What's new in CAEPIPE V11.00*?*

(Release date: December 2, 2022)

New Piping Codes

Two (2) new Nuclear piping codes are added as given below.
- ASME Section III, NC - Class 2 (2021)
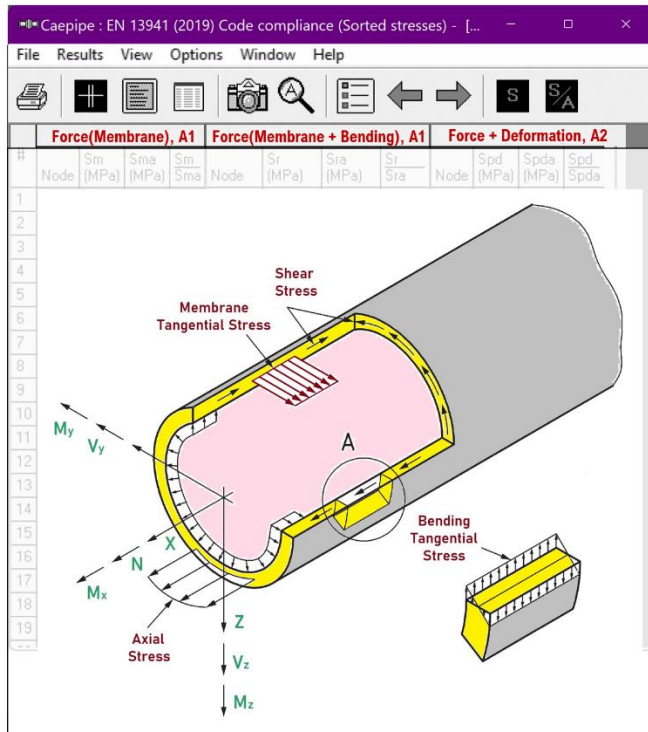- ASME Section III, ND - Class 3 (2021)

The following new piping codes are added.
- EN 13941-1 (2019)
- ASME B31.1 (1973)

Refer to Piping Code Compliance section of CAEPIPE Code Compliance Manual for details.

EN13941-1: District heating pipes

NORME EUROPÉENNE

Axial stress

$$(\Delta\sigma_a)_\pm = i_{a1}\frac{\Delta N_x}{A} \pm i_{a2}\frac{\sqrt{\Delta M_y^2 + \Delta M_z^2}}{W}$$

Shear Stress

$$(\Delta\tau)_\pm = i_{a3}\frac{\Delta M_x}{2W} \pm i_{a4}\frac{2\sqrt{\Delta V_y^2 + \Delta V_z^2}}{A}$$

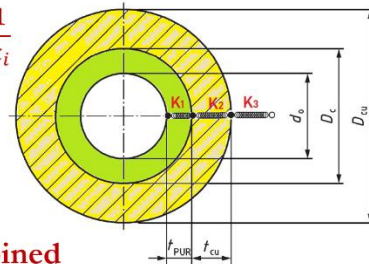**Membrane Tangential Stress**

$$(\Delta\sigma_t)_m = i_{ap}\frac{p \cdot d_i}{2t_{min}}$$

(Membrane + Bending) Tangential Stress

$$(\Delta\sigma_t)_{mb} = i_{ap}\frac{p \cdot d_i}{2t_{min}} + i_{a5}\frac{\sqrt{\Delta M_y^2 + \Delta M_z^2}}{W} + \sigma_q$$

$$\frac{1}{k} = \sum\frac{1}{k_i}$$

Combined lateral stiffness of PUR, expansion cushion and soil

CAEPIPE

Pipe Stress Analysis Software - CAEPIPE
DETAILS | **DOWNLOADS** | **LINKS**

Pipe Stress professionals' software of choice to perform
pipe stress analysis calculations

V11.00

UPDATED CODES: Refer to Piping Code Compliance section of CAEPIPE Code Compliance Manual for details.

- ASME B31.3 (2020)
- ASME B31.5 (2019)
- ASME B31.8 (2020)
- ASME B31.9 (2020)

MATERIAL LIBRARIES: Material libraries for the following codes are added. Refer to Piping Code Compliance section of CAEPIPE Code Compliance Manual for details.

- ASME B31.3 (2020)
- ASME B31.5 (2019)
- ASME B31.8 (2020)
- ASME B31.9 (2020)
- ASME B31.1 (2020) - Non-metallic piping
- EN 10216-2 (2013)

Enhancements

- New feature is added to Export and Import direction cosines via mbf for Limit Stops with "Connected to" node defined. Refer to section titled "Limit Stop" in CAEPIPE Technical Reference Manual for details.

- New feature is added to Import AFT Impulse Time function data into CAEPIPE Time functions. This feature can be accessed through CAEPIPE Layout Window > Misc... > Time Functions > File > Import AFT Time Function. In addition, stress layout from CAEPIPE can be exported to AFT Impulse via PCF file through CAEPIPE Layout window > File > Export to PCF.

- New field "Tensile" (Tensile Strength) is added in Material Input as well as in Material Library for the applicable ASME B31.x codes. Accordingly, Material Library Export and Import features have been enhanced. Refer to Sections titled "Material" in CAEPIPE Technical Reference Manual and Sections titled "Import Material Library" and "Export Material Library" in CAEPIPE User's Manual for details.

- For Piping code = ASME B31.1 (2020), as per Note 2 of para. 102.3.5 (b)(1), for materials with a minimum tensile strength of over 70 ksi (480 MPa), eqs. (1A) and (1B) are now calculated using Sc and Sh values no greater than 20 ksi (140 MPa). Compliance to this criterion is checked using the value entered under Tensile Strength field of CAEPIPE Material property input. Refer to Piping Code Compliance section of CAEPIPE Code Compliance Manual for further details.

- New feature is added to "Refine Branches" automatically while saving the model when the Piping code selected for Analysis is ASME B31.1 (2020) / ASME B31.3 (2020) / ASME B31.9 (2020) / EN 13941-1 (2019). Refer to Section titled "Refine Branches" in CAEPIPE User's Manual.

- Allowable pressure calculation for Bends have been revised for EN 13480-3 (2020). Refer to Piping Code Compliance section of CAEPIPE Code Compliance Manual for details.

- New feature is added to validate the Reducer Input while saving the model when the Piping code selected for Analysis is EN 13941-1 (2019).

- Bending Moments at each element's ends due to Wind load are now included in stress analysis. Hence, results for Wind loads computed for old CAEPIPE version models using this new version may differ from their earlier results.

- Missing mass correction is now included for Multi-level Response Spectrum Analysis. Refer to CAEPIPE Technical Reference Manual for details.

- In CAEPIPE Versions 10.50 and 10.51, Generic support was considered as an Anchor (by ignoring non-diagonal terms, i.e., coupling terms) while computing the influence matrix for multi-level response spectrum analysis. Starting Version 11.00, non-diagonal terms for Generic Support are also considered while computing the influence matrix.

- New feature is added to show the maximum and minimum stress in the legend independent of their corresponding stress ratios in stress contour plot.

- Number of Time Steps in forcing function is increased from 9999 to 99999 for Time History Analysis.

- New feature is added to display the Local Coordinate System (LCS) for Limit Stops in Graphical Screen while in Limit Stop loads results (as it is shown for Guides).

- CAEPIPE can now import neutral files generated from CAESAR II versions up to and including 12.00.

- MBF format is updated to be compatible with CAEPIPE Version 11.00. See Appendix A of CAEPIPE User's Manual for details.

- CAEPIPE Evaluation and CAEPIPE Review will now add their product name and version stamp in CAEPIPE printouts and graphics plots.

- CAEPIPE Evaluation will now work only for 30 days from the day of its first launch.

- CAEPIPE User's Manual, Technical Reference Manual, Code Compliance Manual and Verification Manual have been enhanced and updated to be in line with software version 11.00. These Manuals can be downloaded from the link www.sstusa.com/caepipe-docs.php.

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V11.00

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Bug Fixes

- Increasing or Decreasing the symbol size while reviewing Results issuing Assertion failure.

- Find and Replace dialog is issuing a message "Find what and Replace with are Unset" while replacing "Data".

- Adding new support (restraint and snubber) in CAEPIPE model with Multi-level response spectrum defined was freezing the layout window.

CAEPIPE Demo: Download an evaluation version of CAEPIPE from the link https://www.sstusa.com/piping-software-download.php.