
This file details all program enhancements and revisions.

For the most recent changes, scroll to the end of the file.

Merlin release 1.00

17-12-96

Merlin has two installation disks. One being 16 bit for Windows 3.00 and 3.11, the other a 32 bit version for Windows '95 and NT.

Each installation disk contains the following program releases:

MERLIN	release 3.11
INSTALL.EXE	release 2.20
UNINSTAL.EXE	release 2.12
QUIKNET.EXE	release 1.01
DC.EXE	release 1.00

This is the first official release of Merlin.

Merlin release 1.10**10-01-97**

Merlin has two installation disks. One being 16 bit for Windows 3.00 and 3.11, the other a 32 bit version for Windows '95 and NT.

Each installation disk contains the following program releases:

- MERLIN release 1.10
- INSTALL.EXE release 2.20
- UNINSTAL.EXE release 2.12
- QUIKNET.EXE release 1.01
- DC.EXE release 1.00

The changes to Merlin are as follows:

1. On non-networked computers it was possible to load more than one copy of Merlin at one time causing a file sharing I/O errors. *MER-RI.10-01*
2. Under Windows 3.11 Merlin was unable to find its help file. This is fixed. *MER-RI.10-02*
3. The *File|Save As* option now includes the ability to save files in binary, ASCII, or Quikframe QFS format depending on the file extension.
4. The *File|Open* option now includes the ability to load section files in an ASCII format as well as binary.
5. Several small problems are fixed, in particular error reporting and recovery during reading and writing of section files is much improved.
6. The On-Line help system is extended to cover the new features.

Merlin release 2.00**24-06-97**

Merlin has two installation disks. One being 16 bit for Windows 3.00 and 3.11, the other a 32 bit version for Windows '95 and NT.

Each installation disk contains the following program releases:

MERLIN	release 2.00
INSTALL.EXE	release 2.20
UNINSTAL.EXE	release 2.12
QUIKNET.EXE	release 1.01
DC.EXE	release 1.00

The changes to Merlin are as follows:

1. The sections types are extended to include:
 - CHS.
 - Angles.
 - Tees cut from UB and UC.
 - Compound Channels: back to back; laced; RSC; PFC.
 - Compound angles back to back: long legs; short legs; equal legs;
2. The strut tab now calculates an effective length accounting for eccentricities of loading due to connections. Where appropriate a list box is displayed where the user can select the end condition.
3. The properties for UB, UC and UBP are updated.
4. Prior releases of Merlin contained a problem. Under certain circumstances the calculations were not updated when the input was changed. This is fixed. Further, when the input has been changed and the enter key not pressed, the program displays a message in red on the status bar. Merlin also prevents the user changing notebook tabs when the calculations are out of date.
5. The input for Axial load under the combined tab is removed, it duplicated that under the Capacity tab and caused problems.
6. LT Buckling. Merlin now uses Table 11 or Table 12 for the value of P_b depending on whether the section 'Is Welded'.
7. A new file 'Merlin.Def' is created by Merlin. The file contains the default section properties. Merlin used to calculate these, but it was found to cause very sluggish load times. It now reads them from the file.
8. The values of Max and May could be negative when axial load was huge. Fixed.
9. Prior releases of Merlin suffered what programmers call a resource leak. Basically, whenever section properties were calculated, Merlin obtained memory from windows. Unfortunately, it never gave it back. Extended use of the program could bring Windows to its knees. This is fixed.
10. A problem with slender RHS sections is resolved. Merlin used to call an abstract method resulting in an Error 10840. This is fixed. MER-R2.00-02
11. For Welded sections the value of P_y (or $P_{y'}$) is reduced prior to using Table 27. This is in accordance with 4.7.5.
12. On some systems with different font settings, Merlin's dialog boxes could look very poor with some text not appearing properly. We hope we have eradicated this problem
13. Merlin's toolbar now has buttons that match the rest of the Quiksoft library.
14. Slender sections. The user is advised that Merlin uses P_y not $P_{y'}$ in the calculation for P_v .

15. Online help is updated.

Merlin release 2.10**03-11-97**

Merlin has two installation disks. One being 16 bit for Windows 3.00 and 3.11, the other a 32 bit version for Windows '95 and NT.

Each installation disk contains the following program releases:

MERLIN	release 2.10
16. INSTALL.EXE	release 2.32
UNINSTAL.EXE	release 2.21
QUIKNET.EXE	release 1.03
DC.EXE	release 1.00

The changes to Merlin are as follows:

1. This release includes changes for operation under Windows NT. To be more specific Windows NTFS's 16 bit API is not fully compatible with Windows 3.11 and '95. Further on networks, the Win32 API call that converts 64-bit dates to MSDOS format dates is different on Windows '95 and NT and gives different answers! This caused problems for all the Quiksoft programs. For full details see Quikport's release notes.
2. Date problem: This bug effects all Quiksoft for Windows programs when registered as demo copies, 16- and 32-bit versions across all platforms.
3. If the program is installed on: 29th of the month, it will not work on the 30th and 31st at times prior to (before) the installation time; 30th of the month, it will not work on the 31st at times prior to the installation time; 31st of month all will be OK. This is fixed. *MER R2.10-01*
4. LT buckling with equal angles. Because $I_x \leq I_y$ Merlin stated that LT buckling was not critical. This was wrong. Fixed. *MER R2.10-01*
5. Small equal and unequal angles have been added to Brit.sec. *MER R2.10-02*
6. The File|Save As dialog now includes filters to save section files in the format used by Quikport and Quikjoint for Windows.
7. Online help is upgraded to cover the previous item.

Merlin release 2.12**04-12-97**

Merlin has two installation disks. One being 16 bit for Windows 3.00 and 3.11, the other a 32 bit version for Windows '95 and NT.

Each installation disk contains the following program releases:

MERLIN	release 2.12
INSTALL.EXE	release 2.32
UNINSTAL.EXE	release 2.21
QUIKNET.EXE	release 1.03
DC.EXE	release 1.00

The changes to Merlin are as follows:

1. Unfortunately Merlin's section table 'Brit.sec' had some wide flange UB's missing, and a UC was out of order. The missing UB's were also absent in the split Tee Sections. This is corrected.
2. Smaller equal and unequal angle sections have been added.
3. The software implementation of BS5950 Table 14 could cause problems when using Tee sections. When N and λ were both zero, the equation produced a divide by zero error. This is fixed. *MER R2.11-01*
4. A fault is corrected in Merlin's implementation of BS5950's Table 25 that would have effected welded box sections. *Q5 R1.11-01*
5. Reading ASCII files: if a section kind was eight characters long, then Merlin would raise an exception (error message) and terminate when reading the file. Fixed. *MER R2.12-02*
6. An internal error is corrected. Merlin's loading and saving of sections tables to a file worked perfectly, despite the program containing an error. The error has been carefully removed so as not to affect future or present releases of Merlin or Quik5950. *MER R2.12-02*
7. Effects the 32-bit version only. Using the *File|Save as* dialog, the program could sometimes automatically add a file extension to a file that already had one (e.g. *Brit.qps.sec*). *MER R2.12-03*

Merlin release 3.00**04-05-2000**

Merlin has two installation disks. One being 16 bit for Windows 3.11, the other a 32 bit version for Windows '95, '98, 2000 and NT.

This is a major new release of Merlin, once installed, users will have to contact their dealer to obtain an upgrade code.

Each installation disk contains the following program releases:

MERLIN	release 3.00
INSTALL.EXE	release 3.10
UNINSTAL.EXE	release 2.21
QUIKNET.EXE	release 1.03
DC.EXE	release 1.00

The changes to Merlin are as follows:

- Existing users upgrading to major releases of Merlin will now be required to enter an upgrade code immediately after installation. This change will be incorporated into all new Quiksoft releases.
QB R1.02-07
- ASB Sections are added. *MER R2.13-04; MER R2.13-05*
- I Section with a plate welded to the top, or bottom flanges added. *MER R2.16-06*
- Gantry girders comprising I sections with a channel added. *MER R2.16-06*
- American and Japanese sections are now included. *MER R2.16-09*
- Brit.sec now includes smaller double angles, as well as large 250x250 angles. *MER R2.16-07*
- Brit.sec now includes parallel flange channels.
- A section orientation button is added. The button is not displayed for symmetrical sections. Note: during Merlin's lateral torsional buckling checks, it is assumed that the top of the section (as viewed in the diagram) is in compression. Earlier releases of Merlin assumed the worst case. (This only affected Tee sections)
- The top right-hand corner of the Merlin window now includes a drawing of the current section. When the current section is asymmetric about its x axis, clicking on the diagram will rotate the section 180 degrees.
- Merlin's main window has a new tab labelled *Calc's*. The *Calc's* tab shows near complete calculations for the section with its loading. *MER R2.16-14*
- 11.** The *File|Print* option is improved. Merlin now prints the calculations displayed under the selected tab together with a diagram of the actual section. Printout may be with, or without borders. See next item. *MER R2.16-14*
- A new *File|Paper* setup option is added. The user may use this option to select the paper size, margins, binding margin and border style: *Classic*, or *No borders*. User's can use *No borders* to print on their own pre-printed calculation sheets. *MER R2.16-13*
- Merlin now has a *File|Properties* option, where the following file details can be stored: file type; file version; description; author; organisation; and Read only. Read only is used to protect the standard files supplied with Merlin. Once set, the section files can't be changed. *MER R2.16-12*
- A new menu option: *File|Export* is added. This option fully automates the process of making new section tables available to other members of the Quiksoft family. *MER R2.12-02*
- Undo, Cut, Copy, and Paste options are extended. Sections can now be copied to and pasted back from the Windows clipboard. The **Ctrl** key can be held down to select more than one section at a time. *MER R2.12-03*

16. The properties for RHS sections now include the area. *MER R2.16-08*
17. New input is required for the App G tab. Merlin now asks if the section is tapered, if it is, then Merlin uses a value of 1.00 for 'u' and advises the user that the selected section must represent the shallowest end of the tapered section. *MER R2.16-10*
18. Struts with section shapes that display a list of end connection types - if the value of Lex or Ley was changed, and then the connection type changed, the calculations would be updated ignoring the change in Lex/Ley. Fixed. *MER R2.16-10*
19. If Merlin finds a Quiksoft program using a more modern sections file (*Later sections file release*) it now displays a message box and refuses to overwrite it. *MER R2.16-11*
20. The calculations for compound sections now list the materials used to make up the compound section. *MER R2.16-14*
21. Sections that have both X and Y symmetry now produce less output. *MER R2.16-14*
22. Merlin's On-Line help is upgraded.

Merlin release 3.90**01-11-2000**

The self-extracting zip file contains the following program releases:

- Merlin.exe release 3.90
- Install.exe release 4.00
- Uninstal.exe release 3.00
- Quiknet.exe release 1.03

Merlin release 3.90 has been produced to work in accordance with a late draft of the as yet unpublished BS5950:Part 1. As such this release is supplied for evaluation purposes only.

To deal with the changes in the new standard, most of the workings of Merlin have been radically altered. The changes to Merlin will not therefore be listed in the usual manner. However you should be aware of the following points:

1. Merlin is now supplied in self-extracting zip files. The method for installation from floppy disks and CDs has not changed, however the self-extracting zips can also be distributed using e-mail, or downloaded from the web. It is also a better solution in terms of quality because the files both identify themselves (*they contain ReadMe.txt and ReadMe.pdf files*) and check their own integrity.
2. Major release upgrades of Merlin (*Moving from 1.20 to 2.00*) will now require the user to input an upgrade code. The upgrade code will be supplied by the dealer. *QB RI.02-07*

The new BS5950:Part 1 will be published late this year, or early in 2001.

All maintained Quiksoft users will be upgrade free of charge as part of their maintenance agreement.

Quiksoft has taken considerable interest in the development of the new code and through contact with the Steel Construction Institute are heavily involved in the commenting process.

The draft is now in its pre-publication editorial phase and whilst some small problems still exist, it is complete and we think a considerable improvement over the standard that it will replace.

BS5950:Part 1:1985 and its subsequent revision in 1990 was the first British Standard to cover limit state design of structural steel. Many of the 2000/2001 revisions are fundamental based on increased experience in the use of ultimate methods.

Work started some time ago in producing new versions of the Quiksoft programs. Merlin, will be the first to be completed. Customers may wish to apply for the beta version.

Because Quiksoft is a small software house using advanced programming techniques, we are able to efficiently share program code between products. Once Merlin is updated, changes to other products are trivialised.

Remember that revised programs operating to the new standard are more likely to contain faults. If you accept software that does not give you access to detailed calculation methods and intermediate results, you won't know if it's working properly. Nor will any third party attempting to validate the software. See item 1 under portal frames below.

For your convenience we will attempt to outline the changes to the standard that affect Quiksoft the programs:

General

1. Virtually all table and clause references have changed. The Appendixes are now called Annexes.
2. Steel grades are now *S275*, *S355* and *S460*. The table of design strengths has changed.
3. The table for section classification is changed and now covers two pages. The classification of webs now involves the calculation of R1 and R2 factors describing the web's stress distribution. Cold finished RHS is included.
4. Semi-compact section capacity may be increased by calculating an effective S_x or S_y . ($S_{x,eff}$)
5. Slender sections are dealt with by calculating an effective Z_x , Z_y (*ignoring axial load*) and an effective Area (*ignoring moment*). These are then used throughout the design.
6. The formula for checking moment capacity in the presence of high shear has changed.
7. The little 'n' and 'm' factors used in checking lateral torsional buckling have been replaced with a single m_{LT} factor based on a simple formula.

The lateral buckling check becomes:

$$M_x < M_b/m_{LT}$$

8. The buckling resistance M_b is derived from the product of S_x , $S_{x,eff}$, Z_x , or $Z_{x,eff}$ and P_b where bending strength P_b is derived from the steel's design strength and λ_{LT} .
9. For flanged sections, the formula for λ_{LT} is now: $u \cdot v \cdot \lambda \cdot \sqrt{\beta w}$ where βw is the ratio of section modulus used in the capacity and buckling check (*see item 8 above*) and S_x
10. The slenderness factor v remains the same, but tee sections have been removed. Values of v for tee's must now be calculated from the formula in B.2.8.2
11. B.2.4.2 outlines a simple method for checking lateral torsional buckling in members with unequal flanges (*and presumably tee sections*) and double curvature bending. The current version of Quik5950 assumes the worst case.

12. The buckling resistance moment for single angles has changed. Section 4.3.8 covers a simple method for equal angles only, but for unequal angles (*and presumably greater economy*) it refers to a detailed method where the applied moments have to be resolved into the $u-u$ and $v-v$ axes and then λ_{LT} obtained from B.2.9
13. Strut buckling is unchanged except that the table used to select the relevant strut curve is revised and for slender sections: $P_c = A_{eff} \cdot P_{cs}$ where A_{eff} is the effective area of the slender section and P_{cs} is the value of P_c based on a reduced slenderness: $\lambda \sqrt{A_{eff}/A_g}$. When calculating λ , r is based on the gross section.
14. The rules for slenderness of single and double angles, tees, channels and compound sections are unchanged except that new rules have been created for members fixed with one normal hole and one kidney shaped slotted hole.
15. Combined capacity checks, axial and combined bending are unchanged except for provision of effective area and elastic modulus for slender sections.
16. Combined buckling resistance interaction formulae both simplified and more exact are completely re-drafted utilising the aforementioned factor m_{LT} and new factors m_x , m_y and m_{yx} . The new factors are as follows: m_x covers major axis flexural buckling; m_y minor axis flexural buckling; m_{yx} lateral flexural buckling.

Portal frames

1. B.2.5 formerly (currently) B.3 is modified and is now more explicit. This is as a result of dialogue between ourselves and the Steel Construction Institute.

Recently, discrepancies between Quikport and a competitor's portal program have been brought to our attention. Customers comments were: *Quikport does not produce such economic designs as...* Careful investigated revealed differences in the way that the two programs applied their 4.8.3.3.1 check. Quikport applies the interaction formula at all points within the length being considered, now confirmed by the new clause. The other program applied it only at the point of maximum moment where the section depth was greatest. Clearly wrong and producing unsatisfactory designs.

Their 4.8.3.3.1 check is also affected when used as a precursor to appendix G checks.

2. Three flange sections are added covering the more normal method of fabricating a haunch. New sections detail how to calculate the haunched section properties and implement them in the Annex G checks.
3. The use of L_m is clarified. Now L_m (*was 5.3.5*) **must** be used to check stability adjacent to a hinge, even as a precursor to appendix G checks. However, they now have an improved version that produces a longer length accounting for the shape of the moment diagram. This cannot be used for haunched sections, but new explicit rules permit three flange haunches to be treated as not containing a hinge (*even when the hinge forms at the end of the haunch*) provided they are suitably proportioned.
4. A new clause states that notional forces should be applied when checking dead + super.
5. Considerably more attention is given to effects of in-plane buckling and second order affects. Provided that the portal conforms to simple geometric rules, then the load deflection method may be used, or as a simpler alternative the current (*or very similar*) sway and snap through formula. However, the methods must be applied to all gravity load combinations as well combinations that include wind or other horizontal loads.

At first this appeared daunting, but a quick reconnoitre with pencil and paper using Quikport's existing output as a guide, revealed that the secondary combinations are not generally critical. However, Quikport will be extended in this respect. Probably a sway wizard.

The draft also describes *Amplified moments* and *Second-order analysis* methods; however these are incomplete, referencing an SCI document: *In-plane stability calculations for portal frames, P-292*. This document does not yet have a date set for publication, but we expect to have the information available prior to publication of the standard.

Once all the information is available, Quikport will adopt the absolute best solution.

6. Appendix G (*now Annex G*) has changed slightly to incorporate three flanged sections. Other changes are superficial with equations being rearranged and small factors redefined. Overall Annex G is more extensive and less ambiguous.

Connections

1. Grade 10.9 bolts are included as well as Higher grade HSFG bolts to BS4395-2
2. Bolted connections with large grip: the code differentiates between large grip and packed connections, offering different but similar rules for each.
3. The bearing strength of grade 8.8 bolts is rounded to 1000N/mm².
4. The current BS5950-1 practice of allowing for prying forces with an artificially low tensile bolt strength P_t is gone. The code now supplies: a simple method, basically conforming to the old method, but it can only be used in connections conforming to geometric and other design restrictions; and a more detailed method allowing for prying forces. Note that Quikjoint already uses the enhanced value of P_t with allowance for prying.
5. HSFG bolts - the draft clarifies the difference between HSFG bolts intended to be non-slip under service loads and those intended to be non-slip at ultimate limit state. Quikjoint has always recognised this distinction and will not require alteration.
6. HSFG bolts - More information is supplied regarding the slip factor. Quikjoint always assumes 0.45. This may have to change or become an option specified by the designer.
7. The design strength of fillet welds has changed very slightly and is governed by different electrode classifications.

Merlin release 4.00**05-03-2001**

The self-extracting zip file contains the following program releases:

- Merlin.exe release 4.00
- Install.exe release 4.00
- Uninstal.exe release 3.00
- Quiknet.exe release 1.03

Merlin release 4.00 supersedes the 3.90 beta release and is fully in accordance with the latest draft of BS5950:Part 1:2000. You should read the notes for 3.90 beta together with subsequent notes covering changes in the standard.

Further to the extensive changes for release 3.90, the following have changed.

1. Cold formed CHS, SHS and RHS added. *MER R3.91-05*
2. Merlin's printed output shows a diagram of the section. Unfortunately, it failed to show the correct section orientation. *MER R2.99-01*
3. The beta version contained an error in the units for the variable R2 used in the section classification of asymmetric beams. *MER R3.91-02*
4. R2 for ASB's again: although the formulas were correct the description as to which formula governed failed to account for the differences in Ztop and Zbot. Fixed. *MER R3.91-01 16-02-01*
5. The following are added: Mono-symmetry index for Tee's and Angles; Buckling checks for angles to J.4.2 are now complete; Zu, Zv, J, Phi added for angles; Svx and Svy created for angles to suit changes in combined moment with high shear checks; Torsional constant J added for angles. *MER R3.91-04*
6. All values in all section tables are recalculated so that new properties (warping constant H, mono-symmetry index for angles etc.) are used. *MER R3.91-03*
7. *View|Sort* option now offers to sort sections back to their original order. Also useful after entering new sections. *MER R3.91-04*
8. A minor glitch is fixed. When under the strut tab the last connection for a double angle was selected, then upon the section being changed to a channel, the connection type list box would change and show the first connection selected, but the calculations would show otherwise and in some circumstances could display garbage. *MER R4.00-01*
9. On-line help is extended and improved.

Merlin release 4.01**28-06-2001**

The self-extracting zip file contains the following program releases:

- Merlin.exe release 4.01
- Install.exe release 4.00
- Uninstal.exe release 3.00
- Quiknet.exe release 1.03

Release 4.00 was the first Quiksoft program available to the new BS5950:Part 1:2000. Since its release we have become aware of a small number of minor problems:

1. Using the *File|Export* option to export a sections file to Quikport or Quikjoint caused: *Merlin-ToBP7:Error 1002*. This is fixed. *MER R4.01-01*
2. The Connection list box displayed when the *Struts* tab is selected is revised as follows: The selected diagram's text is now displayed white on navy blue. Un-selected items are black on white. This improves clarity and brings Merlin into line with Quik5950. *MER R4.01-02*
3. Under the struts tab the units for compressive strength p_c were given as kN/mm². They should have been N/mm².
4. Two things regarding struts: For slender angle sections Merlin calculated P_c using the gross area rather than the effective area for a slender section. This is corrected.
5. The wording of 4.7.5 has changed so that the reduction in P_y of 20N/mm² applies only to welded I, H and Box sections. Merlin release 4.00 applied the reduction to all welded section shapes. *MER R4.01-03*
6. Under Merlin's Combined buckling tab, when the interaction formula of 4.8.3.3.2.(b) was applied Merlin displayed:

$$\frac{F_c}{P_{cx}}$$
 It should have been:

$$\frac{F_c}{P_{cy}}$$
 The fault was in the printed output only. The calculations were correct.
7. In its combined buckling checks for circular hollow sections Merlin applied the simplified interaction equation of 4.8.3.3.1. It now uses the more exact method of 4.8.3.3.3. *MER R4.01-04*
8. When applying the combined capacity check described in 4.8.2.3, if either M_x or M_y are zero Merlin displays the formula with the z_1, z_2 power term ignored. This is OK, but the unity value published was still raised to the power. This is fixed. *MER R4.01-05*
9. Parts of Merlin's help still referred to BS5950:Part 1:1990. Fixed.

Merlin is now distributed in a single self-extracting zip file containing a new setup program. The new setup program includes procedures to add and remove Merlin on network servers, clients and standalone computers. This new version has been created using the same updated tools and shared code as Quikframe XP.

Merlin runs under all versions of Microsoft Windows from '95 onwards. The 16-bit version of Merlin will no longer be supported.

The changes are as follows:

1. All diagrams (bitmaps) are changed so that their background is transparent. This improves their appearance under Windows XP. *MER R4.10-01*
2. Data stored in Quiksoft.ini is moved to the Windows registry. *Merlin* no longer requires Quiksoft.ini. *MER R4.10-02*
3. Small changes to enable compilation with units shared by *Quikframe XP*. *MER R5.00-01*
4. Changes to enable Merlin to distinguish between *Quikframe* release 5.00 and Quikframe XP for section file export. *MER R5.00-01*
5. On first showing, the section orientation diagram was not properly scaled. Fixed. *MER R5.00-02*
6. This is not a fix, but a comment on a problem. Release 3.10 of *Quik5950* contains a fault in that although it enters its section file requirements into the registry, it does so in the wrong place. This causes *Merlin* to export the wrong sections file format and *Quik5950* to fail.
The fault is in *Quik5950*. Users are advised to upgrade to Quikframe XP with its built in steel design. *MER R5.00-03*
7. References to the clause J.4.2 should have read I.4.2. This was due to changes in the text of BS5950 between draft and published document. *MER R5.00-04*
8. Exporting section files to Quikframe release 5.00 caused the following default sections to also be exported: *Default ASB*, *PlateSection*, *CISection*. These sections are intended for internal use only and should not have been exported. Fixed.
Note that the new *Quikframe XP* uses the same steel sections file format as *Merlin*, therefore for modern users this fix is obsolete. However, for users that have not upgraded to *Quikframe XP*, *Merlin* retains the capability to detect older installations and export the older sections format. *MER R5.00-05*
9. A Minor problem with units. For an Angle section, under the *LT buckling* tab the calculation for Lambda showed the length (Le) in metres rather than centimetres. Fixed. The calculation for Lambda was however correct. *MER R5.00-06*
10. Using the *File|Address* option could cause an: '*AddrDlg.pas not initialised*' error. Fixed. *MER R5.00-07*
11. The *Paper setup* form now contains a new tab that facilitates changes to the *Designed*, *Checked*, *First sheet number* and *job title* in the printed output. *MER R5.00-09*
12. Holding the mouse over a speed button and pressing the **F1** function key now displays context sensitive help. *MER R5.00-08*
13. The On-line help text is updated.

Merlin release 5.01**24-02-2005**

Merlin release 5.01 runs under all versions of Windows from '95 onwards and is supplied in a single self-extracting file: ME32-501.exe. This self-extracting file will automatically guide you through the program's installation, upgrade, or removal.

If you are installing on a network, you should obtain: *Quiksoft for Windows Network supplement*.

The changes to Merlin are: -

1. Using *File|Export* to the latest version of *Quikframe XP* failed because Merlin correctly noted that *Quikframe* required a more modern sections file format. Fixed. *MER R5.01-02*
2. Issues regarding the calculated shear area for welded sections was investigated and where necessary modifications made. Specifically: for welded I, channel and ASB sections Merlin used tD rather than td ; similar fault for welded box sections; for rolled tee sections the program used $0.9Dt$ rather than tD ; and for welded tee sections the program used $0.9Dt$ rather than $t(D-T)$. *MER R5.01-01*

Merlin release 5.02**04-09-2006**

Merlin release 5.02 runs under all versions of Windows from '95 onwards and is supplied in a single self-extracting file: ME32-502.exe. This self-extracting file will automatically guide you through the program's installation, upgrade, or removal.

If you are installing on a network, you should obtain: *Quiksoft for Windows Network supplement*.

The changes to Merlin are: -

1. Modifications to source code shared with Quikframe XP and Quikport XP is now included. This enables Merlin to export the newer EC3 ready sections format. *MER R5.02-01*
2. Modifications to shared source code to fix memory leaks required a restructuring of Merlin's initialization and finalization code. *MER R5.02-02*

Merlin release 5.10 runs under all versions of Windows from '95 to Vista and is supplied in a single self-extracting file: ME32-510.exe. This self-extracting file contains a Setup program that will automatically guide you through program installation upgrade, removal, and registration.

See: *Program installation, upgrade, and removal* in the *Merlin User's Guide*.

The changes to Merlin are as follows:

1. Merlin and its setup program are now fully Microsoft Vista compliant. Under Vista the Setup program will automatically elevate and request an administrator password. Under Windows XP the Setup program should be run with administrator privileges. See: *Program installation, upgrade and removal* in the *Merlin User's Guide*.
2. The Setup program is now used to unlock licensed and demonstration copies.
3. Program logic has been moved from Merlin to its Setup program enabling Merlin to operate under a standard user account in both Windows XP and Vista. *{Vista}*
4. Merlin now installs in the sub folder *Merlin* rather than *\Mer*. At start up Merlin ensures that it does not load a sections file from an old installation. *MER R5.10-06*
5. A new *Settings* option is added to the *File* menu. The *File|Settings|Load* and *File|Settings|Store* options enable Merlin's current section and loading to be saved and restored. *MER R5.10-02*
6. A *File|Save As ASCII Text* option is added. This option writes a simple ASCII text file containing the contents of the section table as displayed within the *Properties* tab. The default location for the file is the user's desktop. The file can then be loaded into Window's Notepad and printed. See Help. *MER R5.10-03*
7. The *File|Export* option is modified to work under Microsoft Vista. Section files may be exported for use by just the current user, or all users of the computer/network (requires an administrator password). Note that export for *current user only* requires updated versions of Quikframe, Quikport, Quikbeam and Quikjoint. See Help. *MER R5.10-04*
8. Merlin's on-line help system is upgraded to the more modern compiled HTML. A printed manual is also available. *MER R5.10-05*
9. When operating under Microsoft Vista and Windows XP, if a user does not have administrator privileges Merlin is unable to write section files to the program folder (*C:\program folders\quiksoft\merlin*). Merlin now traps this situation and guides the user to a recommended sub folder within the user's project space: *<Root path>\My Documents\My Projects\Quiksoft data\Merlin*. *MER R5.10-07*
10. The calculations under *Merlin's Annex G* tab quoted '*Figure 30*' as a reference. This was a legacy error and is changed to '*Figure G.1*'. *MER R5.10-08*
11. Box sections - The *Change* form now has fields for internal and external radii. Previously these were automatically calculated based on simple rules based upon the material thickness. However new Corus Celsius355 and Jumbo355 sections complicate matters having differing specifications. *MER R5.10-09*

Merlin release 5.20**06-06-08**

Merlin release 5.20 runs under all versions of Windows from '95 to Vista and is supplied in a single self-extracting file: ME32-520.exe. This self-extracting file contains a Setup program that will automatically guide you through program installation upgrade, removal, and registration.

See: *Program installation, upgrade, and removal* in the *Merlin User's Guide*.

The changes to Merlin are as follows:

1. Merlin is now able to export sections files in the newer format (sections file release 4.04) required for Eurocode 3. Currently three programs support Eurocode 3: QuikEC3, Quikframe and Quikport.
MER R5.20-01
2. Because the new Quikjoint XP installs in a different location to the old Quikjoint further modification was required to the *File|Export option*. *Once installed Merlin now detects and supports the newer Quikjoint*. *Further modification* will cause Merlin to automatically support new Quiksoft programs including QuikEC3. *MER R5.20-01*

Merlin release 5.30 runs under all versions of Windows from '95 onwards and is supplied in a single self-extracting file: ME32-530.exe. This self-extracting file contains a Setup program that will automatically guide you through program installation upgrade, removal, and registration.

See: *Program installation, upgrade, and removal* in the *Merlin User's Guide*.

The changes to Merlin are as follows:

1. The following additional options are now added to the Help menu:
 - a) Visit the Quiksoft website: This option opens the Quiksoft home page on the web.
 - b) Check for latest updates: This option displays a 'Check for latest updates' form. The form will connect to the Quiksoft website and advise if program updates are available. *QS-WS-1*
2. The Quiksoft programs have encountered problems with compiled HTML help systems (.chm files) running over networks due to Microsoft enforced security issues. The recent release of *Internet Explorer 9* has made the situation even worse. Hence at start-up the program will now copy the entire help file from the server to a temporary folder on the client. The help system is then run locally. This should resolve all known HTML help issues. *QS-HLP-1*
3. Upgrading to a new release will now require a code when the digit immediately after the decimal changes e.g. Upgrading from 7.01 to 7.09 will not require an upgrade code. Upgrading from 7.09 to 7.10 will require a code. This does mean that release codes will be required more frequently, but better fits our release strategies since the effected releases often contain considerable enhancement. *QS-UPG-1*
4. Modifications to comply with changes to Quiksoft coding necessary for Eurocode. *MER R5.20-01, MER R5.20-02*

Merlin release 5.35 runs under all versions of Windows from XP onwards and is supplied in a single self-extracting file: ME32-535.exe. This self-extracting file contains a Setup program that will automatically guide you through program installation, upgrade, removal, and registration.

Instructions for program installation, upgrade and removal are available on the Quiksoft web site: www.quiksoft.co.uk/quiksoftdownloads

The changes to Merlin are as follows:

1. Support for operating systems older than Windows XP is now withdrawn.
2. Modifications to enhance software security. *QS-23-08-11 QS-18-10-11-1*
3. The Changes detailed for release 4.10 item 3 where flawed. Fixed. *QS-26-08-11-1 QF R8.21-01 QS-04-11-11-1*
4. All Quiksoft executable downloads and applications are now digitally signed using Microsoft Authenticode. For additional security the Quiksoft applications now check that the signature is intact and that the executables have not been altered or corrupted. *QS-11-04-12-1*
5. Merlin's Help|About form now displays the file signature status. *QS-11-04-12-1*
6. All Quiksoft executables now have extended manifest files. The WinZipSE program that we use to produce the self-extracting installation file is updated to release 4.0. These changes should avoid the message: 'This program might not have installed correctly' after installation. *QS-23-04-12-1 QS-23-04-12-2*
7. Changes to network licensing to simplify deletion of logged on users. On start-up, networked copies of the Quiksoft programs count the number of copies already in use (logged on users). If these exceed the number of concurrent licences a warning is produced, however from time to time because of system crashes users could remain logged on. This can be repaired by rerunning the Setup program and selecting Network server tools and Log off users.
However, now the problem can be fixed more directly from within each application by selecting a new 'Log off users' button displayed within the Licence error form. 'Log off users' now produces a report showing each file deletion. *QS-25-04-12-3*
8. The default name and address for new users used to be loaded from Quiksoft.ini in the user's Windows folder. Quiksoft.ini is a legacy 16bit windows file and will no longer be used. The default username and address is now obtained from the program source code. *QS-27-04-12-4*
9. The Quiksoft Setup program no longer copies Quiksoft.ini into the user's Windows folder. This file was used by the old 16bit Quiksoft programs, which are no longer supported. *QS-27-04-12-5*
10. The Quiksoft logo displayed by the Setup program is modernised. *QS-27-04-12-6 QS-02-05-12-8*
11. The Quiksoft logo displayed in Merlin's introduction form is modernised. *QS-27-04-12-7 QS-02-05-12-8*
12. When first run, before the user's project folder was set, the Quiksoft programs sometimes created an empty folder: c:\quiksoft data\merlin. Fixed. *QS-08-05-12-9*
13. The Quiksoft Setup program is extensively modified to automate network installations. *QS-18-06-12-01*
14. On start-up, if the licence folder is missing the Quiksoft programs now issue an error: *License folder: <Path> is missing*'. Prior to this they would report: *'There is a copy of Quik??? already running'*. *QS-18-06-12-02*
15. The section in the manual and on-line help covering program installation is removed and replaced with a link to the Quiksoft web site *QS-18-06-12-03*

Merlin release 5.40**27-05-14**

Merlin release 5.40 runs under all versions of Windows from XP onwards and is supplied in a single self-extracting file: ME32-540.exe. This self-extracting file contains a Setup program that will automatically guide you through program installation, upgrade, removal, and registration.

Instructions for program installation, upgrade and removal are available on the Quiksoft web site: www.quiksoft.co.uk/installation-upgrade-and-removal

The changes to Merlin are as follows:

1. Merlin's *File* menu now contains a *Project manager* option. This brings Merlin into line with other Quiksoft programs. *MER R5.35-01*
2. Merlin's *File|Settings|Load* option now loads the sections file in use when the settings were stored. *MER-R5.35-02*
3. Merlin's *Help|About* form is modified with more detailed text, a link to www.quiksoft.co.uk and a new Quiksoft logo. *QS-08-11-12-01 QS-12-05-14-01*
4. The Quiksoft programs no longer require to be unlocked by the Setup program. Instead all options to do with registration are requested at program start-up. *QS-29-10-13-01 QS-05-11-13-02 QS-21-11-13-03*
5. The Setup program and program introduction forms now display the new Quiksoft banner logo. *QS-12-05-14-02 QS-21-05-14-04*
6. For network copies Merlin's *Help* menu now includes a *Network licence settings* option. The new option covers administration options for concurrent network copies. *QS-30-10-13-03 QS-30-10-13-04*
7. The Quiksoft installation copied Setup.exe into each applications program folder. On network server installations this could be started to quickly perform a setup on a client computer. Unfortunately, many users were confusing it with the full Setup program. It is now more correctly named 'ClientSetup.exe'. *QS-05-11-13-01 QS-05-11-13-03 QS-08-11-13-04*
8. The Quiksoft program's *Browse For Folder* form was found to be unreliable when browsing deep directory structures on a network server. It is replaced with the standard windows form. *QS-08-11-13-05*
9. The program's introduction form displayed for demonstration copies is generally improved and now includes number of days remaining. *QS-25-11-13-05*
10. Merlin's Online help and manual are updated.

Merlin release 6.00 runs under all versions of Windows from XP onwards and is supplied in a single self-extracting file: ME32-600.exe. This self-extracting file contains a Setup program that will automatically guide you through program installation, upgrade, removal, and registration.

Instructions for program installation, upgrade and removal are available on the Quiksoft web site: www.quiksoft.co.uk/installation-upgrade-and-removal

The changes to Merlin are as follows:

1. Changes to the operation of the 'Paper setup' menu option. The Title can still be changed here, but rather than being a separate title, it is now the same as the project title. This is more logical since the options 'File|Settings|Load' and 'File|Settings|Store' default to the location of the project folder used by the other Quiksoft programs. *QEC-R2.00-01*
2. Slight modification to ensure that Merlin's main window opens in a visible region of the screen. *QEC-R2.00-02*
3. In prior versions of Merlin, the standard sections files (Brit.sec, Euro.sec etc.) were opened from the program installation folder. In modern windows this folder is strictly read only. This made reading and writing section files less than convenient. Merlin now copies these files to the program data directory on startup (it will not overwrite existing files). The default location for this folder under Windows 10 is: "C:\Users\\Documents\My Projects\Quiksoft data\Merlin". The transition to this system should be seamless, but users may wish to make this the default location for all their QuikEC3 created custom section files. *QEC-R2.00-03*
4. Merlin now has two additional speed buttons on its toolbar. As well as providing fast access we hope this will clarify the difference between saving a created sections file and storing the current state of the program along with entered forces, effective lengths etc. *QEC-R2.00-05*
5. The 'File|Settings|Load' and 'Store' options and the new speed buttons save the settings to the current project folder. However, there were circumstances where switching projected folder failed to switch the folder offered in the Load and Store forms. Fixed. *QEC-R2.00-06*
6. Merlin's 'File Open' and 'File Save as' forms are now sizable.
7. The appearance of the font in the program's tabs is improved (cosmetic only). *MER-R5.40-3*
8. Project handling - On rare occasions users were experiencing problems when their selected project folder became invalid. It can become invalid after changes using Windows file explorer (renaming, moving, or changes to folder access permissions). The project folder and program data folder are now checked just after program start-up. If the Quiksoft programs detect a problem, they display a warning with a 'Help' button that will give information and a remedy. *QS-10-10-17-01*
9. Prior to registering as a fully licenced copy the Quiksoft programs display an introduction form. The forms main function is to accept codes to unlock the software. This form now displays the program release number. *QS-26-01-18-01, QS-12-12-18-01*
10. The customer name and address default is now 'Quiksoft Limited' with contact details. *QS-19-07-18-01*
11. The introduction form for trial copies now includes a link to the 'Buy now' page of the Quiksoft website, displayed only when the remaining free trial days falls below seven. The same form now includes better advice (hint text) on how to copy and paste the serial number to email. The popup menu is also improved. *QS-19-11-18-01*
12. Merlin now automatically checks the Quiksoft website to see if updates are available on start-up. The check is made every other time the software is started. If updates are available a form is displayed with access to a direct download link and full instructions. There is also a *Snooze* option. *QS-07-03-19-01*
13. The existing form 'Check for latest updates' available from the 'Help' menu is uprated to give access to the same direct download link and instructions. The form also provides an option to turn the automatic check off. *QS-07-03-19-01*
14. File handling routines are modified to handle file names containing '!'. Over the years file naming convention has changed. It was originally assumed that file names would only contain a single '!' and

that all characters after would be the file extension. However, this seems no longer to be the case. That said we would still advise that as far as possible this be avoided. It is likely that it could cause problems when transferring files to other programs and operating systems. We have found here that servers that use Unix derivatives (NAS drives, Android, Apache etc.) have differing standards. We have also tested using a folder path containing '.' mimicking an IP address with no problems detected. *QS-05-06-19-02*

15. Dual monitor systems - When running on the second monitor Merlin could display some forms on the primary monitor. Fixed. *QS-05-04-19-01, QS-08-04-19-01*
16. Additional code is added to detect when a form is displayed 'off screen' and move it back to a visible area. Because the Quiksoft programs 'remember' some window and form positions, they could have previously been displayed on a second monitor that has been disconnected. This caused the form to be displayed 'off screen' leading customers (and us!) to believe the program had become unresponsive. On the occasions this was reported it involved the scrolling calculations form in Quikjoint. Fixed. *QS-08-04-19-01*
17. Merlin now includes the option to use your company logo in place of your address text on the printed output. See the 'Addresses' option available on the 'File' menu. *QS-27-07-19-01*
18. Merlin's on-line help and manual are updated.