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Bracing for Impact: Why Florida's Building Codes Can't Handle the Next Big Hurricane

Over the years, intense hurricanes have devastated U.S. cities, demolishing homes. In 1992, Hurricane Andrew decimated Miami Dade County, prompting Florida to reform building codes, including creating the High Velocity Hurricane Zone (HVHZ). Despite these changes, questions remain about whether the codes can withstand increasingly severe hurricanes.

Andrew exposed major flaws in the building codes, which varied widely across local jurisdictions. Florida then adopted the uniform Florida Building Code (FBC), requiring shutters or impact windows, reinforced roofs, and hurricane straps. The HVHZ, established for high-risk areas like Miami-Dade, Broward, and Coastal Palm Beach Counties, mandates the use of products that meet rigorous missile and wind tests and stronger anchoring methods.

Andrew, a category five hurricane, struck on August 24, 1992, with winds of 165 mph and gusts over 174 mph. It destroyed 25,000 homes, left 160,000 people homeless, and caused $26.5 billion in damages ($58.6 billion in 2024 USD). Since then, Florida has faced eleven category 1-2 hurricanes

and twelve major hurricanes (category 3-5), resulting in over $227.4 billion in damages and 423 deaths.

To assess its effectiveness, a FEMA HAZUS simulation will model a hurricane of similar strength, size, and intensity impacting each coastal county in Florida. Comparing the damage will reveal vulnerabilities of these counties relative to Miami-Dade and Broward. My presentation will detail the simulation results and suggest improvements to building codes to reduce future damages.

Presentation Theme: The presentation will focus on the building codes in Florida. Using FEMA's HAZUS program, I will evaluate the effectiveness of the counties and compare them to counties in the HVHZ. It will help emergency managers and county officials learn how to build their community strong and resilient against hurricanes.

Collaborators, Advisor(s) and Department(s) that assisted with this research: I currently do not have any collaborators, advisors, or department assistance.