



# SMART COMPLIANCE RELEASE NOTES



## Version 2023.0 (Build 92): July 2023

- ▶ The software is now named SMART Compliance to reflect its use in the compliance checking of scaffolding.
- ▶ The software libraries on which SMART Compliance is built have been updated to remain compatible with the latest version of Google Maps.

## Version 2021.0 (Build 81): September 2021

SMART Calculations is the software used during the development of NASC TG20:21. It has been significantly updated for version 2021 to match the wind factors, leg loads, tie duties and maximum safe heights reported by the NASC TG20:21 eGuide.

- ▶ The terminology in the TG20 wind factor report has been updated for TG20:21. This wind factor calculation is the basis for the calculation in the TG20:21 eGuide and can be used to justify the wind factor reported by a TG20:21 compliance sheet.
- ▶ The TG20 check has been updated for TG20:21, which was itself developed using SMART Calculations, matching the results from the TG20:21 eGuide.
- ▶ Support has been added for tied or rakered independent scaffolds with 3 inside boards.
- ▶ An option has been provided to allow the top lift to be untied for clad scaffolding. This will fail the TG20 check but it allows the temporary condition where the top lift is not yet tied to be considered, in which the tie duty will include the cantilever effect of the untied top lift. This is the tie duty reported by the TG20:21 eGuide. Note that, to model this condition for scaffolding with ties at alternate lifts, it may be necessary to reduce the scaffold height by one lift such that the top lift is untied.
- ▶ An option has been provided to connect the tie tubes to the inner and outer faces of the scaffold or to the inner face only. If the option is selected to connect to the inner face only, a greater proportion of the horizontal loading is transferred to the foundations at the outer face of the scaffold. The TG20 check reports whether the tie tubes need to be connected to the inner and outer faces or whether they may be connected to the inner face only and will fail if the required condition is not met. A new option has also been provided to automatically select the tie tube connections based on the TG20 check, automatically connecting to the inner and outer faces if required.
- ▶ An option has been provided to consider the effect of additional sway resistance provided to the scaffold as described in section 7.9 of the TG20:21 Operational Guide. If so, the proportion of the horizontal loading that is transferred to the foundation at the outer face of the scaffold is reduced. An option has been provided to automatically determine the requirement for additional sway resistance from the TG20 check and the TG20 check now fails if additional sway resistance is required but not provided.
- ▶ An option has been provided to allow the façade bracing below the first lift to become ineffective, if applicable, as described in section 5.7.3.4 of the TG20:21 Design Guide. If this option is selected and the slip capacity of the couplers connecting the façade bracing below the first lift is exceeded, the frame is reanalysed with the bracing considered ineffective. This results in a reduction to the maximum leg load at the outer face as the horizontal forces are redistributed within the frame.

- ▶ The TG20 check has been improved where inner edge protection is present. It now checks the inner leg loads against the axial load capacities of the inner standards, rather than conservatively failing in some cases as in the previous version of the software.
- ▶ The TG20 check has also been improved to check the inner leg loads where the inside boards are fully loaded to the main platform load class. This can be used to check a scaffold with fully loaded inside boards, which is not possible with the NASC TG20:21 eGuide.
- ▶ The guidance for single-lift independent scaffolds that are not tied or supported with rakers has been implemented as described in section 6.23 of the TG20:21 Operational Guide. The requirement for structural transoms connected to the standards is checked in the TG20 check and, if the option for automatic structural transoms has been selected, they are automatically added to a single-lift scaffold if the scaffold is not supported by ties or rakers.

## Version 2020.1 (Build 70) January 2021

- ▶ Internal maintenance was performed on the method of retrieving wind and snow load information.

## Version 2020.0 (Build 60): November 2020

- ▶ The address search facility has been extended to include the Channel Islands and the Isles of Scilly;
- ▶ The calculation of the main platform's loaded area has been refined to omit the width of the toe boards;
- ▶ The calculation of the inner cantilever platform's loaded area has been refined to omit the gap between the main platform and the inner platform.

## Version 2019.1 (Build 50): December 2019

- ▶ A new option has been provided to choose between TG20:13 compliant high-tensile galvanised steel tubes or Type 4 galvanised steel tubes;
- ▶ The axial load capacity calculation for double standards supporting a bridge has been revised such that the secondary (doubled) standard supports the load from the bridge;
- ▶ Improvement to the reporting of TG20:13 check failures for light-duty scaffolds;
- ▶ Minor styling improvements in the Cloud licence user interface.

## Version 2019.0 (Build 31): September 2019

SMART Calculations is a collection of design tools for scaffold designers and temporary works engineers, including:

- ▶ *TG20:13 wind factor* module: for the calculation of the TG20:13 wind factor and equivalent peak velocity pressure.

- ▶ *Tied independent scaffold* module: for the calculation of tube and fitting tied façade access scaffolds in accordance with TG20:13.

The software features include:

- ▶ Compatible with sites in the UK and Ireland;
- ▶ Calculates the TG20:13 wind factor and the equivalent peak velocity pressure, compliant with BS EN 1991-1-4;
- ▶ Calculates the leg loads for scaffolds: the maximum support reactions for foundation design and the maximum axial forces in members. This includes the effect of wind and notional horizontal loads, compliant with BS EN 12811-1;
- ▶ Calculates the tie duty for scaffolds using grillage analysis;
- ▶ Calculates the adequacy of a scaffold bridge using a beam analysis, checking the moment and shear capacities, deflection and coupler slip. A library of standard beams is included, from Apollo, DESSA, Generation and TRAD, or it is possible to specify a TG20:13 compliant beam or a user-defined beam;
- ▶ Checks if a scaffold is TG20:13 compliant;
- ▶ Includes options for:
  - Fully boarded or part boarded scaffolds;
  - Cladding options (unclad, brick guards, debris netting or sheeting);
  - Optional inner guard rails and toe boards;
  - Structural transoms;
  - TG20:13 tie patterns A – F;
  - Impermeable or permeable facades;
  - Load classes 1- 4 with optional fully-loaded inside boards;
  - An optional TG20:13 compliant light-duty cantilever fan;
  - An optional bridged opening, which may be supported by double standards.
- ▶ Generates calculation reports in Word and PDF formats, with three levels of detail: Summary, Calculations and Detailed.