.15.05

In the EC3 elastic critical load factor (αcr) assessment, the horizontal and vertical force components previously included only line elements (columns and bracing) and omitted forces in FE shear walls. Because shear walls typically attract a larger share of horizontal than vertical load, this generally gave a lower, conservative αcr. Wall forces are now included.

Frame Info sidebar shown by default

Version 2025.15.31

The frame info sidebar in Frame Statistics is now visible by default when opened.

Steel Design

Refinements to steel member and connection design.

Option to ignore local bow imperfection check

Version 2025.09.24

A new 'Axial + Moment' steel design brief setting allows the local bow imperfection check to be ignored at steel design time.

Minor axis local bow with second-order analysis

Version 2025.13.29

In line with EN 1993-1-1:2005 5.2.2(7), where minor axis local bow and geometric non-linear effects are included in the analysis, the flexural buckling reduction factor χz is taken as 1.0 in the Axial + Moment interaction check (equation 6.62). χt (torsional buckling) and, where relevant, χtf (torsional-flexural buckling) are used in its place.

Haunched and tapered steel member design

Version 2025.13.13

The design of haunched and tapered steel members has been reviewed and updated. See detailed report.

Countersunk bolt plate thickness checks

Version 2025.13.13

Additional dimensional checks now confirm the minimum plate thickness required for countersunk bolts.

Splice connection second-order movements to Eurocode (AD 471)

Version 2025.14.19

Splice connection internal second-order movements now follow the Eurocode version, AD 471. Previously the Eurocode design used the method from the equivalent BS document (AD 243) combined with Eurocode capacity values.

Ordinary bolts in 'close tolerance' holes in splices

Version 2024.18.05

The definition of 'Close Tolerance' holes has been updated and you now control the close tolerance limit, up to 0.4 mm plus bolt diameter. The bolt hole diameter drop-down list includes a 'Close Tolerance' option, and the value used is set from a drop-down list on the Basic Data and Defaults > General tab.

Base plate prying forces to Eurocode

Version 2025.17.21

EN 1993-1-8:2004 6.2.6.11(2) allows prying forces to be ignored when sizing a column base plate, which is conservative and typically gives a thicker plate. Where a plate is thinner, or the bolt lever arm or bolt diameter is larger, ignoring prying in the bolts may not always hold true. Additional prying checks are now applied under these conditions.

Concrete, Composite and Masonry Design

Updates to concrete, composite floor and masonry design modules.

Column effective length k1 and k2 to EN 1992-1-1

Version 2025.19.03

In EN 1992-1-1:2004 column design, end flexibility factors k1 and k2 are derived from nodal rotations and member end moments (clause 5.8.3.2(3)). Where end rotations were in the same sense as the overall column rotation, they did not match the expected deflected shape of Figure 5.7 g), giving larger k1 and k2 values and longer effective lengths. The design was conservative, but the software now adjusts the nodal rotations relative to the overall column rotation when this condition is detected.

Composite concrete grade settings

Version 2025.15.05

A concrete grade of ‘0’ can now be assigned to a composite design brief to force non-composite design within the composite design module. Auto design can set this automatically when the minimum degree of shear connection is hard to achieve and non-composite design is more beneficial. A new menu option, MasterFrame > Set all briefs 0 fcu to default value (non-composite to composite), applies a concrete grade to every brief with a 0 value. When the global concrete grade is changed, a warning explains that briefs with a 0 grade (forced non-composite) are not affected.

Kingspan Multideck V3 products

Version 2025.17.07

Multideck 50, 60 and 80 V3 (450 yield strength) have been added to the metal deck open library.

Updated SMD composite metal deck profiles

Version 2025.17.21

SMD profiles added or updated: R51+ (S350)*, R51+ (S450), TR60+ (S350)*, TR60+ (S450), TR80+ (S350)*, TR80+ (S450) and TR220 (350). Entries marked * update existing S350 profiles with modified geometry; the S450 grades and TR220 are new.

Trough top nib height for composite metal decks

Version 2025.15.05

A new metal deck input, ‘Trough Top Nib Height (mm)’, has been added, and the existing metal deck library updated with this data. Including the nib height generally has a favourable effect, as it can make the minimum degree of shear connection easier to achieve.

Splice connection second-order movements to Eurocode (AD 471)

Version 2025.14.19

Splice connection internal second-order movements now follow the Eurocode version, AD 471. Previously the Eurocode design used the method from the equivalent BS document (AD 243) combined with Eurocode capacity values.

Pile cap crack width calculation to Eurocode 2

Version 2025.14.19

A new option on the ‘Design Method’ tab performs a rigorous crack width calculation for pile caps in accordance with EN 1992-1-1:2004 clause 7.3.3.

Pile cap drawing tolerance

Version 2025.21.29

The dimensional tolerance used on the pile cap drawing can now be adjusted.

Masonry partial uniformly distributed loads

Version 2025.09.09

New input in the leaf loads tabs for multiple partial UDL's at any Y location in the wall height.

Masonry vertical internal lateral supports

Version 2025.09.24

Vertical internal lateral supports in masonry are now taken into account when calculating hef values.

General and Interoperability

Usability improvements and links to other software.

Automatic backup restore

Version 2025.11.04

Backup files can now be restored automatically using the File > Restore Backup dialog.

Helper message when starting a PDF print session

Version 2025.14.23

When you first start a PDF print session, a helper dialog explains how to close the session and save the document. You can choose not to show it again.

Import of curved beams from Tekla Structures

Version 2025.14.23

Curved beams can now be imported from Tekla Structures into MasterSeries (one-way import).