



Saferoom / Fortified House

a qualitative investigation

**Research by:
MLN Research, Ltd.**



**Stronger
Homes
Stronger
Communities**

Safe Room / WRH

A Qualitative Investigation conducted especially for the:

Blue Sky Foundation of NC

by

MLN Research, Ltd.



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Notes on Report Structure

The report is divided into four primary sections...

1. The **Study Background** section provides the details of how and why the study was conducted. It includes a statement of objectives and details of study methodology.
2. The **Research Summary** is a subjective analysis that combines the moderator's understanding of research objectives with a qualitative appraisal of key research findings.
3. The **Findings** section is an objective reporting of the research discussions. Within the Findings section, respondent comments are indented and italicized.

The comments are identified by market: **A** = Asheville, **R** = Raleigh, and **W** = Wilmington. While not exhaustive, the comments are meant to be representative of the general sentiment of respondent opinion.

4. The **Appendix** section contains copies of research materials used during the research.



Objectives

- According to Blue Sky Foundation literature: “The Blue Sky Foundation of North Carolina is a non-profit corporation chartered for the purpose of encouraging hazard resistant construction. The foundation provides information, public education, and professional training which promotes safer construction, wise land use, disaster mitigation and sustainable development. The initial Board of Directors represents a variety of interests including: home builders, consumers, local government, building officials, and state agencies.”

- As part of a larger market research study, representatives from The Blue Sky Foundation contracted MLN Research to conduct a series of focus groups among North Carolina consumers. Specific study objectives included:
 - Ñ Gaining an understanding of attitudes and perceptions of North Carolina homeowners toward natural phenomenon in general and high velocity wind events in particular.
 - Ñ To evaluate consumer reactions to the “Safe Room” concept and to understand the demographic characteristics of individuals most interested by the concept.
 - Ñ To determine the preferred characteristics of a Safe Room.
 - Ñ To examine consumer reactions to a “Wind Resistant House” concept and to understand the demographic characteristics of those most receptive to a “Wind Resistant Home” concept.
 - Ñ To evaluate the value propositions associated with “Safe Rooms” and “WRH.”
 - Ñ A beginning step in the understanding of price elasticity of demand for protection offered by “safe rooms”.

- The results of the research will be used to assist general understanding of relevant issues and to contribute to the design of a quantitative questionnaire for a disproportional stratified sample phone survey conducted by East Carolina University.

Methodology

- Four focus group sessions were conducted. Three were conducted with owners of traditionally constructed homes and one group was conducted with owners of manufactured homes.
- For the traditional home segment, one group was conducted in Asheville, NC; one was conducted in Raleigh, NC; and one was conducted in Wilmington, NC. The manufactured home group was conducted in Wilmington, NC.
- To qualify for participation, respondents were to be:
 - ⌘ A gender mix with a spread of ages between 25 to 65.
 - ⌘ Households with and without dependant children.
 - ⌘ Fully employed households.
 - ⌘ Individuals representative of a mix of building material for their current homes.
 - ⌘ Individuals with at least somewhat concerned by severe weather events.
 - ⌘ A mix of education levels.
 - ⌘ Home values of between \$80,000 to \$500,000.
- The research sessions were conducted at L&E Research in Raleigh on October 2, 2000; at Eastcoast Research in Wilmington on October 3, 2000; and at Southeast Research in Asheville on October 9, 2000. The sessions were moderated and the results analysed by David Nerz, MLN Research, Ltd. The work was audiotaped and videotaped; copies of these materials have been given to the Blue Sky Foundation.

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Research Summary

General Attitudes: Natural Phenomena

Objective: To gain an understanding of attitudes and perceptions of North Carolina residents toward natural phenomenon, in general, and high velocity wind events in particular.

Coastal and Piedmont residents were the respondent groups most relevantly affected by hurricanes and tornadoes.

□ **Coastal (*Wilmington*)** residents are troubled by high velocity wind events due to their frequent exposure to hurricanes. Spawned tornadoes are considered a worrisome by-product of hurricane activity.

Falling objects, airborne missiles, and structural damage were all considered threatening high-wind occurrences. Flooding is another natural phenomena that concerns Wilmington respondents.

□ **Piedmont (*Raleigh*)** residents have some concern over high velocity wind occurrences due to their experiences with hurricanes and tornadoes over the last 10 years.

Raleigh respondents say that damage and personal injury caused by falling trees is their primary fear in a high wind event.

□ **Mountain (*Asheville*)** residents are not worried about high velocity wind events.

Asheville respondents said they are most concerned about snow and ice during winter, and wildfires during the dry season.

Safe Room Concept

Objective: To evaluate consumer reactions to the *Safe Room* concept and to understand the demographic characteristics of individuals most interested by the concept.

The interest in the Safe Room concept is directly related to the degree to which individuals are personally, and perhaps psychologically, threatened by high velocity wind events.

- The primary benefits of a *Safe Room* are **personal protection** and the general “**peace of mind**” that comes from having one within the home.
- Those whose primary concern is “safety from personal harm” are the individuals most enthusiastic about the *Safe Room* concept.
- In each market, there was a small segment of residents who may be characterized as having an unusually strong fear of high velocity wind events. Given this fear, these individuals prefer the total safety offered by a *Safe Room*.
- During a qualitative choice exercise, about half of the Wilmington respondents interviewed (both in traditional and manufactured homes) selected a *Safe Room* over a *WRH*. Compared to Raleigh and Asheville, Wilmington residents had a much greater relative preference for the *Safe Room*.
- Some believed that a *Safe Room* provides the additional benefit as a place for safekeeping important personal documents and possessions against the threats of storms, fire, or theft.



Preferred Safe Room Design Qualities

Objective: To determine the preferred characteristics of a Safe Room.

Design Element	Reasons for Preference
Multi-Purpose Rooms	Because protection from hurricanes and tornadoes is considered an infrequent need, consumers felt it was important that Safe Rooms have multiple functions. Ideas for a secondary purpose included: bathrooms, closets, spare bedrooms, or home offices.
Internal Access	Since the principal benefit of Safe Rooms is personal safety, homeowners interested in the concept do not want to expose themselves to risk by leaving their homes in order to reach safety.
Above-Ground	Respondents want Safe Rooms built above ground. An above-ground location allows users easier exit from the shelter should it be covered by debris. It also lessens the risk of being "flooded-over."
Comfort	If individuals are to stay through a storm, they want a space that is comfortable for a up to 24 hours. Elements that tie into comfort include: adequate square footage, light source, plumbing, drinking water, and a food supply.
Transparent Design	A number of respondents wanted to avoid the "fallout shelter" stigma that friends, neighbors, or relatives may attach to their Safe Room . For this reason, they ask that the room design blends seamlessly into the décor of the home.

Wind Resistant Home (WRH) Concept

Objective: To examine consumer reactions to a *WRH* concept and to understand the demographic characteristics of those most receptive to a *WRH*.

The perceived benefits of a *WRH* are an equal combination of personal and property protection.

- The primary appeal of a *WRH* centers on the way such a design may combine **personal** and **property protection**.
- Given a choice between the two, residents of Raleigh and Asheville are far more likely to prefer a *WRH* to a *Safe Room*.
- Wilmington residents who prefer the *WRH* option tend to be the type of individual more preoccupied by damage to property than danger to self. Regular exposure to hurricanes has decreased their fear and, at the same time, highlighted the inconvenience caused by a hurricane's aftermath. If they have to leave, they want to return to a home that is intact...where the home itself (and the possessions within) are protected. A *WRH* satisfies this want...a *Safe Room* does not.
- The perception of superior construction quality may be a potentially influential secondary benefit of a *WRH*. Residents in all three North Carolina regions believed that a *WRH* would be a better-built house. Most respondents feel that most newly-built homes lack the rigorous attention to detail that characterize houses built in previous decades.



Expectations of a Wind Resistant Home (WRH)

Objective: To determine the preferred characteristics of a Safe Room.

Design Element	Rationale
Wind Protection	Most respondents believed that wind protection of 130 mph sustained winds was more than adequate for the weather that they would expect to experience in North Carolina.
Water Penetration	Many Wilmington residents have experienced “horizontal rain” during hurricanes. They expect that a <i>WRH</i> would prevent this phenomenon from occurring.
Extra Fortification	Respondents in all three research regions expressed concern over wind-caused tree falls. To be seriously considered, a <i>WRH</i> would have to build in some element of protection against such events.
Building Material	Many assumed that a <i>WRH</i> would be built stronger, throughout the construction process. A <i>WRH</i> would have 2"x6"s instead of 2"x4"s; ½" plywood rather than ¼" plywood. Stronger building material elements contribute to the benefits of increased construction quality and protection from high velocity winds.

Price / Value

Objective: To evaluate the value propositions and price elasticities associated with *Safe Rooms* and *WRH*.

It was clear that respondents found price value for both the *Safe Room* and *WRH* alternatives.

Demand for both options appeared to have a fairly high price elasticity.

- On the basis of qualitative pricing exercises conducted in the focus group sessions, these findings emerged:
 - Ñ Respondents in all three markets consistently estimated the cost of the *Safe Room* and *WRH* at a higher price point than the actual cost of both alternatives.
 - Ñ Many respondents expressed unsolicited surprise at the low cost for both alternatives; this reaction was especially pronounced for the *WRH* option.
- According to many respondents, newly-built homes that feature a *Safe Room* (or qualify as a *WRH*) would have a positive impact their new home decision-making. Some said they would give up other home features to get the benefit of protection.
- Most believed that a majority of the costs of constructing a *Safe Room* or a *WRH* could be recovered in resale.
- Respondents expect little, if any, reduction in homeowners insurance for having a *Safe Room*. Contrarily, it is expected that a *WRH* would reduce homeowners premiums due to its ability to protect personal possessions.

Comparisons Safe House vs. WRH

Note: As a summary to the preceding pages, this chart breaks down comparisons of respondent perceptions. These observations should be viewed in a qualitative context and in conjunction with quantitative results.

	Safe Room	Wind Resistant Home
Strongest Consumer Targets	<ul style="list-style-type: none"> Ñ Wilmington Residents Ñ Manufactured Home Owners Ñ Individuals who are relatively more concerned with personal safety 	<ul style="list-style-type: none"> Ñ Wilmington, Raleigh and Asheville Residents Ñ Individuals who are relatively more concerned with the protection of their property.
Perceived Personal Protection	Ñ Total personal protection for all weather events that could occur in NC.	Ñ Adequate personal protection for all likely weather events in NC.
Perceived Property Protection	Ñ Minimal property protection.	Ñ Excellent property protection.
Perceived Cost vs. Actual Cost	Ñ Actual cost was lower than anticipated.	Ñ Actual cost was lower than anticipated.
Cost Recapture at Resale	Ñ Would recapture most of the cost at resale.	Ñ Would recapture all of the cost at resale.
Impact on Homeowners Insurance	Ñ No homeowners insurance discount discount would be expected.	Ñ Homeowners insurance discount would be expected.



Other Summary Findings

- Stating strength of a hurricane in terms of “sustained miles per hour” seemed to carry more weight with respondents than the hurricane category that the sustained winds describe. For instance, many viewed 130 mile per hour sustained winds as a more powerful storm than a Category 3 hurricane.
- Mobile home park residents would prefer an individual Safe Room to a shared shelter facility.

Detailed Findings

General Perceptions: Hurricanes and Tornadoes

Probability and Severity of Hurricanes

u Wilmington: Residents of Wilmington believe that they are much more likely to experience hurricanes than other regions in the United States.

"We're more likely to get a hurricane here. In Wilmington, hurricanes are a way of life." W

"We're in the extreme zone...we've been hit six times since I've lived here." W

"Wilmington is a magnet for hurricanes." W

u Raleigh: While the experience of Hurricane Fran led to a respect for the destructive power of hurricanes, many Raleigh respondents feel the probability of hurricanes in the Piedmont is lower than it is for the Coast.

"Raleigh is pretty far inland and storms lose a great deal of intensity rapidly when they go over land. Hugo was a weird anomaly...it surprised a lot of people in Charlotte." R

"I think that we're not as likely to get hurricanes. Over the history of hurricanes there's been very few that have tracked up this way and done damage of any sort. Fran did. Hugo came in. I don't remember any others with the exception of Hazel." R

u Asheville: Hurricanes are not considered a high probability event in Asheville.

"If you look at it category-wise, and how its forecasted on the weather channel...I don't think we've ever been hit by a hurricane...or a tropical storm. It always gets downgraded before it gets here. I mean, it's got to travel a lot of distance to get here."

"By the time they get here its mostly a non-event. A lot of times you see the hurricane forming and you're kind of glad because maybe it'll give you a chance for rain."

Hurricane Concerns: Personal Safety and Property Damage

u Personal Safety: A certain percentage of respondents have their storm priorities focused on personal safety.

"It depends on what situation you're in. When you have senior adults family members who live nearby...you don't know if you can get to them." W

"The first thing that goes through my mind is where is the safest place for my family...where we have a good chance for survival. The center-most room is a half bathroom. You can't get but two people in there at a time. I guess we could go under the house, but no one wants to lay under there." R

"Last year with Floyd, we slept in the basement of our church at night. It's down low and there's no windows, so we felt safe there." R

u Property Damage: For some, the disruption of life caused by a hurricane can be more of a concern than safety from personal harm.

"If the storm is bad enough, I can get in my car and drive away, but property damage...there's not much you can do about that." W

"Worst case is property damage. I may not die, but losing your home is very personal...I don't want to have to go through that." W

"It's the inconvenience and the misery that comes afterward...the clean-up...dealing with insurance companies." W

"The cost of being shut down...the loss of work time. That can be a phenomenal (expense) to a small business." W

"The long working hours after it goes away. I have insurance so I know I'll be whole, but it's going to take a little while to get back to normal." W

"The worst for me would be to have to move out of my house for a year." R

Hurricane Concerns: Major Threats

u Falling Objects: Falling trees are a concern for residents in all three regions tested. In Asheville, it was the only wind-related concern.

"With Fran, a tree fell right through the roof and in the dining room." w

"A falling tree almost killed my child...it landed within a foot of her. I would never of imagined the power of what a tree could do." R

"Trees can kill you. You're thinking of where the next tree is going to fall. (During Fran) you could hear the crack...and then hear them falling and crashing." R

"Having a tree fall on your home or car scares me because we have so many trees around here." A

u Structural Damage: Damage to a home's structure is a stronger issue for Wilmington residents who consider their area more prone to high velocity sustained winds.

"It can pick up your roof if (your roof) is not secured right." w

"I live on a hill, so I'm not concerned with flooding. But my situation...up a little higher...makes me worried that my roof could come off if it was a really bad hurricane." w

u Missiles: Wind-propelled objects are not a top-of-mind issue for most North Carolina residents.

"Anything that's up in the air flying around. A hurricane fence with the Venetian blind things through it was like a bunch of razor blades flying around." R

u Flooding: In Wilmington, post-hurricane flooding often has a significant negative impact.

"In my neighborhood you couldn't get to your own house because of the floods after Floyd." w

"Floyd was the biggest environmental catastrophe in history...a hundred year storm. We had areas flood that never flooded before. We had people lose their homes because they weren't required to have flood insurance." w

"I got 5 _' of water with Fran." w

Preparation for Hurricanes

u Wilmington residents tend to stay with their homes for all but the most powerful storms. Unless they live on the beach, few saw much benefit to evacuation.

"I stay right in my house for hurricanes. I'm not threatened. I'm not worried about it. w

"I chose to live here. I knew hurricanes come here. That's just the chance you take...you buy a generator and get ready." w

"What's the sense of leaving when it can chase you all the way to Columbia." w

"We stock up and prepare. Why run from it if it's just going to follow you? It concerns me to drive...people's brains quit functioning." w

"We screwed up with Hugo...we ended up evacuating into it in Charlotte." w

u Most planning consists of buying supplies in advance of the hurricane's arrival.

"You get plenty of warning for hurricanes. You're supposed to get all your prescriptions and get your food stocked." w

"I prepare by getting water, bread, milk and lots of ice." w

"The stores are a mess, but you got to do it just in case." R

u And some take preventative measures based on past experiences.

"I put on straps to hold the roof down." w

"I had our limbs trimmed a lot before last year's hurricanes." R

"We had extra trees taken down after Fran." R

Probability and Severity of Tornadoes

u **Wilmington:** Smaller tornadoes often accompany hurricanes. Otherwise, coastal respondents have little experience with tornadoes.

"After every hurricane, tornadoes come up Whiskey Creek. You can actually hear them coming up the creek...it's scary." W

"They're not as severe here as they are in the Midwest. They're horrible out there. Here, they're little bitty things." W

u **Raleigh:** There wasn't a sense of high probability, but when tornadoes have hit close to home, they are vividly remembered.

"We had a tornado come through the neighborhood 12 years ago. I couldn't believe what I saw...we had a house across the street that had the top floor taken out." R

"I remember the air, the way it felt right before the tornado...the houses the next day were just smashed...the K-Mart was gone." R

"We get less in Raleigh compared to Tornado Alley...but we do get a fair amount of warnings throughout the year and you have to be prepared." R

u **Asheville:** Tornadoes hardly ever occur in the mountains.

"I've never experienced one here...I think it's very rare here." A

"It's almost impossible for these types of storms to come up this high (altitude)." A

"If there have been any tornadoes here they were very weak ones." A

Tornado Concerns

u **Unpredictability:** Because tornadoes strike without warning, many feel that there is little that can be done to prepare for one.

"Things that you don't know are coming concern me because you don't have any warning at all." w

"With hurricanes you have time to prepare...with tornadoes you don't. They're on you. If you're not ready in time, there's no time to get ready." R

"They are more sudden. You don't know exactly when they're going to touch down." R

u **Power:** The destructive force of tornadoes cause many to adopt a relatively greater concern toward personal safety.

"I'm at the mercy of the Lord whether I survive or not." w

"I'm not worried about my property...as long as my family is safe." w

"I can rebuild my house, but I can't rebuild my kids. For tornadoes I worry most about personal safety." w

"Tornadoes can have 300+ mile per hour winds. There's not much that can withstand a tornado." R

"You're going to get hurt...maybe killed." w

u **Where's a Safe Place?:** Some are very concerned about finding shelter during a tornado.

"If it's close enough, we're going to head under the house." w

"Of course, you worry about your family first...is there a protected place you can go." w

"Is there a safe place to go? Which room in my house is the safest?." R

Hurricanes and Tornadoes: Other Issues

New Home Building Standards

- u **Inferior Quality:** Many homeowners feel that poor craftsmanship and inadequate construction standards has resulted in newly-built homes that are less able to withstand violent weather.

"The materials are not as good as they used to be. It's particleboard instead of real wood." R

"My house is like 30 years old and when we had it inspected...the beams were like triple thickness...they don't build them like that anymore. The old-time guys used 2x6"s instead of 2x4"s and they spaced them 12 inches apart." R

"If we had a really bad hurricane I don't think our homes would hold up...they're just not built that well." A

- u **Insufficient Protection:** There is little perception of any builder provisions for storm protection in new homes. A few Wilmington respondents said that some wind protection was being incorporated in home design. Even so, these individuals believed that the requirements could be stronger.

"I like the idea of having shutters that actually work...shutters that close that you can latch...but they don't do that anymore. They're just decorative." R

"An underground shelter would have been great for Fran...but they don't have that here. You would be looked upon as very strange if you wanted something like that built on your property." R

"In New York, everyone had a basement. There are no basements here...I guess because of the red clay." R

"Your house needs to be built to a certain standard for a certain wind zone. The windows have to meet certain requirements too. Still, some engineers are saying it needs to be stronger." W

"I already have hurricane straps on my roof. They're only required every 3 rafters...I have them on every one." W

Hurricanes and Tornadoes: Other Issues (ctd.)

Storm Warning

- u **Advances in Meteorological Technology:** Doppler radar and other technological breakthroughs make preparing for severe weather a bit easier.

"The development of Doppler radar gives (forecasters) the capability of actually seeing a tornado. I'm watching it all the time (during tornado warnings) just to see how far away it is just in case I need to be gone." W

"Doppler radar is wonderful because you see exactly where (a tornado) is and where it's going." R

- u **Continued Skepticism:** Even with the advancements in forecasting, some are not impressed with the forecasters' track records and methodology.

"You do get more warning today. The only problem is if you don't have power (you don't have Doppler)." W

"They didn't expect all the tree damage with Fran. When (forecasters) get fooled, we get fooled." R

"It tends to irritate me. (When they give reports) half the screen is gone. Since Fran, I think they're going overboard." R

Awareness of Wind Measurement and Storm Categorization

- u **Measurement Uncertainty:** Most respondents realized that a hurricane's wind strength is assigned a category. However, most do not know the wind speeds that determine each hurricane category. Few respondents know that tornadoes are categorized by destructiveness; no one had heard of the Fujitsu scale.

"Category 5 is sustained wind speeds in excess of 130 miles per hour. I think Category 4 is wind speeds above 110 miles per hour." A

Safe Room Concept

Ñ *Approximately halfway through the focus group sessions, respondents were presented with a written statement that described the Safe Room concept. The concept statement used during the research is included in this report's Appendix.*

Benefits of the Safe Room

General Peace of Mind

"My husband and I have talked about something like this...I think it's a great idea because it gives you peace of mind that you have a safe place to go." W

"If I knew (I had) a place that could withstand anything I can't imagine being fearful of a storm. You wouldn't have that fear that you have now. Knowing that myself and my family would be safe would give me peace of mind." R

Personal Protection

"You'd know it'd protect you against the force of wind and the missiles flying through the air...if the roof blows off that's okay because this other room will protect us." W

"I have a small child and we have windows all around...the only safe place we have is a linen closet in the middle of the house that's teeny-tiny—so it would be nice to have someplace to go if you knew something was coming." R

"I think of it as a safety issue. In our house we don't have a basement...we don't even have a linen closet. The few times we've had tornado warnings, we actually went to a neighbor's house that had a walkout basement. If one comes in the middle of the night we're not going to want to walk over to her house. It'd really be for my kids protection...so I'd be very interested." R

Property Protection

"I'll probably keep my pictures and photo albums and the other possessions I have in there." R

"If it was reinforced concrete it would withstand fire. If I could put a locked door to keep it secure I could put my valuables there...paperwork valuables, documents, fine jewelry...that would be the main benefit. A safe haven would be the additional benefit. In Asheville, I'm more likely to encounter fire than I am a tornado." A

Safe Room: Expectations

Basic Requirements

- u Based on the concept statement description, respondents expected the safe room to remain structurally intact for any weather situation.
- u Most also felt that it should provide for situations that require a somewhat lengthy stay. Mentioned amenities included: electricity, water, food supplies, refrigerator, indoor plumbing, and a light source

Multifunctionality

- u A majority of respondents favor rooms that have more than one purpose; they do not want to dedicate home-space for a shelter that has minimal utility. Moreover, they would like the room to transparently blend with the décor of the home.

"I would want a Safe Room to be...the same design, borders, and trim...like an everyday room. You are aware of it but maybe not everyone else is aware of it. You want to be able to use that living space." W

"It has to, cosmetically, be tied into the house." W

"For me, if it's not a dual purpose room that I can use all the time, I don't want it. I don't want something sitting for in case ten years from now a hurricane comes." R

"I would see it as a dual purpose regular room, maybe a large bathroom that is centrally located with no windows, built to withstand much more than the rest of the house would." R

"(The benefits) are in the eye of the beholder. But if it was a dual-purpose room the shelter is a nice bonus." R

"I would see it as integrated into the house, it functions the same as the rest of the house." A

Safe Room: Expectations

Location

- u For safety purposes, many prefer to enter a Safe Room from within the home.

"It should be in the home somewhere....probably in the middle of the house." W

"If it was outside your house, you'd probably end up using it for storage. When a hurricane comes you'd have to unload it and what are you going to do with the stuff that's in there." W

"I don't want to have to run through a tornado to get to the shelter...that's like endangering yourself to get safe." R

"I want it connected to the house, but maybe as an addition to the house...I can't see taking room up with it in the house." A

- u An above-ground location was another respondent request.

"I'd want it above ground...without a doubt...it (doesn't provide) protection against flooding." W

"Not below ground in Wilmington...you'd be underwater." W

"The only time I want to go under the ground is when I quit breathing." R

"If it was below ground and debris fell on top of it we might not be able to get out." A



Safe Room: Potential Barriers to Concept Acceptance

Other's Perceptions

- u Some believe that friends, neighbors, relatives and potential homebuyers may view a **Safe Room** as a peculiar precaution.

"(One negative would be) the neighbors laughing at you. It's sort of like that bomb shelter idea. If it were a dual purpose room you could sell it a little better. If it's integrated into your house and looks like your neighbor's then it's not an issue." R

"I think that people buying your house might think that a shelter was strange." R

"Years ago, we had fallout shelters...it became a very big eyesore sitting in your back yard. They disappeared because of the looks. If you had one in your yard you couldn't sell your house." R

Cost to Retrofit

- u While it was not considered an argument against the concept, many envisioned a **Safe Room** to be an impractical or cost-prohibitive retrofit.

"It would be very costly to do it in my current home. If you were building a new house...then yes. A retrofit is going to cost more...way more. They're going to have to look at the roof, the fittings...all of it." W

"It may be too expensive...all the modifications to the home to make the thing work right." R

Not Personally Relevant

- u And some respondents simply do not see a need for a **Safe Room** in their homes.

"I don't see where it would benefit me. I could be at a mall shopping during a tornado...you might not have time to get home. Hurricanes...you get a week or two weeks in advance to leave." W

"It wouldn't be worth it just for tornadoes in this area." R

"We're more worried about falling trees. If we have a storm in the middle of the night and you have a tree fall on your house, you're not going to run to this little room because you don't know that this is going to happen." A

Wind Resistant Home (WRH)

- Ñ *After an initial discussion of the Safe Room concept, respondents were asked to give their thoughts on the idea of fortifying a newly built home. It was explained that a WRH would not carry the same level of protection as a Safe Room. Specifically, respondents were told that the WRH would offer wind damage protection against C3 hurricanes and F2 tornadoes while the Safe Room would offer protection against C5 hurricanes and F5 tornadoes.*
- Ñ *What follows is a summary of the reactions to the idea of a WRH and the relative preferences of respondents for the two protection alternatives.*



Protection Perceived to be Offered by a WRH

u Wind Protection: Wind protection is an important perceived benefit delivered by a *WRH*. Wilmington residents are primarily concerned with sustained winds; Asheville residents seemed to care more about wind gusts.

"We know we can handle wind gusts up to 150, but sustained winds...that's a whole different story. If you can withstand 140 mph for like eight hours...that's a great level of protection." w

"In this town, it's very important (to let people know it protects against sustained winds). I think it ought to be (talked about) on the front end." w

*"I think we're protected here in the mountains from hurricanes. It's the gusts of winds, like when we're driving and buffeted, that's when I get concerned...so, I think a *WRH* would do us more good than just having a room." A*

u Water Protection: A few Wilmington respondents have experienced water penetration as a result of high winds. They expect a *WRH* to protect them from this occurrence.

"I would like for wind-driven rain not come in through my windows...that would make me very interested." w

"If they're going to increase the water integrity of the house, I'm interested in something like that." w

u Falling Objects: Even though a *WRH* doesn't offer complete protection from falling trees, it is thought to provide greater protection than homeowners currently have from the risk of falling objects.

"It's better than we have now...I'd assume there would be more rafters or something." w

"Even if it doesn't stop a big oak from falling through, it should be strong enough to protect the house against smaller ones." R

*"I think that a tighter *WRH* will protect me from the tall pines that grow around our house." A*

Preference for a WRH

Those who preferred a *WRH* had the following rationale for their choice:

uProperty Protection: Some considered a *WRH* as a superior alternative for its ability to protect property and possessions.

"You've got your whole investment protected...the whole house...the personal belongings that you can't ever go back and replace. If you got a house that's protecting your couch and chairs, you've also got a house that'll protect your personal (irreplaceable) stuff too." R

"The sense of not having your personal space violated. It's all your personal space that you don't want to do without." R

"It's the convenience of not having to buy all new furniture...all new carpeting... clothes...it's total protection." W

uConstruction Quality: Many equated a *WRH* with a better-built home.

"It's going to be better for general wear and tear because it's going to be built stronger than your average home is now. So, you get the benefit that the whole house is built more solid. During storms, smaller trees will bounce right off...it'll handle the everyday thing...and still look just like the neighbors house." R

"Seeing the homes around here built so cheap, the way I look at it is having a fortified home is like having my home built the way its supposed to be built." A

"What fortified home says to me is when I die it'll still be standing for my children and my grandchildren, like the houses built 100 years ago." A

uConvenience: People liked that they didn't need to change their lifestyle to have the benefit of home fortification.

"You'd just live in it like it was an ordinary home. People wouldn't know it was fortified unless you told them it was." W

"You can only live in that (Safe Room) for so long." R

"After five hours of being in the same room with five people, your mother-in-law included, you're going to want to spread out." R

Preference for Safe Room

Those who preferred a *Safe Room* had these reasons:

u Total Safety: Some wanted the assurance that they would have complete protection from any weather related danger.

"It seemed to me it was tougher. I would rather have a small place that I need to be for just a little while that I knew would be safe, even if by some strange chance we have a C5." R

"If it's the same price, why wouldn't you get the room...the room is going to withstand anything." W

u WRH is Not Strong Enough: Some Wilmington residents were unimpressed by the winds that a WRH would protect against.

"A Category 3 is nothing. We've had those and our houses have stood up fine. " W

"I'm pretty sure that the building codes on beach property already meet Category 3." W

"You're' going to have to do a Category 5 (WRH). We want maximum protection. As long as it's Category 3 we feel okay. But...homes are not built to withstand Category 5." W

"It would need to withstand 155 mph wind and not disintegrate." W

u Relative Cost: Once the actual price was revealed, some opted for the room as a more economical alternative.

"(Fortifying the house) might be too extravagant. That's too much. We just want to keep our family safe...then it's not as cost prohibitive. " W

" It's more affordable to do a room." W

Price / Value Considerations



Price / Value

Soon after the concept of a **Safe Room** was introduced, respondents were asked to estimate the cost of building a Safe Room in a new home. Raleigh homeowners projected a higher cost than either Wilmington or Asheville, with a majority believing the cost of the room to be above \$10,000. Most Wilmington and Asheville respondents thought the room would cost between \$5,000 to \$10,000. After discussing the concept of a Safe Room and WRH at greater length, these additional findings emerged:

A majority of respondents estimated the cost of a **Safe Room** and a **WRH** at the high end of the actual cost range. Many were surprised at how inexpensive the protection options were...especially the **WRH** option.

"For the fortified home, I was just thinking lots of money...lots more...thousands and thousands more." W

"This is very surprising, I would of thought the prices would be more expensive for having your whole house fortified." W

"I think the costs are less than we thought. If you spread that over 30 years, that's not so much." R

"The costs for both are lower than I guessed...I'm really surprised at the price of the fortified home." A

"I feel bad putting down all this price information because (it's higher than it actually is) it'll end up jacking up the final price." A

Price / Value and Home Buying

Respondents offered their views on how a *Safe Room* or *WRH* might impact real estate decision-making.

↗ Influence on Home Buying: A number of respondents said that a *Safe Room* or *WRH* would have a positive influence on their new home purchase-decision.

"It would be like buying a house with storm windows and deadbolt locks. It's safety for your family." W

"Yes, it would make a difference (in deciding on two homes). My family's safety is the most important thing to me. You'd pay a premium for that." R

"Why look a gift horse I the mouth. If you didn't have to pay anything else for it why wouldn't you choose this house over another (that didn't offer protection)." R

"I'd trade a Jacuzzi tub for (protection)." R

"I'd give up an extra bedroom." R

↗ Resale Value: Most believed that they would be able to recover the construction costs in resale.

"It would be appealing to a person looking at your home. You'd get your money back and you might sell it easier." W

"Yes, you can recover the costs...it (would be treated the same as a (renovated) kitchen in this area." W

↗ Recovery Advantage for WRH: Some thought that a *WRH* would return it's cost more completely than a *Safe Room*.

"I'd opt for the WRH because you're know you'd get your money back...it's a whole house, not just a room set aside." R



Homeowners Insurance Discount

Respondents were asked to comment on the degree to which an offset in homeowners insurance premium would affect their interest level in the concept.

Respondents believe that a *WRH* would lower their homeowners premium.

"Maybe this would be tied into the insurance. The insurance companies would rate a fortified home lower in risk." R

"I think we should get some kind of kickback (for a WRH). It makes sense." R

"They'd definitely give you a reduction if you had the house fortified...I don't even know if they'd give you a break just for the room." A

Not surprisingly, a reduction in homeowners insurance would increase a potential buyer's interest level.

"It's always easier to justify the expense...payback with the life of the loan." R

"Sure, I'd be more likely to pay extra because (the insurance discount) effectively adjusts those costs down." R

"In building my last house, I automatically did some things because I knew the insurance valued it." R

However, some would not be materially influenced by the reduction.

"Not really (influenced by the insurance discount). Homeowners insurance isn't really that much money." W

"When you get insurance, you got to pay what you got to pay...it wouldn't appeal to me (as a motivating factor)." W

Manufactured Homes

Manufactured Homes: General

Wilmington owners of manufactured homes share many of the same concerns over weather as do their traditional home counterparts. Specifically, they believe that hurricanes pose the most consistent threat. And, they also fear the tornadoes that are spawned from hurricanes.

Additionally:

Ñ Manufactured home owners are less likely to ride out a hurricane than owners of traditional homes.

"If it's a (Category) 2 or lower I'll stay...anything higher than that, I'm gone." w
"If you're in a mobile home you go. All you have to do is watch the media to see what happens to mobile home parks." w
"During the last one I left to go to a concrete house. The older I get, the less daredevil I get." w
"I haven't stayed through a hurricane yet. I go somewhere else." w

Ñ They also feel a bit more vulnerable to storm-related damage.

"I just pray that my house is built strong enough to hold up to the hours of pressure and the constant roar (of a hurricane)." w
"I'm afraid of the roof peeling back or the windows blowing out." w
"There's not much you can do to protect a mobile home." w

Ñ Those who live in manufactured homes rated Zone 3 are somewhat more comfortable about the quality of their home's construction.

"I feel as safe in my (Zone 3) mobile home as I would if I owned a spec home in a nearby residential area." w
"I have one, they've been out about 2 or t3 years now. It can withstand winds up to 120 miles an hour." w

Manufactured Homes: Interest in Concept

Ñ Manufactured homeowners seemed to place a fairly high value on personal safety and, therefore, had slightly greater relative interest in a **Safe Room** than did other segments.

"First and foremost, this is for our safety...me and my husband." w
"It's to take care of me first...the rest of it (possessions) is just material...I'd just let it go." w

Ñ Those who preferred a **WRH** had reasons similar to those who own traditional homes.

"I want space to move around, plus it'll protect my belongings." w
"Yeah, I might still leave...but with the house the odds are that it'll be in better condition than if it wasn't fortified." w
"If my home protects me to 135 mph, I wouldn't have left for some of the recent hurricanes." w
"If I lived in a really tornado-prone part of the country, I'd go for the room." w

Ñ Cost did have an impact on an individuals preference for both a **Safe Room** and **WRH**.

Ñ Preference for Safe Room
"I thought it was fairly surprising that the most expensive cost for the room(on the worksheet) was only \$5,000." w
"I would go with the room instead of the home because of the price."

Ñ Preference for WRH
"For the whole house to be fortified, it didn't seem a whole lot more to pay." w
"To me, the difference in price between the two is extremely low, for a few dollars more I could get the house." w

Manufactured Homes: Interest in Shared Safe Room

Ñ Most mobile home park residents would find value in a shared **Safe Room** supplied by the park.

"Maybe they could do something for the whole park. They could charge extra rent for it." w

"It would be a nice benefit if the park owners would supply something for storm protection." w

"It's better than nothing." w

Ñ However, many were not thrilled at the prospects of actually sharing such a room during a storm.

"I'd prefer an individual room...it'd be closer to get to." w

"There'd be a lot of personalities (in a shared room)...a lot of kids running around. I don't want every Tom, Dick, and Harry in there with me." w

"I see it as a small room within my mobile home that's structurally different than the rest of the house. I don't want to spend to much time (with my neighbors)." w

Ñ If the park did have a shared facility, park residents would not want it very far away.

"If a tornado is coming, it (Safe Room) better be right between the two homes." w

"I'd want it close enough that if I look out the window and see a tornado I can get to it." w

"Walking distance...two minutes--tops." w