Preventive Building

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The old saying about an "ounce of prevention" couldn't have meant any more than in relation to protecting homes against natural disasters.

Nothing brings this home with more impact than the recent tragedy of Hurricane Camille on the Gulf Coast. Perhaps it's because in recent years, Louisiana has experienced more than its share of heartache and destitution from hurricanes of this sort, but this state's spontaneous giving of thousands of dollars worth of food, clothing, and relief funds to the stricken has been more than the desire to do something about it.

But what about next year? Or the year after? Is reaction after the fact the only thing that can be done about natural disasters? Judging from a similar happening in California some 37 years ago, apparently not and perhaps a review of the facts may be enlightening.

Acts of Nature

Until the late 30s, earthquakes in California were viewed by the citizens of that state in very much the same way that we consider our hurricanes. They were acts of nature which no one could do very much about (or thought they couldn't). They occurred at unpredictable intervals and with varying results. Sometimes they happened to you. Sometimes to the other fellow. Engineers and architects knew how to design buildings to resist lateral forces (that is what an earthquake or a hurricane is), but nobody had ever really tried to work out a way of applying this knowledge to the problem of resisting seismic forces specifically.

One day in 1932, about 4 o'clock in the afternoon, a massive tremor hit the city of Long Beach, California, destroying more than half the buildings in that city and almost all of the school buildings. Of course there are differences between earthquakes and hurricanes, but the similarities outstrip the differences in any sort of critical evaluation. Hurricanes, as earthquakes, vary in intensity and unpredictability. No one knows how much lateral force to design for in hurricanes. This was true of earthquakes before 1932. Is it practical to require all buildings to withstand forces equal to the most severe hurricanes on record? Nobody knows, but with estimates of from 500 million to 1 billion dollars and 200 to 300 lives lost in one hurricane alone, perhaps this is just what we should do. Aren't existing building code requirements sufficient? Apparently not.

First Step

How can such building codes be developed? In much the same way the earthquake laws were developed in California. A good first step would be for the states of the hurricane belt (Texas, Mississippi, Louisiana, Alabama and Florida) to form an interstate commission of architects, structural engineers, meteorologists and perhaps a lawyer or two to study the feasibility of and investigate ways to require by law a minimum construction standard for all buildings to resist structural collapse as a result of hurricane winds and waves. It is probable that in the beginning, it will be trial and error. Perhaps a starting point would be to examine the existing structures on the Gulf Coast and see what primary theses may be developed from them and why they were spared by the harsh winds and lethal waves while others were swept away. These buildings need to be examined now while this is all fresh in the public memory. Can the problem be solved? It has been solved in the area of earthquakes in California and can be conquered here in the realm of hurricanes if the public and authorities support it.

The Red Cross and other charitable organizations went into action. Neighboring communities replied splendidly to the call for food and clothing. Generally, the reaction was very similar to the public response following Camille. Then somebody remembered the destroyed school houses and public sympathy turned to the horror with the realization that had the tremor struck 90 minutes earlier, it could very well have killed every school age child in the city.

Public Outcry

Immediately, a public outcry arose demanding public buildings that would withstand seismic shocks. A whole series of bills were introduced in the legislature, the Riley Act, the Field Act, Title 21 of the California Administrative Code, all with the same purpose - to insure by law that all public buildings be required to withstand certain limits of horizontal force.

At first the engineering knowledge of how much force a building should be required to withstand was very meager. So, arbitrary limits were set. In each subsequent earthquake, the state and the communities sent survey teams of architects and engineers to the sites to...