



## **HURRICANE KATRINA AND ITS POTENTIAL IMPACT ON THE CONSTRUCTION INDUSTRY**

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## **I. BACKGROUND**

Hurricane Katrina crossed the Florida peninsula on August 25, 2005 as a Category 1 hurricane. Upon entering the Gulf of Mexico it gathered energy from warm gulf waters, producing a hurricane that eventually reached Category 5 status on Sunday, August 28<sup>th</sup>, shortly before making its second mainland landfall just to the east of New Orleans on Monday, August 29<sup>th</sup>.<sup>1</sup> Immediately prior to landfall on the morning of August 29, 2005, Hurricane Katrina had weakened to a Category 4 and its eye passed just slightly to the east of New Orleans. Despite the storm's slight weakening, the hurricane imposed unusually severe wind loads and storm surges (and waves) on the New Orleans region and its flood protection systems.

The storm surges produced by Hurricane Katrina resulted in numerous breaches and consequent flooding to approximately 75% of the metropolitan area of New Orleans. The majority of the levee and flood wall failures were caused by overtopping, as a storm surge rose over the tops of the levees and/or their floodwalls and produced erosion/scour that subsequently lead to failures and breaches.

The most significant failures were the three levee failures that occurred along the banks of the 17<sup>th</sup> Street and London Avenue canals. Significantly, failures on these respective canals occurred when water levels were below the tops of the floodwalls lining these canals. These three levee failures were likely caused by failures in the foundation soils underlying the levees in conjunction with lateral displacements, sinkholes and sand boils.

The hardest hit communities in New Orleans metropolitan region were the lower Ninth Ward of New Orleans and the neighboring portion of St. Bernard Parish. These communities had a

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<sup>1</sup> (See path of Hurricane Katrina's eye as shown in figures 1.1 and 1.2).

combined pre-Katrina population of approximate 87,000 people extended over approximately 27 square miles. Structures in this area consisted largely of wood-framed or masonry residential units interspersed with larger commercial buildings along major roadways. Following Hurricane Katrina, and its flooding, not one residence in the lower Ninth Ward or St. Bernard Parish remained habitable.

The other area most severely affected by Hurricane Katrina was Plaquemines Parish. Pointe a la Hache, the parish seat of Plaquemines Parish, was inundated up to depths of 12 to 15 feet with flooding so great that the typical wooden home on cinderblock piers was picked up, floated away from its foundation, and deposited on, or across the Mississippi River levee by the flood waters.

Before Katrina the most homes destroyed by any storm was 28,000, by Hurricane Andrew. Hurricane Katrina destroyed more than 200,000 homes and the effect upon the construction industry both in terms of cost and claims will be felt for a long time to come.

Metropolitan New Orleans as well as the region sustained catastrophic losses. Major rebuilding has commenced and is now under way. Significantly, extreme pressure has been foisted upon the region and especially the New Orleans area to rebuild, or at the very least stabilize its flood protection system prior to the commencement of the next hurricane season, which begins June, 2006.

## **II. RISING INDUSTRY COSTS**

### **A. Pre - Katrina**

Prior to 2004, global demand and a long - running boom in the U.S. housing market for new homes drove up the prices for concrete, gypsum, PVC, and steel.

In 2004 the construction industry saw an

explosion in steel prices.<sup>2</sup> This rapid escalation in steel prices was followed by stiff price hikes for cement and lumber. The result of these foregoing costs was that the anticipated cost of residential and commercial projects increased and resulted in higher bids, said costs which were in turn passed on to the owner or investors in the various projects.

## **B. Post-Katrina**

Following Katrina, the construction industry thought there would be some relief from inflation and escalation in construction costs. As a consequence of Katrina, this relief will now not be realized. Although the industry was gradually recovering from surges of inflation in 2005, large scale uncertainty now exists. Industry watchers opine that to cover the new level of risk/uncertainty projects will be subject to higher bids.<sup>3</sup> Presently, materials constitute about 1/3 of total building costs. The increased price of construction materials is squeezing builders' margins. As the costs continued to rise, pressure increases on builders to choose between earning lower profits or charging higher prices for new homes and projects.

There are multiple factors which are contributing to the increase in prices. Oil shortages resulting from the hurricane are affecting commercial infrastructure developers who rely upon diesel-consuming cement mixers, cranes, and other heavy machinery, more than residential builders. Similarly, rising natural gas prices are increasing the cost of producing roofing shingles, asphalt, paints, and tires for heavy machinery.

In August, 2005 alone, prices of nonferrous wire and cable, paving mixtures,

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<sup>2</sup>*The Engineering News Record*, 3<sup>rd</sup> Quarterly Cost Report (Sept. 26, 2005.)

<sup>3</sup> *Engineering News Record*, 4<sup>th</sup> Quarterly Cost Report (December 19, 2005).

gypsum products, and plastic construction materials all rose faster than they had in July, 2005 with asphalt products rising the most, topping July's prices by 8.5%.<sup>4</sup>

Illustrative of this effect is that even before Hurricane Katrina, the cost of non-residential construction in a metropolitan area, far away from the affected Gulf Coast, Kansas City, topped \$329,000,000 in August, 2005, a 127% increase from August 2004.

Finally, some sources have speculated that due to Katrina the increase in construction costs over the next 12 to 24 months will be at least 10%, and possibly as much as 20%.<sup>5</sup> Importantly, skilled, and to some degree unskilled labor pouring into Mississippi, Alabama, and Louisiana to aid in the rebuilding effort, will act as a drain to the labor pools in other parts of the country, which will in all likelihood drive labor costs up even outside of the affected region.

## **III. NEW CONSTRUCTION - HOT OR COLD?**

After the dust settles what will be the new hot areas following Katrina?

### **A. Residential**

Clearly it's a no brainer that the residential housing industry around the Gulf Coast region will be red hot. To date, Orleans Parish, the most densely populated area affected by the hurricane remains grossly under populated. Pre-Katrina, Orleans Parish had approximately 490,000 residents. At last count, barely 100,000 have returned primarily due to the unavailability of housing.

Similarly, St. Bernard Parish with a

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<sup>4</sup> See 4<sup>th</sup> Quarter Labor Department Producer Pricing Index.

<sup>5</sup> RealEstateJournal.com

considerably smaller pre-Katrina population, at approximately 80,000, remains empty, again due to the fact that there is not one liveable residence in the Parish. In fact, the federal government has recently announced plans to bulldoze large areas of St. Bernard Parish, reserving the right to bulldoze the entire Parish if deemed necessary.

Thus, residential construction around in metropolitan New Orleans and stretching into Mississippi and Alabama should continue to flourish for the next several years, depending on the returning population and the demand for housing.

## **B. Commercial Construction**

The number of commercial projects should remain flat at least for the short term. All commercial construction projects underway at the time of the storm now will be seeking to overcome not only weather caused delays and material shortages, but also the potential shortfall of available labor. Moreover, in the short term, the primary focus in this region will be on the rebuilding of the infrastructure. Just a sampling of these projects include: Large scale demolition and clearing of partially standing Section 8 housing in and around the metropolitan New Orleans area; the rebuilding/repair of the I-10 East twin spans exiting Louisiana and crossing Lake Pontchartrain; shoring up and repairing of the levee protection system to the extent that this work is not performed by the Army Corps of Engineers.

As such, the majority of large scale, non-residential projects will be government/public projects for which only a limited number of major contractors exist that are capable and/or qualified to undertake. In fact, many of the extremely large contracts have already been awarded to some of the major players in the industry.

Moreover, large scale commercial developers which, pre-Katrina, had an interest in commencing any projects in the New Orleans

metropolitan area, will be sitting on the side line with a wait and see attitude to determine when, if ever, the hurricane protection system surrounding New Orleans is rebuilt to a satisfactory level of protection. One exception to the foregoing government/public project scenario is the Biloxi/Gulfport area of the Mississippi Gulf Coast. In this area, the casinos have announced that it is their intention to rebuild fixed, land-based casinos as opposed to the pre-Katrina casinos which were non-sailing vessels at dock side.

## **IV. CLAIMS**

### **A. Residential**

At this juncture, it is not realistic to even hazard a guess as to the number of claims that will arise from this catastrophe. Insurance claims in the affected region have dramatically risen since the storm. No where before has the insurance industry been faced with the volume of claims that have been, and will be filed.

Putting aside for the moment the insurers' inability to access various areas following the storm, the first task faced was to determine what proximately caused the properties' damage. Was it caused by rising flood waters? Was it caused by wind-driven rain? Or, were the damages sustained by insureds' properties a combination of these two factors?

Following on the heels of this first, possibly insurmountable task, is what inevitably will be a multiplicity of claims by insureds against various insurers for what insureds will perceive to be unreasonable delays in adjusting their claims.

At first blush, the resolution of insurance claims may appear to have no direct effect upon the construction industry. Such is not the case. Clearly, to the extent that an insured has unreimbursed or uncovered losses, depending upon those amounts, that individual or entity could be in a greatly weakened financial position

in terms of his/its ability to finance any rebuilding efforts, or to commence new projects.

Lastly, lest they be ignored, will be the inevitable filing of mold/mildew claims. Although, in most situations insurers have inserted language attempting to contractually exclude these types of claims, it is anticipated that large numbers of claims will still nevertheless be filed.

## **B. Commercial**

The commercial sector of the construction industry will face all of the foregoing problems, faced by the residential sector. Additionally, the commercial sector will have claims for delay of construction projects which be extremely difficult to quantify. Flooding, mandatory evacuations, the potential landfall of Hurricane Rita following Hurricane Katrina, all combined to cause delays not previously foreseen or expected in such a magnitude. These events coupled with resulting labor and material shortages will severely affect the commercial sector. Ultimately, the liquidated/consequential damage claims which will certainly follow on the heels of the delay claims will present a whole other scenario that will be equally as difficult to sort out.

## **V. CONCLUSION**

The catastrophe havoc and subsequent chaos wrecked upon the Louisiana, Mississippi, and Alabama region is unlike anything this country has ever seen. This region affected by Katrina, which unfortunately is in close proximity and to some degree overlaps the region effected by Hurricane Ivan, but one year before, will be slow to recover as the 2006 hurricane season rushes down upon it. Significantly, the ripple effect that will be felt throughout the United States, and the United States construction industry will be too difficult to calculate with any certainty for sometime to come.