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THIS MONTH'S FOCUS: GREEN BUILDING

STRATA INTERNATIONAL GROUP, INC.



Left to Right: Bob Mallory, President, Southwest Castings Inc.; Nasser Saebi, P.E., President, Strata International Group, Inc.; Claessia Harrington, Highland Products Inc.



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STRATA INTERNATIONAL GROUP, INC.

Saebi Alternative Building System is a Totally New Way to Build

Written by David Lucas

While industries such as space exploration, bioscience, aviation design and advanced communications have witnessed quantum leaps over the past quarter-century, building technology is trapped in century-old conventional thinking. Architects possess the imagination and computer technology to design 21st century living spaces to meet the needs of modern families, however, their ideas are limited by current building methods.

The use of advanced composite materials promises to do for building design and construction what they have done for the aviation and even boating industries.

The Saebi Alternative Building System from Strata International Group provides a technological leap, making it easier to conceive and build the most complex forms. Buildings can now be built that fit our lives better, consume less energy, protect the environment and conserve natural resources. And, they can bring better form to our lives.

Strata utilizes an innovative, patented technology to construct houses and low-rise buildings using composites of expanded polystyrene foam coated on both sides with glass fiber-reinforced concrete.

Composite materials have had limited application in the U.S. building industry because there have been no practical means for predicting the structural performance of buildings using these composites as structural members.

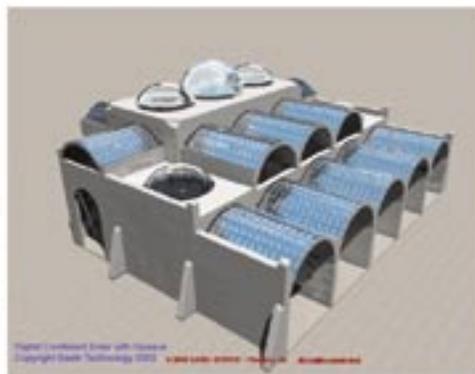
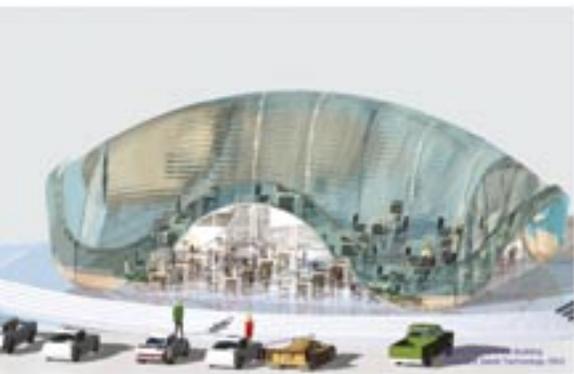
Strata's Nasser Saebi developed a patented method of predicting the performance of the structural members of an



entire building composed of these composites. A CAD/CAM drawing of the proposed building is used in concert with a mathematical program called Finite Element Analysis to predict the structural performance of every structural member against the forces of nature. The Saebi patented method makes it practical for a designer to tailor the structure of a home to withstand any set of forces.

“We live in a digital world where whatever you can envision can be duplicated with computers and mathematics,” said Saebi, who holds a master’s degree in structural engineering, and has more than 30 years of project management experience. “Major architects around the world are creating new forms which will change our lives in this decade. The houses of the future will be art forms built with composite materials, but there have been no means to build them inexpensively.”

UNTIL NOW.



“The houses of the future will be art forms built with composite materials, but there have been no means to build them inexpensively...UNTIL NOW.” — Nasser Saebi



“The technology already exists, so it is a matter of putting it all together,” Saebi said. “We needed a means of calculating the structural integrity and the right coating so all the composite pieces would stick together with the proper strength.”

The computer program transforms data into a mathematical model of the structural performance of a building as it responds to any set of structural loads. A record of the performance of the entire building, along with that of individual structural members, is available for the designer’s review.

Once the plans are finalized, the program generates digital instructions that direct a robotic foam cutter to accurately carve the polystyrene shapes required for the building. The end result of the process is a set of building blocks that are curved or angular, in addition to the traditional square and rectangular shapes.

To complete an enterprise that would transform this innovation into a product, Saebi needed the right alliance with the expertise to put all the pieces together. It didn’t take him long to find Highland Products, Inc., a Phoenix foam manufacturer with two decades of Arizona operations, and Southwest Castings Inc. of Phoenix, masters in the craft of applying fiber reinforced concrete.

The Saebi System requires no framing or mechanical fasteners such as nails and screws. The Saebi Box-Frame structural members are lightweight and stronger than the simple-sandwich type structural members—thus increasing the maximum clear spans without requiring internal supporting walls or posts.

The Saebi System also patents large spanning lightweight structural composite transparencies. Digital computer CAD/CAM and FEA advance technologies make the fabrication and structural analysis of these Saebi transparencies possible for use in the digital architectural buildings of tomorrow.

The lightweight, engineered composite sections of buildings can be built off-site and easily transported to the construction site.

These composite components are inexpensive to maintain, durable, and resistant to fire, mold, pests and earthquakes. In addition, Saebi buildings offer these benefits:

- Environmentally Friendly: Conserves raw materials by eliminating the need for structural components such as wallboards, nails and framing.
- Energy Efficient: Materials have an energy rating of R40 in the walls and R100 for roofs, resulting in less energy consumption for heating and cooling.

Strata International Group, with the help of Southwest Casting and Highland Products have put the Saebi System into practical use by building a full-scale prototype of a 14-foot by 23-foot guesthouse (as depicted on Cover).

Strata will provide its technology to the U.S. market and the global community by contractual relationships with architects, builders, foam companies and other interested parties. Southwest Castings will provide a training center to teach assembly methods and equipment operation.

The Saebi technology promises to turn custom, manufactured and production homes into the new art forms of the 21st century.

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