

Release Notes for STUDS V4.4.0

New/Changed Features in V4.4.0

- The main change in V4.4.0 is the upgrade for the codes. PCI Handbook 8th ed. and ACI 318-14 are added. PCI Handbook 6th ed. and ACI 318-05 are removed.
- The licensing changed to a web activation model from the hardware key with license file model.

Bugs Fixed in V4.4.0

- 1597 Now, when the seismic factor checkbox is checked, PCI codes report in Section C the values of N_n and V_n with the seismic factor applied. Previously, though the equation showed the seismic factor, the numbers reported were the same as in Sections A and B (without the seismic factor).
- 1512 Now correctly cites Eq. 6-28 vs Eq. 6-27 (PCI 8ed.) for C_{x1} when small but (nearly) equal side edge distances are present (6-25 vs 6-24 7ed.). The criterion *STUDS* uses for "equal" is:
$$|d_{e1} - d_{e2}| < (d_{e1} + d_{e2}) / 16.$$
- 1504 BED is now calculated with the actual row spacing values. Before row spacing in the calculation was limited to 3 times the embedment length, l_e , which could yield a reduced value for BED.
- 1498 The check for appropriate c_{a1} value now checks both the $(max. spacing)/3$ and $c_{a2,max}/1.5$ limits. Before if the $(max. spacing)/3$ limit applied the $c_{a2,max}/1.5$ limit was not checked.
- 1495 *STUDS* now warns when an edge distance for a stud is less than $\frac{1}{2}$ the head diameter + $\frac{1}{2}$ in. or for a bolt less than $\frac{1}{2}$ the bolt diameter + $\frac{1}{2}$ in.
- 1476 The eccentricity modifier for shear, $\psi_{ec,V}$ (Sect. 17.5.2.5 or D.6.2.5) is now generally different for front and side breakout. Although it is the same equation for both, the edge distance, c_{a1} , is different for front and side breakout. Previously the value for front edge was used for both front and side calculations.
- 1472 Equation callouts for all codes have been reviewed and corrected where necessary.
- 1469 The library edit forms now follow the Window Size setting.
- 1468 A check for the maximum stud diameter and embedment length is made now (Sect. 17.3.2.2 or D.4.2.2). When a stud exceeds the either limit the program will pop up a notice when the calculations are run and put a note in the report.
- 1388 The yield strength in the library for studs $\frac{1}{2}$ in. or larger is now correct. The yield strength is used only for a check that the ultimate strength, f_{ut} , is not greater than $1.9 f_y$ so you shouldn't have to go back and check all the calculations you've done in the past.
- 1366 All controls (mainly option buttons and check boxes) now display differently when they have focus vs. when not the focus. This should make selecting controls from the keyboard easier.

- 1300 The labels on the column spacing values, X1, X2, etc. are now correct on the Stud/Plate Layout page.
- 1174 Library files for studs, bolts and bolt materials are now found in %ProgramData%\STI\Libraries instead of the application installation folder in Program Files (x86).
- 1168 Bolt hook size is checked now and a warning is included in the report when the hook size is outside of the limits of Sect. 17.4.3.5 (D.5.3.5).
- 1167 The report now includes a warning that Steel Tension Strength may be reduced by load eccentricity when an eccentricity is specified on the Plate Installation page. No value is given for the possible reduction.
- 1149 The wording of the note regarding the pull out strength for a group of studs has been improved.
- 1138 The bolt materials now have a library similar to the stud and bolt sizes that you can edit the library to add or remove bolt materials. The location of all library files has changed to "%ProgramData%\STI\Libraries".

New/Changed Features in V4.3.0

- The main change in V4.3.0 is the upgrade for the codes. PCI 7th ed. Handbook and ACI 318-08 and -11 are added. PCI 5th ed. Handbook and ACI 318-02 are removed.
- Support for post-installed anchors has been removed.
- The example problems in the Help have been updated for the latest code revisions.

Bugs Fixed in V4.3.0

- 1171 The Pryout calculation now uses the correct area based on h_{ef} for the group of all studs when the Tension Group is a subset of full plate. The area previously was calculated using the stud length, l_e , only.
- 1170 The entry boxes for Number of Rows, Number of Columns in a layout and Rows in the Tension Group now accept direct entry of a number in addition to the up and down arrows.
- 1168 The lower limit on bolt hook size, $3d_o$, is now enforced. A warning is added to the report whenever the hook size is either under the $3d_o$ limit or over the $4.5d_o$ limit.
- 1166 There is now a separate ϕ value used for the steel in tail bars. Previously the ϕ entered for the anchor steel in tension was used for the tail bars too. Now there is a ϕ entry for tail bars on the Loads page.
- 1165 When Tail Bars are specified the count for the Tension Group now is reported correctly in Section C.
- 1154 Cleaned up side face breakout criteria for ACI 318. This shouldn't change calculations.
- 1151 The Help better explains the minimum plate thickness requirement and the warning.
- 1150 A warning now is included in the report when eccentricity is too large for side edge breakout as well as for front edge breakout.

- 1148 For bolts the pullout intermediate values for N_p and $\psi_{c,P}$ are reported now.
- 1144 Fixed several problems with the configuration of the Loads entry page for the various codes.
1143
- 1139 Side edge breakout now uses d_{e1} and d_{e2} correctly for the "side" distances.
- 1137 The check for limiting values of f_{uta} is now working.
- 1128 Fixed a problem with error messages reporting the wrong error. The older version often reported the wrong message when an error occurred.
- 1105 Radio buttons enclosed in a frame are now visible (they were appearing blacked-out).
- 951 The Help clarifies the SED/BED ratio cutoff value of 0.18 for side edge vs corner conditions in PCI Handbook methods.
- 874 Overall dimensions are shown on the Layout pages.

Unresolved issues in V4.4.0

- 1587 Reinstalling *STUDS* from the MSI file overwrites any changes the user has made to library files.
- 1145 The View Results window sometimes goes missing. Usually Window → Cascade will restore it or other times saving and reloading the problem file will restore it.
- 881 Report is garbled or miniature output.
- 870 Handle DBA anchors explicitly.
- 560 Add a button to locate warnings in View Results so the user doesn't have to search for them.
- 408 There should be a command line option to print a file or maybe some way to batch-print some/all of the files in a folder.
- 310 Add a button to the Toolbar that activates the context sensitive Help.