

## Preliminary analysis of the effects of different machining techniques on carbon fiber epoxy materials

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Composite materials present a potential alternative to traditional metallic alloys in aerospace structural components such that they have desirable mechanical properties while possessing low densities. These components are traditionally joined together through bolts, which require the materials to have machined holes. This inquiry compared the effects of different types of machining on carbon epoxy plates: drilling with a coated bit and water jet machining, and how they impact the material's behavior during load-bearing operations. Three forms of material testing were used: tensile testing, strain gauge, and infrared thermography analysis during cyclic loading. The results obtained do not demonstrate consistent patterns that would suggest that one machining method is beneficial over the other.

### Biography

Diana Mollicone is a young and eager engineer-in-the-making. Fresh out of her undergraduate studies in Materials Engineering from the University of Toronto, she began her M.Eng in Mechanical Engineering at Ryerson University as well as her career working in materials testing at a small laboratory at the same time. She quickly moved to SNC-Lavalin to work as a Piping Engineer-in-Training in mining projects. She completed her M.Eng in just over a year and a half at the age of 24. She hopes to combine her studies and genuine interest in NDT to excel in Pipeline Integrity.

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