RESIDENTS' CONSIDERATIONS IN SELECTING HAZARD-RESISTANT HOUSING

John A. Cross

Residents of the lower Florida Keys are faced with a high probability of hurricane dammage to their homes. Many owners have made architectural adjustments to ameliorate damage potential, but many others have ignored the danger. Nearly a third live in ground level houses, virtually all of which elevates the dwelling above the level of the lot---such as the "stilt house"---provides valuable flood protection. Yet less than half of the houses in the most vulnerable locations have been constructed on stilts.

In this research we ask: (1) What factors influenced the selection of homes, and (2) Why did residents select or reject stilt houses. The relationships in choosing their home type and the physical setting of their homesite were also investigated.

Selection Of The Home

Residents considered a number of factors when selecting a home (Table 1). The nearness of the home to the water, a good view, and price were the three most important considerations. The matter of safety during a storm was important to half the respondents. In other words, the desire to obtain the environmental amenities which brought them to the Florida Keys were much more important than avoiding potential hurricane loss.

Choice Of Stilt House Or Ground Level House

Both elevated and ground level houses were generally selected for similar reasons. No statistical relationships were found between the choice of an elevated vs. a ground level house, and price, architectural style, proximity to water, and nearness to stores, schools and work. Sixty-five percent of the occupants of elevated houses stated that storm safety was one reason they chose their home, but this is not significantly greater statistically than the 55 percent of ground level house residents who also claimed to have sought storm safety.

The deciding reason for selecting both ground level and elevated houses alike was nearness to water (Table 2). Price and view were also important. Hurricane safety was not. This disinterest in safety is not unexpected. Research by Kates,[1] Brinkmann,[2] and Oliver[3] indicates that the desire for waterfront property may overwhelm other considerations. White and Colleagues,[4] with respect to river floodplains, think that adjustment to the flood hazard is often secondary to other choices. The reasons expressed by residents of the lower Florida Keys certainly lends credence to these ideas.

Residents gave a variety of explanations why they specifically selected a stilt house. At the top of the list is concern for flood protection (selected by 62 percent), far more important than desire for breezes (35 percent), view (33 percent) and other factors (Table 3).

The reasons given for not selecting stilt houses are also quite varied (Table 4). The most frequently mentioned explanation (29 percent) is the absence of stairs, which is particularly important among the elderly and residents with small children. However, these worries should not be interpreted as meaning that the flood hazard was not considered, as is illustrated by the response on one questionnaire:

> The perpetual inconvenience of stairs outweighted the occasional risk of flooding.

Other explanations include the lower prices of ground level houses and the perceived unattractive appearance of stilt houses.

TABLE 1

REASONS RESIDENTS SELECTED THEIR HOMES

'DID YOU DECIDE TO BUY OR RENT YOUR PRESENT HOME IN THE FLORIDA KEYS BECAUSE IT:

	YES	NO	NO ANSWER
WAS IN THE PRICE RANGE YOU WANTED?'	357 (77%)	105 (23%)	63
WAS NEAR THE WATER?'	426 (89%)	55 (11%)	44
HAD A GOOD VIEW?'	339 (74%)	119 (26%)	67
WOULD PROVIDE SAFETY IN A SEVERE STORM?'	219 (49%)	224 (51%)	81
WAS BUILD IN AN ATTRACTIVE ARCHITECTURAL STYLE?'	183 (42%)	253 (58%)	89
WAS LOCATED CLOSE TO WORK?'	74 (17%)	352 (83%)	99
WAS LOCATED CLOSE TO STORES OR SCHOOLS?'	57 (13%)	378 (87%)	90
OTHER (SPECIFY)?'			
BUILT HOME THEMSELVES	52		
LIKED THE NEIGHBORHOOD	24		
TO BE NEAR FRIENDS AND FAMILY	13		
INHERITED PROPERTY	6		
OWNED THE LAND BEFORE BUILDING	13		
LOCATED ALONG A CANAL	9		
PRIVACY AND SECLUSION	22		
NEARNESS TO FISHING AREA	11		
MISCELLANEOUS REASONS	44		

NOTE: THE PERCENTAGE FIGURES REFER TO THE PROPORTION OF RESPONDENTS AGREEING OR DISAGREEING WITH THE REASONS.

TABLE 2

SINGLE MOST IMPORTANT REASON RESIDENTS OF ELEVATED AND GROUND LEVEL HOUSES CHOSE THEIR HOMES

	ELEVATED HOUSES		GROUND LEVEL HOUSES		BOTH TYPES	
	N	%	N	%	N	%
HOME NEAR WATER	53	50.5	91	46.7	144	48.0
VIEW FROM HOME	12	11.4	7	3.6	19	6.0
PRICE OF HOME	9	8.6	41	21.0	50	16.7
STORM SAFETY OF HOME	4	3.8	5	2.6	9	3.0
ARCHITECTURAL STYLE OF HOME	2	1.9	5	2.6	7	2.3
HOME NEAR WORK	2	1.9	6	3.1	8	2.7
MISCELLANEOUS REASONS	23	21.9	40	20.5	63	21.0
TOTAL	105	100.0	195	100.0	300	100.0

TABLE 3

REASONS STILT HOUSES WERE SELECTED

'WHY DID YOU CHOOSE A HOME BUILT ON STILTS?'

	NUMBER	PERCENTAGE*
FLOOD PROTECTION	64	62
BETTER BREEZES	35	34
GOOD VIEW	34	33
CARPORT AND SPACE BENEATH HOUSE	16	16
FEWER MOSQUITOES	13	13
REQUIRED BY ZONING LAWS	12	12
LIKED ARCHITECTURAL STYLE	5	5
POSSIBILITY OF CLOSING IN DOWNSTAIRS	4**	4
LOCATION	2	2
HOME PRICE	2	2
WIND PROTECTION	2	2
MISCELLANEOUS OTHER	7	7

*PERCENTAGE FIGURES INDICATE THE PROPORTION OF THE SURVEY POPULATION ANSWERING THE QUESTION WHICH MENTIONED THE PARTICULAR REASON, AND THUS DO NOT ADD TO 100 PERCENT.

**EIGHT ADDITIONAL RESPONDENTS STATED THAT THEY LIVE IN GROUND LEVEL HOUSES, SELECTED BECAUSE THEY HAD BEEN CONVERTED BY ENCLOSING THE AREA BENEATH A STILT HOUSE FOR STORAGE AND LIVING QUARTERS. WITHIN THIS STUDY THESE HOUSES ARE CONSIDERED AS STILT HOUSES.

TABLE 4

REASON GROUND LEVEL HOUSES WERE SELECTED*

"WHY DID YOU CHOOSE A HOME NOT BUILT ON STILTS?"

	NUMBER	PERCENTAGE**
ABSENCE OF STAIRS	60	29
PRICE OF HOME	25	12
HOME AVAILABILITY	23	11
HOME LOCATED ON HIGH GROUND	21	10
DO NOT LIKE THE APPEARANCE OF STILTS	19	9
WHIM	17	8
NO NEED, STILTS NOT IMPORTANT	13	6
LOCATION OF HOME	11	5
HOME LOCATED ON FILLED LAND	10	5
HOME HAD GOOD FOUNDATION	8	4
STILT HOUSE NOT SAFE IN WINDS	7	3
STILT HOUSE NOT SAFE FOR CHILDREN	4	2
GROUND LEVEL HOUSE MORE SPACIOUS	4	2
NO REASON GIVEN	29	--

*EXCLUDING HOUSES ON SHORT PIERS

**PERCENTAGE FIGURES INCLUDE THE PROPORTION OF THE SURVEY POPULATION ANSWERING THE QUESTION WHICH MENTIONED THE PARTICULAR REASON, AND THUS DO NOT ADD TO 100 PERCENT.

TABLE 5

SUMMARY TABLE OF SIGNIFICANT CHI-SQUARE RELATIONSHIPS OF HOME SELECTION CONSIDERATIONS AND PHYSICAL HOMESITE CHARACTERISTICS

HOME SELECTION CONSIDERATIONS	HOMESITE CHARACTERISTICS						
	ADJACENT TO SEA	ADJACENT TO CANAL	DISTANCE TO SEA	DISTANCE TO CANAL	LANDFILL	ELE-VATION	FLOOD ZONE
HOME PRICE	X		X		X		
HOME NEAR STORES AND SCHOOLS		+	X	X	X		
HOME NEAR WORK		X	X	X	X		
HOME NEAR WATER	X	X	X	X	X		X
HOME ARCHI-TECTURAL STYLE		X	X	X	X		
STORM SAFETY OF HOME		X	X	X	X		
VIEW FROM HOME	X	X	X	X	X		

X INDICATES CHI-SQUARE SIGNIFICANT AT .05 LEVEL.
+ INDICATES CHI-SQUARE SIGNIFICANT AT .10 LEVEL.

Some of the residents of ground level houses indicated that they felt their houses were as safe or safer than stilt houses. Six percent stated there is no need for stilt houses, and 15 percent commented that they did not require stilt houses because their dwellings were on what they considered to be high ground or filled areas. A few ground level house residents felt that stilt houses are unsafe, being more vulnerable to high hurricane winds. Several responses to the open-ended question "Why did you choose a home not built on stilts?" Illustrate these concerns:

> Has nothing whatever to do with safety or permanence in storms... Stilt homes are first to go.

> Do not like stilts. Good idea for people who don't live here. Not practical in highwinds. Good only in certain areas.

Homesite Characteristics And Home Type Selection

The considerations which lower Florida Keys residents indicate influenced their selection of a home are statistically associated with many of the physical characteristics of their homesites (Table 5). Residents who selected their home because it was (1) in the price range they wanted, (2) close to stores or schools, or (3) close to work, were generally less likely to occupy homes along the shore or canals or on filled lands. On the other hand, those respondents who sought homes which (1) were near the water, (2) had a good view, or (3) were built in an attractive architectural style, were significantly more likely to be located along the shore or canals and upon filled lands. That residents selecting their homes for the latter three reasons would

be located near the water comes as no surprise. However, an explanation of the homesite preferences of those seeking appropriately priced homes near work, schools, or stores is more open to speculation.

Residents who indicated that they decided "to buy or rent their present home in the Florida Keys because it would provide safety in a severe storm" statistically differ with respect to several of the physical homesite variables from those not claiming this safety consideration. However, the direction of the relationships is not expected. Sixty-six percent of those who sought storm safety actually selected homes adjacent to canals, compared with 45 percent of those who did not cite storm safety as a reason they chose their home. Likewise, those seeking storm safety were more likely to locate on landfill than other residents. These relationships cannot be explained adequately by the distributions of the various home types. Indeed, even though a disproportionate number of stilt houses are located near the sea and canals, there residents did not claim storm safety as a determining factor significatly more often than those occupying ground level houses. Thus an apparent contradiction is discernable. Even though residents claimed they sought storm safety, their actions either cast doubts about their awareness of the hazard or are an indication of cognitive dissonance, whereby residents claimed they selected their house for its storm safety because in retrospect they felt they should have.

Responses to the specific question, "Why did you choose a home built on stilts" are generally unrelated to the locations of the homes. For example, 26 percent of the residents whose responses mentioned flood protection lived on lots adjacent to the seashore, compared with 34 percent of those who did not mention flood protection. However, the differences are not statistically significant. Similarly, with respect to the proximity of their homesites to canals, their elevations, and their flood zone, stilt house residents seeking flood protection do not differ from those citing other home selection factors. Likewise, there are no discernable relationships between any of the other stilt house selection factors and the homesite characteristics.

Residents living in ground level houses responded to the question "Why did you choose a home not built on stilts?" The responses were unrelated to the physical parameters of the homesites. While house price was frequently cited as a consideration in home selection, ground level house residents living along canals and by the sea were no more likely than other residents to cite price as a reason for avoiding stilt houses. Similarly, respondents selecting ground level houses to avoid stairs or for other reasons do not differ with respect to any of the physical variables except adjacency to canals.

Twenty-three percent of the people who lived in ground level dwellings and who claimed to live on the seashore---hardly "High Ground." Likewise, 62 percent of those claiming high ground lived on canals. Cognitive dissonance or environmental ignorance appears to have influenced some of the respondents' answers with respect to what constitutes "High Ground."

Conclusion

In the lower Florida Keys, residents claimed many factors influenced their home selection. Hazard considerations were not the most important. Some associations were noted between the general reasons residents gave for selecting homes and homesite locations. But those residents claiming to have considered storm safety were not significantly more likely to have selected safer house types or locations than the overall population. Furthermore, claims of some residents that their homesites were safe, thus not requiring elevated houses, appear unfounded. These findings, together with earlier findings that perception of the hurricane hazard is unrelated to the choice of home type in the Keys,[5] indicate that residents' re-

sponses can best be understood within the framework of a "disaster culture" as envisioned by Moore.[6] In addition they are supportive of the arguments of Mileti, Drabek, and Haas that hazard perceptions alone have "Not been particularly fruitful as a predictor of...adoption or not of lifesaving adjustments."[7]

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1. R. W. Kates, "The Perception of Storm Hazard on the Shores of Megalopolis," in *Environmental Perception and Behavior*, ed. David Lowenthal, Department of Research Paper no. 109 (Chicago: University of Chicago, 1967), pp. 60-74.

2. W. A. R. Brinkmann, *Hurricane Hazard in the United States: a Research Assessment*, Program on Technology, Environment and Man Monograph, no. NSF-RA-E-75-007 (Boulder: University of Colorado Institute of Behavioral Science, 1975).

3. J. Oliver. *Natural Hazard Response and Planning in Tropical Queensland*, Natural Hazard Research Working Paper no. 33 (Boulder: University of Colorado Institute of Behavioral Science, 1978).

4. G. F. White, W. A. R. Brinkmann, H. C. Cochrane, and N. J. Erickson, *Flood Hazard in the United States: a Research Assessment*, Program on Technology, Environment and Man Monograph no. NSF-RA-E-75-006 (Boulder: University of Colorado Institute of Behavioral Science, 1975).

5. J. A. Cross, "Residential Adjustments to the Hurricane Hazard in the Lower Florida Keys" (Ph.D. Dissertation, University of Illinois, Urbana, 1979); J. A. Cross, "Homesite Characteristics and the Selection of Adjustments to Hurricane Hazard in the Lower Florida Keys," *The Florida Geographer* 15, no. 1 (1981): 7-11.

6. H. E. Moore, ...*And the Winds Blew* (Austin: University of Texas Hogg Foundation for Mental Health, 1964).

7. D. S. Mileti, T. E. Drabek, and J. E. Haas, *Human Systems in Extreme Environments: a Sociological Perspective*, Program on Technology, Environment and Man Monograph no. 21 (Boulder: University of Colorado Institute of Behavioral Science, 1975), pp. 33-34.