2013 PLS-CADD Advanced Training and User Group

What's New in TOWER

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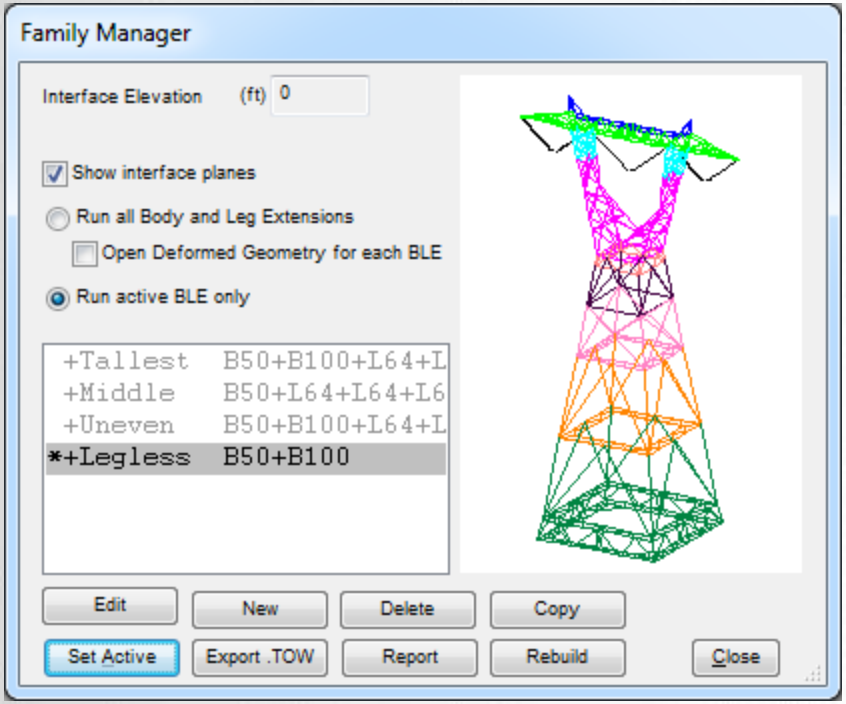
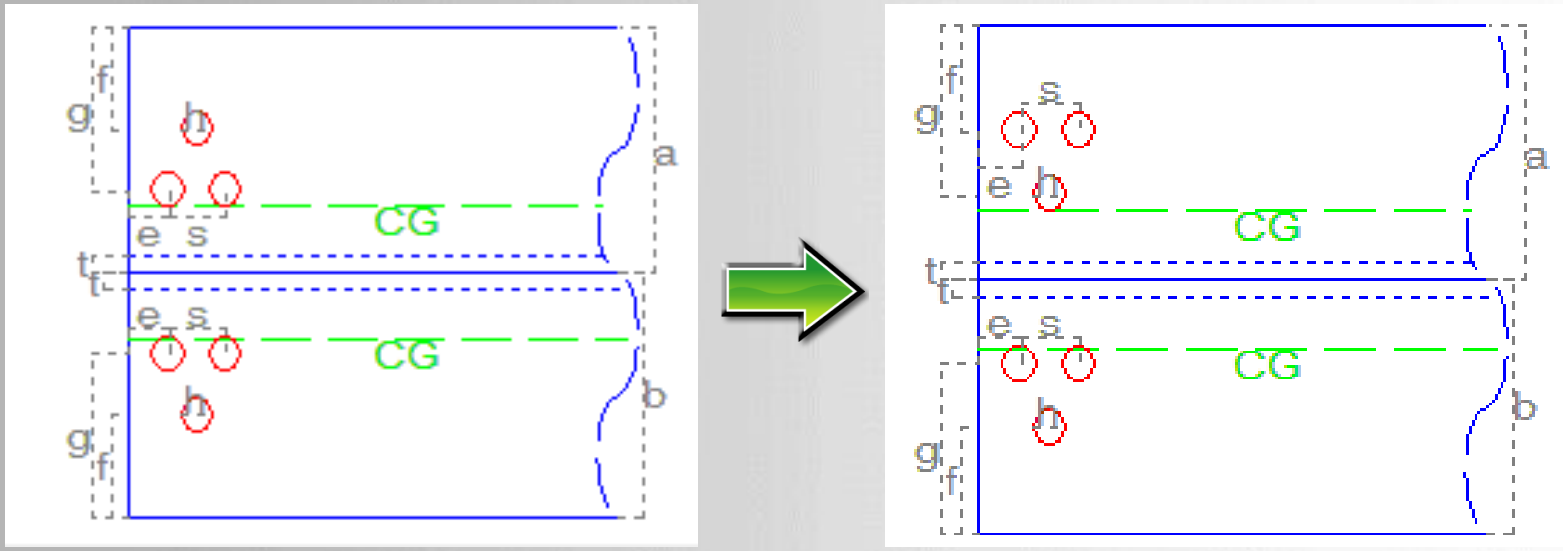
Introduction

- Improvements since the July 2011 ATUG
  - ~80 items listed in handout – will show some of them
- The Future
- Q/A as time permits



Symmetrical Hole Distribution Option

- Conservative default assumption
  - Can change it in General/General Data



- Yields more Net Section

Block Shear from Path Lengths

- Two (or more) lines of connectors (g>0)
  - Block Shear not calculated automatically

R_{BSH}, the connection "block shear" capacity is determined as:

$$R_{BSH} = F_u \times 0.60 \times A_v + F_y \times A_t$$

  - Enter Shear and Tension Path Lengths in Angle Members table and TOWER computes A_v and A_t for you so get R_{BSH}

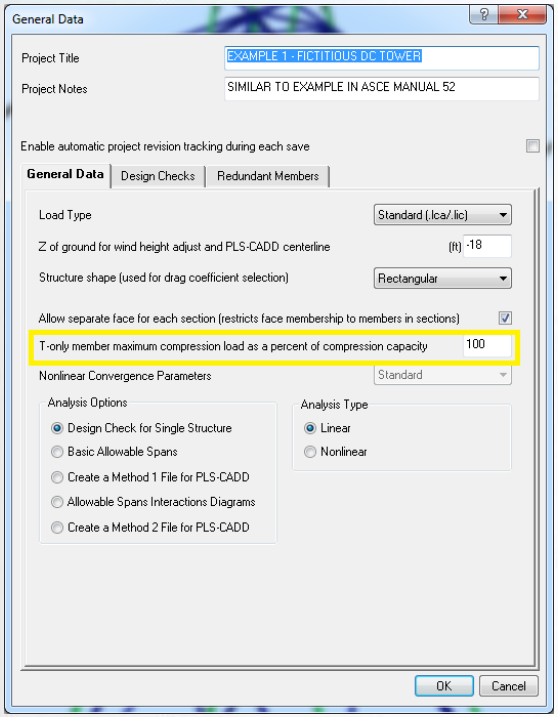
Member Label	Group Label	Section Label	Symmetry Code	Origin Joint	End Joint	Ecc. Code	Rest. Code	Ratio RLX	Ratio RLY	Ratio RLZ	Bolt Type	# Bolts	# Bolt Holes	# Shear Planes	Connect Leg	Short Edge Dist. (in)	Long Edge Dist. (in)	End Dist. (in)	Bolt Spacing (in)	Shear Path Length (in)	Tension Path Length (in)

Comp Load in Tension-Only Members

- How much compression load can a T-only member take?
- Problems:
  - 1)T-Only member in compression may control usage of structure
  - 2) Usage of T-Only in compression can exceed 100% when SF < 1
  - 3) May want compression in T-Only to be 0

Tension-Only Comp Load Solution

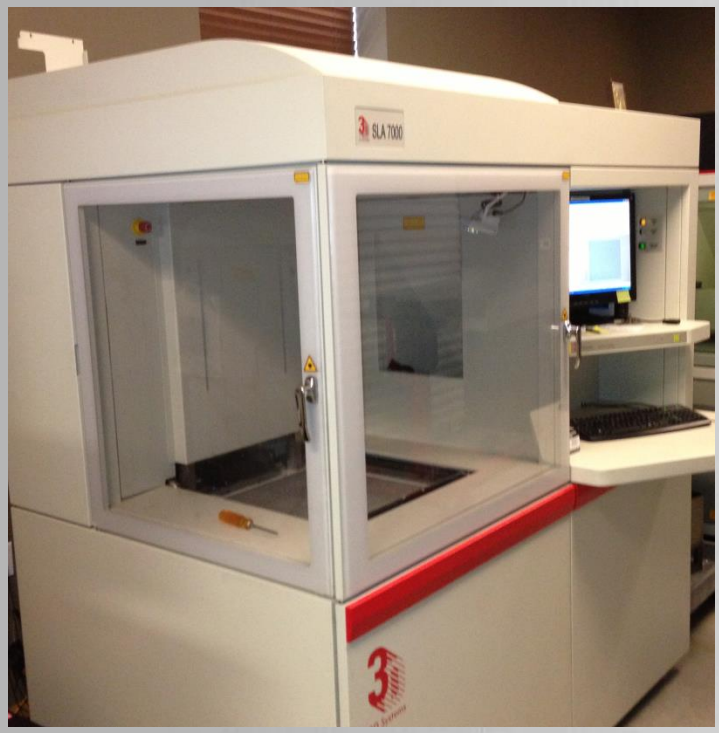
- Use new *General/General Data* setting to limit amount of compression load in T-Only members



STL Export

- *F1/Debugging Stuff/STL Export*
- Produces a **ST**ereo**L**ithography file aka Standard Tessellation Language
- STL files consumed by 3D printers and most 3D modeling and CAM systems
- Use to produce presentation models
- Also available in PLS-POLE

STL



SLA 7000 3D printer

156:1 scale models

Demo of Interface Improvements

The Immediate Future

- Body and Leg Extensions
  - Up to 4 body and 4 leg extensions per configuration (complete TOWER model)
  - 512 configurations in **one “.tow”** file
    - No extra files required
  - Build configuration simply by selecting body and leg extensions

Post-Immediate Future

- Manually select configuration when spotting in PLS-CADD
- Automatic optimum leg/body extension selection when spotting in PLS-CADD
- Aluminum towers
- Limited drafting (not detailing!)
- Automatic unbraced length ratio calculations

Post-Immediate Future Continued

- Crossing diagonal improvements
- COG calculations
- More codes (EN50341-1:2012 anyone?)

- Your suggestions at the round table

Advanced Sag & Tension IEC FAC 008/009 NESC Materials Management PLS-CADD® LiDAR Modeling Structural Analysis CSA Pole Analysis Distribution CENELEC Transmission NERC Ratings Project Estimating Line Optimization FAC 003 ASCE Joint Use PLS-POLE Vegetation Management 1000+ Users in 100+ Countries Storm Hardening IEEE Line Ratings TOWER Drafting

Questions?

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