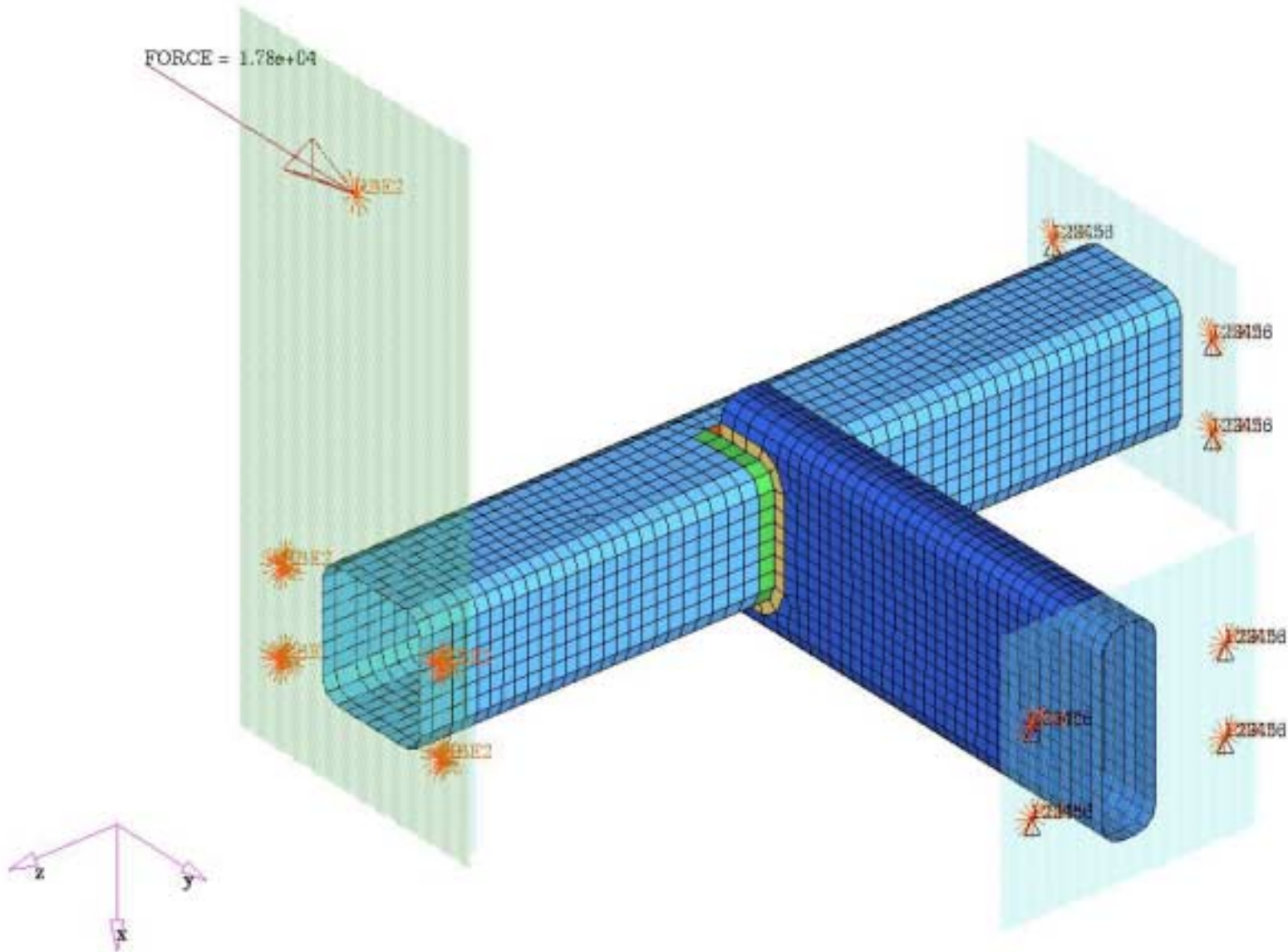


SEAM Weld Fatigue Analysis - FEMFAT



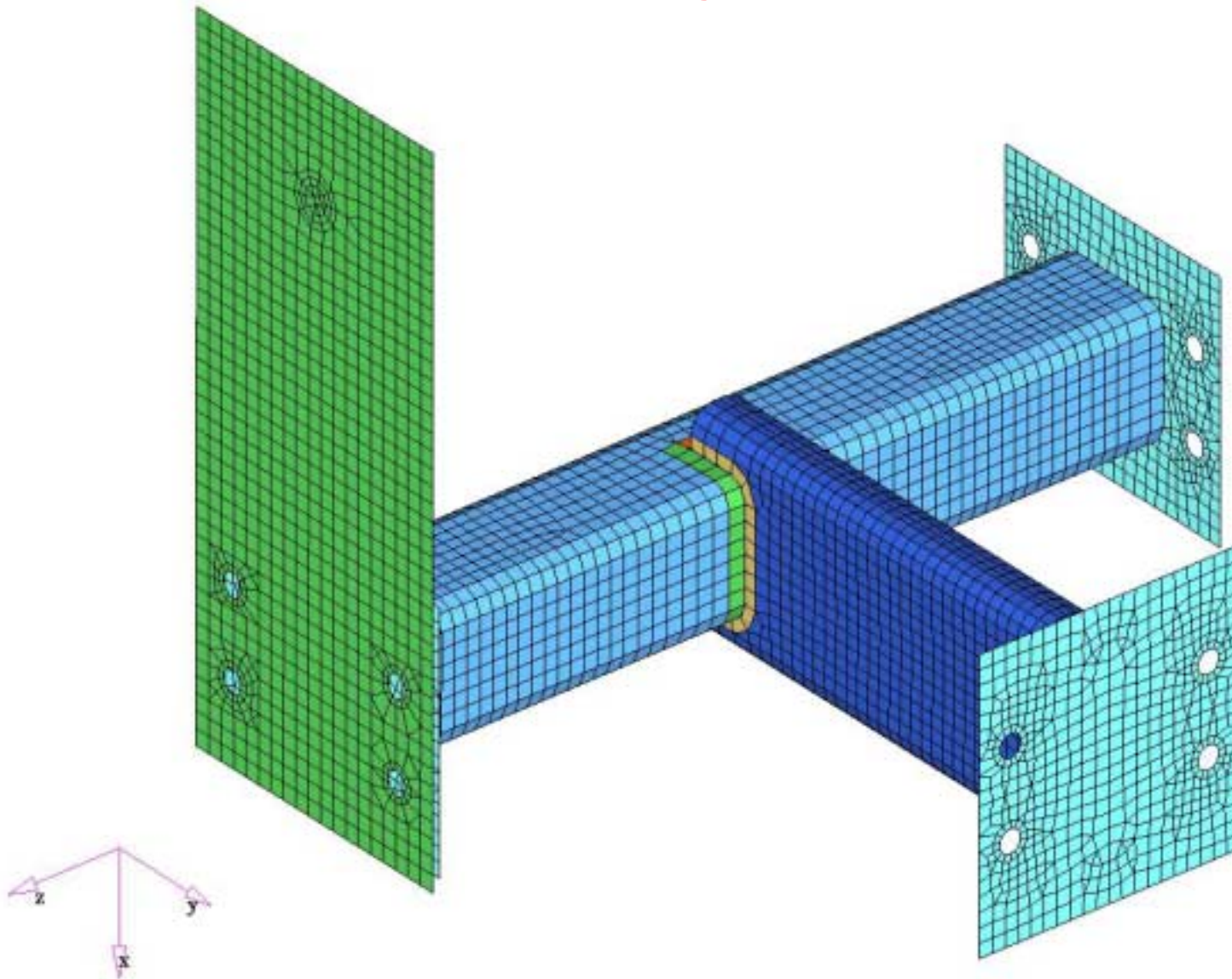
SEAM Weld Fatigue Analysis - FEMFAT

Unknowns:

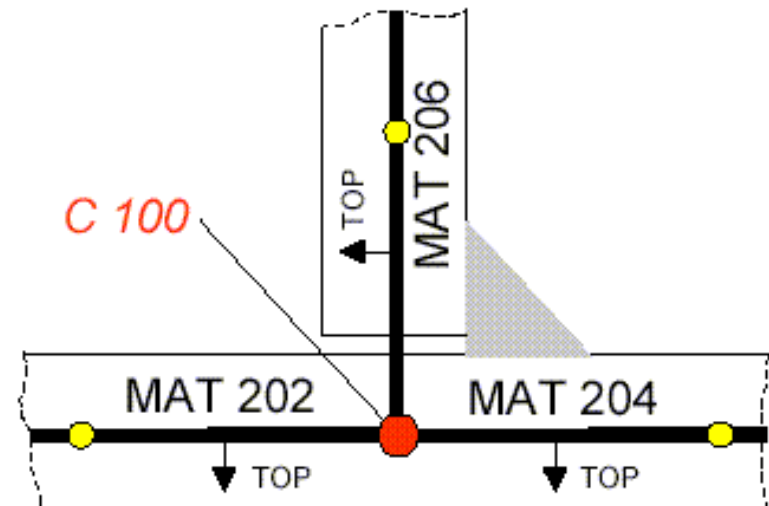
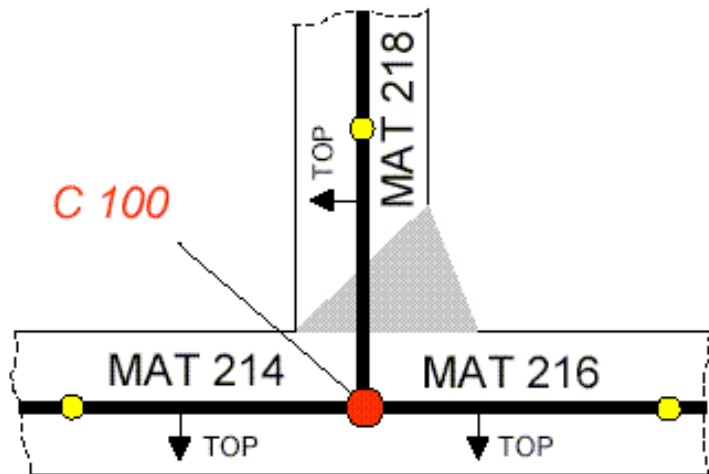
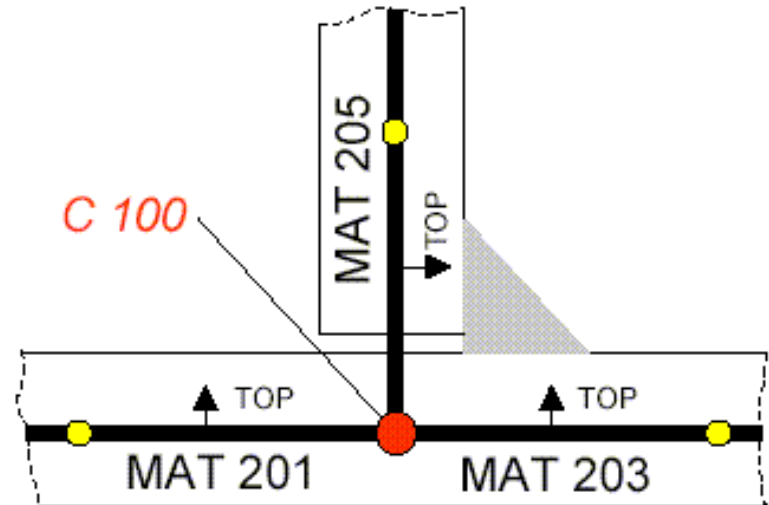
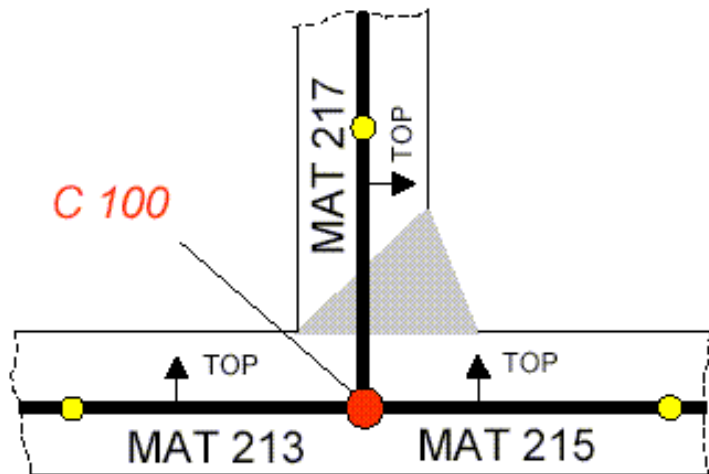
- **Type of loading (Alternate or Pulsating).**
- **Type of seam welding (HV or T Weld).**

HV Weld – welded through the material
T Weld – welded on one side (outside)

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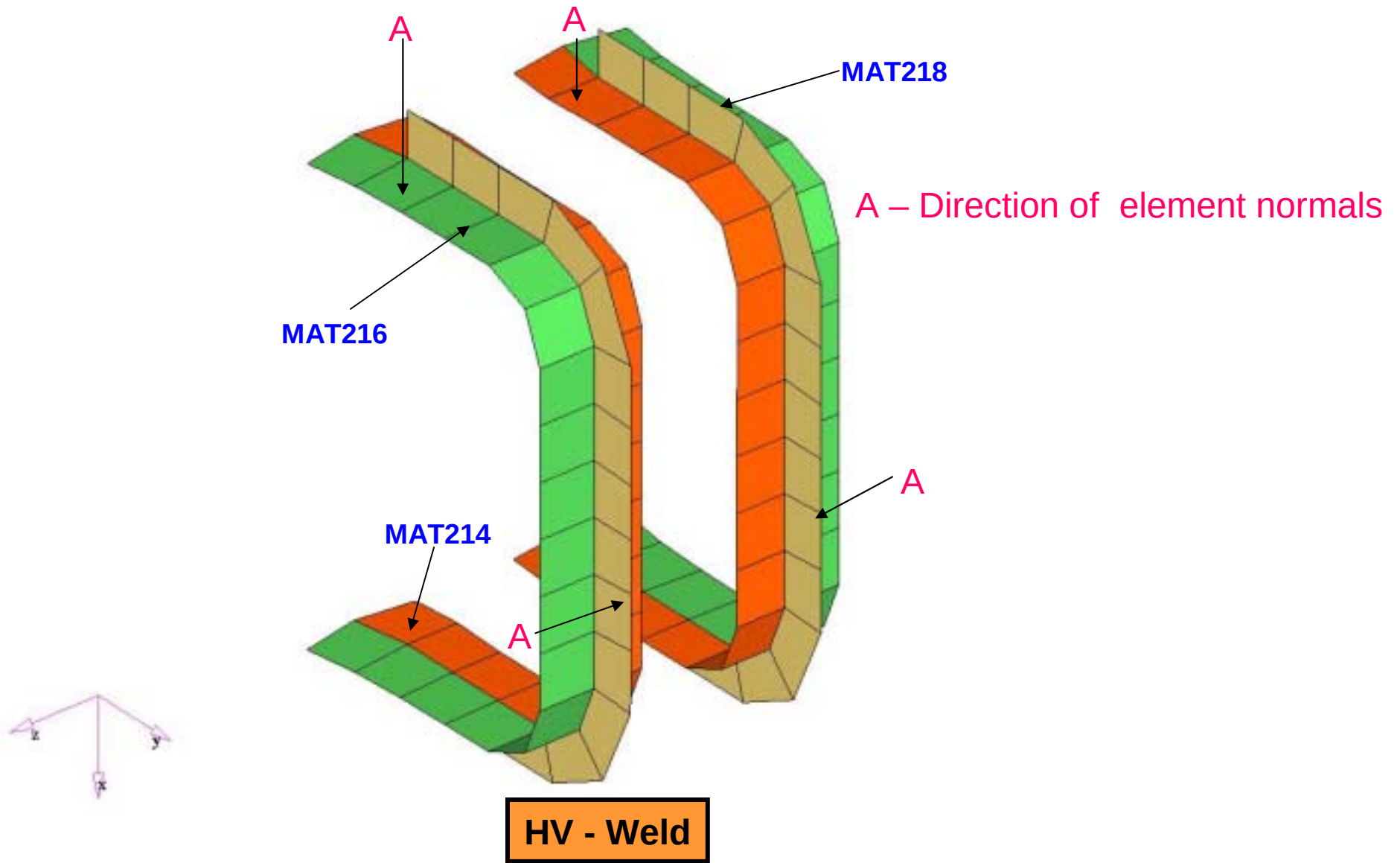
SEAM Weld Fatigue Analysis - FEMFAT



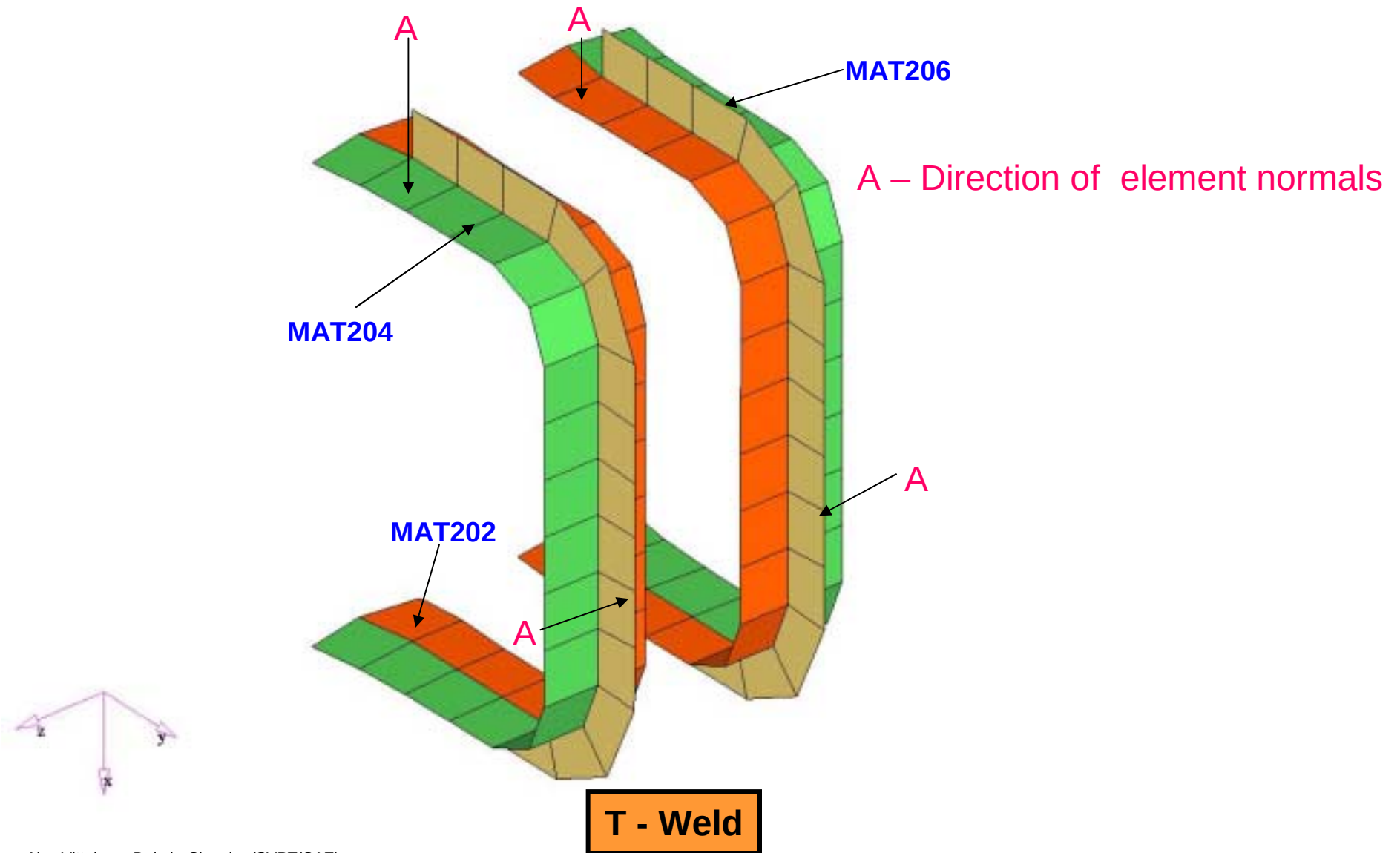
HV – Weld
Welded through the material

T – Weld
Welded on one side (outside)

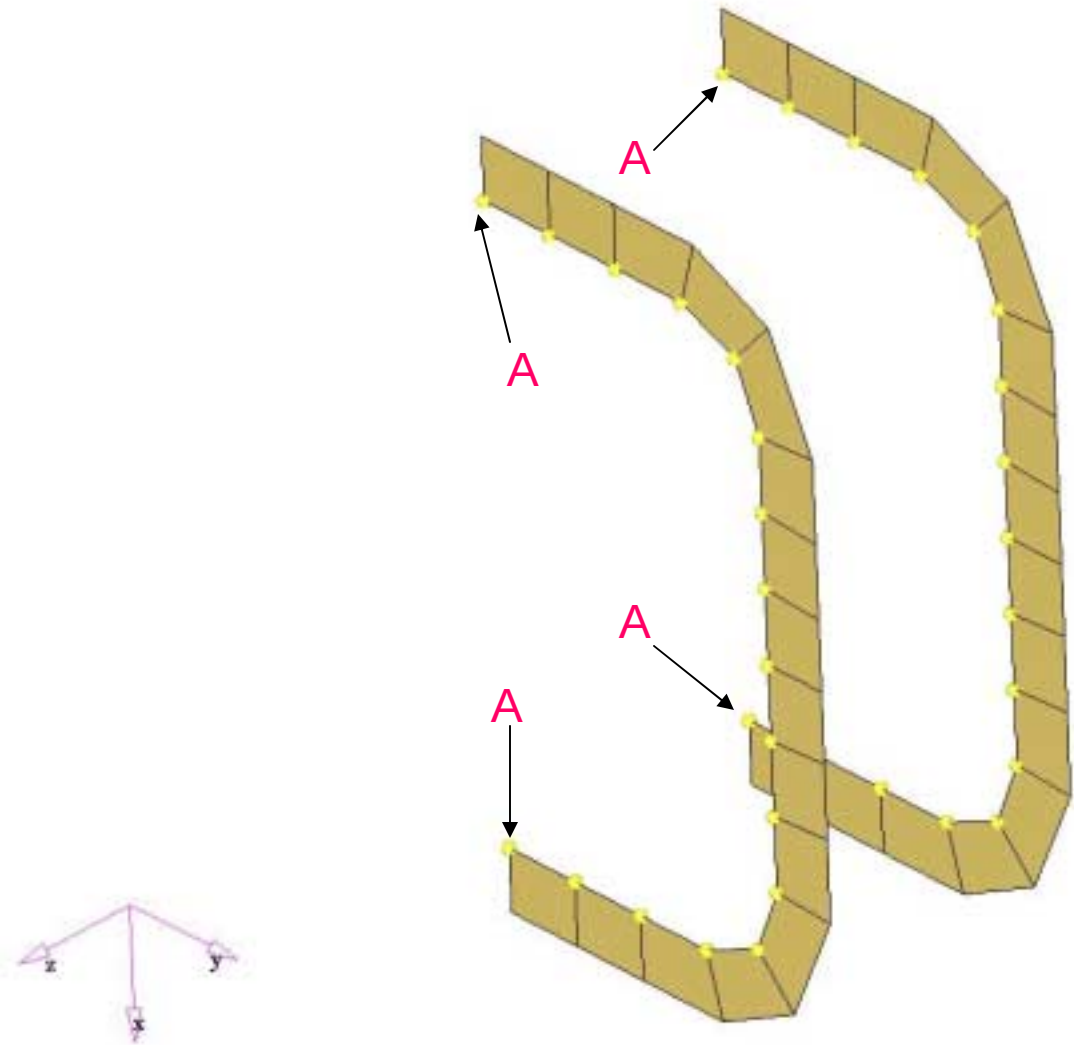
SEAM Weld Fatigue Analysis - FEMFAT



SEAM Weld Fatigue Analysis - FEMFAT



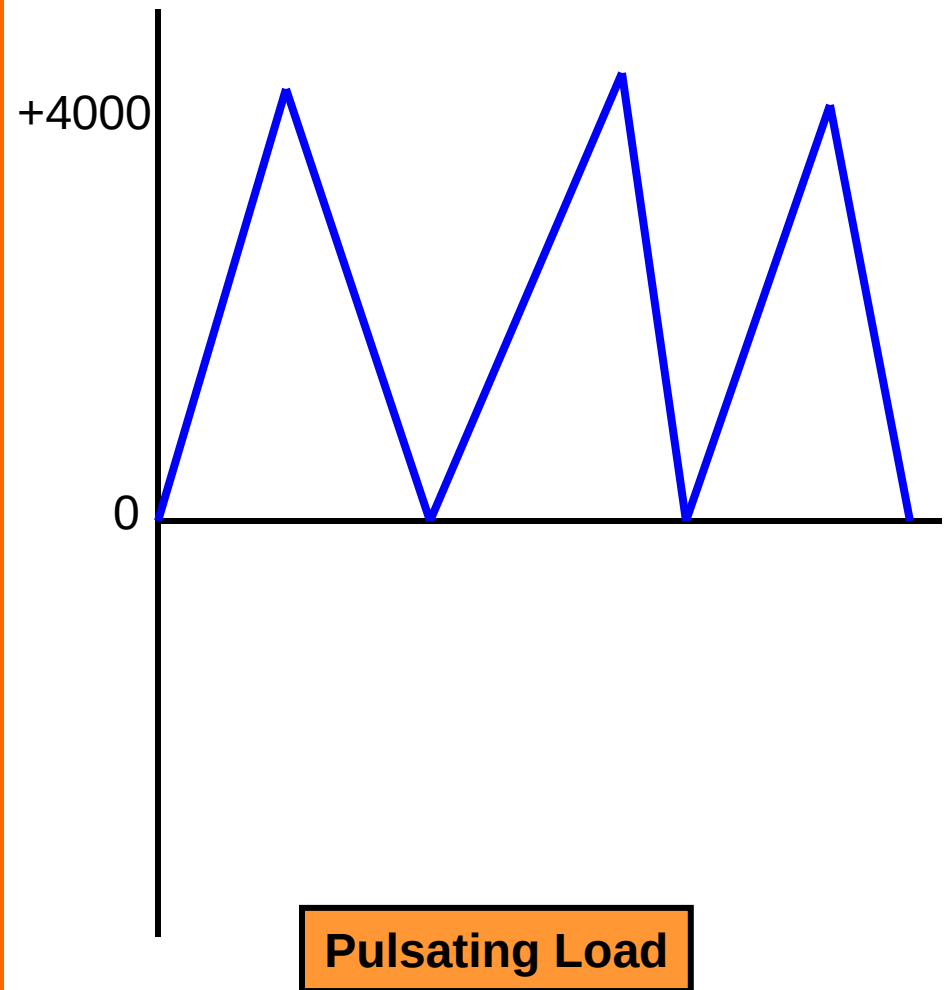
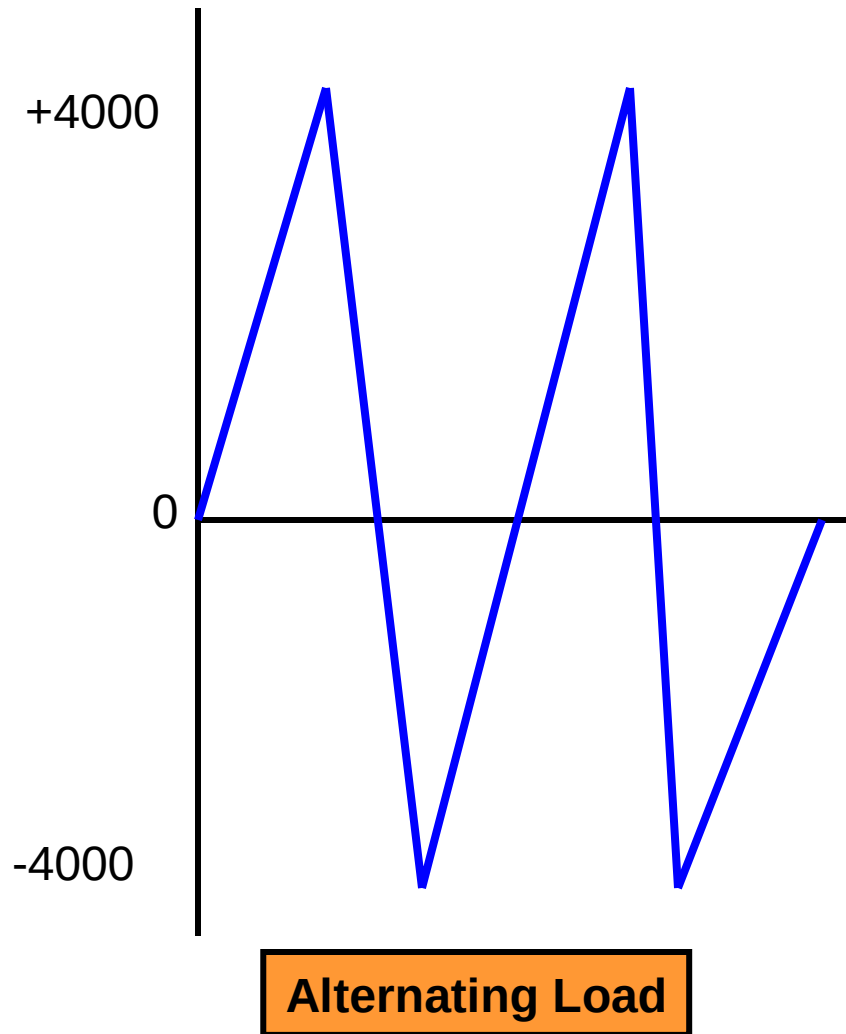
SEAM Weld Fatigue Analysis - FEMFAT



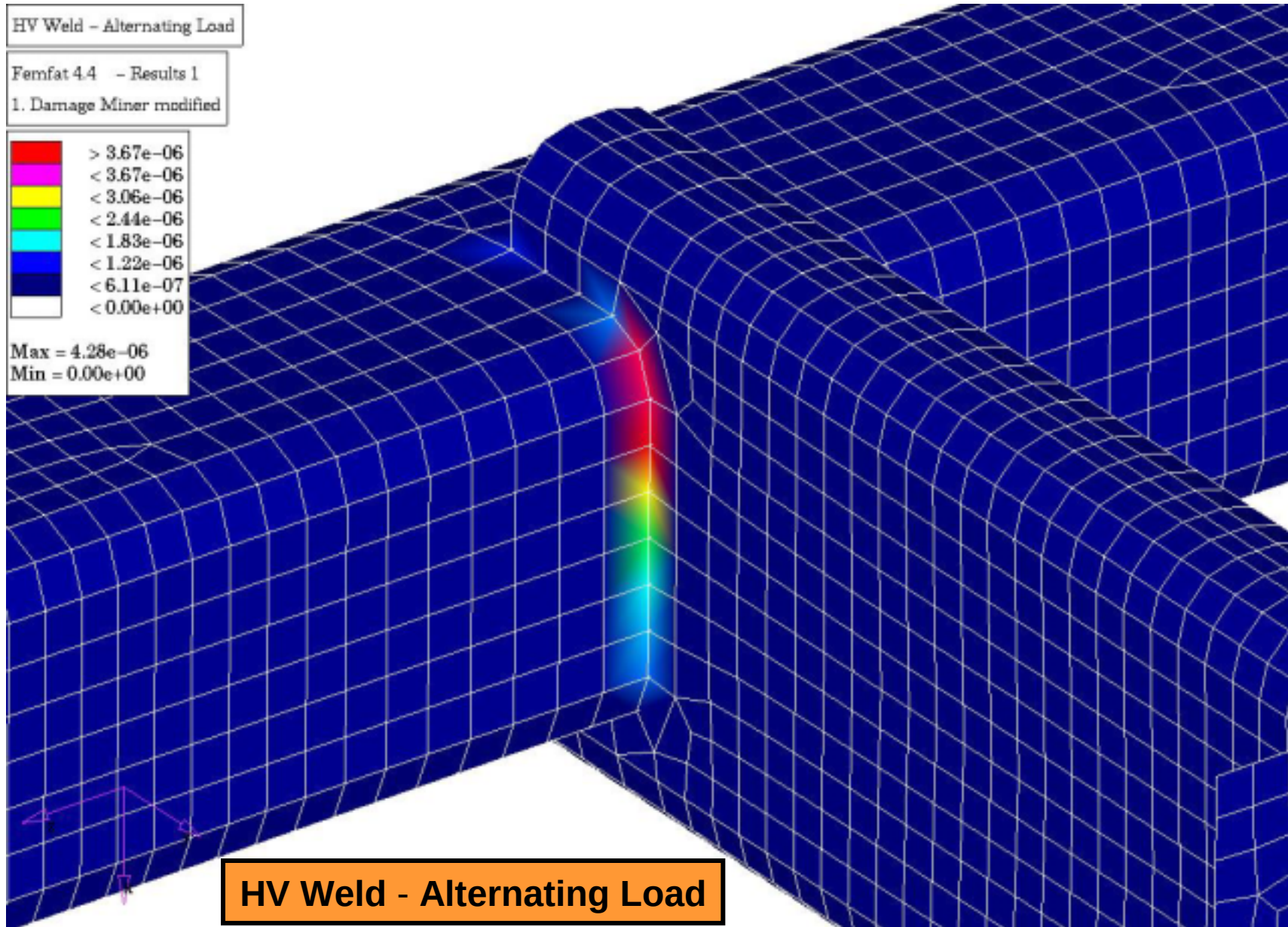
A – Set C102
End nodes of weld

Rest of the highlighted
Nodes in Set C100

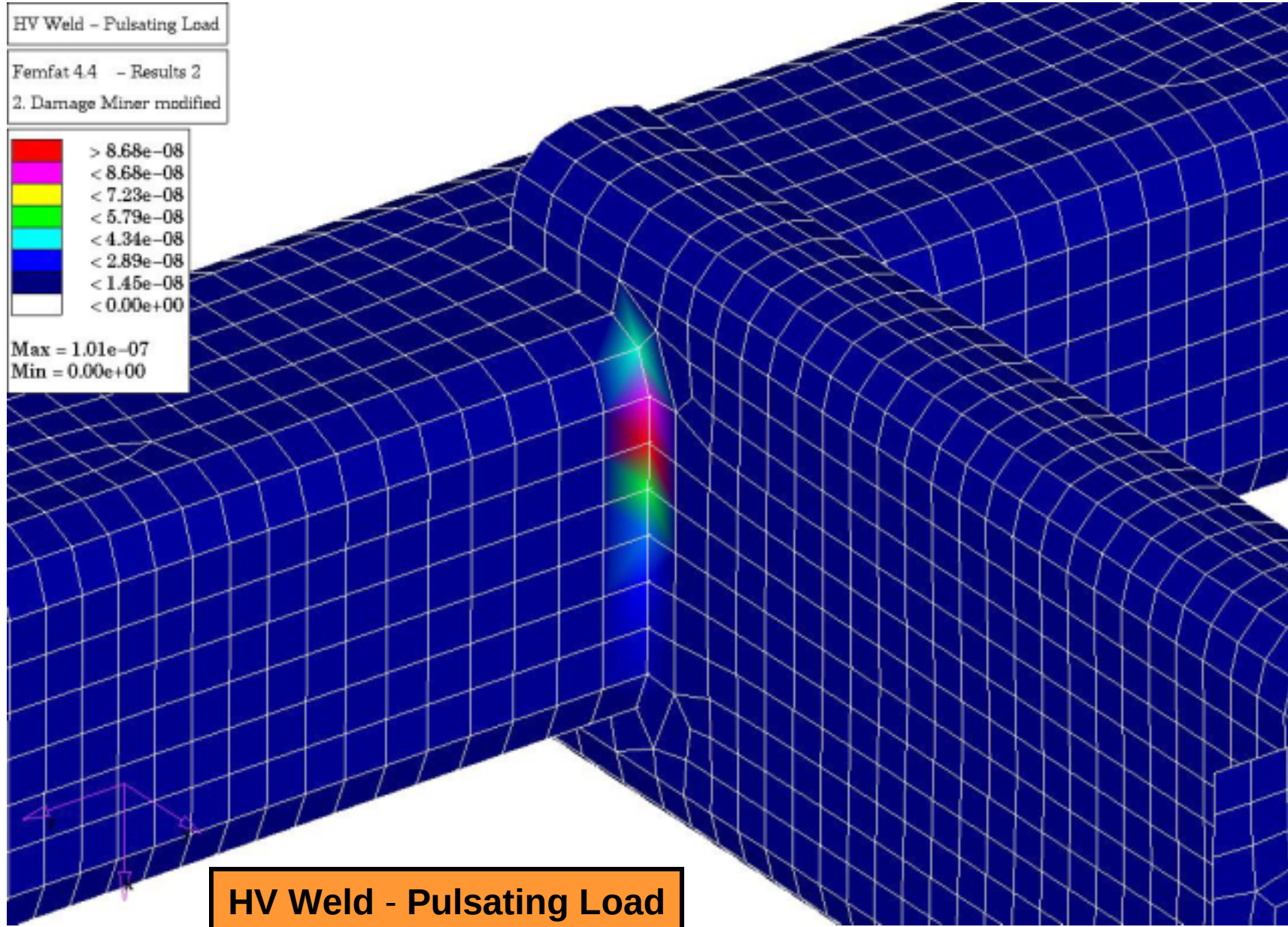
SEAM Weld Fatigue Analysis - FEMFAT



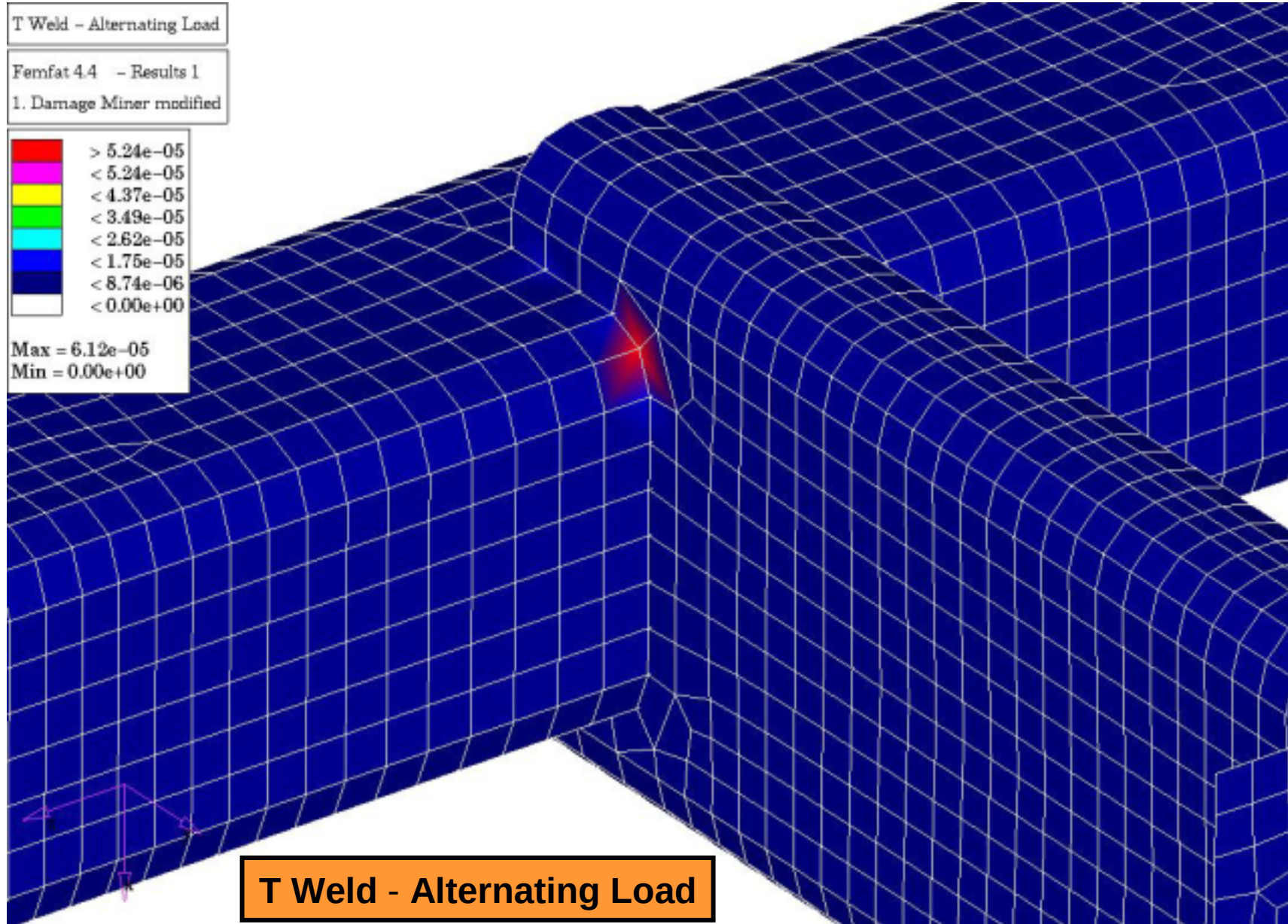
SEAM Weld Fatigue Analysis - FEMFAT



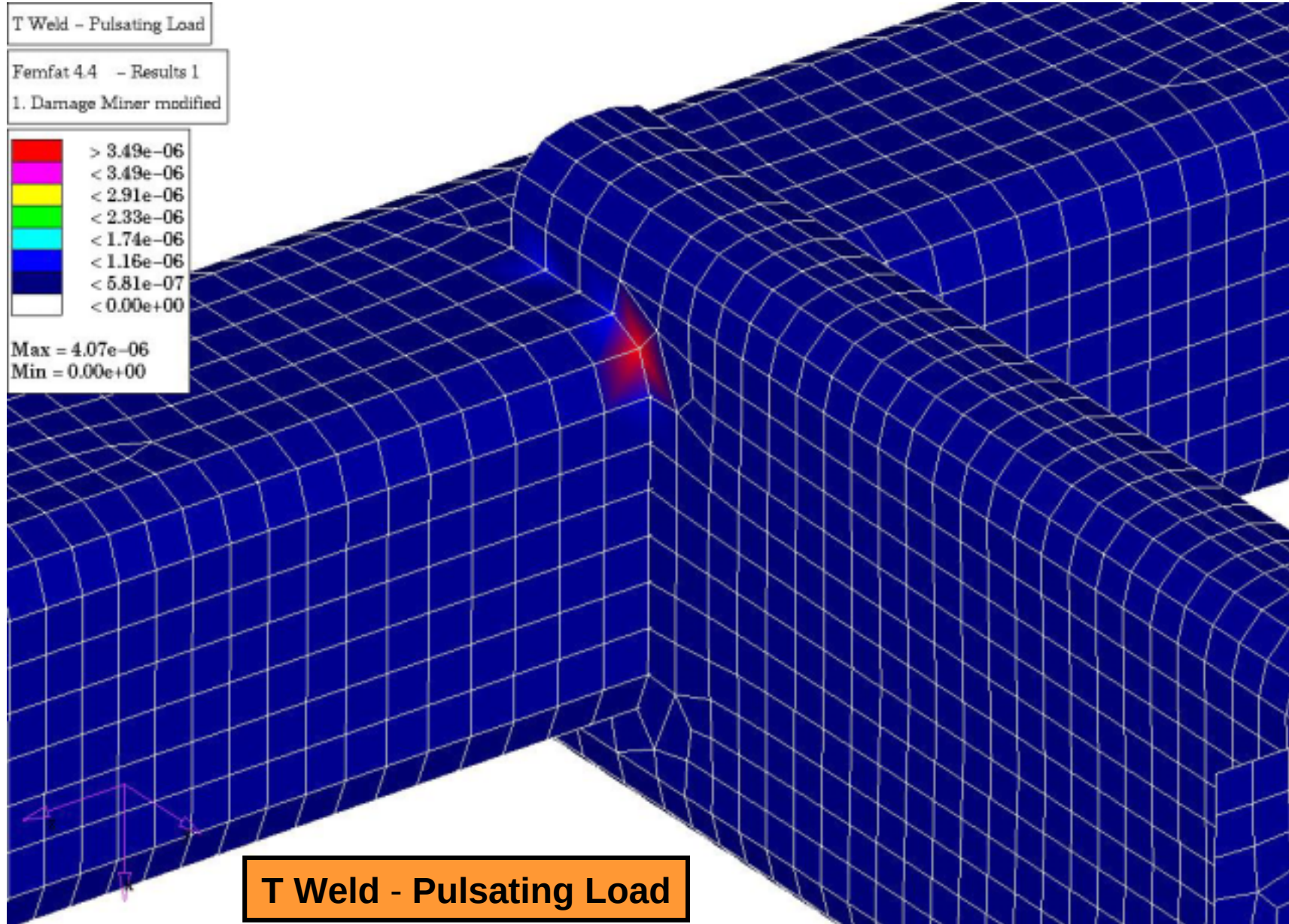
SEAM Weld Fatigue Analysis - FEMFAT



SEAM Weld Fatigue Analysis - FEMFAT



SEAM Weld Fatigue Analysis - FEMFAT



SEAM Weld Fatigue Analysis - FEMFAT

Type of weld	Loading	Damage	Life	Node	Location
HV	Alternating	2.342E-05	245,700	2317	Radius of Weld
	Pulsating	1.628E-06	9,870,000	2317	Radius of Weld
T	Alternating	6.115E-05	16,400	2142	Radius of Weld
	Pulsating	4.069E-06	244,000	2142	Radius of Weld

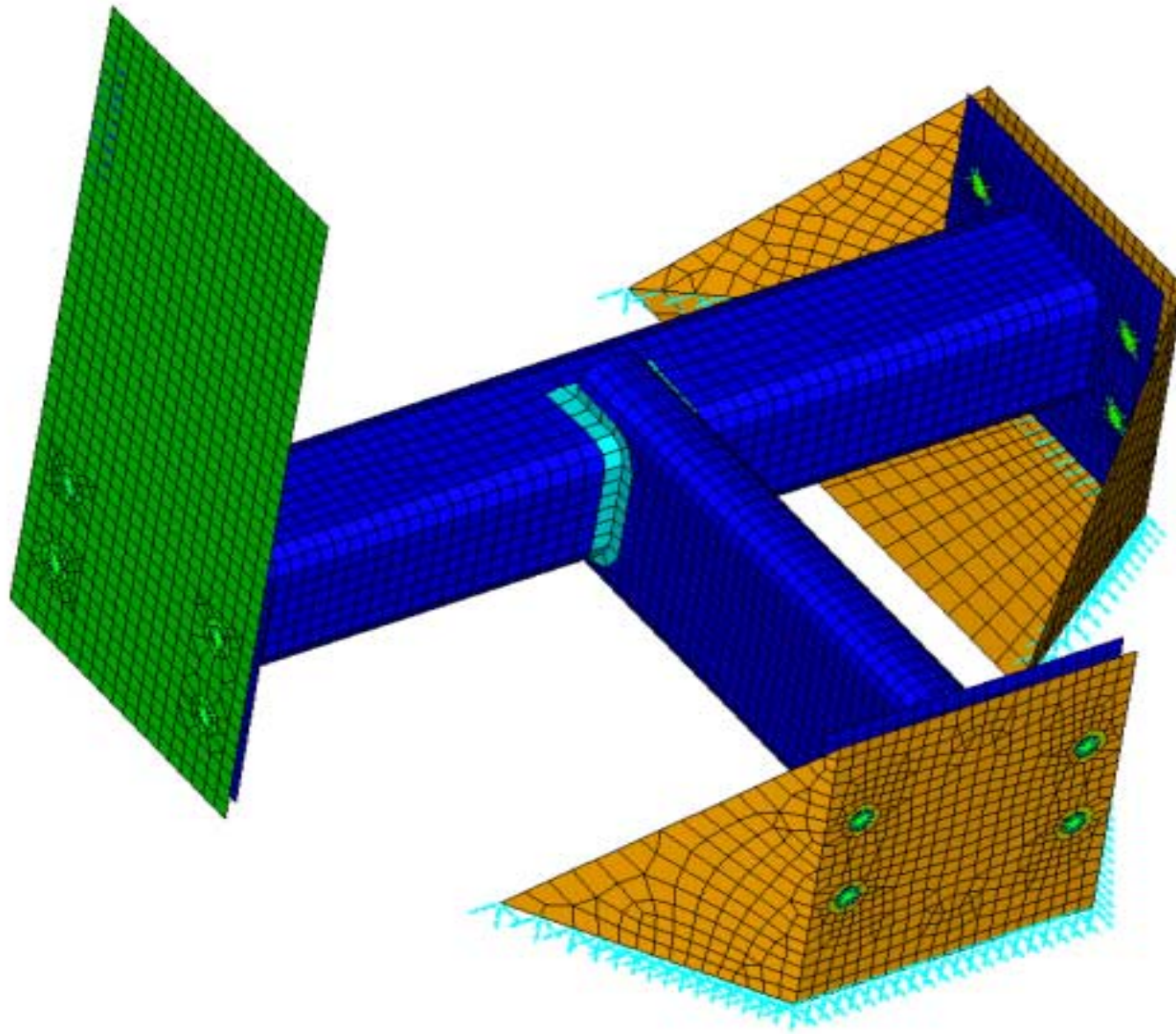
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Conclusions:

- **Simple modeling of boundary and loading conditions were used to predict the fatigue life of the seam weld.**
- **Very sensitive to boundary conditions.**
- **Type of seam welding affects the results.**
- **Maximum damage is observed at the radius of the weld the seam weld ends are also highly damaged.**

Back Up Slides

SEAM Weld Fatigue Analysis - FEMFAT



SEAM Weld Fatigue Analysis - FEMFAT

Type of weld	Loading	Damage	Life	Node	Location
HV Boundary Condition II	Alternating	6.082E-06	164,000	2141	Radius of Weld
	Pulsating	1.369E-07	7,300,600	2317	Radius of Weld
T Boundary Condition II	Alternating	3.425E-05	29,200	2141	Radius of Weld
	Pulsating	2.464E-06	406,000	1320	End of T-Seam (Bottom)