

SAFE ROOM INDUSTRY MATURING RAPIDLY

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Expansion and maturation of the storm shelter industry are robust! Although the concept of the above ground storm shelter has been around since the 1970's, the last two decades have seen a rapid ascent in the:

- number and variety of storm shelters installed
- their quality
- professional personnel involvements
- standards and guidelines
- governmental , state, and jurisdictional initiatives
- code requirements

FEMA's Hazard Mitigation Grant Program (HMGP) and Pre Disaster Mitigation Grants have provided partial funding for storm shelter construction, thereby fostering rapid growth in the number of storm shelters installed, especially residential shelters. Recent tornado-related school fatalities have resulted in increased emphasis on community shelters in schools and helped precipitate initiatives such as the 2015 International Building Code (IBC) requirement to include shelters in new schools and first-responder facilities in high-risk tornado regions.

FEMA designates as safe rooms those buildings or portions thereof that comply with FEMA P361², which requires 250 mph design wind speeds. The National Storm Shelter Association (NSSA) requires of its producer members that all their residential tornado shelters (movable) also be designed for 250 mph wind speeds. FEMA 361 includes a few design and performance criteria that are more conservative than those in ICC/500³, thereby distinguishing safe rooms from other storm shelters.

Development and adoption of storm shelter standards such as NSSA/ICC 500 and the FEMA Guidelines such as FEMA P320⁴ and FEMA P361 have guided the industry to produce higher quality shelters. NSSA requires of its Producer Members that they follow the Safe Room Standards Compliance Verification Process, unique to their association, before affixing a seal to each shelter produced. A Commentary to the Standard NSSA/ICC 500, published in February 2016 will add clarity and understanding to storm shelter design and construction issues, further enhancing shelter quality.

FEMA has published several quick guides related to shelter quality including guides on residential safe rooms⁵, tornado safe room doors⁶, foundation and anchoring criteria⁷, and flood hazard elevation and siting⁸. One of the greatest shelter quality challenges remaining is to see the quality in construction and installation practices more closely resemble the sophistication in design exhibited by design standards and FEMA guidelines. This gap will narrow as more professional people become engaged in permitting and inspection processes. Fortunately, this is a current trend. Greater emphases on shelter installation and inspection in the latest editions of ICC Standards and FEMA guidelines are expected to help. The NSSA is considering adding the membership grade of Inspector to their current grades of Producer, Professional, Installer, Third Party Evaluator, and Media Partner.

With the availability of FEMA plans and guidelines for site-built shelters in FEMA P320 and with a large selection of available manufactured shelters of all types, it can be said that a shelter solution can be developed for virtually every situation. Manufactured shelters available include above ground, below ground, residential, community, indoor and outdoor.

The shelter industry has seen extraordinary growth and maturity in its short history. Robust shelter sales and construction – especially community shelters – and quality enhancements are expected for the foreseeable future.

1. Executive Director, National Storm Shelter Association, Research Professor, National Wind Institute, Texas Tech University
2. FEMA P 361, Safe Rooms for Tornadoes and Hurricanes: Guidance for Community and Residential Safe Rooms
3. ICC 500-2014, the ICC/NSSA Standard for the Design and Construction of Storm Shelters
4. FEMA P 320, Taking Shelter from the Storm, Building a Safe Room for Your Home or Small Business
5. FEMA Fact Sheet on Residential Safe Rooms, February 2015
6. FEMA Fact Sheet on Residential Tornado Safe Room Doors, September 2014
7. FEMA Fact Sheet on Foundation and Anchoring Criteria for Safe Rooms, October 2015
8. FEMA Quick Guide for Flood Hazard Elevation and Siting Criteria for Residential Safe Rooms