

# CWSF 2014 - Windsor, Ontario



## Katherine Teeter

### Storm Force Winds: The Optimization of Building Design

**Challenge:** Innovation

**Category:** Intermediate

**Region:** Bluewater

**City:** Markdale, ON

**School:** Grey Highlands S.S.

**Abstract:** This project investigated alterations to the Ontario Building Code that would increase residential building integrity during storm force wind events by 78%. Building shapes, roof slopes, and terrain landscapes were tested to determine the optimum structural design. The ideal fastener combination was determined by quantifying individual fastener integrity. The Bernoulli Effect on roofs was reversed using unique airfoils and a new fastener prototype was designed.

#### Biography

Katherine Teeter is a grade ten student at Grey Highlands Secondary School in Flesherton, Ontario. This is her fourth consecutive Canada Wide Science Fair competition and her fifth science fair project. She is very interested in society's defence against natural disasters, which lead to her project's focus. Her project focussed on improving building design to withstand storm force winds generated from tornadoes and hurricanes. Katherine enjoys being outside, swimming, music, reading, spending time with family and friends and sports. She plays the clarinet in concert band and the piano with the RCME at a grade eight level. Katherine enjoys playing sports competitively, recreationally. She plays volleyball on the school team, hockey in the winter and co-ed fastball in the summer. Katherine also enjoys umpiring younger age groups at her home centre. She is fluent in the French language and she is a member of the Youth Health Council at her school which helps organize events to promote health amongst her school. She assists her dad regularly on the farm during the summer. Science fair has and always will continue to change her life for the better. Future endeavours may include doctoring or civil engineering.

#### Awards

#### Value

Excellence Award - Intermediate - Silver Medal Sponsor: Youth Science Canada	\$300
Western University Scholarship Silver Medallist - \$2000 Entrance Scholarship Sponsor: Western University	\$2 000
<b>Total</b>	<b>\$2 300</b>