

TEKLA BASECAMP

AUG. 27 - 29

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What's New For Modeling
Lee Snyder – Product Manager



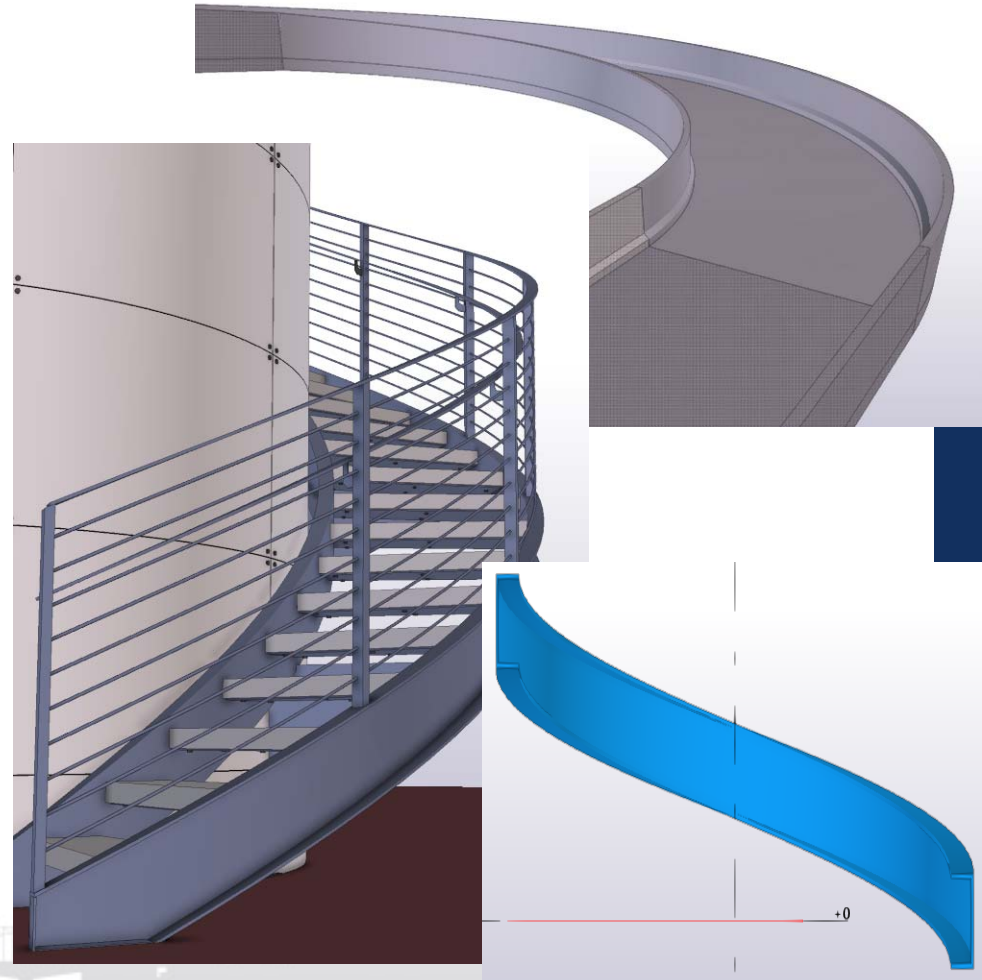
TEKLA STRUCTURES 2018



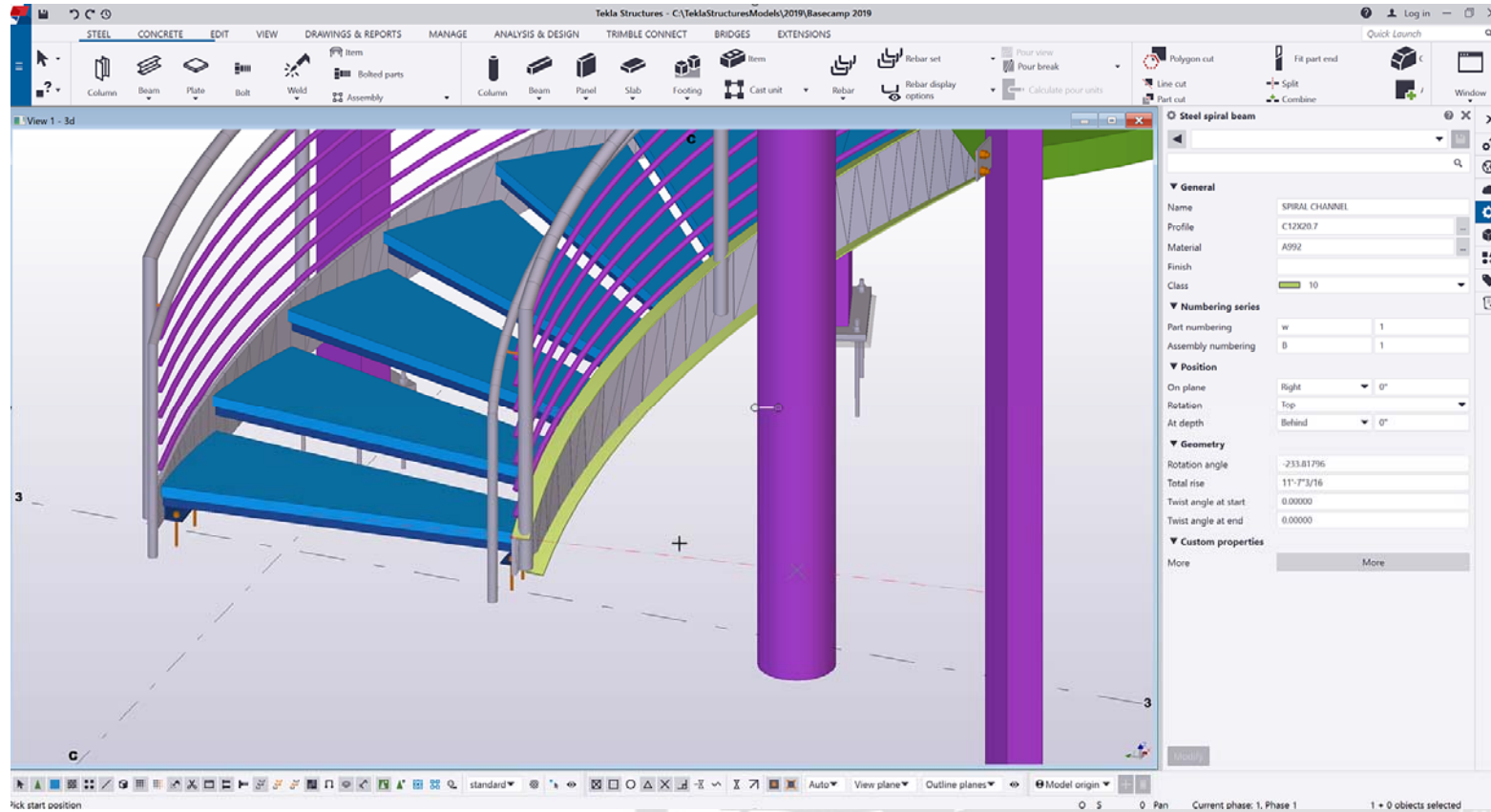
Spiral Beam

All new spiral beam

- Easily model spiral structures
 - Stringers, handrails, ramps
- Easy input and editing
 - Control sweep, rise, and radius parametrically
- Accurate detailing
 - No 'roll' in the profile
 - Maintains a constant up direction for the cross section along the spiral path



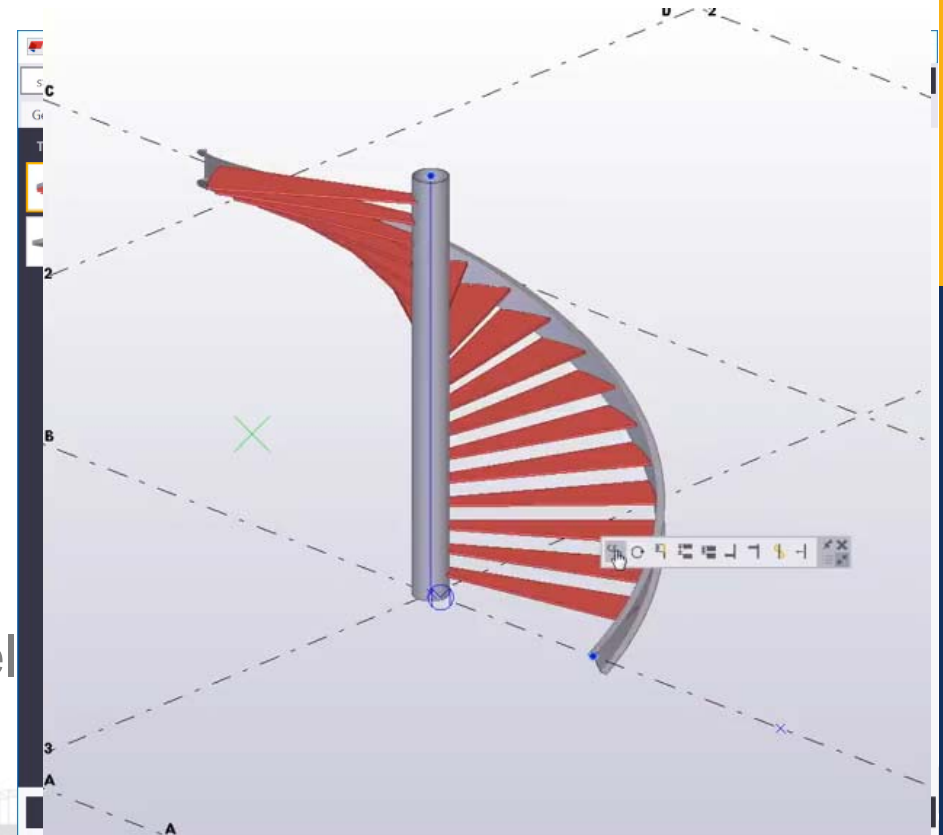
Spiral Beam



Spiral staircase 2.0 – Extension

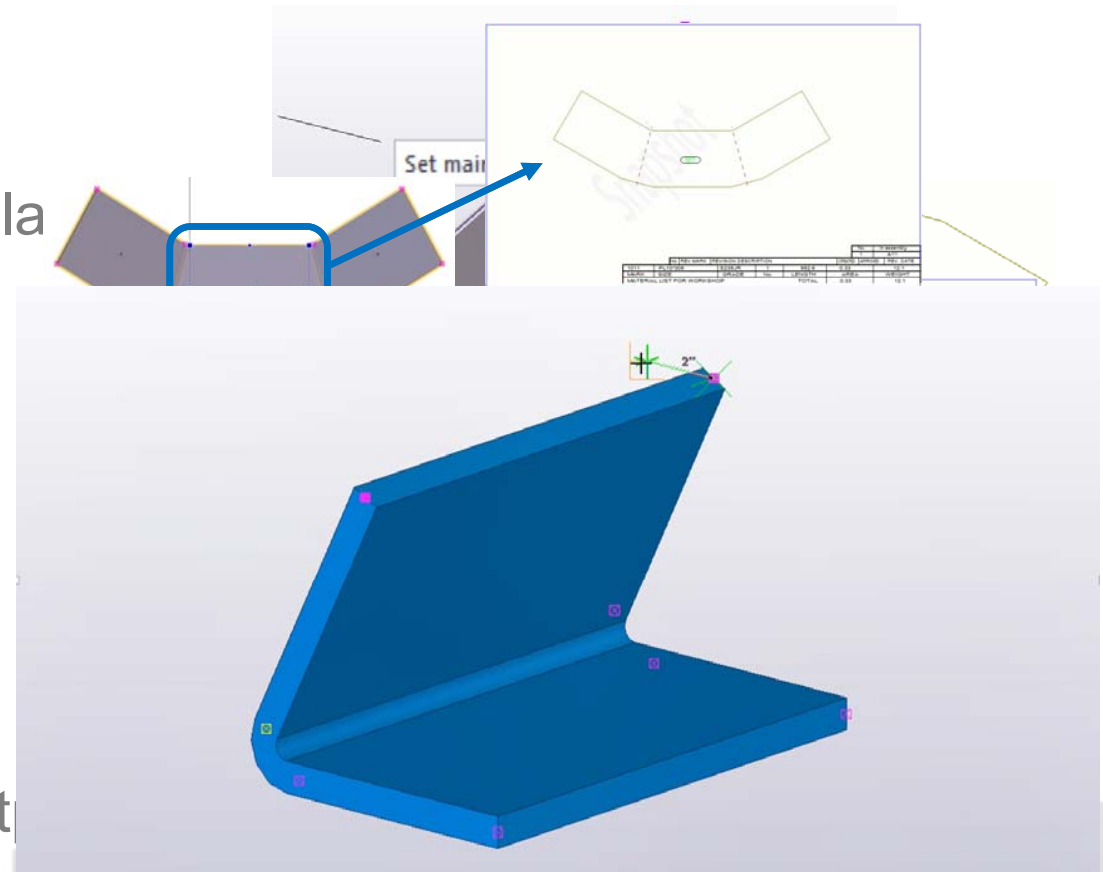
Easy modeling of spiral staircases

- Dynamic UI with live update
- Use plate or profile stringers
- Steps modeled as items, plates or custom components
- Modify key options and dimensions directly in the model



Bent Plate Improvements

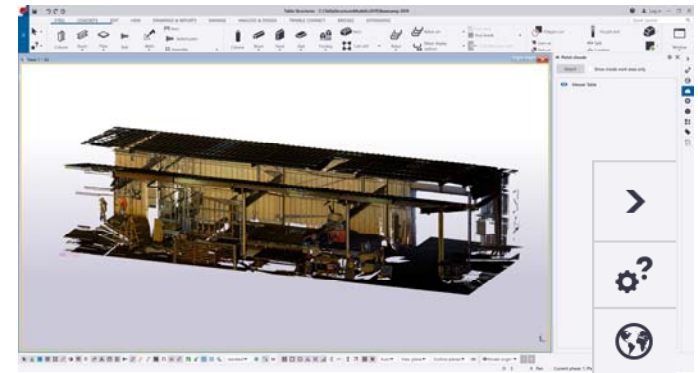
- Easier editing
 - Move handles out of plate
- Bent plate custom components
 - Automate bent plate details
- Improved control of unfolded orientation
 - Desired fabrication out



Point Clouds

Leverage and coordinate with scan data

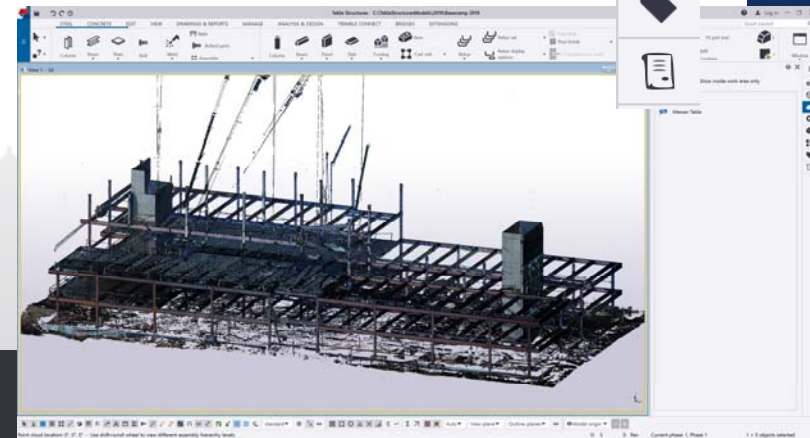
- Layout against existing structure scans
- Compare as built scans to the model



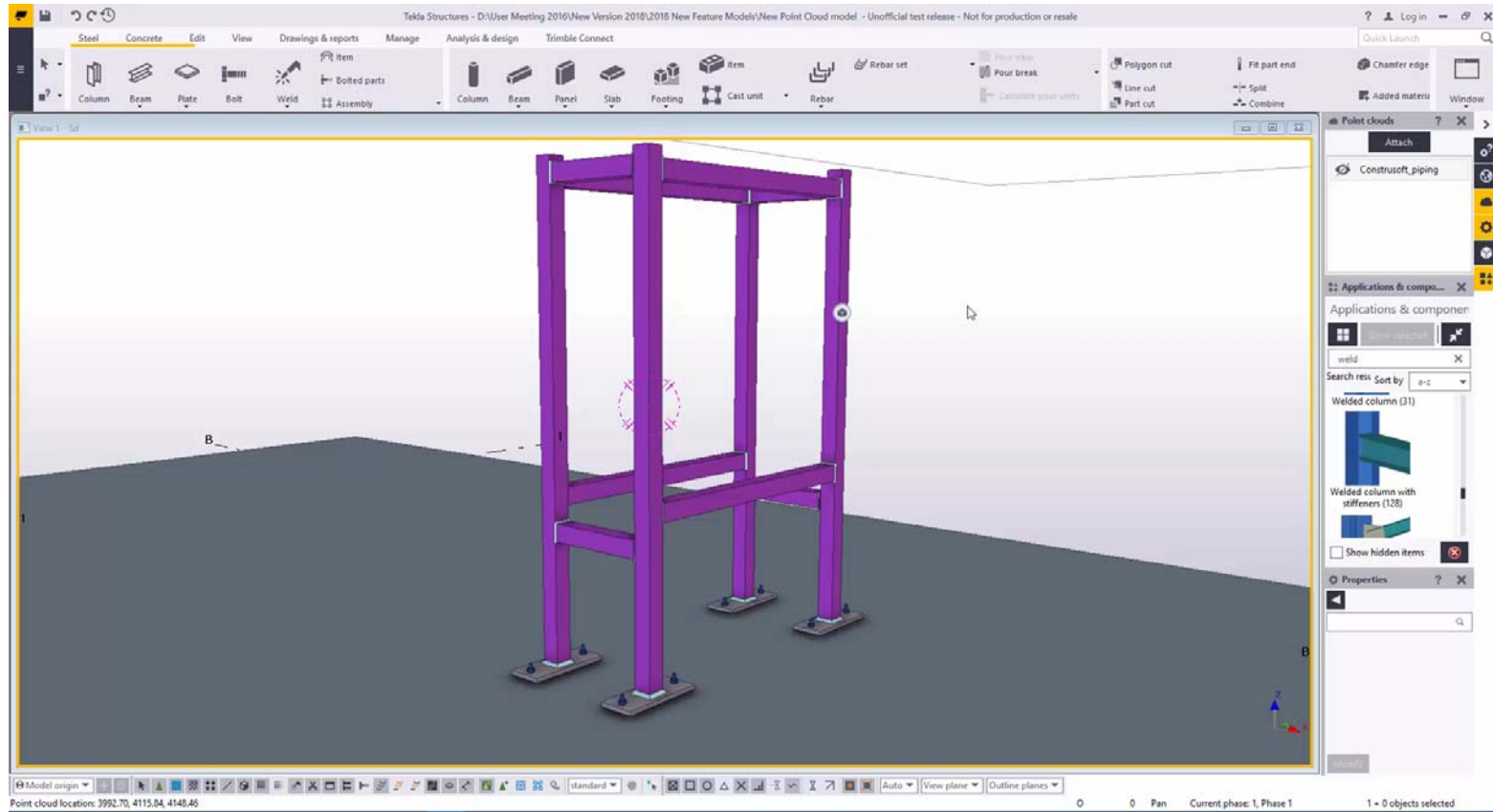
Point cloud support

- All common formats
- Support for color when available
- Snap to points for layout and measure

```
All compatible types (*.e57;*.las;*.laz;*.tzf;*.pts;*.ptx;*.asc;*.xyz;*.js)
E57 (*.e57)
LAS, LAZ (*.las;*.laz)
TZF (*.tzf)
PTS, PTX (*.pts;*.ptx)
ASCII (*.asc;*.xyz)
Potree (*.js)
```

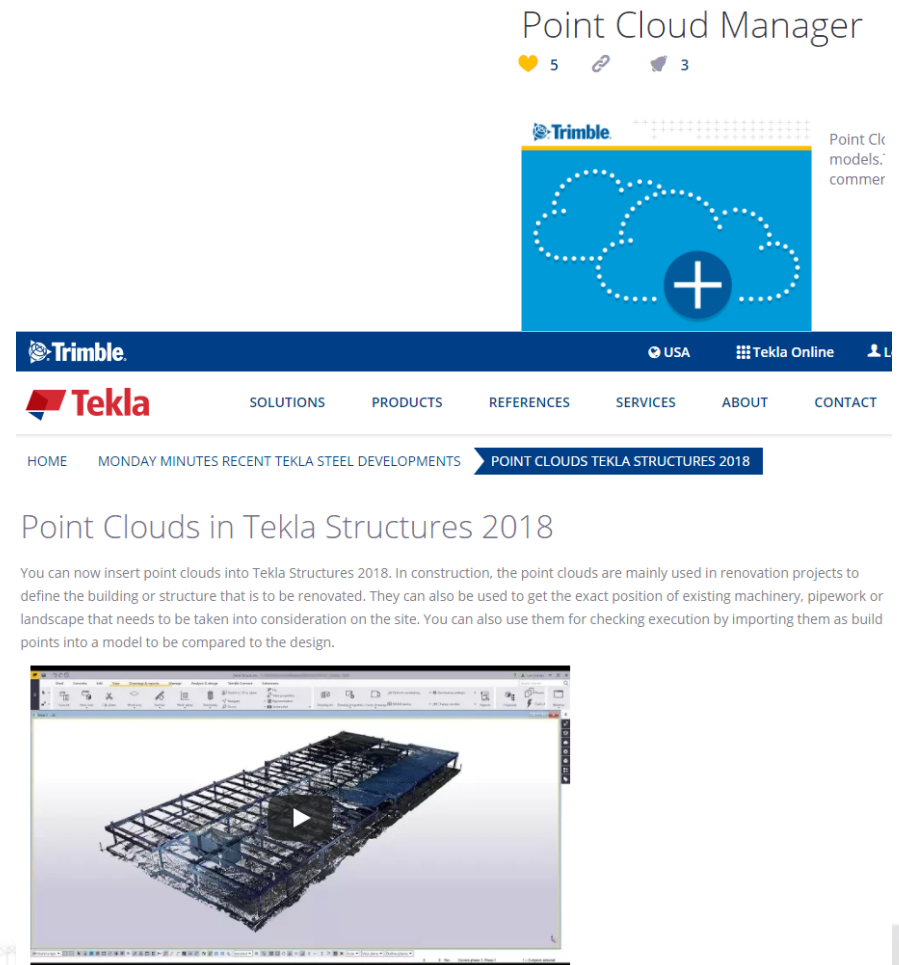


Point Clouds in Tekla Structures



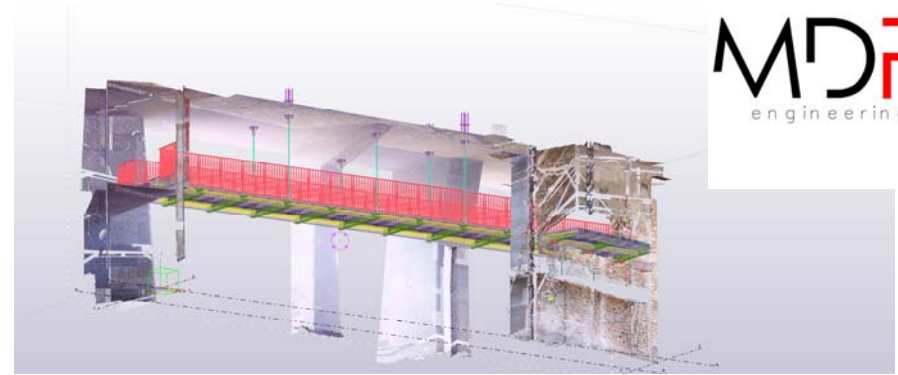
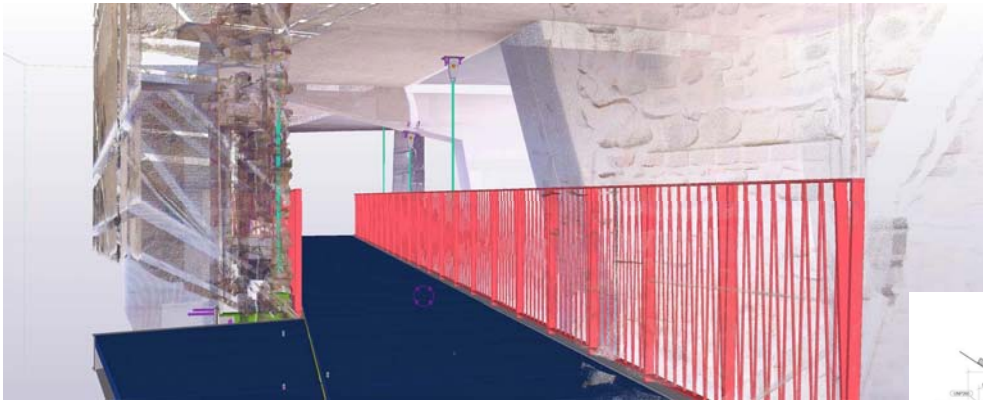
Point Cloud Manager

- Point Cloud Manager extension:
 - Convert raw cloud point data
 - View converted point clouds
 - Combine several point clouds into one larger point cloud
 - Export a smaller area of a point cloud
 - Analyze converted data
- For more details search for:
Monday Minutes Recent
Tekla Steel Developments



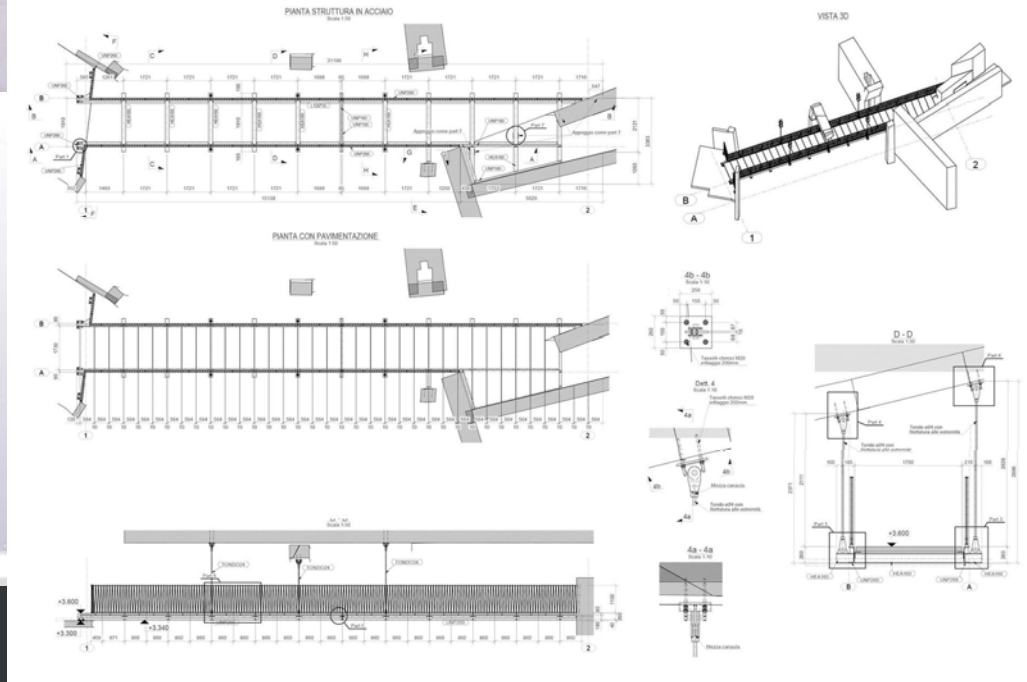
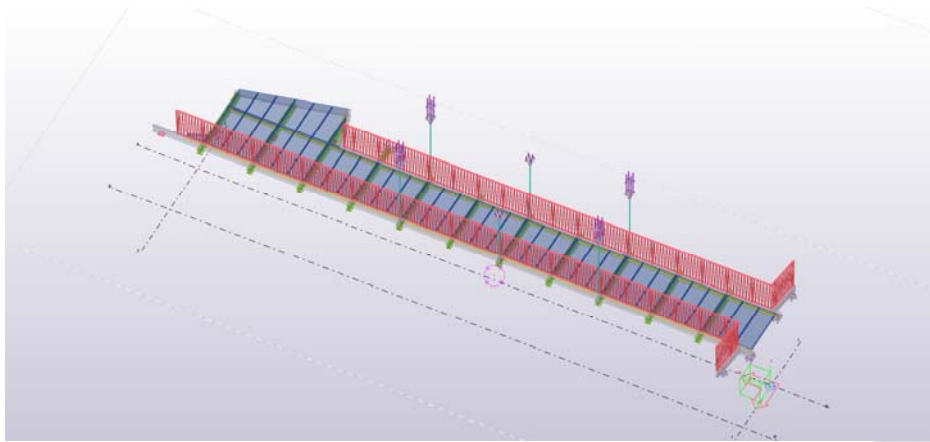
The image shows a screenshot of the Point Cloud Manager web interface. At the top, it says "Point Cloud Manager" with a heart icon (5) and a share icon (3). Below that is a blue banner with the Trimble logo and a large white plus sign inside a blue circle. To the right of the banner, it says "Point Cloud models: commerc". Below the banner is a navigation bar with the Trimble logo, "USA", and "Tekla Online". The main navigation menu includes "SOLUTIONS", "PRODUCTS", "REFERENCES", "SERVICES", "ABOUT", and "CONTACT". Below the navigation bar, there is a breadcrumb trail: "HOME > MONDAY MINUTES RECENT TEKLA STEEL DEVELOPMENTS > POINT CLOUDS TEKLA STRUCTURES 2018". The main content area is titled "Point Clouds in Tekla Structures 2018" and contains the following text: "You can now insert point clouds into Tekla Structures 2018. In construction, the point clouds are mainly used in renovation projects to define the building or structure that is to be renovated. They can also be used to get the exact position of existing machinery, pipework or landscape that needs to be taken into consideration on the site. You can also use them for checking execution by importing them as build points into a model to be compared to the design." Below the text is a video player showing a 3D model of a steel structure with a play button in the center.

Point Cloud Examples



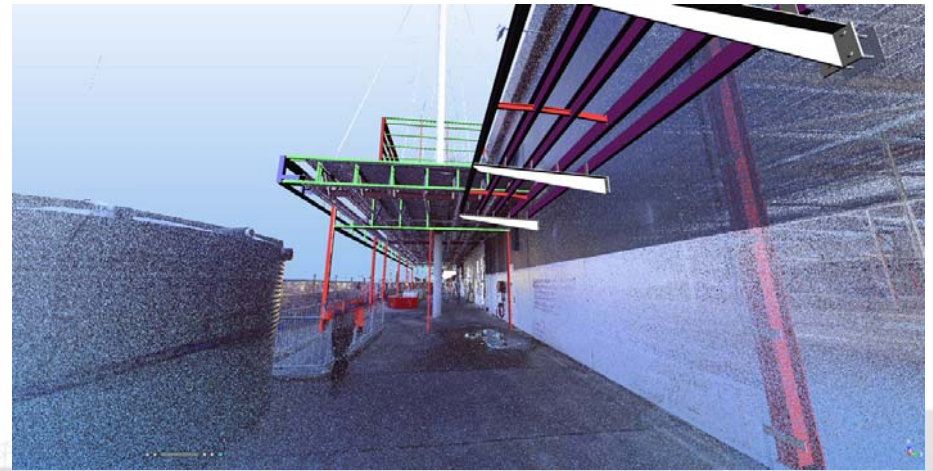
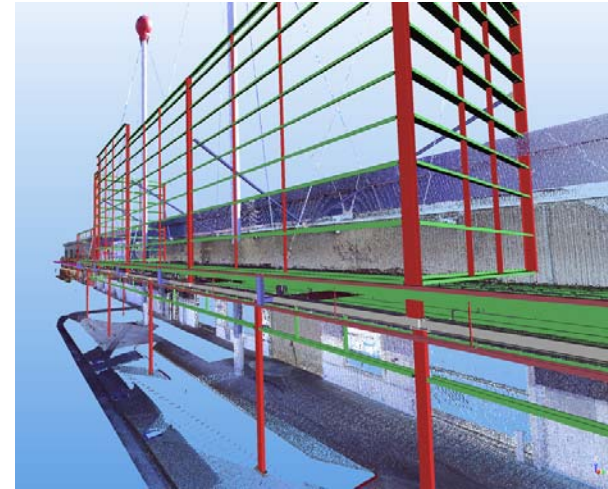
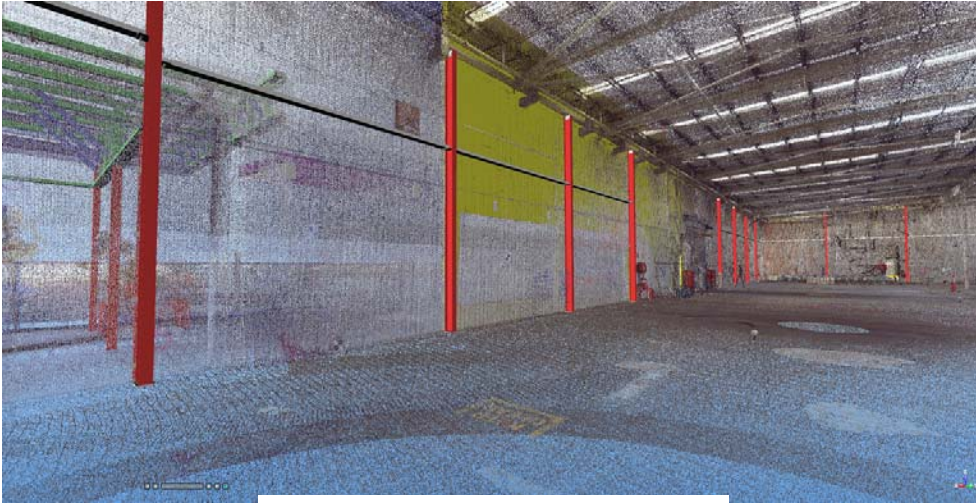
MDR
engineering

2019



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Point Cloud Examples

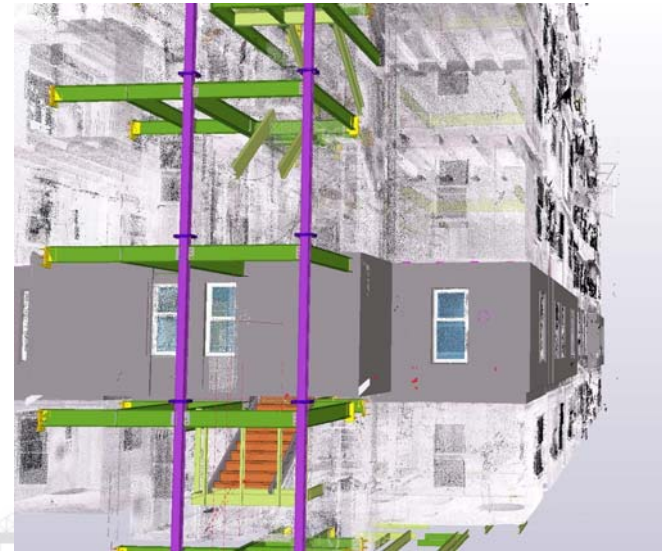
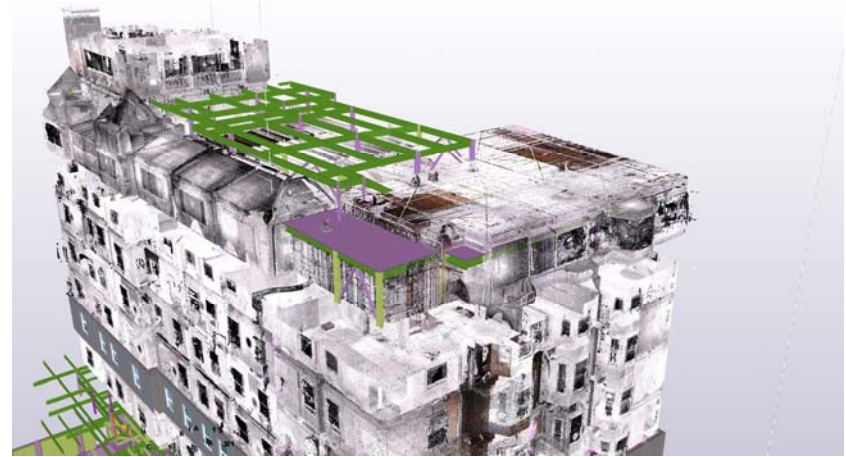


BIMTek

Reality Capture
BIM Modelling
Site Layout

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Point Cloud Examples



ABSI - Accelerated Building Solutions, Inc.

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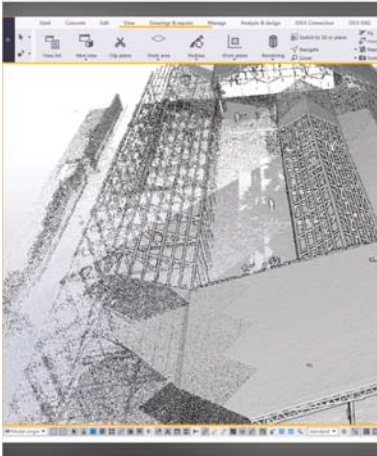
Point Cloud Examples

Stephen O'Donnell • 1st
Advanced Architectural & Structural
6mo • Edited

www.od3.co.uk
One of our latest projects using point cloud. The power of Tekla Structures software.

Contact us today for more information.

#teklastructures
#od3bim

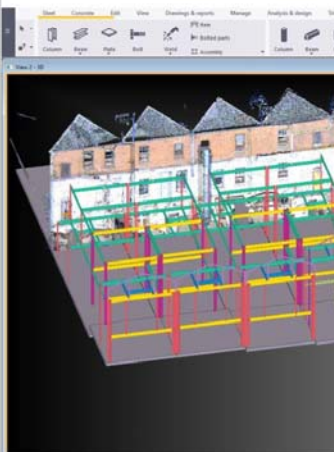


Emmanuel Metayer •
Structural Designer - BIM
7mo • Edited

So excited to get for the first time a point cloud of a building. #Dynamicsteel

Gary Taylor, Ayhan Ibrahimovskiy, and I used #BuildingPointAustralia to create a point cloud for #Realworks software.

In the context of existing buildings, a point cloud is extremely helpful. So now, we can



Dave Litwin •
Owner at Litwin
2mo

One area of our latest project is to locate anchor bolts, check dimensions and elevations. A point cloud model right on top of the building. #3dlaserscanning #3dvisualisation #asbuilt



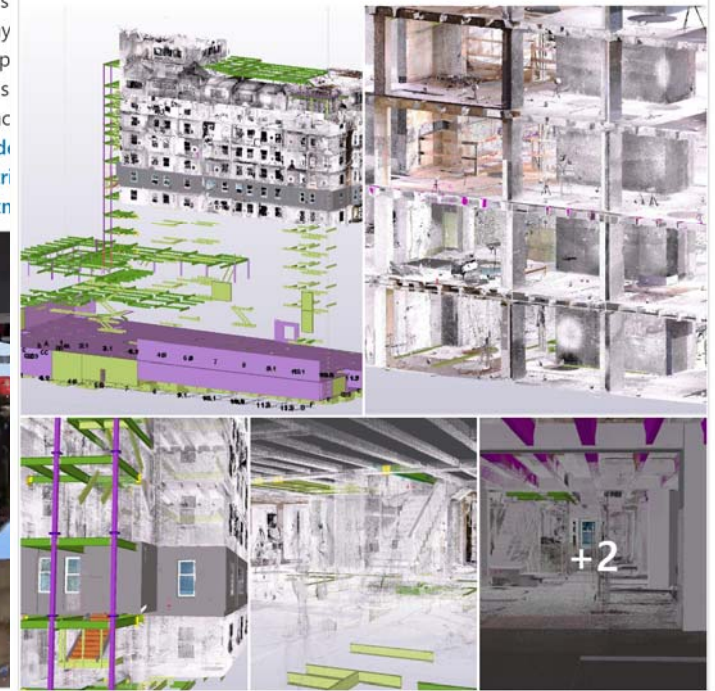
Ian Brightman •
3D Scanning | 3D Laser
2mo

Here is a Fly Through of the Refurbishment here in Brisbane. I scanned this last Monday and currently delivered for approval. A good laser scan survey provides unrivalled accuracy. #steelwork #steel #steelwork #teklastructures #faro #tr #3dvisualisation #asbuilt



Eddie Campbell • 1st
Chief Operating Officer at ABSI
4mo

The most extensive coordination effort we've had with a point cloud. The structural model, architectural model and point cloud transposed here are for the retrofit of a concrete structure from 1926. It's so cool to watch this all come to fruition. After 15 years of preaching the possibilities we are finally watching it all catch in our industry. Can't stop, won't stop.



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WELDING



Why model accurate welds?

- CNC marking

- Robotic welding

- Robotic assembly & welding

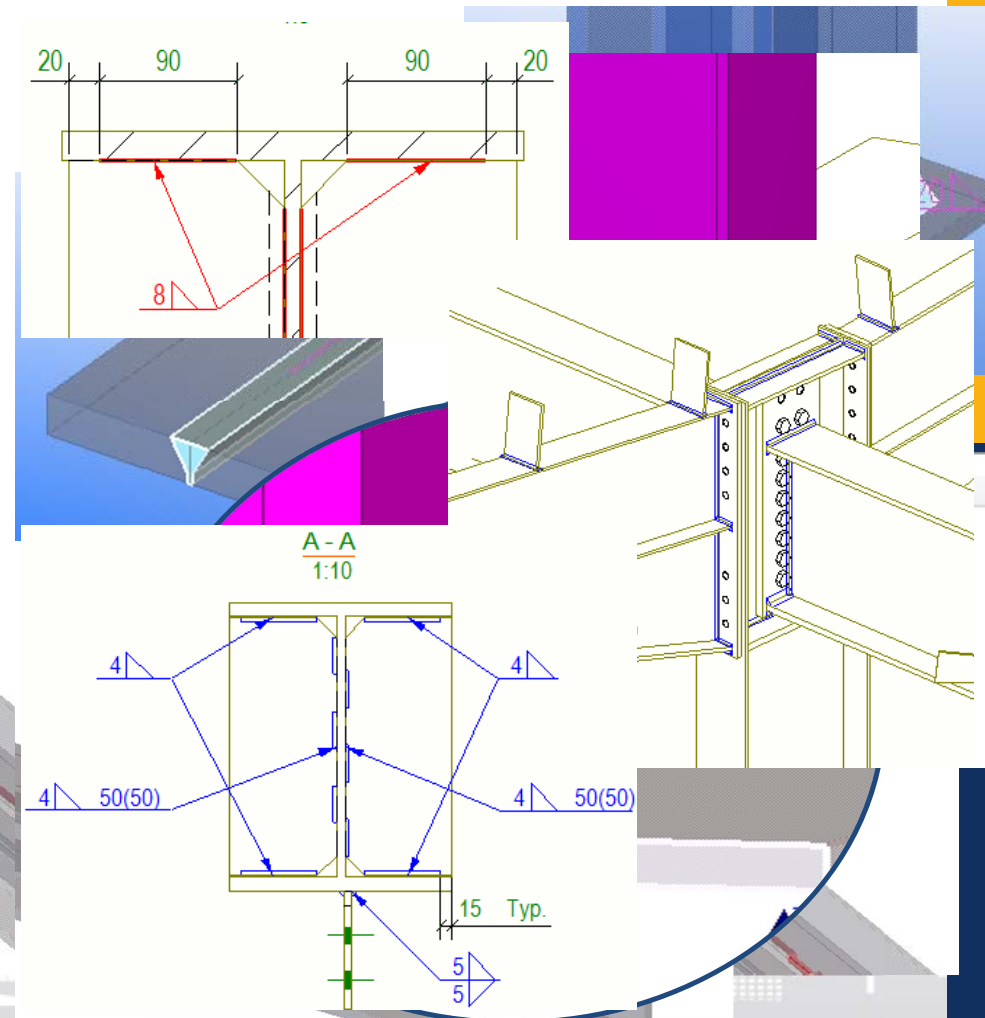
Improve productivity through advanced production automation

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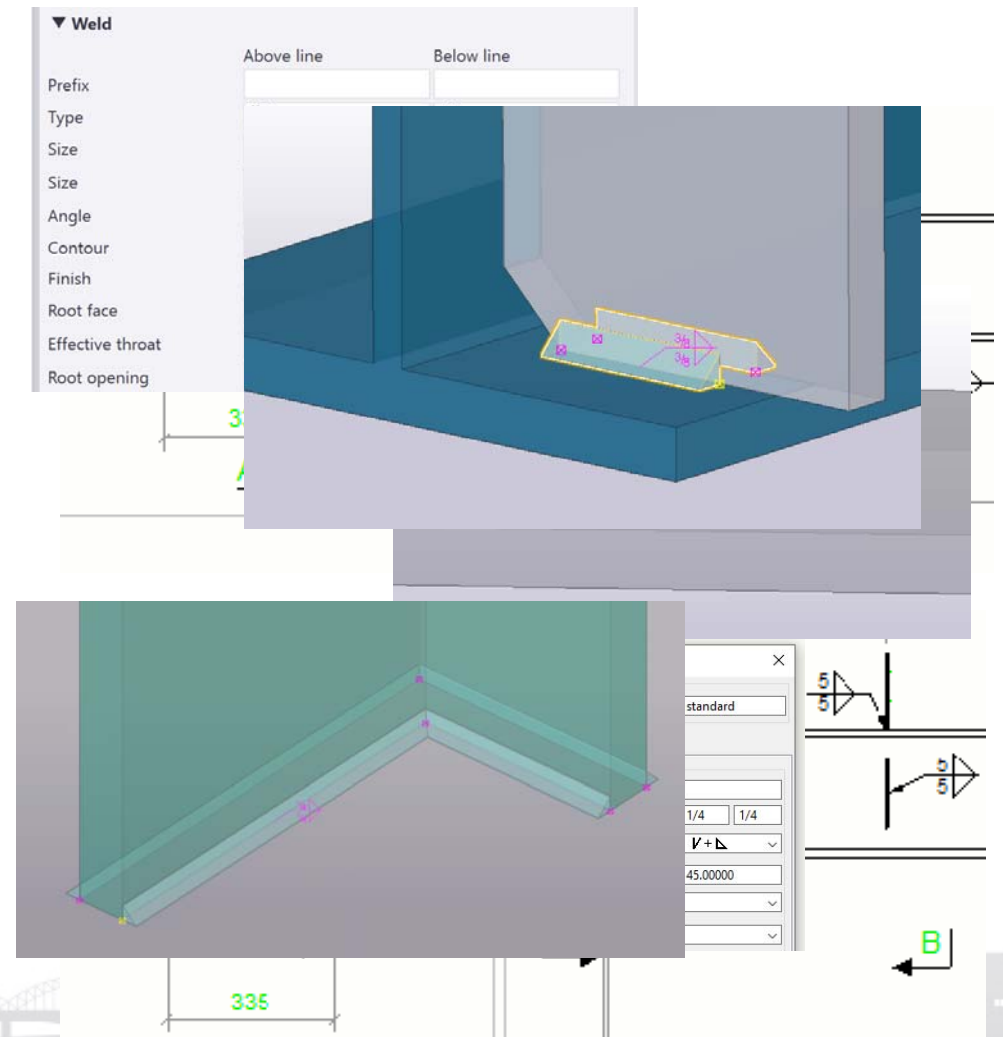
Weld development

- Visualize weld solids (19)
- Weld solids & automatic weld preparations (20)
- Improved intermittent and staggered welds (21)
- Show weld solids and paths in drawings (2016)



Weld development

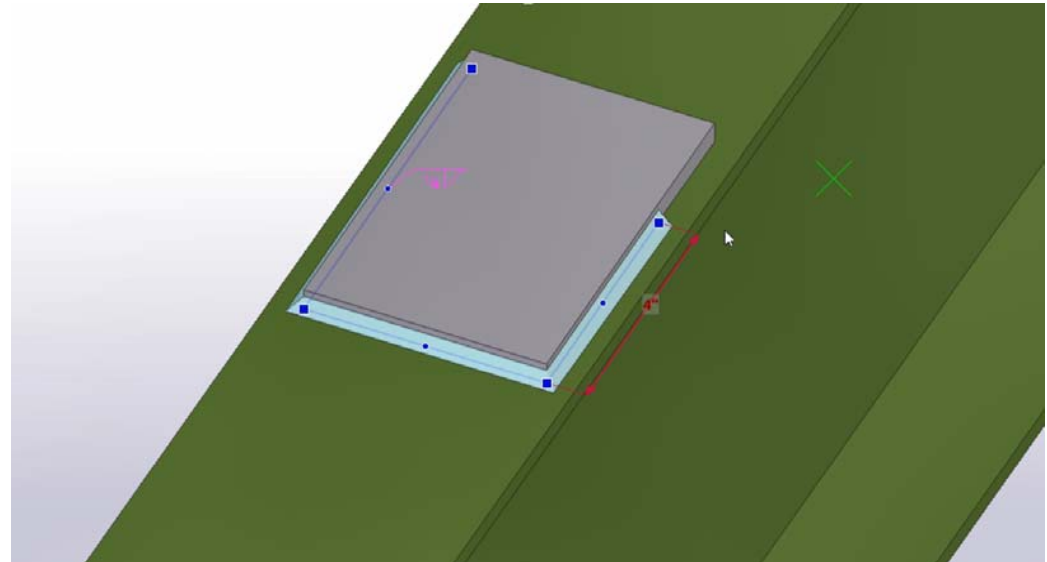
- Weld mark placing improved (2017i)
- Compound weld - sizes, solids, & preparations (2018)
- Polygon weld - double sided welds (2018)



Weld development

Direct modification of polygon weld path

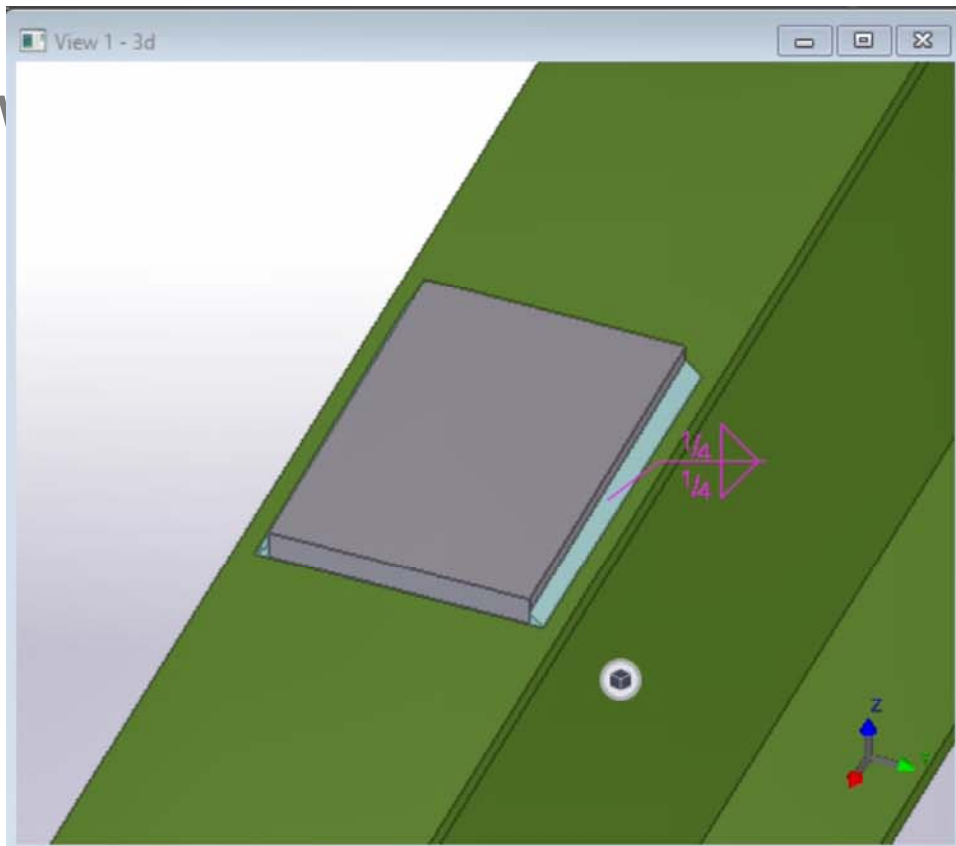
- Add & remove points
- Add points to ends
- Easily move points
- Adjust lengths



Note: Limited to single sided polygon welds

Efficient modelling of complex and special welds

Weld development



Weld (1 selected)

Bevel BS

Weld (1 selected)

Common attributes

Weld

	Above line	Below line
Prefix		
Type	Fillet	Fillet
Size	0"1/2	0"1/2
Angle	0.00000	0.00000
Contour	None	None
Finish	None	None
Root face	0°	0°
Effective throat	0°	0°
Root opening	0°	0°
# of incr.	0	0
Length	0°	0°
Pitch	0°	0°

Modify

Select All | None

Electrode classification

Electrode strength 0°

Electrode coefficient 0°

Process type

COMPLEX GEOMETRY – BENT PARTS



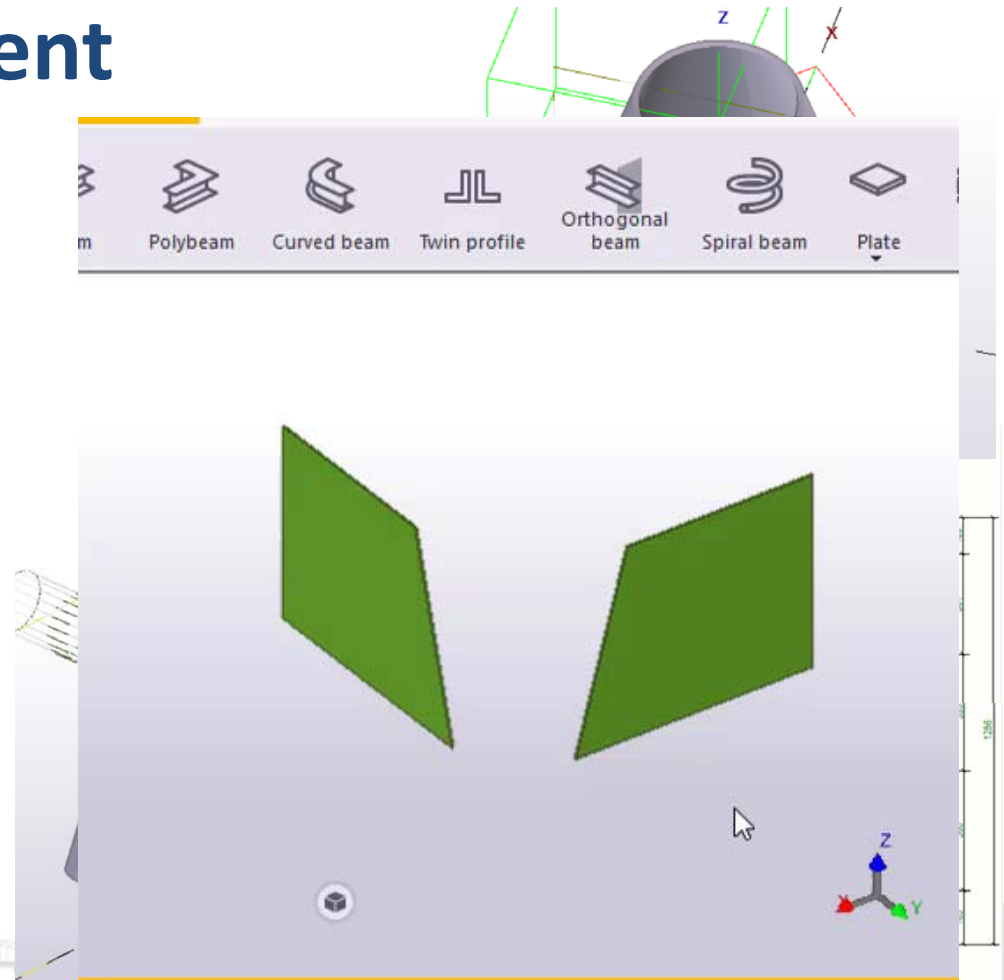
Bent plate development

New conical bend

- Conical bend with two different radii
- Unfold in drawings & CNC

Model more

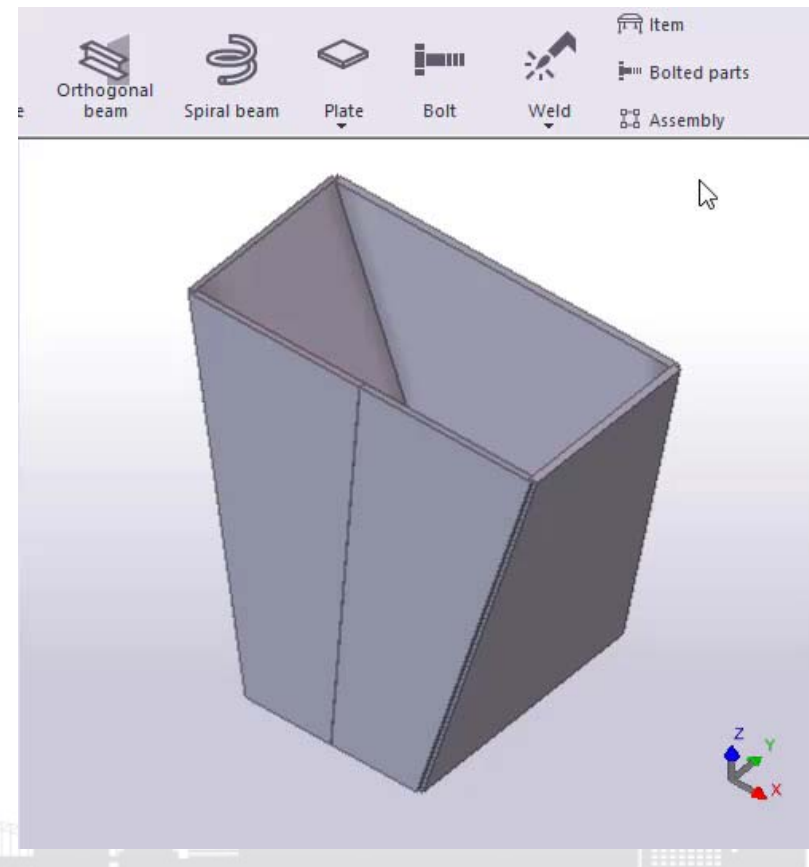
- Transition sections
- Cones



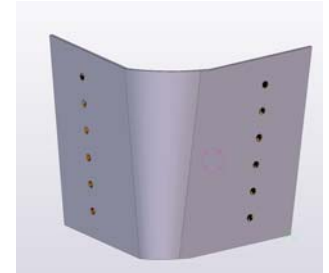
Bent plate development

Easier modeling and creation

- Create cylindrical bends even when plates clash
- Specify radius before creation
- Change connection method on the fly – By parts / By faces



Bent plate development

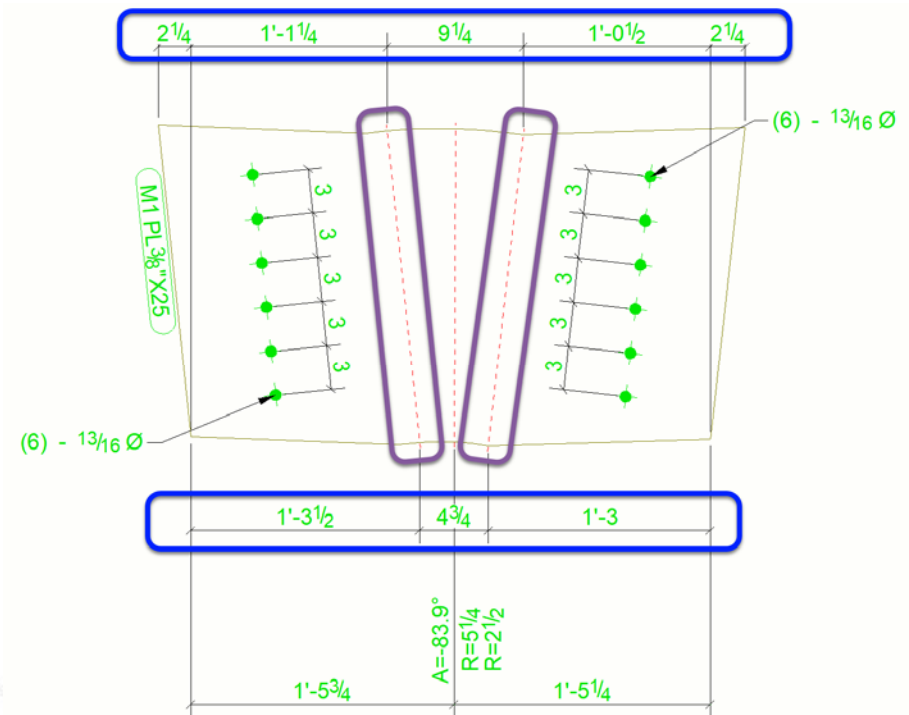


Improved fabrication drawings

- Show bend zone boundary lines
- Create bend zone dimensions

XS_DRAW_BENDING_END_LINES_IN_UNFOLDING
XS_DRAW_BENDING_END_LINE_DIMENSIONS_IN_UNFOLDING

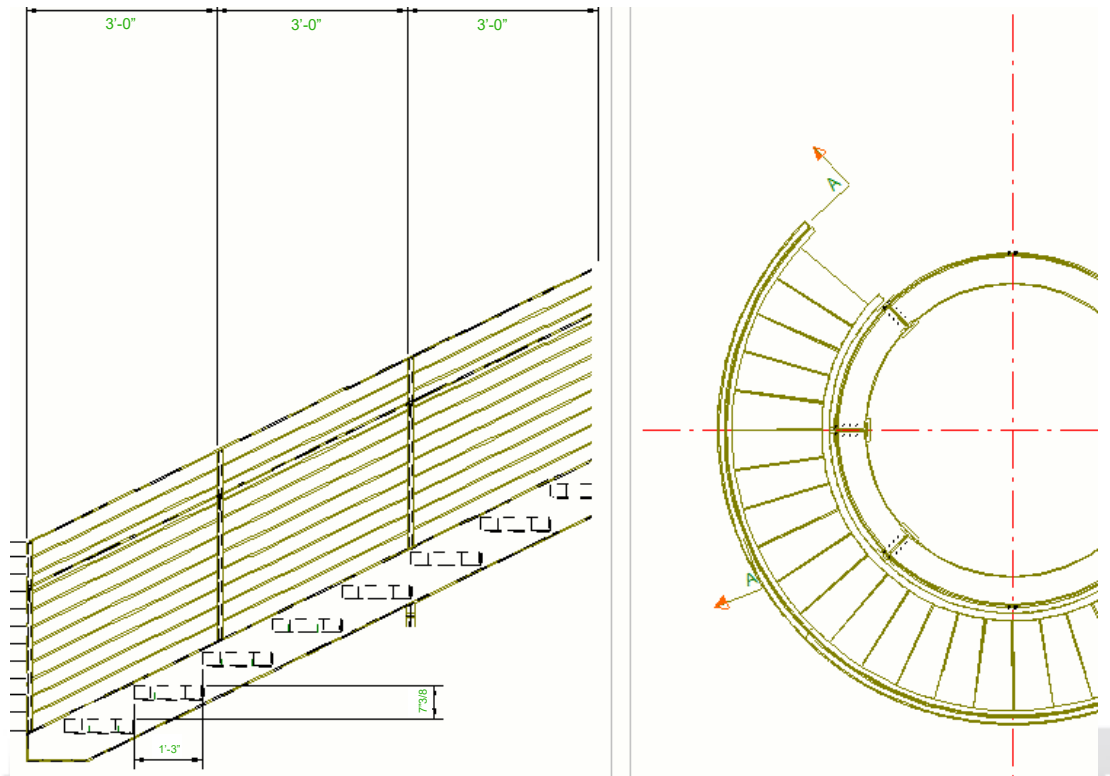
TRUE
TRUE



Curved section views

Curved section views

- Create unfolded views of spiral stair assemblies
- Works now both for spiral beam and cylindrical section of bent plates



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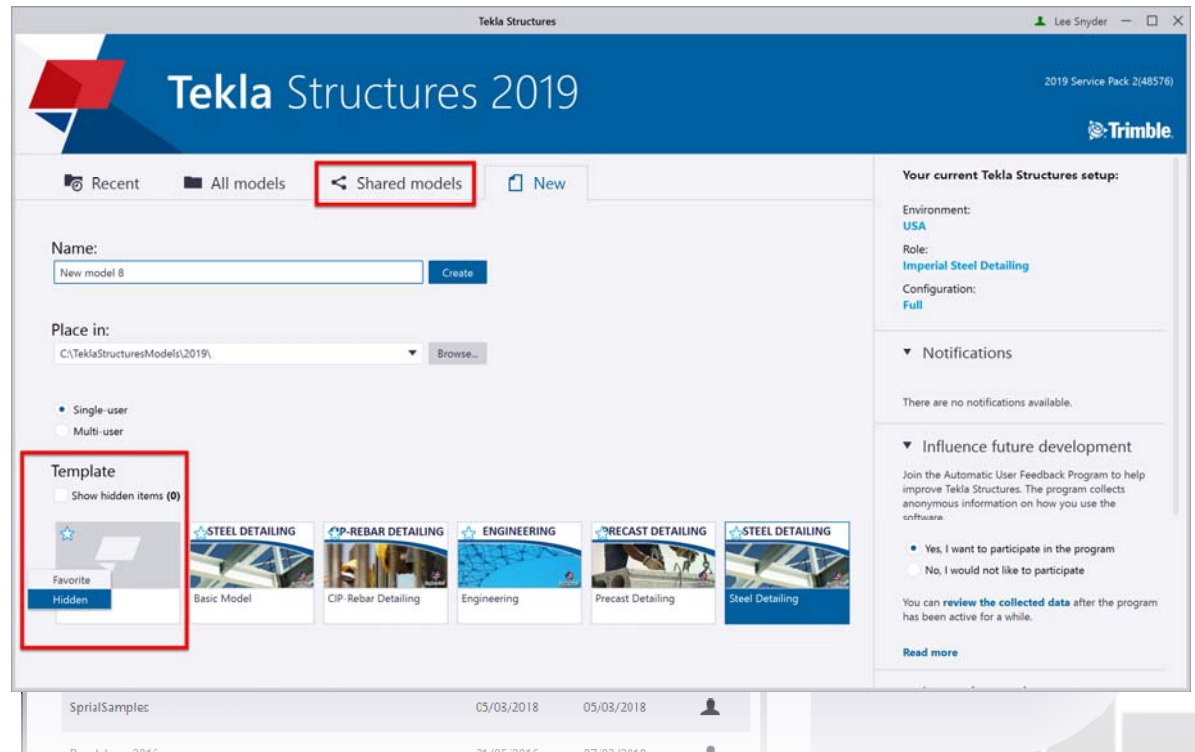
USABILITY ENHANCEMENTS



Improvements based on user feedback

Start screen

- Improved layout
- Hide unused templates
- Clearly see the version

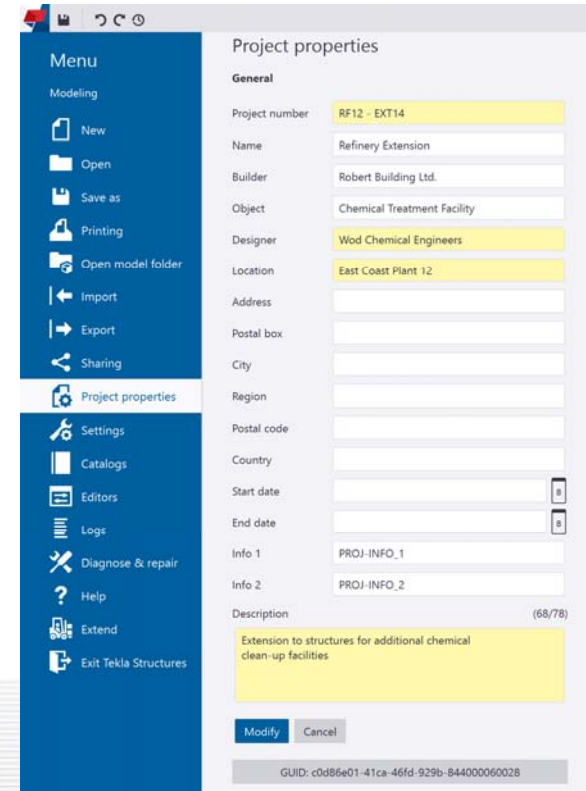


Improvements based on user feedback

Project properties

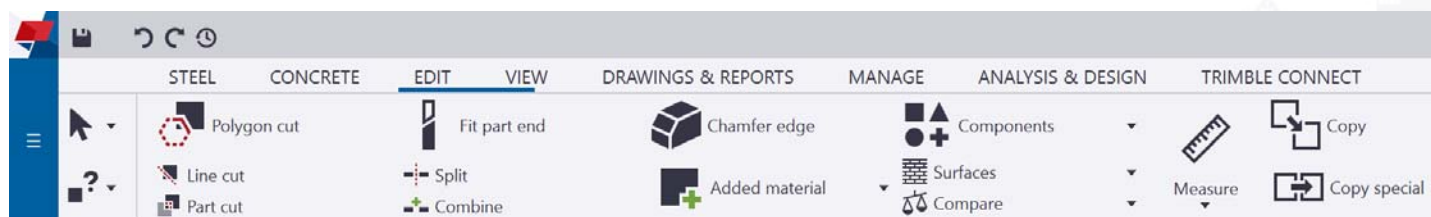
- Directly edit just like the property pane
- Clear indications of changes

Simple and consistent usability



Improvements based on user feedback

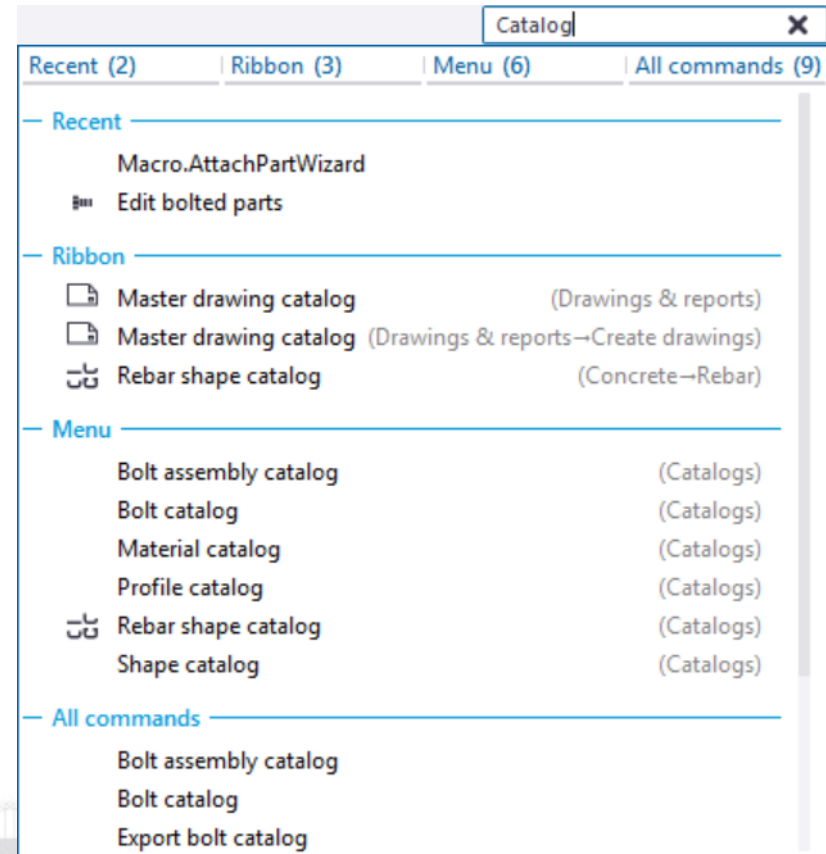
- Ribbons
 - Higher contrast for better visibility, reduces eye strain
 - Vector icons scale for sharp images at any resolution



Improvements based on user feedback

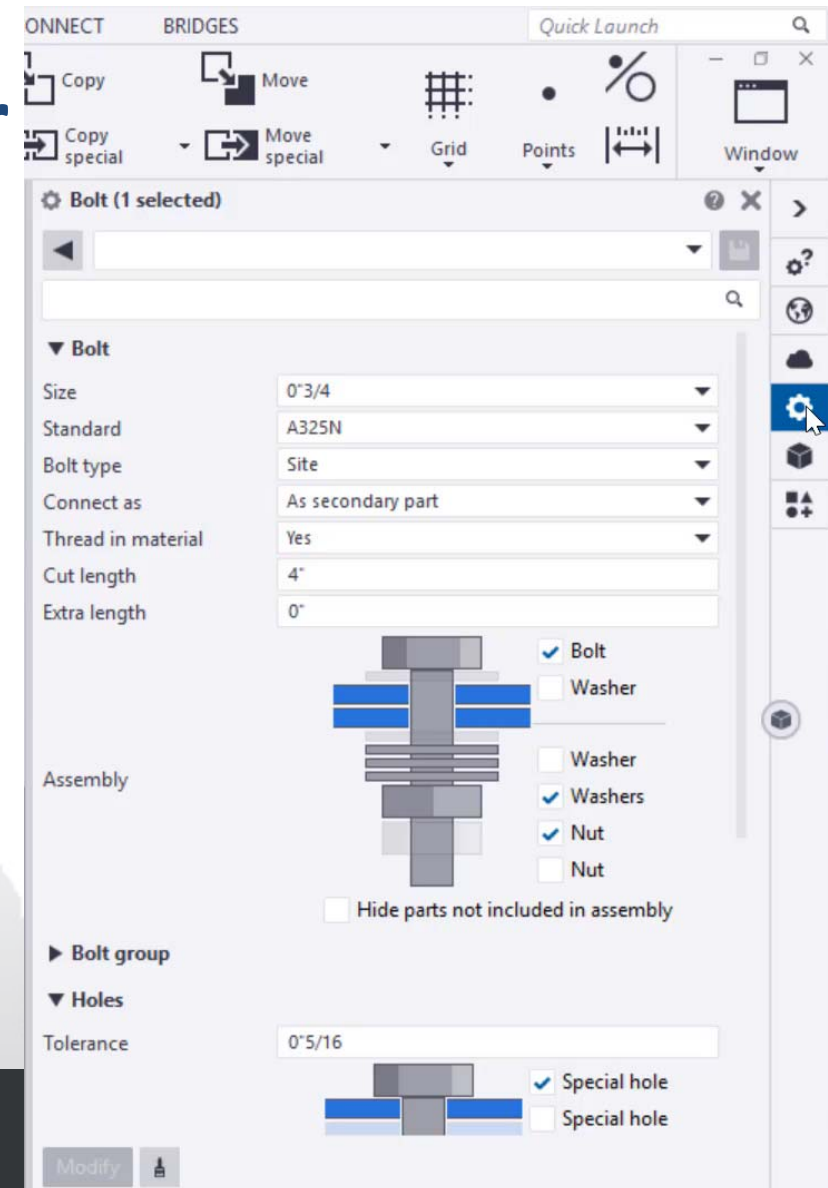
Easily find commands and tools to improve your learning and productivity

- Quick launch
 - Recent items list
 - Improved search and navigation



Improvements based on user

- Side pane
 - Keep the UI simple and focused on what you are doing for improved productivity
- New single pane option
 - Display only a single side pane at once
 - Keep the side pane you are working with large and visible
 - Minimize clutter for improved productivity



Improvements based on user feedback

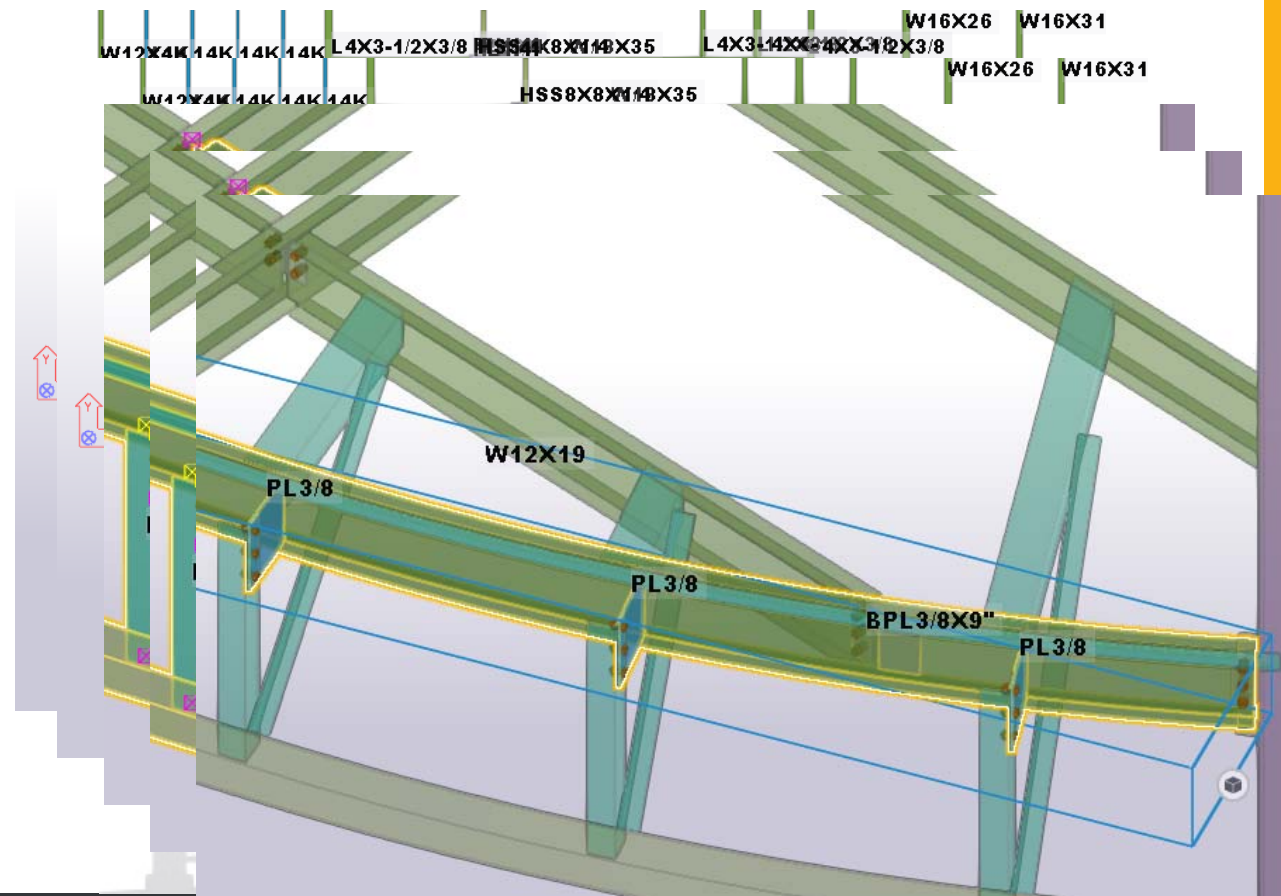
Model labels

- Improved checking in the model

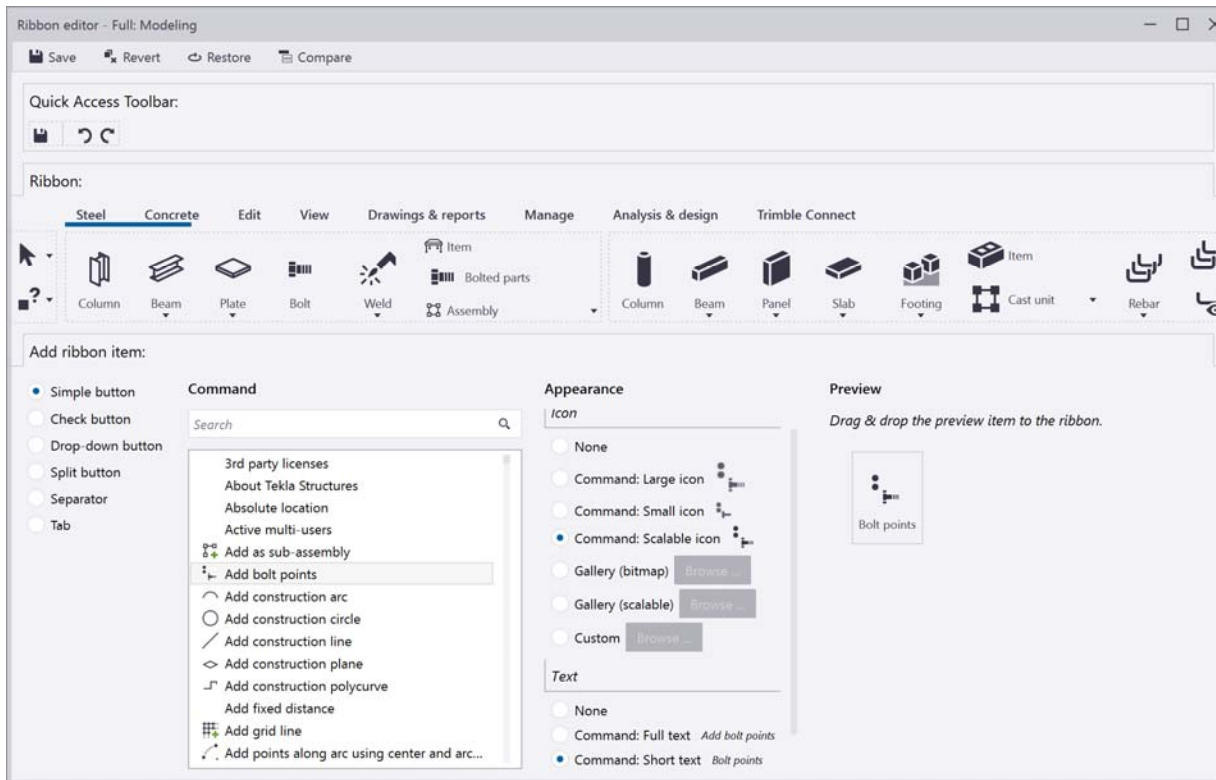
Showing "Profile"

- for all
- for main
- for selected main
- for all selected

Check as you model to deliver faster



Distribute customized tabs using a firm folder



RELATED HELP TOPICS

- Tekla Structures setup guidelines for administrators
- Environment, company, and project settings for administrators
- Distribute customized ribbons using a firm or environment folder
- Distribute customized property pane layouts using a project, firm, or environment folder
- Distribute customized toolbars using a project, firm, or environment folder
- Customize the material catalog
- Customize the profile catalog
- Customize the shape catalog
- Customize the bolt catalog
- Customize the Applications & components catalog

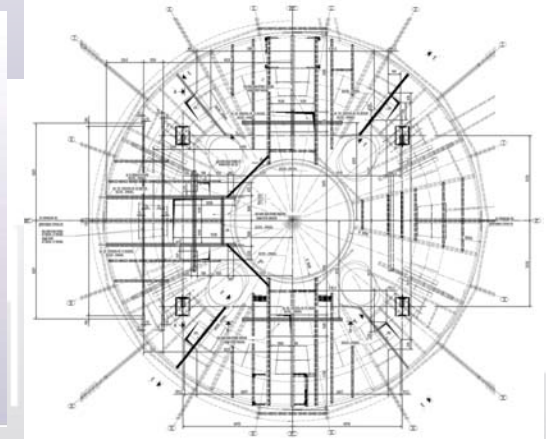
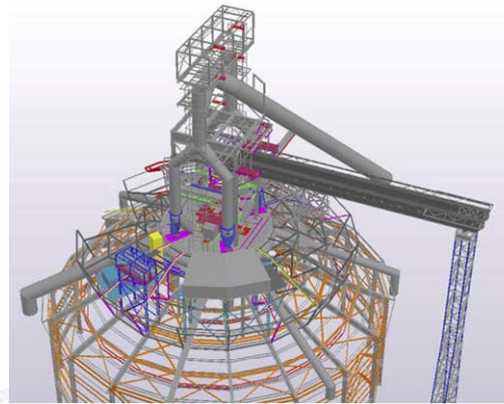
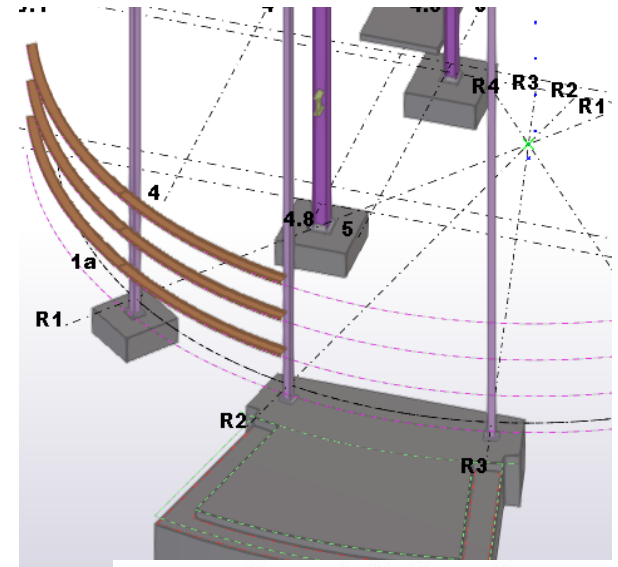
MODEL PRODUCTIVITY



Project Layout Improvements

Take on more complex jobs with ease and confidence

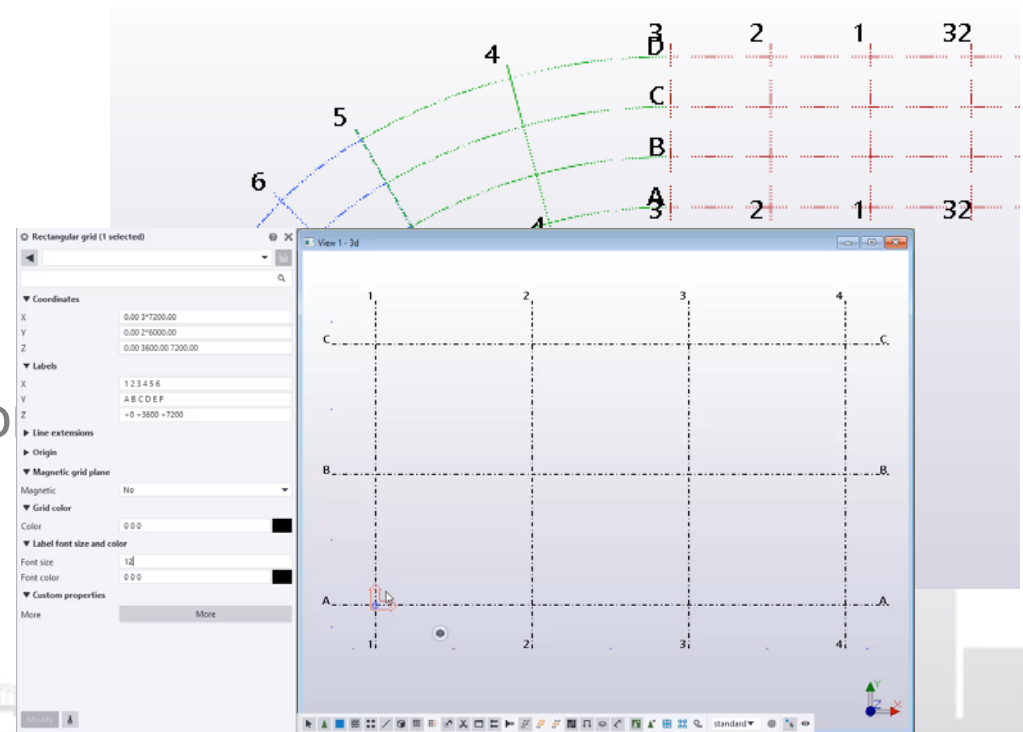
- Layout complex project grids with the all new Radial grid
- Easily add supplemental geometry with the new Construction Arc and Polycurve



Project Layout Improvements

Grids

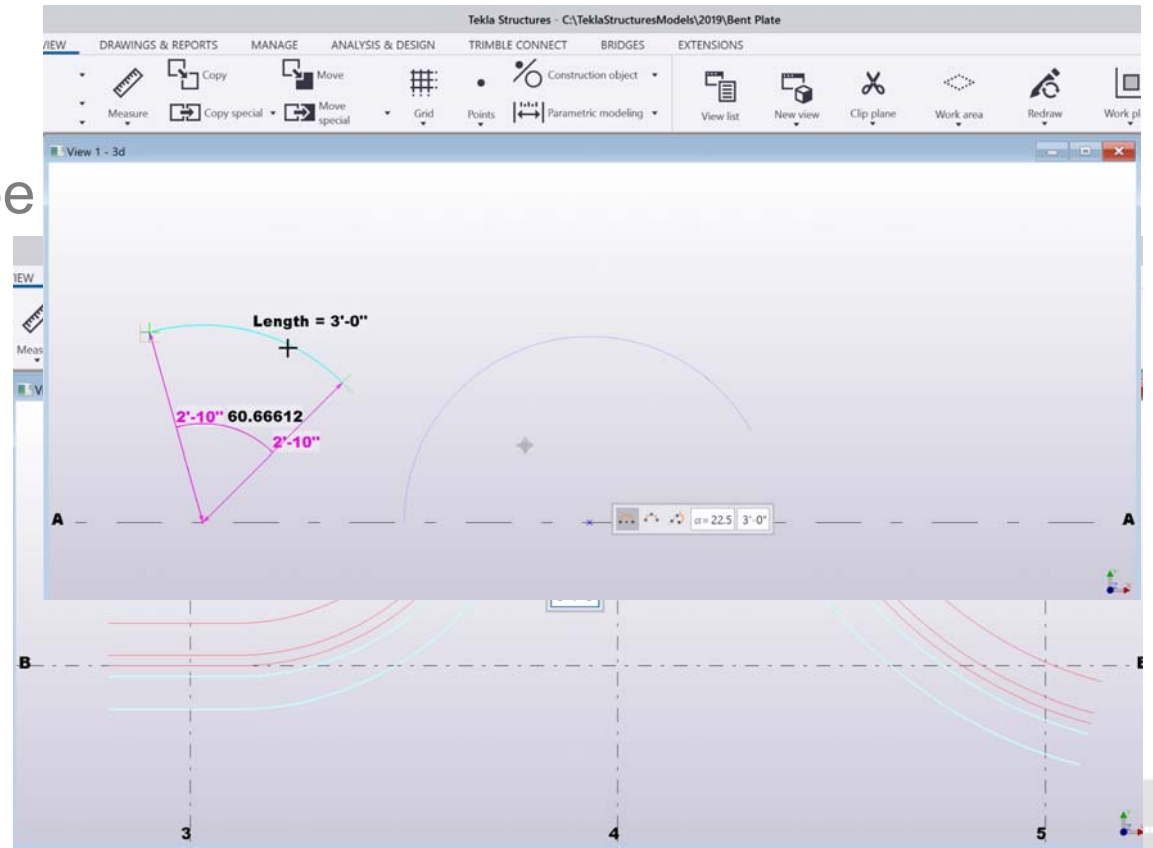
- All new radial grid
 - True curved grid planes
- Grid property pane
 - Control grid color and fo
 - Grid properties update with basic model edits



Project Layout Improvements

Construction Geometry

- Control colors and line type
- New arc and polycurve
- New copy with offset
- Easy editing
 - Direct modification
 - Drag and drop
 - Chamfer polycurve corners



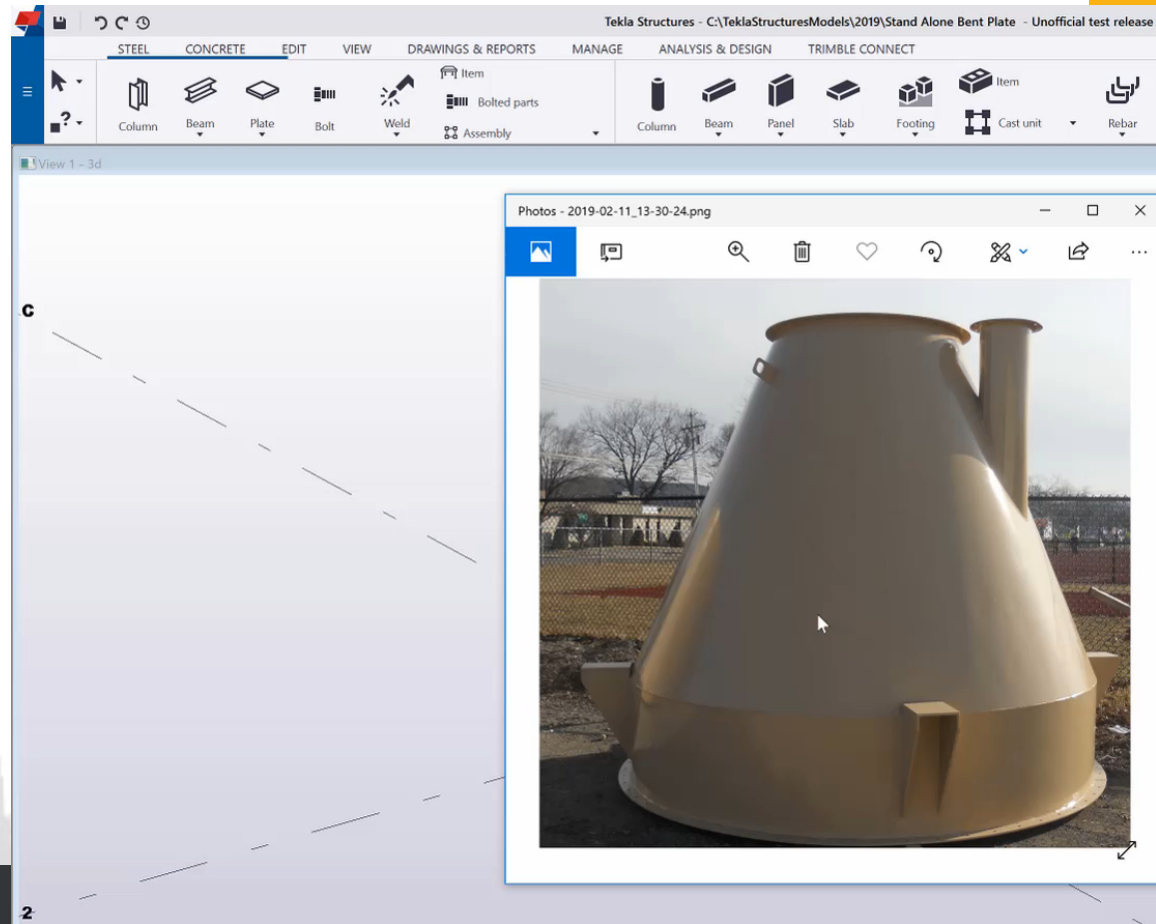
Complex Plate Work

New stand alone bends

- Easily model rolled plate sections of cones and pipes
- Great for industrial projects

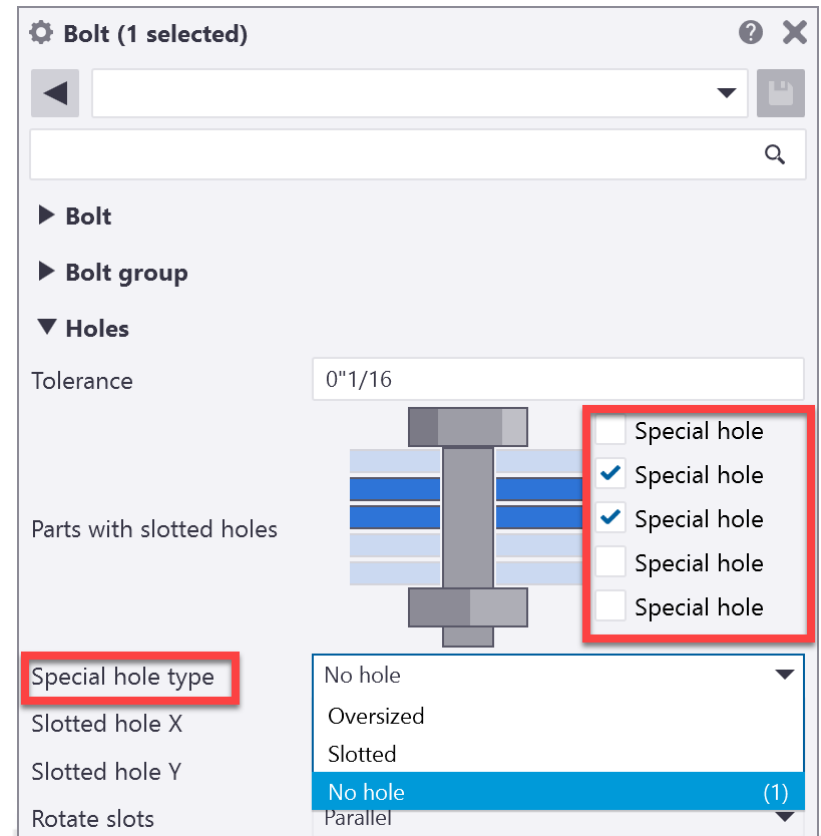
Drawings & CNC

- Associativity now works in unfolded drawings
- Bend lines improved in NC



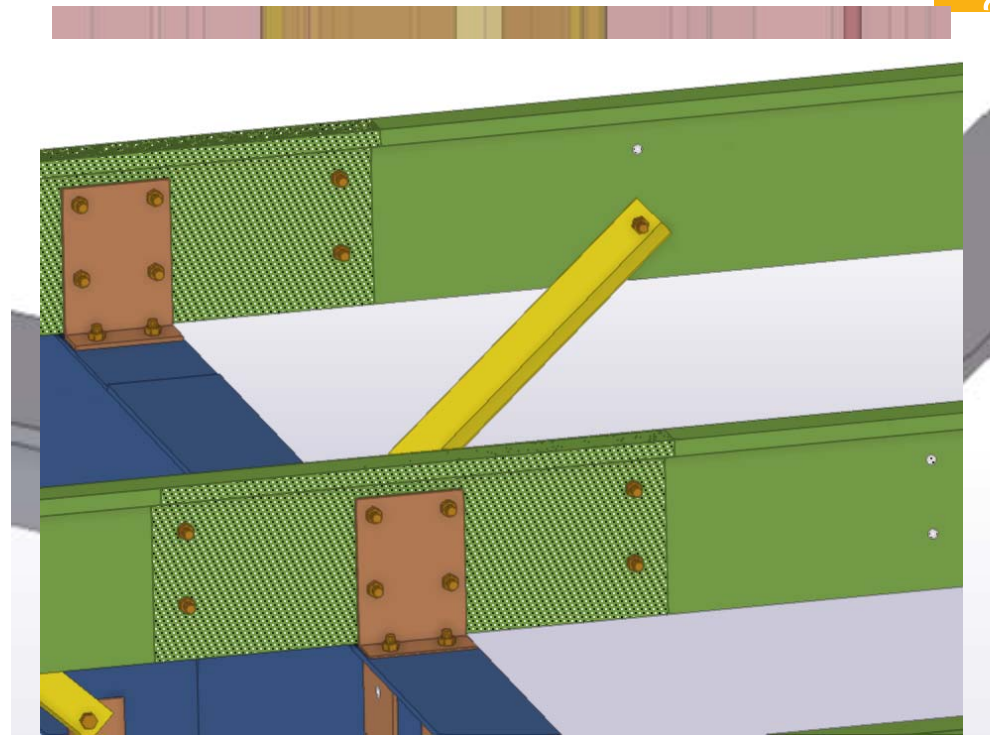
Bolt Improvements

- New 'No hole' option
 - Skip hole creation in selected layer
 - No hole in numbering, drawings, or CNC
- Model for a wider variety of project activities and fasteners
 - Field & site work
 - Connecting to as-built
 - Sheeting & trim



Bolt Improvements

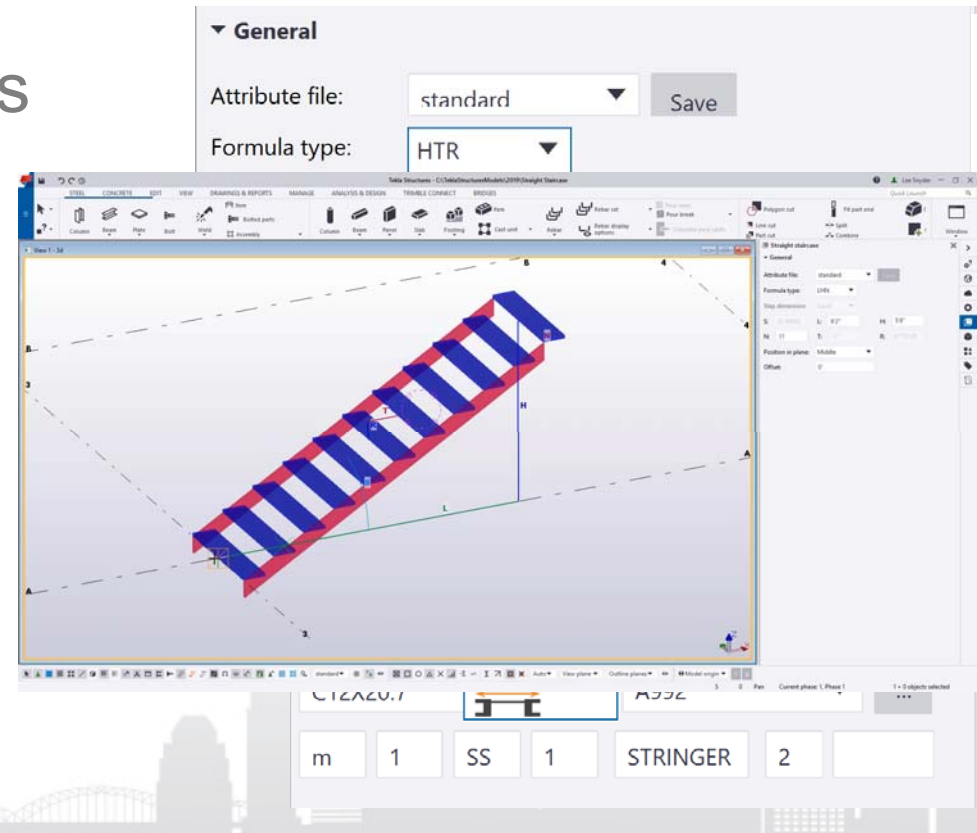
- Slightly skewed, twisted, or offset connections
 - Correct bolt lengths, correct dimensions in all parts, and error free CNC
- Connect to pre-punched or drilled parts
 - Pre-punched part shipping marks, drawings, and CNC are unaffected
 - Correct bolt lengths
- Screws, pop rivets, nails, and other self tapping or self drilling fasteners
 - Correct shipping marks
 - Accurate fastener quantities



New Straight Stair Component

All new component for stairs

- Property pane for options and confirmation
- Direct modification of key dimension
- Supports many calculation methods



Thank you!

QUESTIONS?

