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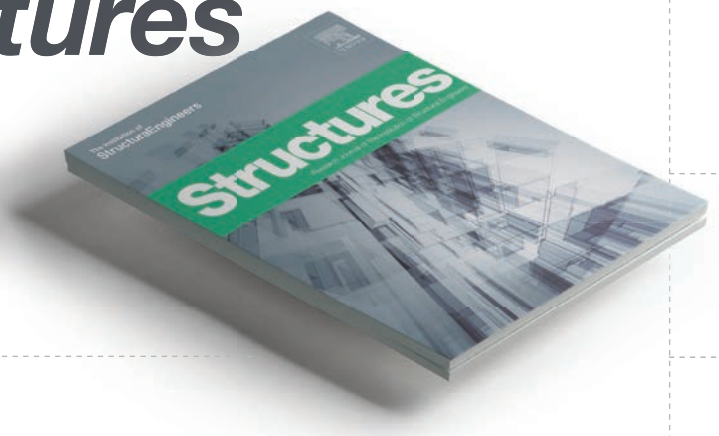

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The Featured Article for Volume 65 of *Structures* is now available. Leroy Gardner, Editor-in-Chief, has selected a paper studying sections of wire arc additively manufactured steel stiffened by sinusoidal waves.

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Editor's Featured Article

Experimental study of wire arc additively manufactured steel sections stiffened by sinusoidal waves

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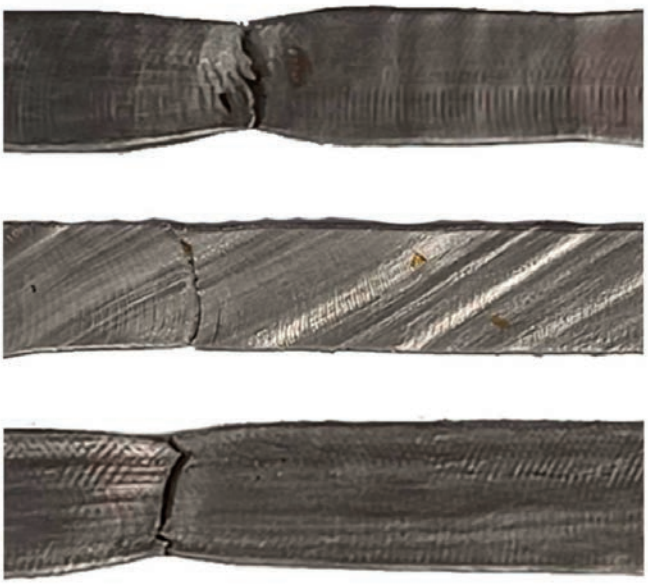
Numerical models and initial tests conducted on specimens produced using selective laser melting have indicated that structural sections may be stiffened by imposing sinusoidal waveforms on their geometries which delay buckling and improve the overall buckling resistance. Wire arc additive manufacturing (WAAM) stands out as the most promising additive manufacturing technique for fabricating sections of the scale required in the construction industry, however, there is currently a lack of understanding of how the undulating surface finish inherent to WAAM will affect the stiffening effect of the sinusoidal waveforms. Therefore, this paper details an experimental study involving ten WAAM equal angle sections stiffened with two different sinusoidal wave patterns identified as the optimal patterns in previous numerical analysis. The production, geometric measurement and testing of the sections are described and the material properties of the WAAM material are determined. All equal angle section specimens tested fall within Eurocode 3 Class 4 and the stiffening wave patterns are shown to benefit the slenderer sections more. Comparative analysis between the material consumption and relative strength is provided, highlighting the potential for sinusoidal WAAM sections to improve the material efficiency and facilitate economic design practices within the steel construction industry.

→| Read the full paper at **https://doi.org/10.1016/j.istruc.2024.106641**



a) 0°

b) 45°

c) 90°

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