Home

This space is devoted to **CSiCOL**. Please visit the Technical Knowledge Base for documentation on topics common to all CSI Software.

CSiCOL is used to model, analyze, and design traditional and composite reinforced-concrete column systems of customized geometry and constitutive behavior. Column attributes, inelastic response, optimized design, and a range of individual and combined performance measures may all be characterized using CSiCOL.

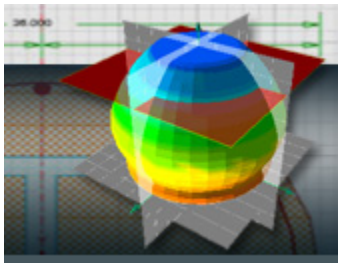
The Quick Design Wizard features a series of tools, templates, and code-based options to guide users through the modeling process. Reinforced-concrete columns of any geometric complexity may be easily created. Solid, hollow, and flanged shapes may be drawn, edited, and merged from over 50 parametric shapes, 3000 standard steel shapes, and practical resize, stack, and align controls. Holes and cutouts are easily rendered for hollow- and voided-section design. Rebar-distribution tools arrange reinforcement in various patterns and standardized sets. Manual placement features are also available.

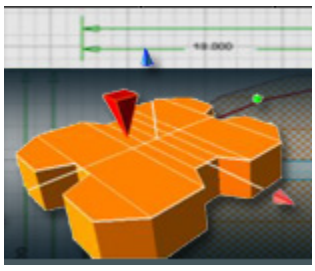
A series of constitutive-modeling capabilities characterize the material behavior of concrete and steel. Concrete stress-strain relations may follow Whitney Rectangle, PCA Parabola, Mander, and various code-based models. Steel models may be linear or nonlinear.

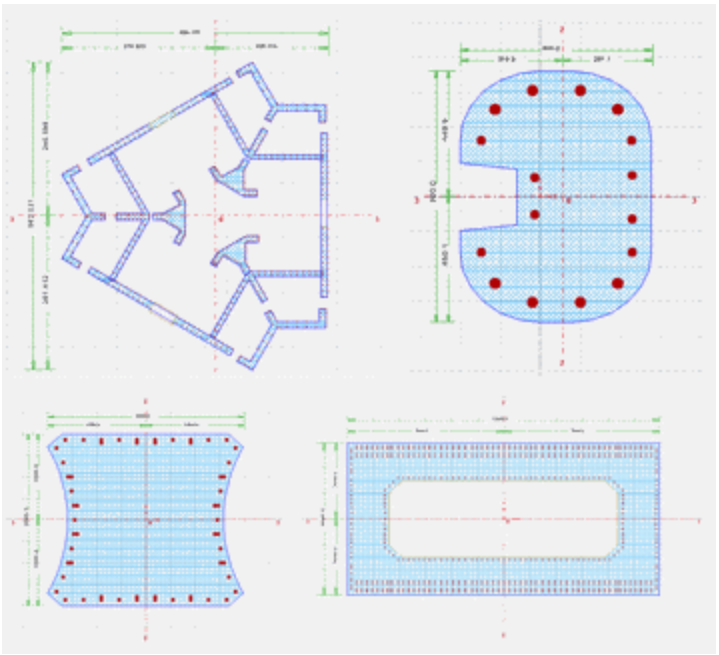
Load conditions and design action are input directly. An unlimited number of combinations are available to the user. Effective length factors and slenderness effects are computed from optional framing- and end-condition specification, providing for sway and non-sway response. Magnified-moment calculations are based on ACI-318 and BS-8110.

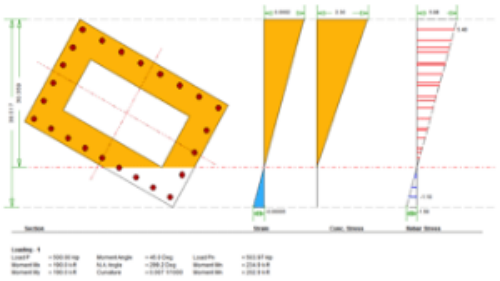
Analysis calculates geometric properties, considers true bi-axial behavior through generation of full-capacity interaction surfaces, and characterizes strength and ductile performance through moment-curvature response. P-M, M-M, and stress-strain relations may all be developed for any neutral-axis depth and orientation, and for any bending direction, load level, and combination. Elastic and cracked-section stresses are calculated and displayed per bi-axial bending, shear, axial, torsional, and combined conditions. Additional analysis features include rebar-stress calculation, load-point location, and limit-state assessment. Performance measures may be user-specified or computed through calculation.

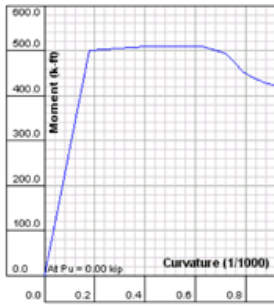
The Automatic Design feature follows user-specified minimum and maximum parameters, along with criteria for design-process hierarchy, to optimize column design and reinforcement layout. Images and data may then be summarized in customized reports.










600.0
500.0
400.0
300.0
200.0
100.0
0.0
Moment (k-ft)
At Pu = 0.00 kip
Curvature (1/1000)
0.0
0.2
0.4
0.6
0.8
1.0