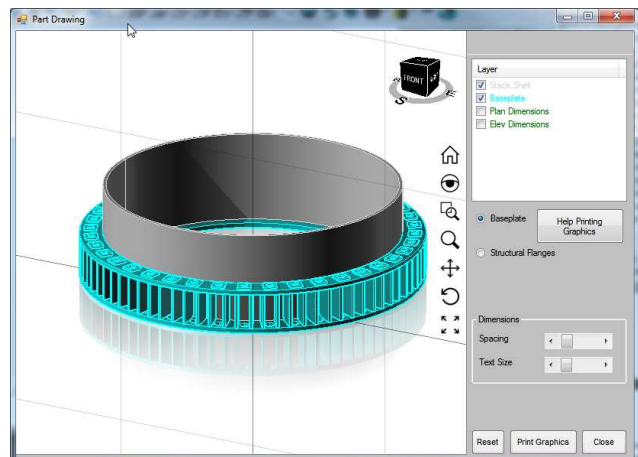
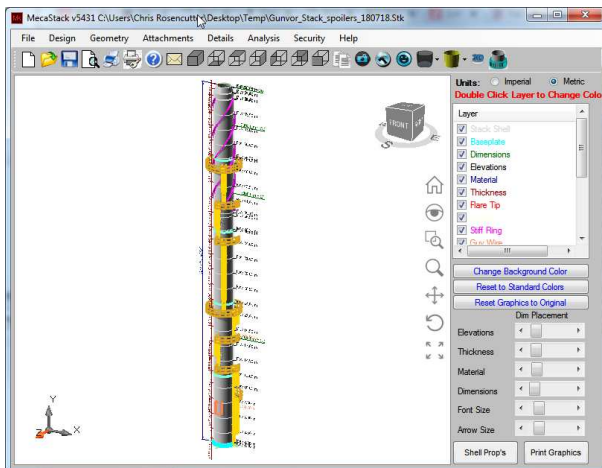


# Stack Design Software

# MecaStack

**M**ecaStack is the most widely used software in the world for designing self-supported and guy wire supported steel stacks. An easy to use Windows based interface allows designers to quickly model a stack. A 3D model of the stack is automatically displayed on the screen providing a quick visual check of all information entered. The user has complete control over the codes that are used for Along Wind, Across Wind, Stress and Fatigue. Load combinations and factors can be customized as needed. The output is easy to navigate, problem areas may be located quickly, and the designer may select the calculations that are presented to the client.



## Software Features:

- 3D Graphics
- Customizable Load Combinations
- Specify Grade Elevation
- P-Delta Analysis
- Guy Wire Design
- Lifting Analysis of Stack
- Toggle Between Imperial & Metric Units
- Calculate Frequency for Higher Modes

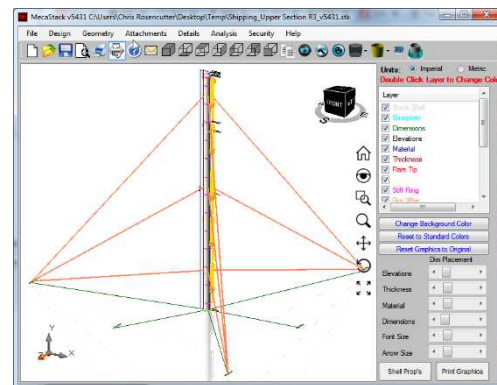
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1-918-258-2913



**G**uy wire supported stack design can be extremely complicated. The designer must consider the non-linearity of the cables as well as all combinations of load direction, corrosion and temperature in order to find the worst case for each element of the design. Most general purpose structural programs (StaadPro, Risa, etc..) simply don't handle guyed stack design adequately, or they make it extremely difficult and time consuming. MecaStack not only makes modeling a guyed stack simple, but it automatically constructs an array of load cases to ensure that the worst case scenarios for each element of the design is captured. It also helps with the selection of the appropriate guy wire hardware. The design of one guyed stack usually saves enough time to recover the cost of the software.



Analysis: Output

Table Of Contents

- Project Information
- Input Parameters
- Stack Geometry
- Design Codes
- Damping Criteria
- Weight Summary (Live)
- Vortex Shedding Analysis
- Wind Area Summary
- Section Properties
- Thermal Expansion
- Frequency Summary
- Wind Loads per EN 1991-1-4:2005
- Load Combinations
- Boundary Conditions
- Riser Stiffening Ring Property Summary
- Stiffening Ring Summary
- Verify Beam Theory Can be Used
- Stack Worst Stress Summary
- Stack Compressive Stress Summary
- Deflection Max Summary
- Cone # 1, Load # 10
- Structural Range # 1, Load # 9
- Structural Range # 1, Load # 10
- Structural Range # 2, Load # 9
- Structural Range # 2, Load # 10
- Structural Range # 3, Load # 9
- Structural Range # 3, Load # 10
- Structural Range # 4, Load # 9
- Structural Range # 4, Load # 10

| Bot Elev m | Moment KN-m | Vert KN | f_xEN MPa | f_xEM MPa | f_xEd MPa | f_qEd MPa | s_xRd MPa | s_qRd MPa | kx    | kq    | UR1  | UR2  | Unit: Rati |
|------------|-------------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-------|-------|------|------|------------|
| 59.95      | 0.00        | 0.24    | 0.00      | 0.00      | 0.00      | 0.18      | 185.40    | 1.24      | 1.821 | 1.254 | 0.14 | 0.09 | 0.14       |
| 59.10      | 0.00        | 4.87    | 0.08      | 0.00      | 0.08      | 0.18      | 185.34    | 1.24      | 1.821 | 1.254 | 0.14 | 0.09 | 0.14       |
| 59.01      | 0.00        | 9.81    | 0.13      | 0.00      | 0.13      | 0.23      | 89.81     | 0.78      | 1.536 | 1.252 | 0.29 | 0.21 | 0.21       |
| 58.11      | 0.00        | 16.02   | 0.21      | 0.00      | 0.21      | 0.23      | 89.94     | 0.75      | 1.527 | 1.252 | 0.31 | 0.23 | 0.31       |
| 58.00      | 0.00        | 22.42   | 0.30      | 0.00      | 0.30      | 0.23      | 89.94     | 0.75      | 1.527 | 1.252 | 0.31 | 0.23 | 0.31       |
| 55.50      | 0.00        | 40.32   | 0.54      | 0.00      | 0.54      | 0.23      | 89.94     | 0.75      | 1.527 | 1.252 | 0.31 | 0.23 | 0.31       |
| 53.00      | 0.00        | 74.62   | 0.99      | 0.00      | 0.99      | 0.23      | 89.94     | 0.75      | 1.527 | 1.252 | 0.30 | 0.22 | 0.30       |
| 50.50      | 0.00        | 108.91  | 1.45      | 0.00      | 1.45      | 0.22      | 89.94     | 0.75      | 1.527 | 1.252 | 0.30 | 0.22 | 0.30       |
| 48.30      | 0.00        | 141.15  | 1.88      | 0.00      | 1.88      | 0.22      | 89.94     | 0.75      | 1.527 | 1.252 | 0.30 | 0.22 | 0.30       |
| 48.00      | 0.00        | 158.30  | 2.11      | 0.00      | 2.11      | 0.22      | 89.94     | 0.75      | 1.527 | 1.252 | 0.29 | 0.22 | 0.29       |
| 47.47      | 0.00        | 170.82  | 2.27      | 0.00      | 2.27      | 0.22      | 89.94     | 0.75      | 1.527 | 1.252 | 0.29 | 0.22 | 0.29       |
| 47.40      | 0.00        | 175.41  | 2.33      | 0.00      | 2.33      | 0.22      | 89.94     | 0.75      | 1.527 | 1.252 | 0.29 | 0.22 | 0.29       |
| 46.40      | 775.92      | 285.87  | 3.80      | 13.83     | 17.63     | 0.22      | 89.94     | 0.75      | 1.527 | 1.252 | 0.29 | 0.30 | 0.31       |
| 46.00      | 863.07      | 311.48  | 4.14      | 15.38     | 19.53     | 0.22      | 89.94     | 0.75      | 1.527 | 1.252 | 0.29 | 0.31 | 0.31       |
| 43.50      | 0.00        | 229.82  | 2.45      | 0.00      | 2.45      | 0.17      | 183.98    | 1.17      | 1.817 | 1.254 | 0.15 | 0.09 | 0.11       |
| 41.47      | 1619.85     | 453.64  | 4.83      | 23.15     | 27.98     | 0.17      | 183.98    | 1.17      | 1.817 | 1.254 | 0.15 | 0.12 | 0.11       |
| 41.00      | 1759.36     | 483.89  | 5.15      | 25.14     | 30.29     | 0.17      | 183.98    | 1.17      | 1.817 | 1.254 | 0.16 | 0.13 | 0.11       |
| 40.90      | 1786.13     | 491.99  | 5.24      | 25.52     | 30.76     | 0.17      | 183.98    | 1.17      | 1.817 | 1.254 | 0.17 | 0.13 | 0.11       |
| 40.40      | 1891.72     | 500.55  | 5.33      | 27.03     | 32.36     | 0.17      | 183.98    | 1.17      | 1.817 | 1.254 | 0.18 | 0.13 | 0.11       |

STACK COMPRESSIVE STRESSES PER EN 1991-1-6, Worst Case  
Highest Unity ratios for each member and the load case that produces it.

0.80 0.75 10 B: 1.35\*D+1.5\*W+0.9\*L+0.9\*O 0 Deg Buckling 0.36 PASS  
0.75 0.30 10 B: 1.35\*D+1.5\*W+0.9\*L+0.9\*O 0 Deg Buckling 0.14 PASS

Only checked items are to be printed.

Check ALL Uncheck ALL Check Summary

Search Output for Specific Text Find Next Generate Output Report

Save TOC Retrieve TOC Close Automatically include page breaks in Printed Output Find FAIL

**O**utputs are customizable in MecaStack. The user may select which output is displayed before anything is analyzed. Then once the analysis is run, the user can select from a table of contents which items are going to be presented in the final report. Also, clicking on any of the table of contents will take the user directly to that section. Sections involving "Pass" or "Fail" criteria are displayed with the colors GREEN (everything passing) and RED (at least one item fails). This allows the user to quickly determine if there are any problems in the stack.

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# Design Codes

Design Codes

Design Standard | Stress | Wind Loads | Vortex Shedding | Fatigue Criteria | Deflection | Seismic | Live Load

Comprehensive Standards

- ASME STS-1-2016
- CICIND 2010
- Indian Standards
- British Standards (BS CP3 Ch. V and BS 4076)
- British Standards (BS 6399 and BS 4076)
- Canadian Standards
- EuroCode Standards
- ISO 13705 Standard (API-560)

Since a Comprehensive Standard selected, the codes are automatically determined.

Stress Criteria: ASME STS-1-2016  
ASD

Wind Loads: ASCE 7-05

Vortex Shedding: ASME STS-1-2016

Fatigue Criteria: AISC 360-10

Seismic Criteria: IBC 2012

Load Code From File | Save Code to File | Ok | Cancel

## Seismic:

Indian (IS 1893)

UBC 97

Manual Entry

International Building Code (IBC 2012)

Response Spectrum Analysis

National Building Code of Canada (NBCC 2010)

Euro Norm (EN 1998-6)

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# MecaStack Software Pricing

| MecaStack Pro (Self & Guy Wire Supported)     | Lease Period | Price   |
|---|--------------|---------|
| License Single User License - New Purchase    | 1 Year       | \$2,430 |
| Single User License - Existing Lease Renewal* | 1 Year       | \$2,187 |
| <br>  |              |         |
| MecaStack Std (Self-Supported License)        | Lease Period | Price   |
| Single User License - New                     | 1 Year       | \$1,500 |
| Purchase Existing Lease Renewal*              | 1 Year       | \$1,350 |

\*If renewed prior to current lease expiring  
Note: P-Delta Analysis is only included with the Guy Wire Supported Stack option

**MecaStack Floating Network Options:**  
Please email [support@meca.biz](mailto:support@meca.biz) for a quote

## Frequently Asked Question

Can I get a fully functioning demo to try out the software?

We offer a limited demo, but we do not offer a full functioning demo.

Does the program have a help manual?

A help manual is provided with the program in the form of a pdf file. You may print it or view it electronically.

Do I have to be connected to the internet to use to software?

It is possible to run the software without internet connection; however, there are specific instances where a connection is required: initial activation of software, to transfer use of software to another computer, check for updates automatically, use the floating network option.

Can I share the software with my coworkers?

Yes, the software can be shared if a network license is purchased. A single user license can only be used on 1 computer.

Is there Technical Support available for the software?

Yes, technical support is available. We handle technical support by email at [support@meca.biz](mailto:support@meca.biz). We request that questions be limited to the use of the software. We cannot provide interpretations as to how to apply the code to various situations.

