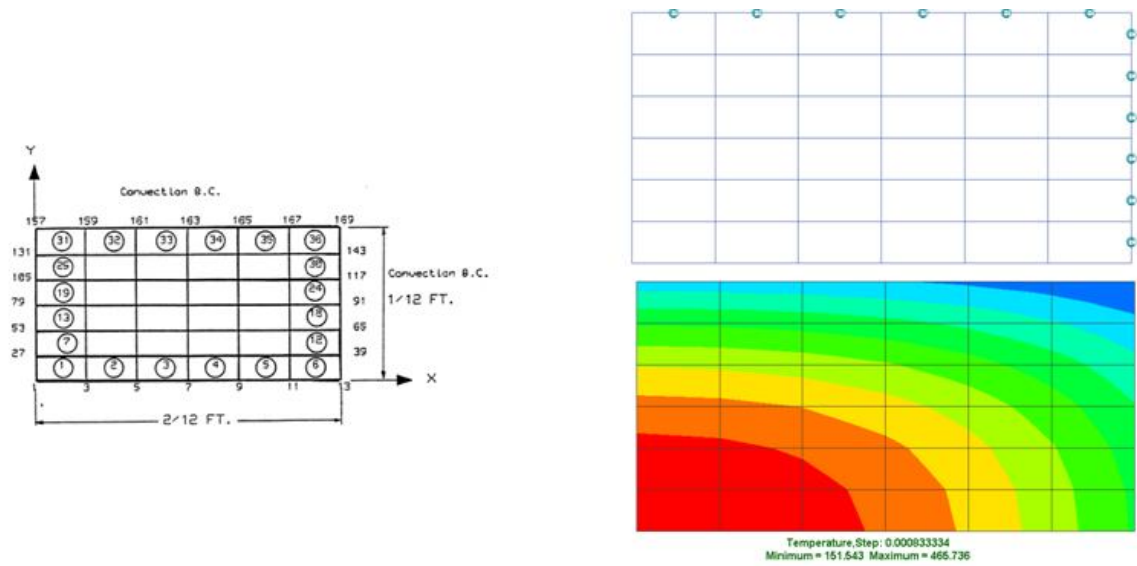


Heat conduction in a convectively cooled orthotropic bar



- Material property :** $K_{XX} = 20 \text{ BTU/hr.ft.}^{\circ}\text{F}$, $K_{YY} = 3.6036 \text{ BTU/hr.ft.}^{\circ}\text{F}$ (Thermal conductivity), $C = 0.00909 \text{ BTU/lbm.}^{\circ}\text{F}$, (Specific heat), $\rho = 400 \text{ lb}_m/\text{ft}^3$
- Element type :** 2-D eight node planar elements. The bar is initially at 500°F and it is plunged into a bath of liquid which is maintained at 100°F .
- Finite element statistics :**
- | | | |
|-----------------|--------------------|--------------------|
| Number of nodes | Number of elements | Degrees of freedom |
| 49 | 36 | 49 |

Output parameters	Theoretical value	FEAST ^{SMT}	NISA2 [®]
Nodal temperature, $^{\circ}\text{F}$			
Node 1	460	466	462
Node 13	279	287	285
Node 157	202	201	200
Node 169	151	152	151