

Building Technology Research Unit

State Farm Insurance Companies

2006 Annual Report

A. Overview and Organization

The Building Technology Research Unit (BTR) of State Farm was organized in 1995 to investigate residential construction issues related to loss experiences. Insured losses may arise out of natural disasters, such as hurricanes, earthquakes, hail, and wildfires, as well as non-catastrophic events such as fire, water damage, and theft. The unit resides in the Technology Division of State Farm's Strategic Resources Department, along with the unit that addresses Automotive Technology issues.

B. Research Projects & Activities

Water Loss Mitigation Testing – Engineers from the unit completed a review of different types of sump pumps to acquire information regarding the limitations and advantages of the different types that are commonly available. Information obtained by this research was used to develop loss mitigation information messages for homeowners.

Fire Loss Mitigation Research – Engineers from the unit's laboratory provided assistance the NFPA Research Foundation's Aging of Residential Electrical System project. BTR is participating in this, a study of the effects of aging in a home's electrical wiring. Our electrical engineer is a member of the technical advisory committee for the NFPA's Fire Protection Research Foundation, which is conducting the study. The study harvests electrical wiring samples from older homes that are scheduled for demolition. After gathering sufficient samples the committee studies the effects of age on the wiring and other electrical components.

Roofing Material Study – Involvement continued with the American Society for Testing and Materials (ASTM) impact test protocol committee. Work with Factory Mutual (FM) and the Tile Roofing Institute (TRI) was undertaken on an FM ice ball test standard. Roofing materials were installed on permanent exposure racks for a long-term durability (weathering) study.

Electrical Research – BTR staff continues to participate in an Underwriters Laboratories (UL) technical panel on arc fault circuit interrupters - a new technology designed to eliminate electrical fires in homes and on GFCIs (ground fault circuit interrupters). In addition, the informational materials on statefarm.com regarding aluminum wiring were updated on statefarm.com. The article regarding aluminum wiring, now explains where to get the proper materials to retrofit a home built with aluminum circuit wiring.

Wind Mitigation – The 25th Anniversary (Feb/March 2006) issue of *Fine Homebuilding Magazine* highlighted State Farm's toe-nailing research and promoted the use of roof connections as a better building option.

Building Code Review. Members of the BTR participated on the 2006 ICC Building Code process. BTR staff reviewed over 400 different proposed code changes to the ICC, IBC, and the International Wildland-Urban Interface building codes. This work supports the Loss Mitigation Unit within State Farm, especially the State Farm employees who sit on various ICC code development committees.

C. Other Activities: University Collaborations

Texas Tech University (TTU) Portable Wind Tower Project. BTR presented a check in the amount of \$40,000 to TTU in support of a new smaller portable wind tower program. These towers are deployed in front of landfalling hurricanes, resulting in the ability to gather more robust data for wind studies.

University of Illinois. State Farm opened the State Farm® Research Center at University of Illinois' Research Park on the Urbana-Champaign campus. College students work alongside State Farm Actuarial and Strategic Resources department employees researching initiatives important to State Farm. The partnership is envisioned as being capable of creating real-world educational opportunities for the students and faculty who will work at our Research Center. The Research Center has allowed for collaboration on a variety of important research initiatives.

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