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Extra Credit 1
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The stress Finite Element Analysis (FEA) results indicate that the original backplate contained extensive low-stress, non-load-bearing regions (highlighted in dark blue).

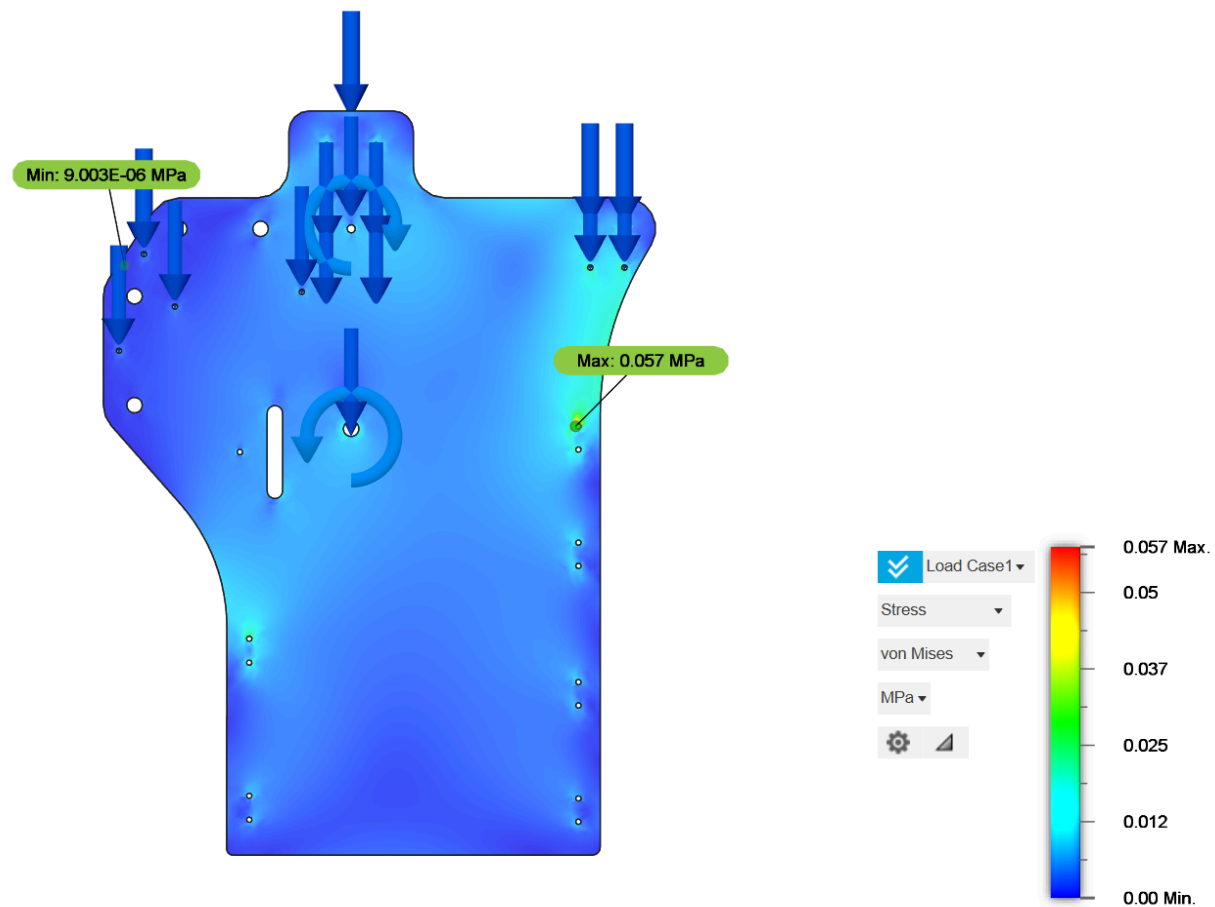


Figure 1: Backplate (to be redesigned) with stress FEA.

The redesigned backplate incorporates triangular cutouts to optimize mass-to-stress efficiency, reducing weight while preserving structural integrity and essential attachment points.

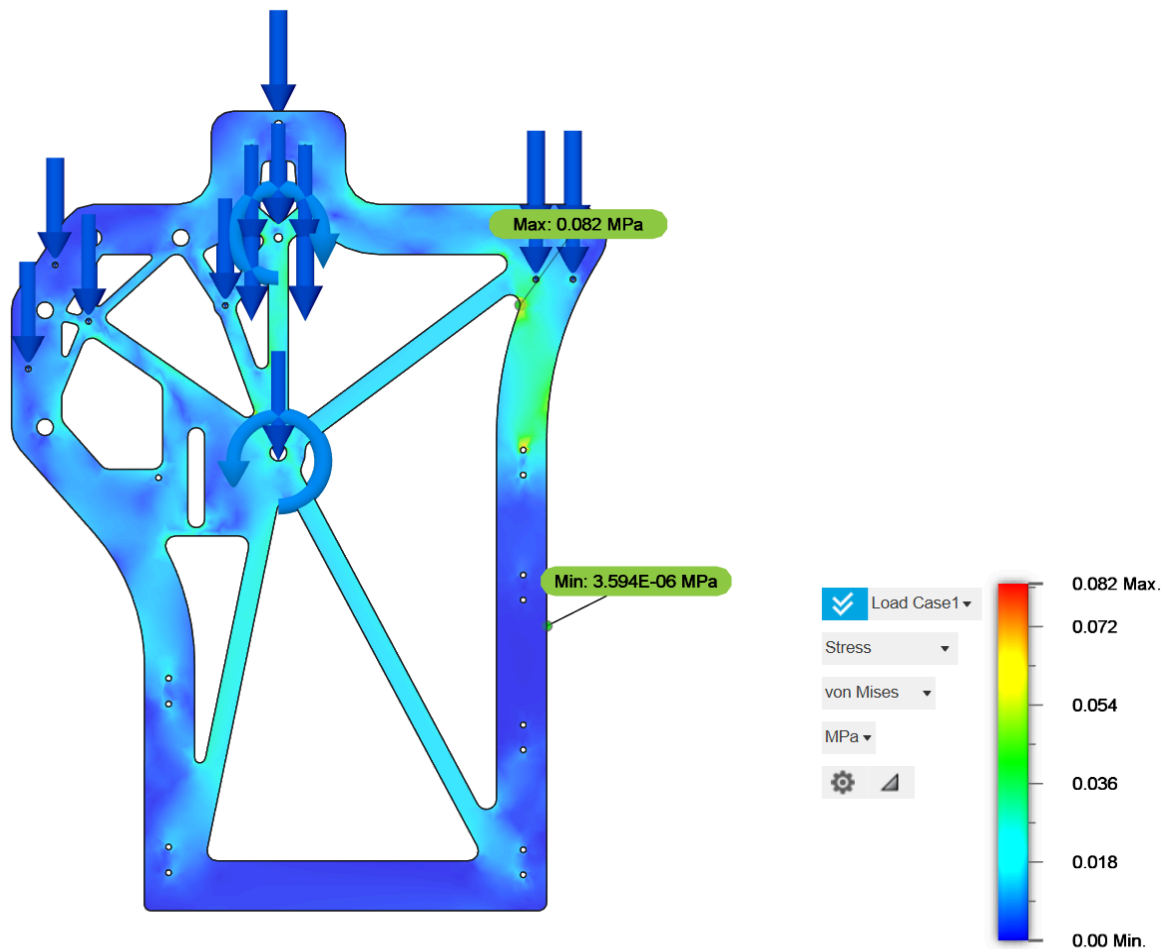


Figure 2: Redesigned backplate, with stress FEA showcased.

The FEA results indicate that the original front plate contains large, low-stress, non-load-bearing regions (highlighted in dark blue), suggesting opportunities for material reduction without compromising structural integrity.

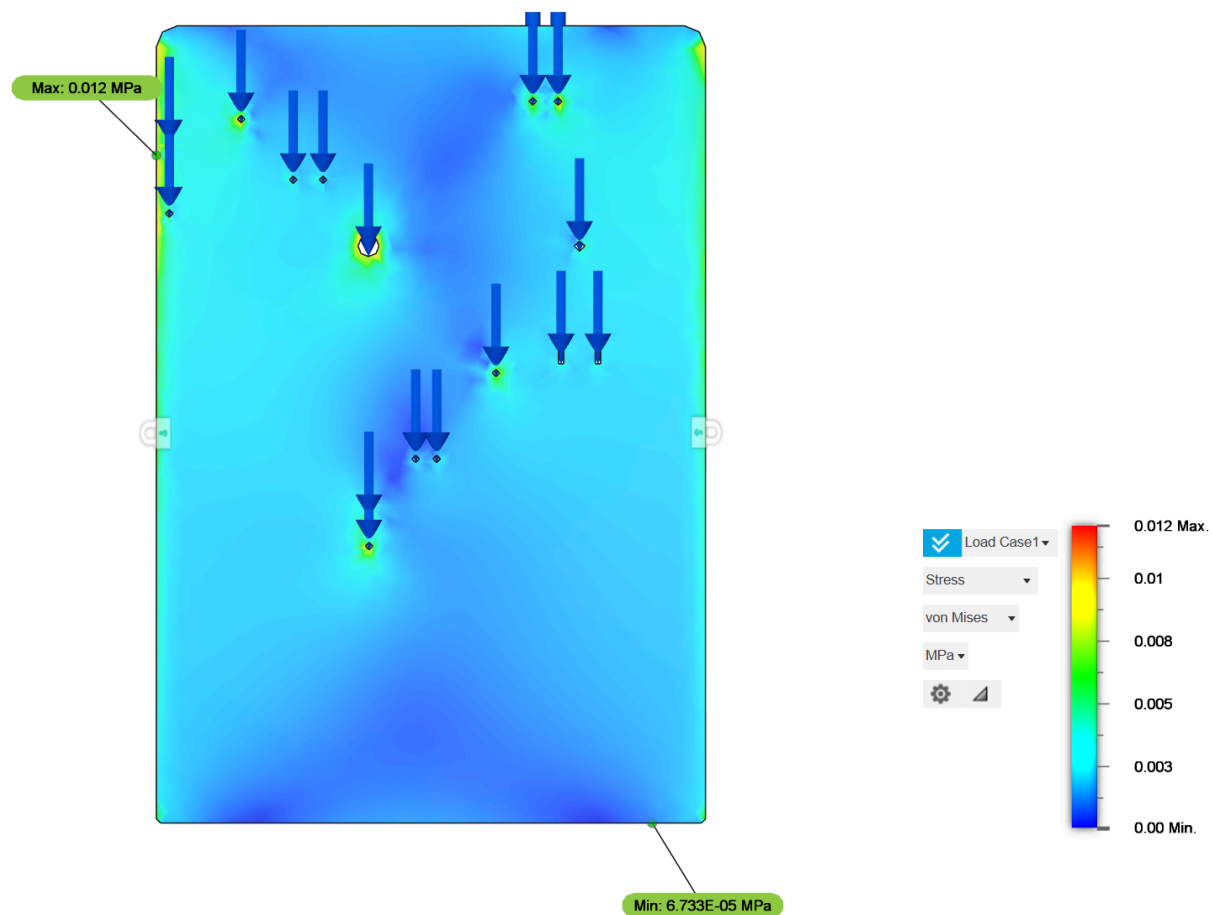


Figure 3: Front plate (to be redesigned) with stress FEA.

The redesigned front plate incorporates strategic cutouts to optimize mass-to-stress efficiency, reducing weight while preserving structural integrity and essential attachment points. Additionally, these cutouts improve visual transparency, reinforcing its hot-rodged aesthetic.

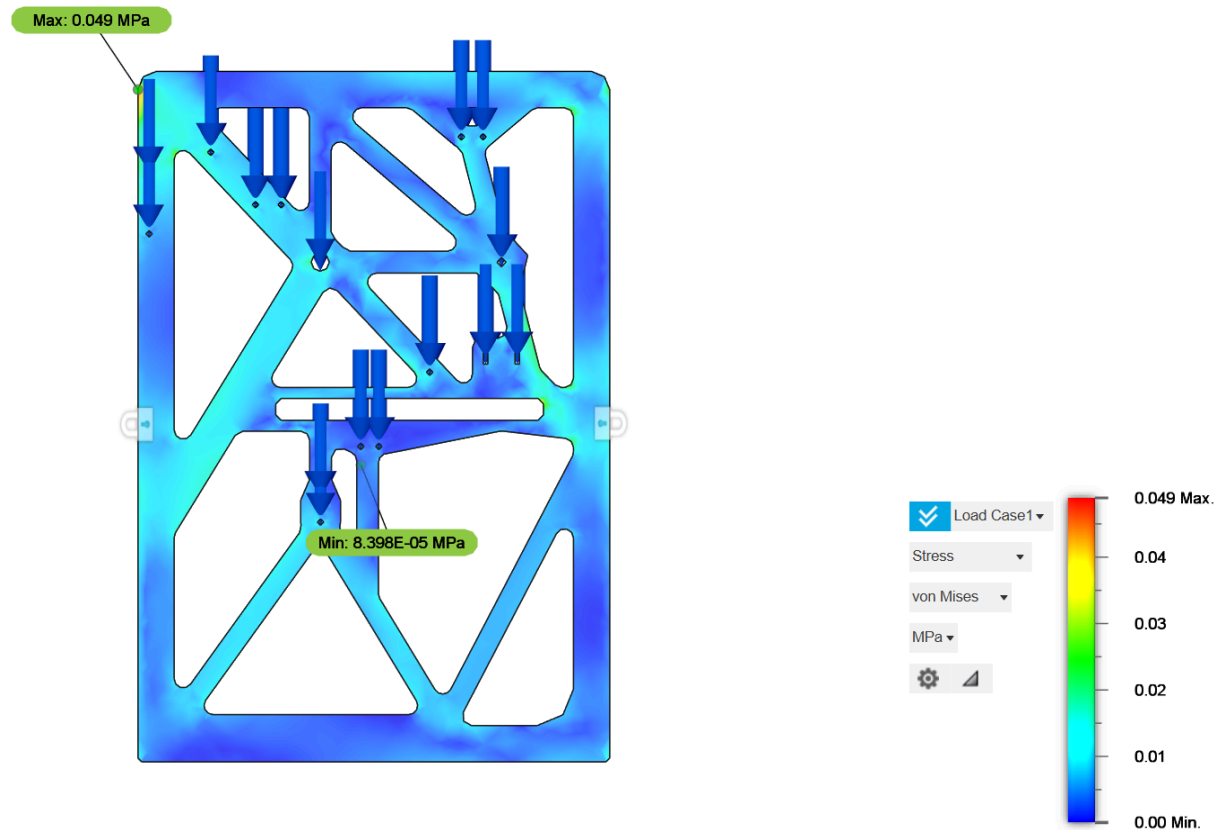


Figure 4: A redesigned front plate with stress FEA is showcased.