

## Construction Lessons Learned From the Hurricanes

The National Institute of Standards and Technology (NIST) published a report (NIST Technical Report 1476) on the performance of physical structures in hurricanes Katrina and Rita. In general, storm surge was determined to be the dominant cause of damage, exceeding the levels defined by existing flood hazard maps. There were a number of interesting findings on the quality of construction including:

- Many state and local agencies had failed to adopt or enforce current building codes and standards.
- Masonry wall failures may have been prevented if walls had been properly anchored and reinforced as required by current building codes.
- Many roofing shingle failures resulted from installers using an inadequate number of fasteners or installing fasteners in the wrong locations. NIST recommends that states and localities consider licensing roofing contractors, providing continuing education to contractors, and implementing field inspection programs to monitor roofs being constructed.
- Wind-borne gravel from building rooftops caused a great deal of damage to nearby structures, especially windows. Current building codes do not permit aggregate surface roofs in high wind areas.
- Electrical equipment, generators, chillers, and other critical equipment were not placed above the expected flood levels.
- Isolation valves were not installed on water and gas distribution systems.

These findings have several implications for the future of youth programs operating in hurricane zones:

- Expect to pay higher building construction and reroofing costs. Contractors may have additional licensing and inspection costs.
- Youth programs need to do a better job about verifying that contractors are building to code, even if the code has not been adopted by their local officials.
- Talk to your insurance agent about flood insurance. Typically, flood damage is excluded on the property coverage. Because flood hazard maps are being redrawn, your facility may now be located in the new zone.
- Programs operating in flood zones may have to plan all future construction at either higher elevations or on stilts.

---

If you have a safety or risk management question or a suggestion for a topic, please contact Markel's Risk Management Department at [safety1st@markelcorp.com](mailto:safety1st@markelcorp.com).