CUSTOMER SUPPORT NOTE

Beam and Surface Fleshing

Note Number:	**CSN/LUSAS/1015**

This support note is issued as a guideline only.

LUSAS

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1. Introduction

Fleshing is a visualisation method that displays bar, beam, and surface elements using their actual cross-sectional shape and thickness, rather than as simple lines or surfaces. Fleshing is applied when:

- Lines and surfaces are meshed.
- Line and surface elements are activated.
- Lines are assigned geometric attributes with cross-sectional details.
- Surfaces are assigned geometric attributes defining their thickness.

The Help system provides detailed information on the available fleshing options. This support note explains, using images, how some of these options can be useful.

2. Using various fleshing options

The fleshing toolbar buttons can be used to turn fleshing on or off and to adjust its transparency. Each toolbar button offers several options, which are described below.

2.1 Reduced length option

The *Reduced length* option helps improve clarity when visualising connections between structural components, as shown in Figure 1. The reduced length can be adjusted via Layers tab > Attributes > Geometric tab > Settings.

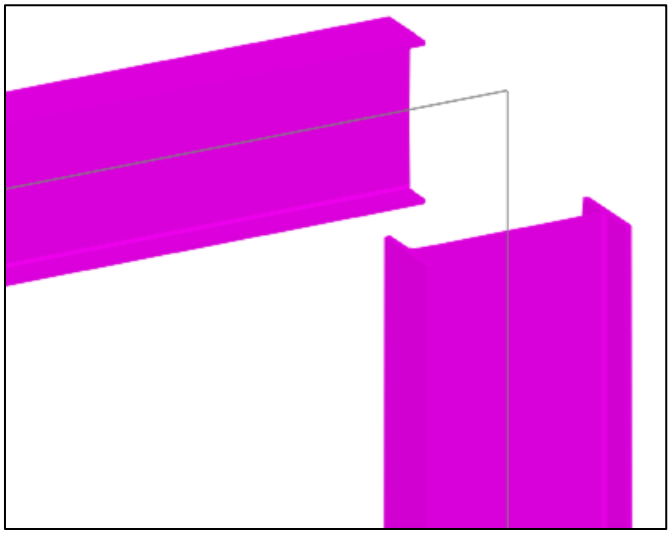


Figure 1 – Visualisation of beam-column connection using the Reduced length option.

2.2 Show smooth tapering option

Turning off the *Show smooth tapering* option displays the stepped change per element. Turning on the option smooths the fleshed view, so the stepped changes are not visible. This is shown in Figure 2.

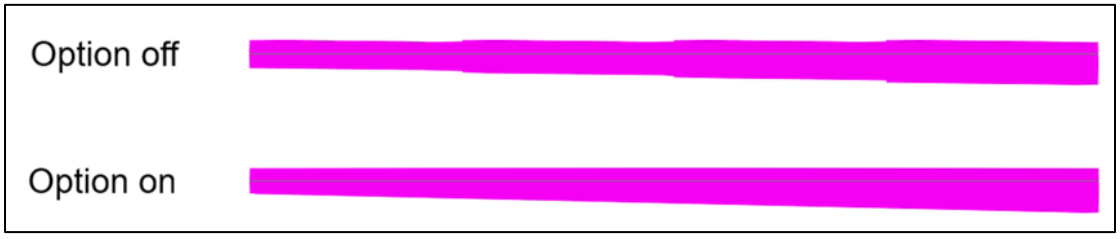


Figure 2 – Show smooth tapering option.

2.3 Transparency options

Table 1 presents the available transparency options.

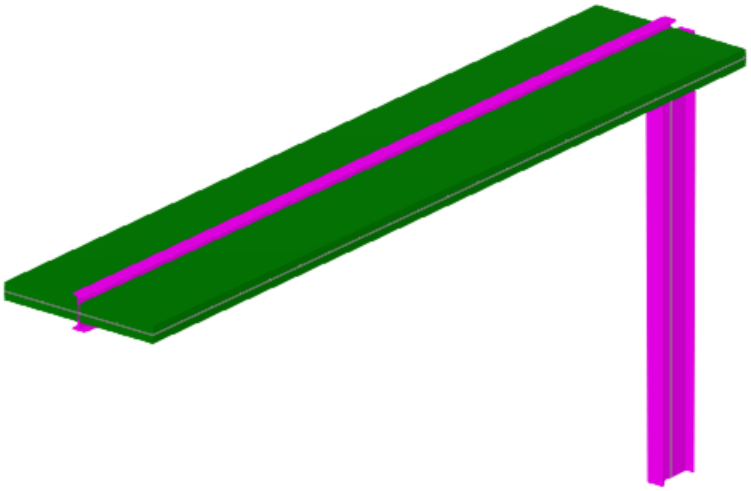
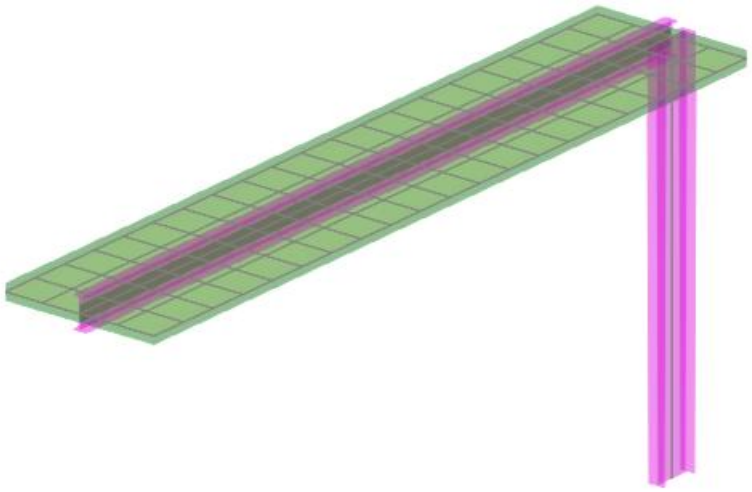
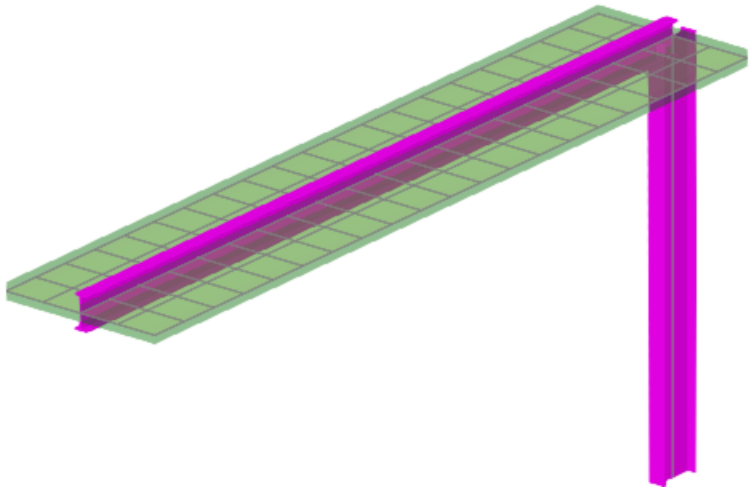
Transparency options	Visualisation
Fleshing all opaque	
Fleshing all transparent	
Fleshing default (line beams opaque, surfaces transparent)	

Table 1 – Transparency options.

2.4 Coloured fleshed geometry

Fleshed geometries can be coloured using the *Colour by* options under Layers tab > Geometry > Colour by. Colouring fleshed geometry is useful for verification and for generating report images. Figure 3 shows how different colours can be used to distinguish elements with different geometric attribute assignments.

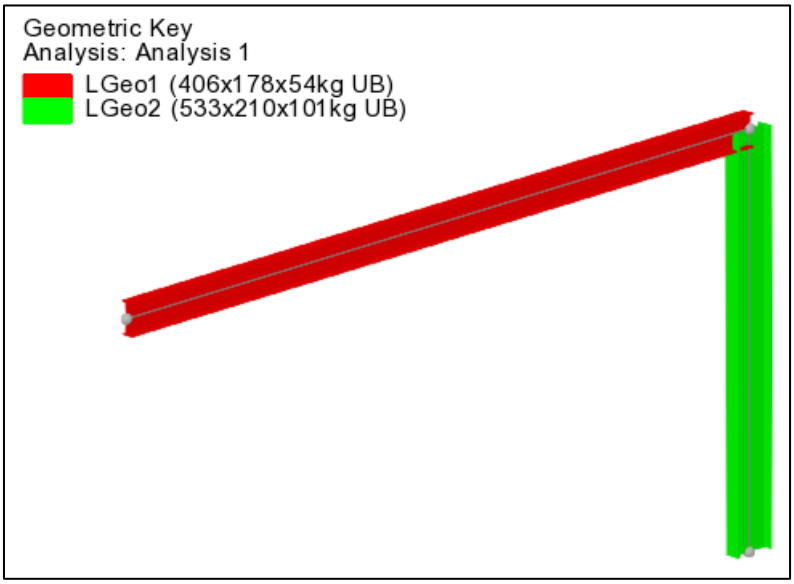


Figure 3 – Coloured fleshed geometry.

2.5 Display of results on fleshed geometry

Results can be displayed on fleshed geometry as needed. Figure 4 shows the deformed shape of a fleshed model.

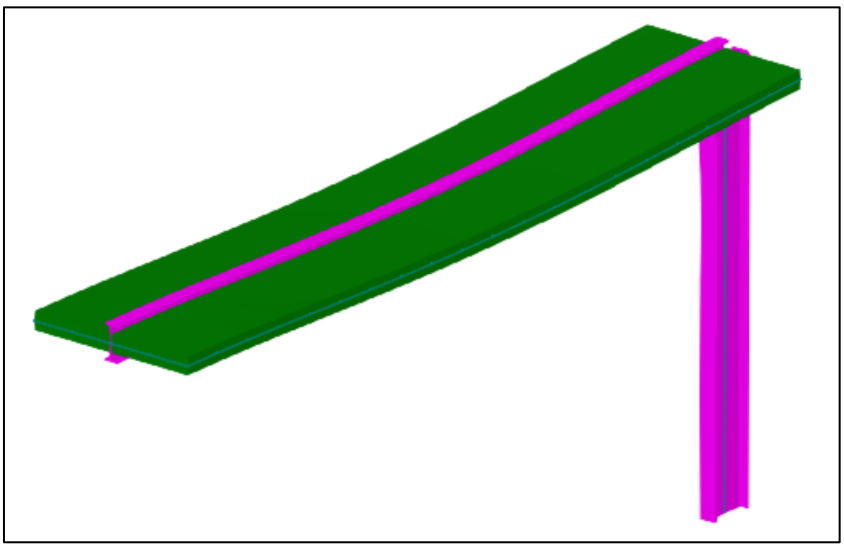


Figure 4 – Deformed shape.

Figure 5 and Figure 6 show contour plots on a fleshed model.

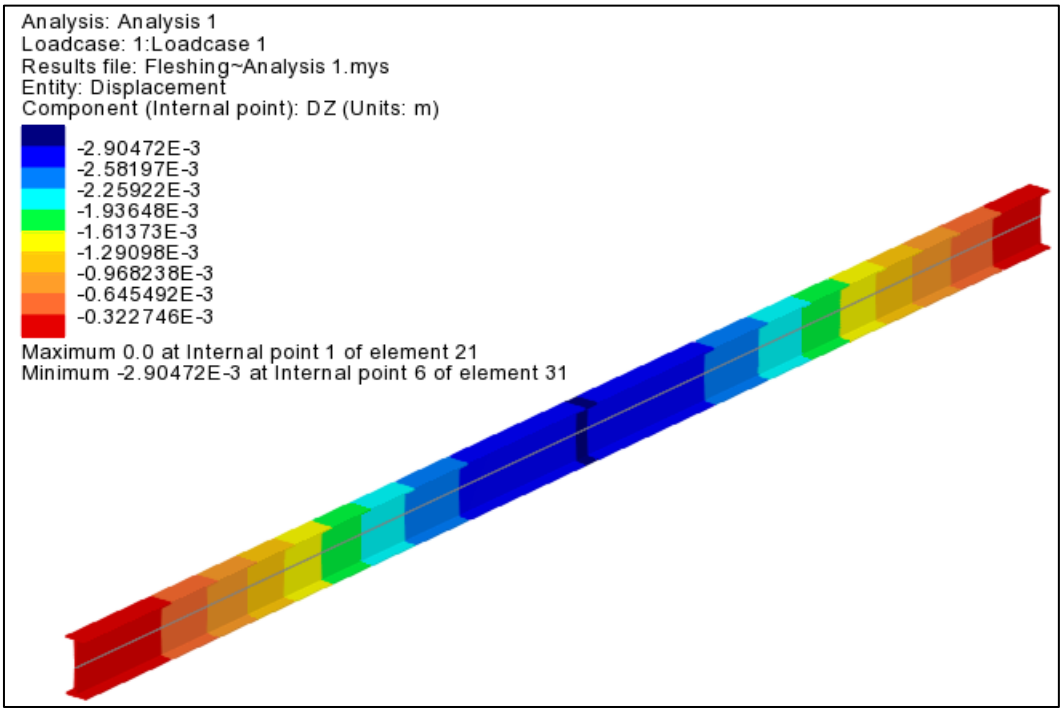


Figure 5 – Fleshed model: Contour plot of displacement.

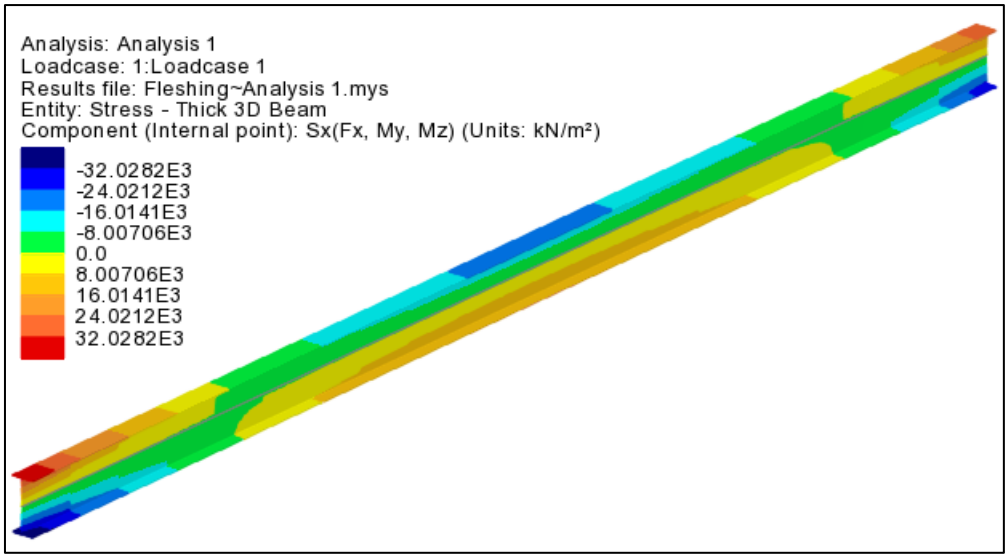


Figure 6 – Fleshed model: Contour plot of stress.

3. Summary

Fleshing is a visualisation method that displays bar, beam, and surface elements using their actual cross-sectional shape and thickness, rather than as simple lines or surfaces. LUSAS provides a range of fleshing options to suit different visualisation needs. In addition to the guidance in this technical note, the Help system contains detailed information on the available fleshing options.

If you have any doubts or require specific advice for your type of analysis, please contact the LUSAS Technical Support team at support@lusas.com.