

Greg Higgins
Managing Director
509-482-2764
ghiggins@habitek.biz



FOR IMMEDIATE RELEASE

Patented steel building system developed for earthquake disaster areas challenges conventional wisdom about rebuilding Haiti:

Erector-set like design is a faster, more efficient way to provide both short & long term solutions. Architect Greg Higgins says the HabiTek building system is “pro-local labor, environmentally friendly, and an idea whose time has come. It's a paradigm shift.”

[March 10, 2010, Spokane, Washington]

The thought of rebuilding Haiti is mind boggling even without considering the economic conditions faced. The need to construct adequate shelter for over 1 million people may have no historical precedent. Two months after the quake, we are all struggling with the question of how to help the devastated nation rebuild. R. Buckminster Fuller, the great visionary, inventor, and writer, may have pointed to an answer. He would ask architects, “How much does your building weigh?” We should all remember this line of thought, as consideration of the weight of materials will be critical to the success of rebuilding.

Conventional wisdom holds that [confined masonry construction](#) (CMC) should be implemented in Haiti. This is an attempt to help a local building industry tied to concrete and masonry improve their methods; this is certainly important and well-intentioned. Better rebar, more of it, and higher strength concrete is obviously needed. CMC should help in some cases – but the notion that concrete & masonry construction is environmentally appropriate on a tropical island is worth questioning.¹ These buildings are generally hot and confining, and they leave little if any opportunity for creative architectural expression. There are other methods to address earthquakes and hurricane force winds – HabiTek provides one.

In contrast to CMC, HabiTek has developed a lightweight steel framing system that can be erected in hours by almost any able bodied 2-person team without heavy machinery or even power tools. Our modular bolt together frame or chassis can help immensely in achieving strong transitional and

¹ CMC has been proven to help in earthquakes because they are less prone to collapse, but this method is no panacea because they lack flexibility. And if done correctly, CMC requires a high skill level. Large earthquakes can still damage these structures beyond repair. As we are seeing in Haiti, there is little or no value to recycling concrete after a quake. HabiTek's galvanized steel components are 100% recyclable.

permanent shelter as Haiti's rebuilding proceeds. In Haiti, almost everyone could build his or her own home, and even aid in the rebuilding of community structures such as schools. HabiTek makes this possible with a simple "erector-set" like assembly process new to the building industry.

How, then, should we answer Bucky's question? HabiTek's steel chassis is at least 4.5 times lighter than CMC's reinforced concrete frame.² Weight has many implications. For instance, additional energy is consumed in transportation all along the route from source to site. Too, there's the sheer drudgery involved in lifting and placing these heavy materials. Finally, more weight means that more time will be required to complete the building. We estimate that a pre-engineered HabiTek steel framework can be erected in at least 1/10th the time it takes to pour concrete and set blocks for a given size building. Time, of course, is so very critical in Haiti, and after considering weight, rebuilding officials must ask: "How long does your building take to complete?"

Rebuilding planners face an enormous task. It is imperative that it start with a thorough cost-benefit analysis. Yes, the specially prepared steel components in a HabiTek framework cost more than the concrete and rebar used in CMC.³ But if the big picture is factored in—weight and time—HabiTek emerges as more economical overall. Also important, HabiTek offers the opportunity to create beautifully designed and comfortable shelters all Haitians can be proud of. HabiTek's modular system of largely interchangeable parts that locks in required strength when the bolts are tightened deserves serious consideration.

It is critical that a predictable future and sense of optimism be brought to the Haitian people. A safe house that can be assembled by almost anyone will help immensely. With some supervision, individuals and families could be employed to build their own home using the HabiTek method. Grab a wrench and let's get started.

continued

² Weight comparison between CMC and HabiTek is based on the 240 sq. ft. (23.3 sq. meters) area of the transitional shelter example shown on HabiTek's web site. Structural design for the CMC method was based on the publication: "[Earthquake-Resistant Confined Masonry Construction](#)", by Svetlana Brzev. Calculations were based on the primary structural frame in both cases: HabiTek's post-and-beam steel frame; and for CMC, the concrete columns and beams used to "confine" masonry. For the purpose of the comparison, the weight of CMC's integrated masonry infill was not included; a modified form of masonry infill is also possible with HabiTek's steel frame. Weight associated with below grade concrete foundations were considered equivalent (although the lighter HabiTek structure would require a smaller foundation). Also, the weight of any roof structure was not included – based on the fact that both systems could have a wood truss roof structure of similar design.

³ Some are concerned about the cost implications of importing steel to Haiti. It is important to realize that the CMC method still uses nearly half the weight per square foot in imported steel rebar as a HabiTek all steel framework. Also, roughly 5 lbs/sq. ft. of imported cement is used, assuming a 6-sack mix. Not unlike Hawaii, with the exception of sand and gravel, virtually all building materials in Haiti are imported. This was true 50 years ago or more, and will be true tomorrow.

For more information, visit HabiTek: A Steel Chassis for a Stronger, Greener Future at www.habitek.biz.

NOTE TO JOURNALISTS:

The following Associated Press report appeared on February 15, 2010 in the *Spokesman-Review* with the heading, “Quarry sand banned”:

“PORT-AU-PRICE, Haiti – Haiti’s government is banning a commonly used sand from structural construction in an attempt to improve safety. The public works ministry issued a notice Sunday warning that the use of “La Boule”-type white quarry sand to make concrete for structural elements would be punishable under Haiti’s penal code and recommends river sand.”

An enormous amount of sand, and gravel as well, will be necessary for rebuilding foundations, regardless of the type of materials used above grade. The negative impact on the Haiti’s rivers from excavated “river sand” could have very profound implications. Sand deposits may lie in ancient dried up river beds—but the environmental impacts should still be investigated. —GH