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Since 2008 Applied CAx has guided companies to realize their investment in digital engineering tools.

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# Our support team

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**Our Next Femap Training Opportunity**
Sept 13th – Sept 16th, 2021
Live, In Person!  Portland, OR
AppliedCAx.com/Training

**CAE Support Review:**

As far as tech support is concerned, I have had fast and top-quality responses. The awesome thing is, I get a lot of information during the support communication, but I also receive the full concept and learn a lot. Even if the issue is very simple, I get a quick response. If someone asks me about buying Siemens products, I will surely recommend Applied CAx.

Srivatsa Pradeep, MSME
Project Consultant (Structures & FEA)
Hatch LTK Engineering Services

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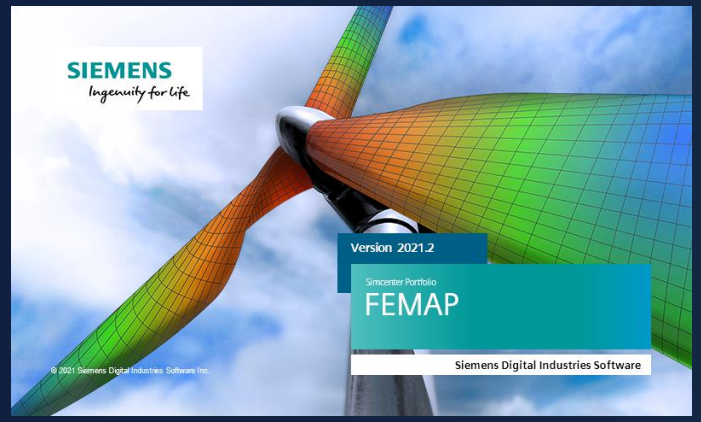


# **Simcenter Femap Best Practices:** Surface Modeling and Plate Meshing

*A Seminar for Simulation Engineers*

Adrian Jensen, PE, MBA – Senior Application Engineer, CAE

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# Seminar Outline

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## Femap v2021.2

- Setup
- Preferences

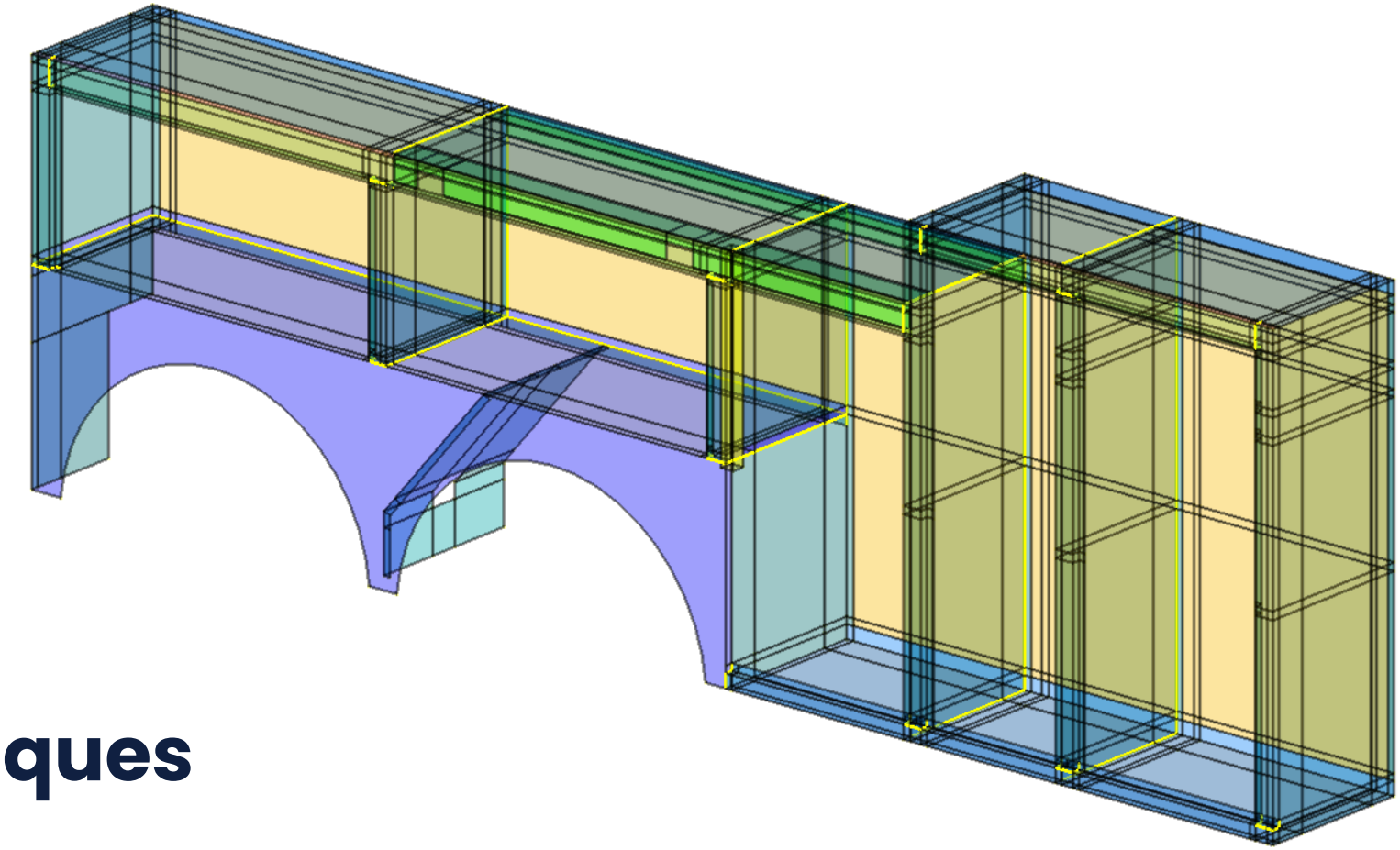
## Surface Modeling

- Geometry Preparation
- Midsurfacing Methods
- Body vs Sheet Solids
- Geometry Editing

## Plate Meshing

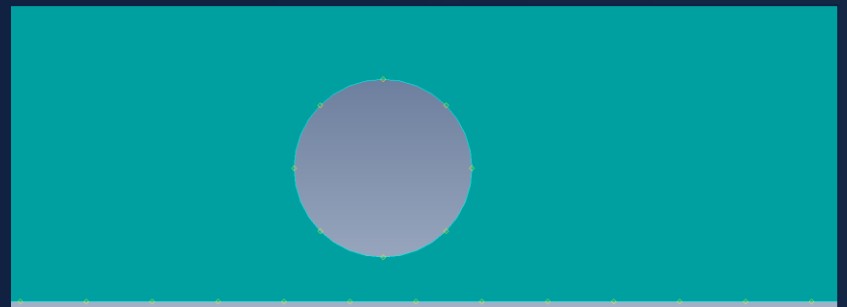
- Sizing Methods
- Mesh Quality
- Meshing Toolbox

## Visualization Techniques

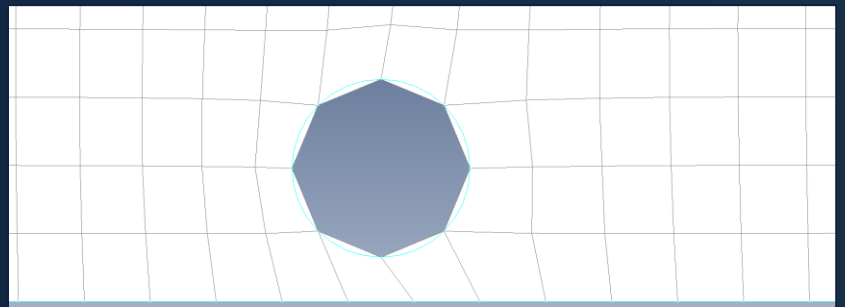


# Simcenter Femap v2021.2

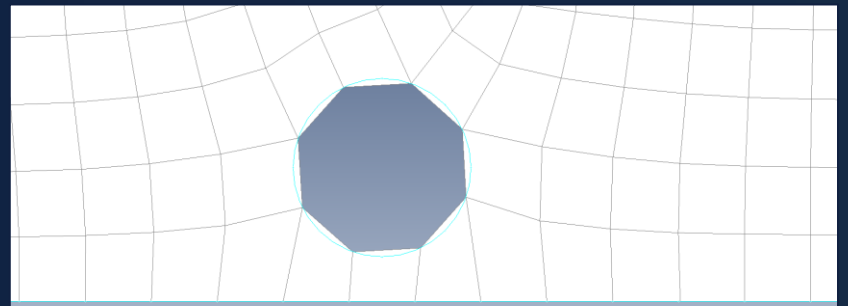
Remeshing technology from STAR-CCM+ facilitates the result is Femap's new "Body Mesher Technology"



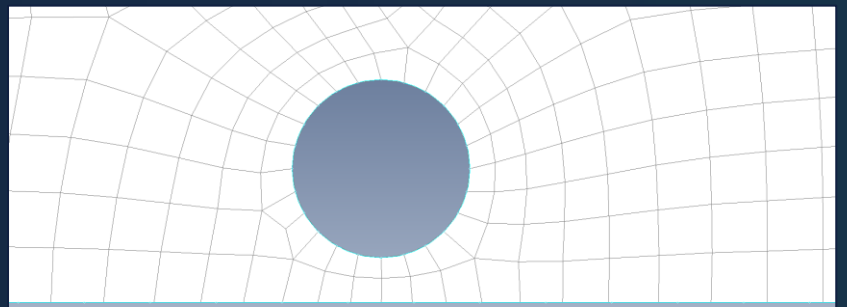
Traditional Enforced Mesh Locations



Forces Poorly Shaped Quads



Body Meshing Target Size Adjusts To Maximize Element Quality



Smaller Target Size on interior curves adjusts even more

# Simcenter Femap v2021.2

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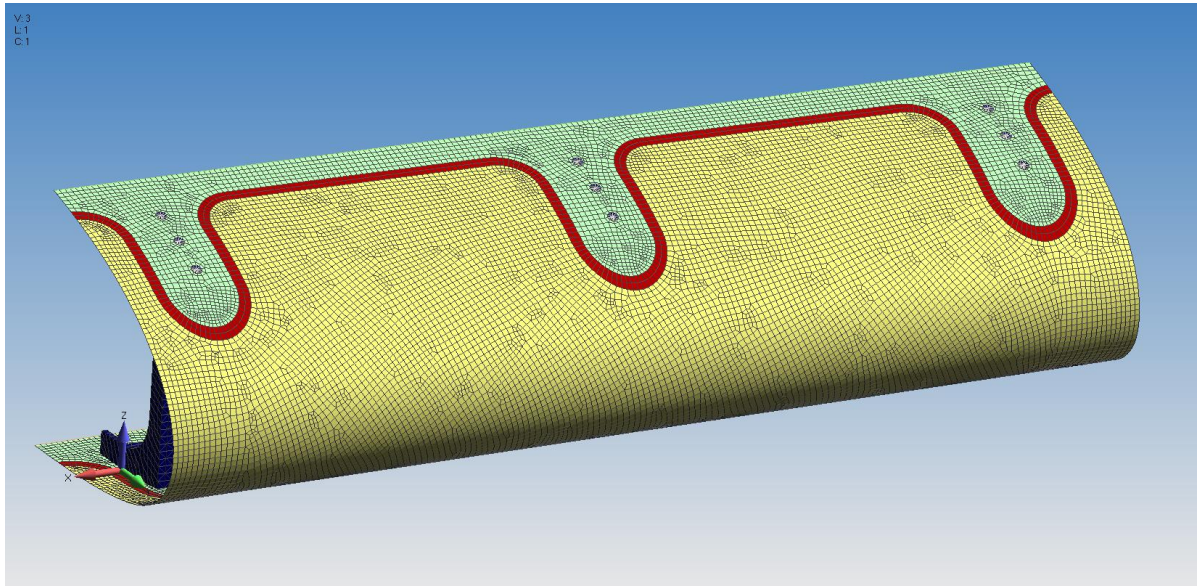
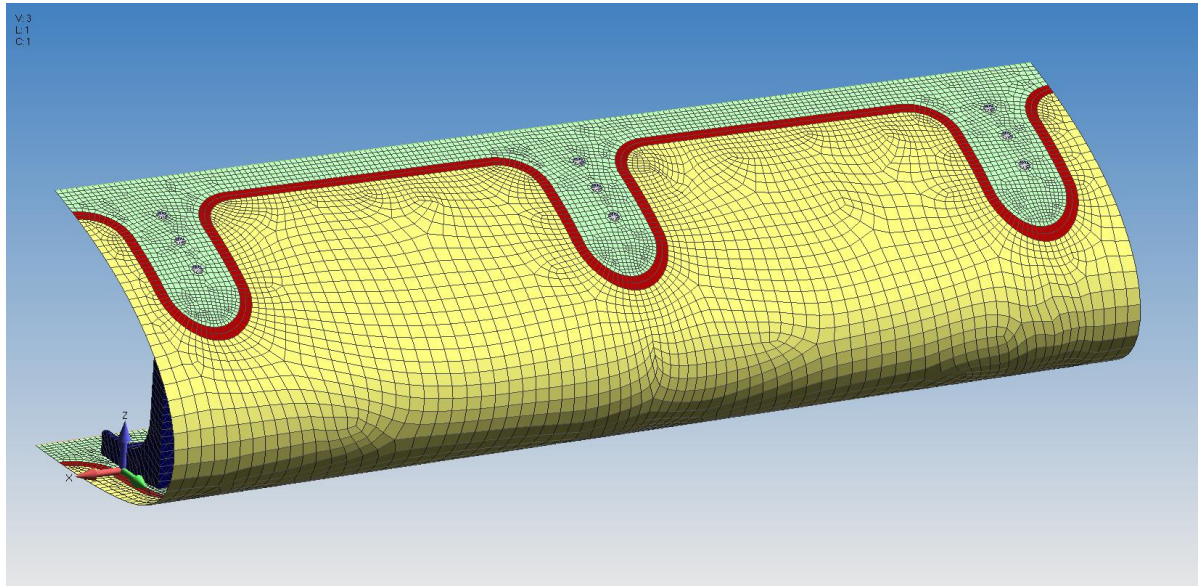
"Body Mesher Technology" can also be used on exiting mesh to refine or un-refine the model as needed.





# Geometry Preparation

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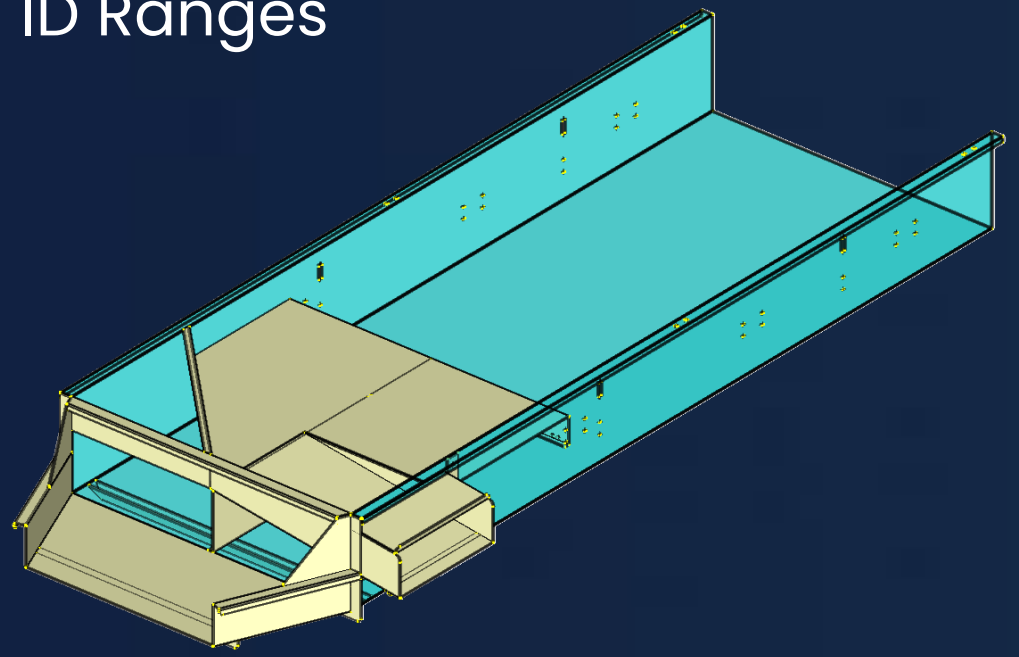
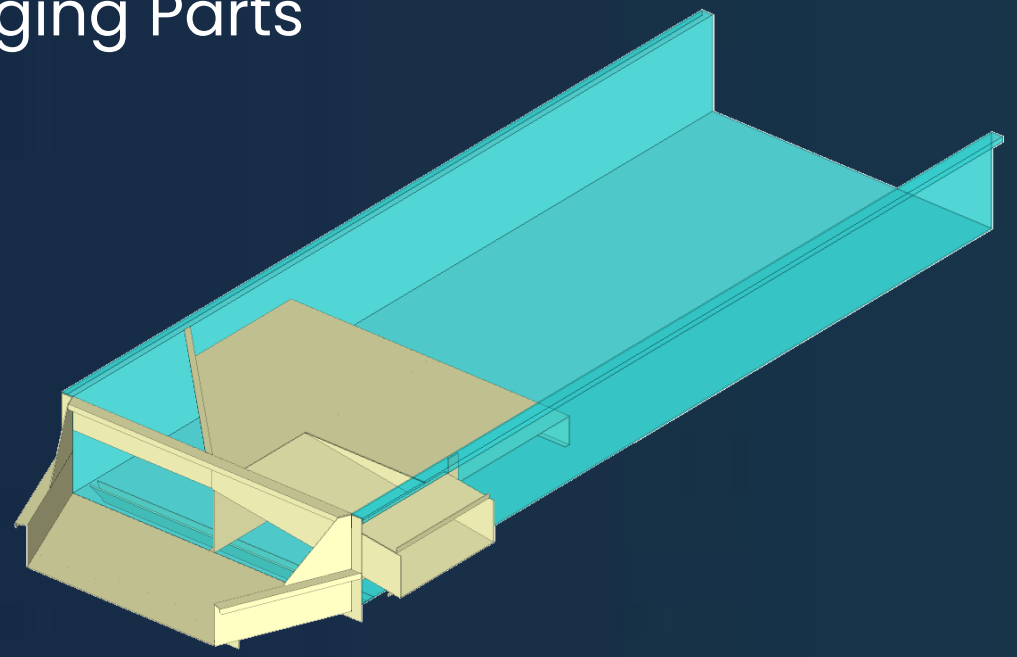
## Organization

- Slice and Dice
- Groups and/or Layers
- ID Ranges

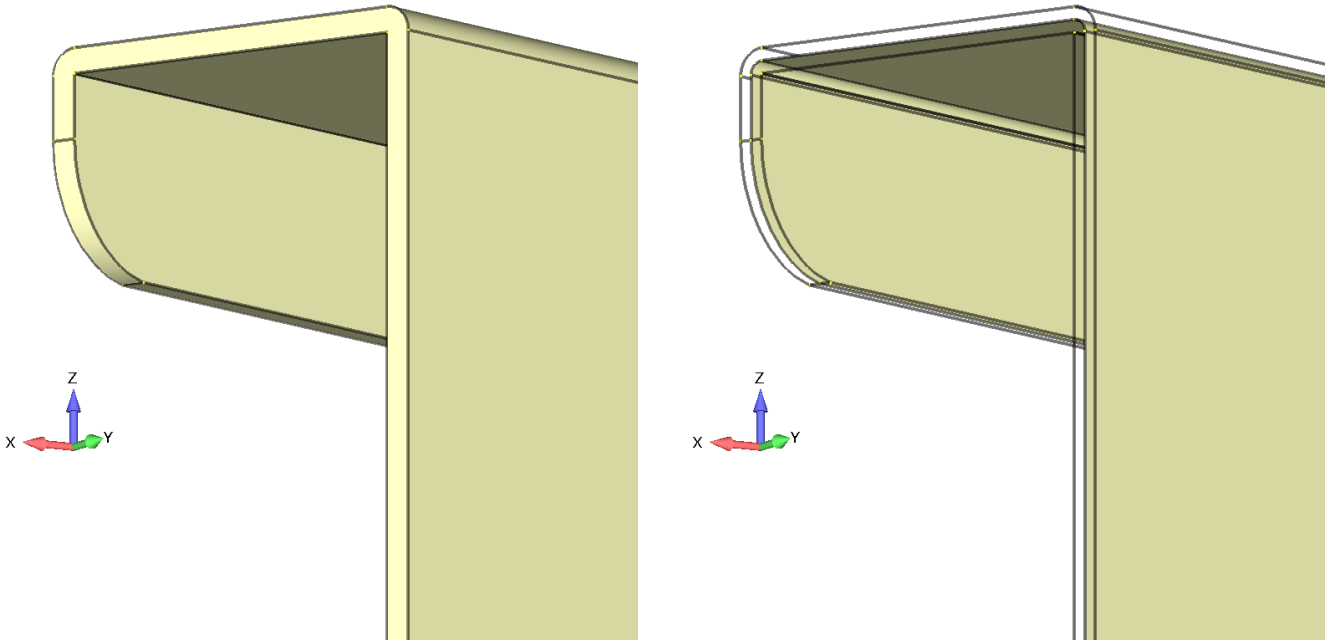


## Defeaturing

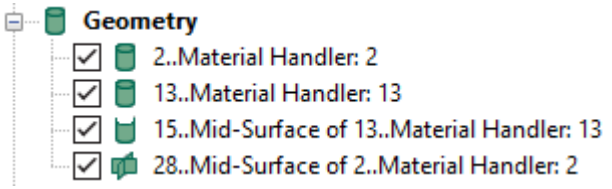
- Eliminating Holes
- Removing Fillets
- Merging Parts



# Creating “Sheet Solids”




- ‘*Automatic*’ or ‘*Offset Tangent*’
- Consider target thickness
- To combine surfaces or not…
- Assigning mesh properties



# Mesh Quality

This example is from our Femap and Nastran class. It is just a friendly reminder about the importance of mesh quality. The stress should be a uniform 100 psi but thanks to warping, you can get a range of values.

In panic to get a model built and running, it can be oh so easy to just “run and gun”; that is to say, get it meshed, loaded up and analyzed. Often it is only in the documentation stage where meshing irregularities become glaringly apparent.