Development of a Mass Timber Tornado Safe Room

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Objectives

- Design a residential tornado safe room from commodity wood products
  - Feasible for existing housing
  - Buildable by a DIY'er
  - Most materials available at a big box store
  - Low cost compared to existing steel and concrete safe rooms
  - Sized to serve another function and optimize material usage

Objectives (cont.)

- Perform wall and door testing to verify design for EF-5 tornado
  - Debris impact testing (2x4 @ 100mph)
  - Wind pressure testing (225 psf – 340 psf)
- Build full size room and wind load test
- Develop standard plans and guidelines for construction
- Develop a dynamic impact model to simulate wall behavior

Cooperative Effort

- FPL
  - Bob Falk, John Hermanson, Adam Senalik
- PFS Corporation (Cottage Grove, WI)
  - Deepak Shrestha

Status

- Impact test of walls panels and doors completed
- Research report on wall testing completed
- Research report on door testing in preparation
- Pressure testing initiated (in cooperation with PFS Corporation)
- Room built and wind load test setup under development
- Plans and construction guidelines to be developed
- Dynamic impact model developed and verified

For More Information

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