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SAND - Structural Analysis and Design, & SCALE - Structural CALculations Ensemble, Information sheet 44; Jan 2018.

Support

(1) **Technical support**, for technical support for all aspects of SAND and SCALE please email a marked up copy of the calculations in question to Dr Ian Brown ian@fitzroy.com.

(2) **Accounts**, if you have changed address or if there is a new contact person, please email: Jeanette Brown, jeanette@fitzroy.com or post to Lark Lodge, Fornham St Martin, Bury St Edmunds, Suffolk IP31 1SR.

Eurocodes

We have made significant progress in 2017 with all proformas now showing full calculations to the Eurocodes or full calculations to the British Standards, or are analytical and applicable to both codes.

Windows 10

All programs in the SAND and SCALE suites are fully supported and operational on all 32-bit and 64-bit desktop/laptop versions of Windows 10, Windows 8.1, Windows 8, Windows 7, Windows Vista and Windows XP.

Changes to SCALE program (Latest version is 4.1801)

SCALE version 5 is now substantially complete. There are still a few features to add, so a shortcut is not installed automatically yet. To run SCALE version 5. create a shortcut to the program **scale.exe** in the SAND installation directory.

The vision for SCALE version 5 has involved side-by-side development of matching Windows and iPad versions, with both versions including SCALE, LUCID, SPADE, NL-STRESS, NL-PLOT and SCP (for creating pdf output) in one executable. This alleviates the problems jumping between executables on Windows, and facilitates launching analyses on iPads. Both versions allow for viewing and editing the results; and generating, viewing and printing pdfs of results, drawings and plots; all within the one SCALE application.

A beta version of the iPad app is now available, please email ian@fitzroy.com for details.

SCALE version 5 dramatically improves the flow through a proforma, both forwards and backwards, and as such brought to light further aspects of the proformas that needed to be improved. The following aesthetic improvements have been made to the proformas and data files during 2017.

- The option to switch between Normal, Condensed and Summary calculations on the fly has been added back in.
- The options to go back one input screen and to go back to the start of the current stage have been fixed, for all input screens including the EDIT boxes and EDIT arrays, the proforma initialisation has been fixed to not reset erroneously when undoing.
- Footers have been added to output to show the version and proforma number in a style matching the header. The office number has been moved to the footer to declutter the header.
- In the pdf output, the text on a page is moved up a line if the initial line is blank, to avoid blank lines at the tops of pages.
- Emboldened the section headings in the output for over 500 proformas.
- Emboldened the warning messages for nearly 500 proformas.
- Emboldened the summary sections for over 300 proformas.
- Improved what calcs are displayed in Summary mode for over 500 proformas.
- Emboldened output is achieved by reintroducing the <H1> tag which SCALE previously used for headings a decade ago. When editing the output calcs file, lines with an <H1> at the start of the line will appear emboldened when saved as pdf or printed.
- When SCALE launches SCALE, NL-STRESS or the NL-STRESS plot program, if they encounter an error, they will now return with a meaningful error message rather than hanging the program.
- The script to run through all the ans=1,2,3… demo calculations now uses SCALE version 5.
- The demo calculations ans=1,2,3… pdf file is now automatically uploaded to the website http://www.fitzroy.com/scale/
- EDIT boxes now display correctly for /W and single column and double column array options.
- Added sole practitioner subscription and in-app purchase renewable subscription options for iPad.
- Fixed character 252 not appearing in output.
- Fixed crash if window adjusted whilst running NL-STRESS in batch mode.
- When NL-STRESS launches a long running SCALE proforma, for example to generate concrete charts, the main window is now responsive and displays messages to indicate the progress.
- Fixed navigation for opening menu of proformas, such that right and left arrow on the keyboard will open and close a section, making it much easier to navigate by keyboard. (Use up and down arrow and enter to select the required proforma in the section.)
- Added “nlp - Run NL-STRESS plot program directly” to opening menu to allow additional plots to be generated for an existing analysis.
- Fixed issue where text boxes occasionally remained on screen when they shouldn’t.
- Fixed 67 occurrences of <<// (pause then clear screen) to either be // (clear screen) or use SCALE version 5’s pause prompt for version 5.

NL-STRESS SCALE proformas and changes to SCALE proforma numbering.

Following feedback that the .ndf NL-STRESS proforma data files are confusing to use, we have produced 50 new SCALE proformas which use the simplicity of SCALE’s question and answer approach to collect the required parameters. The proforma then generates the required data file, automatically analyses it, and the displays the results and requested plots of applied loading, bending moments, shear forces, and deflected shape. To make changes to your analysis, either re-run the proforma and adjust the responses there, or open the data file that has been created, using the “run NL-STRESS directly” option, and edit and run the file there.

There were multiple .ndf NL-STRESS proforma data files set up for similar structural types, so we have taken the opportunity to consolidate data files for similar types into each proforma, to make the choice of which proforma to choose simpler. The proforma presents the different types to the user when it is run.

In addition to the 37 existing NL-STRESS proformas, in the 560-600 proforma number range, and the 50 new ones introduced in the 2018 update, we are planning to produce more SCALE NL-STRESS proformas in due course. As the new proformas work alongside the existing proformas, we have taken the decision that it would be confusing if these proformas did not have a contiguous range. Therefore, we have decided to move all SCALE NL-STRESS proformas to use the contiguous 800-999 range, which unfortunately necessitates moving the existing proformas in this range to different ranges.

We do apologise for the inconvenience that moving the drainage, surveying, and mathematics proformas out of this range will cause, but hopefully this should reduce future confusion caused by having proformas in discontinuously numbered groups.

The following proformas have been re-numbered accordingly:

NL-STRESS - PLANE GRID proformas

sc560 → sc920 Plane grid analysis
sc561 → sc921 Foundation raft
sc562 → sc922 Suspended slabs/bridges
sc563 → sc923 Beam curved on plan

NL-STRESS - PLANE FRAME proformas

sc567 → sc856 Cantilever or built-in beam or rafter
sc568 → sc857 Lean-to, cranked, dogleg or Mansard beam
sc569 → sc855/Option 1 Portal frame, mono pitch/rectangular
sc570 → sc855/Option 2 Portal frame, 1 bay
sc571 → sc855/Option 3 Portal frame, 1 bay with haunches
sc572 → sc855/Option 4 Portal frame, 1 bay for hipped end
sc573 → sc855/Option 5 Portal frame, 2 bays
sc574 → sc855/Option 6 Portal frame, 2 bays with haunches
sc575 → sc855/Option 7 Portal frame, 2 bays w. haunches & single ridge
sc576 → sc855/Option 8 Portal frame, 3 bays
sc577 → sc855/Option 9 Portal frame, 3 bays with haunches
sc578 → sc855/Option 10 Portal frame, 3 bays w. haunches & single ridge
sc579 → sc855/Option 11 Portal frame, 4 bays
sc580 → sc855/Option 12 Portal frame, 4 bays with haunches
sc581 → sc855/Option 13 Portal frame, 4 bays w. haunches & single ridge
sc582 → sc858 Gangnail type of roof truss
sc583 → sc859 Lattice girder
sc584 → sc860 Lattice portal - N or Pratt, Howe or Warren
sc585 → sc861 Attic room roof truss
sc586 → sc862 Collar-tie & collar-and-tie roof truss
sc587 → sc863 Couple/couple-close truss
sc588 → sc864 Fink roof truss
sc589 → sc865 King post roof truss
sc590 → sc866 Queen post roof truss
sc591 → sc867 Mansard roof
sc592 → sc868 Bents, trestles and pipe racks
sc593 → sc869 Box culvert
sc594 → sc870 Continuous beam with train of moving point loads
sc595 → sc871 Coupled shear wall
sc596 → sc872 Circular arch
sc597 → sc873 Multi-storey multi-bay
sc598 → sc874 Continuous beam with optional cantilever/s
sc599 → sc875 Sub-frame - 2 to 10 bays

DRAINAGE AND SURVEYING

sc800 → sc560 Drain & sewer pipe sizing
sc805 → sc561 Gutters and rain water pipes
sc855 → sc565 Road alignment vertical curve
sc856 → sc566 Road alignment horizontal curves
sc859 → sc569 Areas and volumes for cuttings and embankments
sc860 → sc570 Volumes from spot levels
sc861 → sc571 Simpson's rule for volumes
sc870 → sc580 Setting out piles
sc871 → sc581 Analytical geometry based on the COGO approach
sc872 → sc582 Traverse survey - open or closed
sc890 → sc590 Crack movements - by tell-tales

MATHEMATICS AND MISCELLANEOUS

sc902 → sc012 Solution of triangles
sc903 → sc013 Solution of simultaneous equations
sc904 → sc014 Solution of quadratic, cubic & quartic equations
sc905 → sc015 Coordinate geometry
sc906 → sc016 Differentiation of standard forms
sc907 → sc017 Differentiation of a general function
sc908 → sc018 Integration of standard forms
sc909 → sc019 Integration of a general function
sc910 → sc020 Mensuration of plane areas and solids
sc911 → sc021 Statistics and quality control
sc912 → sc022 Latent roots
sc913 → sc023 Centre of gravity
sc914 → sc024 Matrix inversion
sc915 → sc025 Greek alphabet and SCALE character set
sc916 → sc026 Conversion between Imperial and metric and vice versa
sc918 → sc028 Compound interest for mortgage and loan payments
sc920 → sc030 Expressing a set of data points as a polynomial.
sc924 → sc042 Verifying the correctness of SCALE & NL-STRESS proformas
sc944 → sc044 For testing only, automated running of all examples
sc950 → sc050 Invoice for structural work
sc951 → sc051 First page of calculations
sc952 → sc052 Setting page length
sc954 → sc054 Pages with heading only
sc970 → sc055 Cross referencing of numerical variables in proformas
sc990 → sc060 Job check list
sc992 → sc062 Typical letters
sc993 → sc063 Job information sheet

New SCALE proformas added.

sc431 **New proforma, Beam (UB, UC or Channel) with biaxial bending**
sc455 **New proforma, Steel stair with flat plate stringers**
sc777 **New proforma, Flexible pavement design to HD26/06**

NL-STRESS - SPACE FRAME proformas

sc800 Circular concrete tank, internal fluid pressure, on springs
sc801 Multi-storey frame, nx/nz bays along X/Z axes, ny storeys up Y
sc802 Lattice tower, tapered lower section, optional straight upper

NL-STRESS - PLANE FRAME proformas

sc876 Simply supported beam including shear deflection
sc877 Continuous beam with pattern loadings
sc878 Ground beam on an elastic foundation or on elastic piles
sc879 Influence lines for continuous beams
sc880 Two rafters with tie / post & tie
sc881 Roof truss, three segment rafters, Pratt internals
sc882 Pipe tree having 2/4/6 branches
sc883 One/two/three storey bent having vertical/raking piles
sc884 Bent, or rectangular portal frame
sc885 Rigid pile cap with several piles
sc886 Gable frame with inclined legs
sc887 Portal frame with skew corners
sc888 Trapezoidal frame
sc889 Vierendeel girder
sc890 Vierendeel roof frame
sc891 Multi-storey frame, equilibrium & compatibility self-check
sc892 Pierced shear walls
sc893 Outrigged and braced outrigged frame

NL-STRESS - PLANE GRID proformas

sc924 Cantilever or propped-cantilever on plan
sc925 Circular arc cantilever on plan
sc926 Circular arc bow girder on plan
sc927 Grillage of beams, classical check
sc928 Grillage of beams, modern check

NL-STRESS - PLANE TRUSS proformas

sc940 Pratt through truss
sc941 Pratt deck truss
sc942 Howe through truss
sc943 Howe deck truss
sc944 Warren through truss
sc945 Warren through truss with verticals
sc946 Warren deck truss
sc947 Warren deck with verticals

NL-STRESS - Plastic analysis

sc960 Plastic analysis of cantilever
sc961 Plastic analysis of propped cantilever
sc962 Plastic analysis of continuous beam
sc963 Plastic analysis of rectangular portal
sc964 Plastic analysis of ridged portal
sc965 Plastic analysis of multi-bay ridged portal
sc966 Plastic analysis of multi-storey frame

NL-STRESS - Stability

sc980 Cantilever beam with large displacements
sc981 Stability of columns with various supports
sc982 Stability of circular ring/pipe
sc983 Stability of cantilever with udl & end load
sc984 Multi-storey frame using non-linear elastic analysis
sc985 Hanging cable with flexible platform
sc986 Suspension bridge with three pinned stiffening girder
sc987 Suspension bridge with two pinned stiffening girder

Changes to SCALE proformas.

In addition to the aesthetic changes detailed above, we have made amendments to a further 140 proformas as listed below:

lu910 added option to display schedule (EC design option).

sc088 enhanced diagrams, replaced gammaS with gams, changed default values for spac (EC Ex1 & Ex2), replaced routine name links with LINKs, added routines ssa2d, pwpsl, nlperc & pwpsl1, enhanced proforma to consider column/pile heads (i.e. load heads), added option for openings near loaded area.

sc089 added eubucket routine, example default values revised.

sc090, 091, 104 added eubucket routine.

sc096 added mesage routine.

sc106, 112, 113, 272 removed munits routine.

sc109 replaced (1=Yes, 2=No) with (1 or 2), added ans1=0, made general alterations and enhancements, modified ltraj routine, added more text, removed flag=1.

sc114, 115,116 replaced references BD 44/95 and BD 24/92 with BD 44/15, updated text lines relating to tensile stress.

sc117 updated maxmin routine.

sc118 replaced smax=3*h with smax=2*h, removed munits as this was not used, replaced gammaS with gams, added Ascalc to EC option, added more text and upper limit on smax.

sc120, 122, 126, 132, 134, 151, 153, 155, 157 replaced BD 24/92 with BD 44/15.

sc121 replaced BD 24/92 and BD 44/95 with BD 44/15.

sc123 made mark24=1 hidden, replaced references BD 44/95 with BD 44/15.

sc124 added more text highlighting that BD 28/87 has been withdrawn, added variable name ans6, added missing design summary to BS design option.

sc127 replaced references BD 44/95 and BA 44/96 with BD 44/15 and references BD 21/97 to BD 21/01.

sc133 replaced references BD 44/95 and BA 44/96 with BD 44/15.

sc135 replaced references BD 44/95 and BA 44/96 with BD 44/15 and BD 21/97 to BD 21/01, added EC2 design option statement.

sc138, 141 replaced references BD 44/95 and BA 44/96 with BD 44/15, updated text lines relating to tensile stress.

sc139 replaced references BD 44/95, BD 24/92 and BA 44/96 with BD 44/15, updated text lines relating to tensile stress.

sc140 replaced references BD 44/95 and BA 44/96 with BD 44/15, example default values revised, updated text lines relating to tensile stress.

sc142, 143, 144, 146 replaced references BD 44/95 and BD 24/92 with BD 44/15, updated text lines relating to tensile stress.

sc145 replaced several $23456 with $23456=, replaced references BD 44/95 and BD 24/92 with BD 44/15, updated text lines relating to tensile stress.

sc148 replaced references BD 44/95 and BD 24/92 with BD 44/15, example default values revised, updated text lines relating to tensile stress.

sc152, 154, 156, 158 replaced references BD 44/95 with BD 44/15.

sc159 added "No longer in use" to BD's and BA's, replaced BD 44/95 with BD 44/15, added "Withdrawn" to BA 24/87 and BD 28/87.

sc165 replaced references BD 44/95, BD 24/92 and BA 44/96 with BD 44/15, updated text lines relating to tensile stress.

sc189 added more text, added exposure classes XD, XS and reference to code when XF is selected.

sc250, 252, 253, 254, 256, 257, 274 updated to BS EN 338:2016, removed references to Table 1.

sc251 updated to BS EN 14080:2013(E), modified example default values.
sc255 updated to BS EN 14080:2013(E), fc0k value is no longer repeated under strength properties.
sc258, 259 renumbered several EC tables, repositioned tables, updated to BS EN 338:2016(E), made references to Tables 1 & 3 in EN 338:2016(E).
sc267 updated to BS EN 338:2016(E), made reference to Tables 1 & 3 in EN 338:2016(E).
sc268 updated to BS EN 338:2016(E), updated example default values, removed references to Table 1.
sc269 renumbered several EC tables.
sc271, 273 updated to BS EN 338:2016(E), removed munits, made references to Tables 1 & 3 in EN 338:2016(E).
sc275 removed munits, updated to BS EN 338:2016, made references to Tables 1&3 in EN 338:2016(E), added IF GS=2 AND scr>12 & more text.
sc280 table 32000 removed.
sc355 program now stops IF class=4, replaced DEL2≤DELl1 with DEL2≤DELl2.
sc371 updated text when aratio<1.
sc374 replaced references BD 56/96 to BD 56/10, added option to use Class 4 sections, added DESIGN SUMMARY, added IF flag=0 scenario to DESIGN SUMMARY.
sc377 replaced references BD 56/96 to BD 56/10 and BD 21/97 to BD 21/01, added Weffy.
sc381 added reference to ECCS Eurocode Design Manuals, removed 0.67 factor from expressions for MyEd, MzEdb & NEd, added option for single non-rigid end post, replaced teel grade with Steel grade, replaced VEd(0) with NbEd, defined tf.
sc382 added more screen text relating to scenario sigxEd > (0.8*sigcrp), removed sratio as this was not used, added limout and green screen display diagram defining hs, removed y1 prompt, updated Ipro1, added inteq, ec3com.pro, added DESIGN SUMMARY, modified screen text ref proforma 364, removed ans4 from EC design, added intst, sc4t9.pro, ec3t.pro, stichk, axfsti and fweld2, replaced b with hw and Pext with Pext1, added partial factors section.
sc386 added WARNING's, replaced offending variable name "moment" with "Method", added fire resistance check to EC design option, updated FR Summary, added reference to EC3-1-4, made min30 hidden.
sc387 added fire resistance check to EC design option and several tables, removed at end of lines, updated text, updated FR Summary, added reference to EC3-1-4, made min30 hidden.
sc396 replaced strength with stress.
sc392 **added Eurocode design option**, added several WARNING: before STOP.
sc408 added fire resistance check to EC design option, added several WARNING: before STOP, added "Limiting modification factor", set upper limit of fire resistance period to 30 minutes, updated FR Summary, made min30 hidden, made some expressions class=3 only.
sc411 updated ZONES1 and Ex1 default value for L, added screen notes relating to rafter uniform length and missing <H1>, added design guide tittle to Ex1 defaults.
sc421 replaced n<4] with n<4.
sc428 added fire resistance check to EC design option, added WARNING: before STOP, replaced ti[with tip, added "Limiting modification" factor, set upper limit of fire resistance period to 30 minutes, updated FR Summary, made min30 hidden, added > and re-entered EDIT /W 2 before Mtd & Mti.
sc429 added fire resistance check to EC design option, relocated pop11, replaced "IF NEd=0" with "IF NEd=0 OR MyEd=0", added WARNING: before STOP, added "Limiting modification" factor, set upper limit of fire resistance period to 30 minutes, added example default values, updated FR Summary, made min30 hidden.

sc432, 434 removed word "suffices", added fire resistance check to EC design option, made min30 hidden.
sc436, 437 removed word "suffices", removed note from diagram relating to beam self weight, added fire resistance check to EC design option, made min30 hidden.
sc440 added missing elastic moduli to BS for Class 4 sections, added missing WARNING, added option to use Class 4 sections, corrected expression for sigmax when class=3, added ew and replaced A with Aeff in Avz and Avy expressions for class=4, defined Weffz.
sc444 removed T from diagram, replaced > with ≥ in M-V interaction check, added rz=rx, Zz=Zx, Sz=Sx & Iz=Ix, replaced forces with loads, repositioned MxEd and VyEd above steel section properties, added fire resistance check to EC design option, removed "beam" references and/or replaced with "member".
sc452 added fire resistance check to EC design option, added option to use Class 4 sections.
sc453 added fire resistance check to EC design option, removed "beam" references and/or replaced with "member".
sc460 pitch of haunch to horizontal gam is now worked out by the program, angles are now reported on page 2 of the output, added hidden diagram showing how haunch properties are calculated, updated expression for h1, added more text relating to haunch section properties, introduced depth FG.
sc464 updated Et expression for LTB check.
sc465 updated "Lateral torsional buckling" section.
sc466 Shear buckling resistance check is now visible in output.
sc467 removed cell=2 (castellated beams) from the E design option, added SBRes and MVint routines, replaced text "hw/tw > 72e" with "hw/tw ≤ 72e" in routine SBRes, repositioned MVint, replaced VEd0 with VEd(0), modified MVint, updated section entitled "Shear buckling resistance", updated SBRes, updated "Lateral torsional buckling" section, added more text to SUMMARY.
sc470 added upper limit on sigxEd to (0.8*sigcrp), proforma now permits class 4 webs, removed sratio as it was not used, added SBRes and MVint routines, removed routine class4 as it was not used, ans5=3 put on HOLD, replaced variable name ans3 with ans9 in places and set ans9=1 (rigid end post), added low/high shear checks, removed variable name ans9, added non-rigid end posts, reinstated option for ans5=3, added non-rigid end post design, removed stype, added more text and reference to ECCS Eurocode Design Manuals, set VzEd=NbEd, updated example default values, removed y1 prompt, updated Ipro1, replaced ans6 with stype, added inteq, updated shear area Avz, removed ktsl from expressions, added STIchk, made general enhancements, removed ans7, set stype=2 on HOLD, added axfsti, added flag1 and option to use single-sided intermediate stiffeners, moved nrep, SBRes and MVint to ec3com.pro, updated INTsti to comply with NA+A1:2016 to BS EN 1993-1-5:2006.
sc476 added several WARNING: before STOP, proforma enhanced to evaluate the peak velocity pressure, replaced force Hr with HFr and force Hf with HFf, retained Hr variable names represent building reference height, redefined LT under "Wind pressure" heading.
sc477 added several WARNING: before STOP.
sc480 updated "Web cleat in bearing" for supporting member.
sc484 replaced e2<2*db with e2<1.5*db, removed EC scenario if p1>2*e2. Jun 17 text relating to thickness of connecting ply updated.
sc485 text relating to thickness of connecting ply updated.
sc499 added design summary.
sc525 replaced bottom line with vertical line.
sc546 replaced references to BD 21/97 with BD 21/01.
sc547 removed reference to BD 21/97.

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sc561, 562  cosmetic changes, added pltreq, PLOTS1 and popup.pro.
sc563  added pltreq, PLOTS1 and popup.pro.
sc565  added PLOTS1 & pltreq, updated nsegEG, added plreq1.
sc566  added mempro routine, pltreq and sumout, replaced 28E6 with 28E6/3
       in fnsegEG and nsegEG, added spro1 and PLOTS, updated fnsegEG and
       nsegEG, added matsel, EGvals and bmclch routines, updated EGvals,
       updated typan, added PLOTS1, added PLOTS2, plreq1 and plreq2.
sc567  added pltreq, PLOTS and popup.pro, added further cantilever
       options, added variable name Option.
sc568  added pltreq, PLOTS and popup.pro routine proforma, enhanced
       diagrams, modified chkrng for variable ans.
sc569  incorporated further portal frame options e.g. 1 bay, 2 bay 3 bay
       and 4 bay portals with and without haunches.
sc590  changed proforma to use FILE to create a dat file & run that.
sc574, 575  corrected split diagrams.
sc582  added pltreq routine.
sc583  added PLOTS, pltreq.
sc584, 587  added PLOTS and pltreq.
sc585, 588  added option to provide point loads at all joints, added
       PLOTS.
sc586  general enhancements.
sc591  added mansard truss, mansard portal and tied mansard roof frame
       options.
sc592, 593, 594, 595, 597, 598, 599  added PLOTS and pltreq routines.
sc596  added build-in circular and parabolic arch options.
Sc600  fixed naming of arrays file such that results of analysis can be
       picked up again by proformas that link with NL-STRESS.
sc653  replaced references BD 56/96 to BD 56/10 and BD 21/97 to BD 21/01.
sc687  added heading at start of first page when ans=1.
sc752  default values revised.
sc764  corrected λ character in expressions.
sc776  made enhancements, corrected the number of rows in Table 1 below,
       added more text and made reference to proforma 777.
sc787  replaced safe working load with safwor.
sp550  removed offending STOP on line 787, added ans=2.
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Plans for 2018.

- Complete beta testing of iPad app, and launch it on the App Store
- Incorporate 3dgui structure visualisation into SCALE 5, for both Windows and iPad. Extend 3dgui to work for PLANE FRAME structures as well as the current SPACE FRAME structures.
- LUCID: update proformas to provide option to produce bar schedule automatically
- Add a file chooser for selecting the dat file name from a list of files at the start of the proforma.
- Add a file chooser to copy file headings from an existing file.
- There are a lot of intermediate files being saved to disk, these could be stored in memory to speed up the program.
- Adjust the scaling/rotation of the NL-STRESS loading plot to match the structure and results plots.

Please send any feedback, or feature requests, to ian@fitzroy.com

Downloading updates during 2018

Further updates in 2018 will be posted to the download website at the beginning of April, July and October, please visit the download website for the latest version of 2018.EXE.

Ian Brown 01/01/18