



ARCHITECTURE

EHLINGER & ASSOCIATES

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CASA MILÀ

Casa Milà, an apartment building designed by Antoni Gaudí in Barcelona, Spain is the subject of this issue's limited edition print of a sketch by Ladd P. Ehlinger, AIA. This strange building was also revolutionary at the time it was built in 1905-07. The facade is of stone that undulates in and out with "eyebrows" at each floor level that encloses one of the first two-way flat slab reinforced concrete frames ever done.

Casa Milà was built in the Exemplo section in Barcelona, a section that was planned in the late 19th Century to accommodate the residential and commercial requirements of the rapid industrial expansion that the city was undergoing at the time. A very simple device used by the urban planners at the time of cutting off the corners at all street intersections makes the corners larger and more pronounced and allows for more light and air to any building at a corner, while at the same time keeping the street widths more efficient without seeming crowded. Gaudí took advantage of the streetscape with his facade that invites in the light and air available, and flows around the 45° angled sides.

Each room of each apartment is polygonal in shape without right angles and unique — no two rooms are identical. The walls and ceilings are decorated to

match the rounded polygonal theme with everything designed by the architect. Gaudí was born into a Catalán family of blacksmith / metalworkers. The design of the guardrails reflects this metalworker background. The guardrails of each balcony are also unique, being composed of flat steel ribbons that are contorted and twisted, frozen into shapes with great agitation and dynamism. (They would fail to meet today's rigid codes with respect to grippability and heights.) They are a counterpoint to the stone and undulation of the facade that is so rhythmical.

Gaudí was an interesting, creative, but contradictory architect. While the structure of the main frame of the building was revolutionary, it was used with a traditional stone facade that was designed in a revolutionary way as to form. Precast concrete would have been more appropriate than the stone. The attic structure of the building that forms the undulating roof shapes is composed of traditional brick arches that are used in a creative and extraordinary way. Their shapes are parabolic, the thickness of each arch is one brick wide, and there are barrel vaults that span between the parallel arch frames that are one brick thick plate structures. All this supports a roof-scape of an amazing fantasy of sculpted chimneys and chimney pots, ventilators and skylights. These arches are also a product of the Catalán environment where masons that could lay such fanciful arches lived and worked, despite being on the threshold of the Industrial Age..

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famous is the Sagrada Familia church, in the same Exemplo district, a surreal construction that appears to be dissolving on one facade. (The artist Salvador Dalí was also from Barcelona, and is famous for a "dissolving watch" painting.) Other interesting Gaudí works include Palau Güell, Parque Güell, and Casa Batlló, another apartment building. Many of Gaudí's works presage the Art Nouveau movement.

Today, Casa Milà has been restored by the Barcelonian historic society that owns it. It is open to the public, with one of the apartments available to visit, along with the attic which is now a Casa Milà and Gaudí museum, and the roof-scape which is a living fantasy. It is all worth seeing.

WELCOME ABOARD!

Steven E. Chandler has recently joined the E&A office in Huntsville. He has a Bachelor of Architecture that he received from Auburn University in 1985 and a Bachelor of Environmental Design that he also received from Auburn University, in 1985. Steven Chandler has over 20 years experience in architectural design and construction management, providing creative, innovative and practical solutions for what need a client may have.

Mr. Chandler worked in Atlanta, Georgia, for 18 years before returning to his native Huntsville in 2003. While in Atlanta, he was involved in a variety of projects ranging from hotel and office building developments to the design of financial institutions. He served as on-site architect for the Fulton County Board of Education, and as Construction Manager for Morton Realty Company, specializing in shopping center development and renovations for tenant requirements. His portfolio also includes residential design, additions and renovations.

Post-Katrina Lessons Learned

The day after Hurricane Katrina hit the New Orleans area, when the flooding

became evident to us, my first impression was that everything would be back to normal in six months, just like every other storm I had experienced in my life. The first major storm that I recalled was in 1947. The next was Hurricane Betsy in 1965, then Hurricane Camille in 1969, then Hurricane Andrew in 1992. There were a host of others with names not memorable which matched the damage they didn't cause.

I was almost seven years old at the time of the 1947 hurricane. My grandparents had a house on the beach in Long Beach, MS that was destroyed by the storm surge, and replaced by another in Pass Christian. The area where I lived near Metairie Road had street flooding only, but at the end of our street, there was approximately six feet of water. A friend of my dad's lost everything in the flooded first floor of his house at Homestead Ave and Veterans Blvd. We evacuated to relatives' houses uptown and each of us six children were parceled out to different cousins. There were power, telephone, gas, and water outages. It was an adventure that was made unpleasant by the tetanus and other shots that were had before returning home and to school six weeks later, yet everything had returned to normal within about six months.

When Hurricane Betsy hit, I was living in a third floor apartment on Royal St. next door to Brennan's Restaurant, and working for a firm on Metairie Road. Again, the storm was an adventure that woke me at one AM with howling winds, flapping shutters damaged by the winds that I had to repair then and there. There was looting and National Guardsmen patrolling, shooting looters on sight. There was flooding in the Ninth Ward from the Mississippi River Gulf Outlet, and in St. Bernard Parish with rescues of people from their roofs who had chopped their way out of their attics. I remember power and telephone outages that prevented us from working for two weeks or so, tremendous tree and wind damage, impassable roads — yet within six months everything returned to normal.

Hurricane Camille only visited high winds on the New Orleans area, reserving the storm surge flooding and the majority of the winds for the Mississippi Gulf coast: Bay St. Louis, Waveland, Henderson Point, Pass Christian, Long Beach and Biloxi. The

devastation was overwhelming on the beach. I had a client who had a house in Henderson Point on the beach in the water that was totally destroyed. I designed a replacement for this house with another that was destroyed by Katrina. I had designed a boathouse for another client that survived with minimal damage, which we set about repairing. Except for the beach areas, everything else returned to normal within six months.

Hurricane Andrew went west of New Orleans, so the damage was minimal, though the winds were high. It damaged a Vo-Tech school I had designed in Reserve, LA, which we set about repairing. Within six months, this damage too was a memory as everything had returned to normal.

It is slightly more than a year since Hurricane Katrina. Nothing is "normal".

Approximately 300,000 people have not returned to the City of New Orleans, and may never return. There is no place for them to live because there is no place for workman to live that can fix their damaged property. The lesson is: One needs competent workmen to repair or build structures. If there is no place for them to live, then nothing can get fixed.

The next lesson is: There is no corrected infrastructure. Government at all levels has failed. It has failed in leadership. It has failed in competency. It has failed in arrogance. All have failed to: Come up with a plan for future hurricanes with respect to evacuation of the population, interoperability of communication (FEMA can't talk to the city or parish, the police departments and fire departments can't talk to each other, etc.). It has failed to repair the levees and to complete the temporary flood gates on time. Additional drainage pumps have not yet been installed.

We have learned that the original pumps and their motors that were flooded have not been properly repaired yet. The pump operators took the motors apart and dried them and re-varnished the paper in the windings, instead of rewinding the motors first. They told no one and when the first hard rains hit in March of '06, the pumps failed, because they had not had their electric motors rewound. And these are very special motors.

It seems that Gar Wood, the mechanical engineer genius that designed

the pumps to drain New Orleans in 1870 or so did so, decided to use 50 cycle electric current. The standard had not been set yet: 50 cycle, 60 cycle or 100 cycle current were all in contention. Mr. Wood picked 50 cycle, and built a generating plant to produce it. When the U.S. later decided upon 60 cycle current, Mr. Wood and the City of New Orleans stayed with 50 cycle current. All motors are thus specially built. This means that they can't be readily replaced or repaired — not very smart for a city so dependent on drainage pumps.

The conventional wisdom is that coastal erosion has rendered the marshes and swamps about the city less protective as there are fewer of them and thus do not deter and slow storms like they used to. Now we have learned from a local oil patch geophysicist, Dr. Sherwood Gagliano, that the coastal erosion has merely exacerbated the real problem: geological subsidence. Mr. Gagliano theorizes that New Orleans is on alluvial fill from the Mississippi River that is on top of a rift in the tectonic plates below. This rift, like most rifts, is subsiding and stretching apart. The northern edge of the rift runs through Wiggins, MS in a wide arc. What most people think is coastal erosion is actually subsidence that is causing erosion. There are numerous faults within the rift, that run in a mostly east west direction, some of which have produced escarpments. There is a fault evident in Baton Rouge where the movement is 15' vertically on one end and 4' on the other. The average subsidence in the New Orleans area from the rift is one foot and the average movement south is 6 inches in the last 50 years - a very rapid rate in geologic time. Both the Causeway Bridge and the original Mississippi River bridge are 6 inches further south today than when they were built 50 years ago. There is evidence that the levee failures that occurred are directly above one of these faults.

All this means that we have failed to recognize the realities of where we live and to plan for them properly. We have also accepted lip service from politicians and bureaucrats instead of performance. It is going to take 10 to 20 years to correct what caused the damage, and it is going to take some fundamental changes in what we will accept from ourselves. As Pogo said "We have met the enemy and he is us".

Ladd P. Ehlinger, AIA