



## Company Backgrounder

RavenBrick™ is a Colorado-based clean tech company that delivers innovative solar-control windows that reduce energy costs by up to 50 percent in most buildings. A dramatic improvement in both functionality and cost over previous sun-blocking windows, RavenBrick has a smart-window solution for virtually any building.

### RavenBrick history

In 2003, Dr. Richard Powers and Wil McCarthy formed The Programmable Matter Corporation which researched innovative uses of clean nanotechnology. The company caught the eye of several prominent investors, including Michael Barnstijn, RIM Blackberry inventor. After securing nanotechnology patents, the company parlayed their research into a new go-to-market intelligent window company, tapping experienced CEO Alex Burney. In January 2007, RavenBrick, LLC was formed.

The company's mission is to apply clean, non-toxic nanotechnology to intelligent construction and window materials. Since 2007, RavenBrick has successfully developed a full line of smart solar-controlled commercial windows which are superior to virtually any other window technology in terms of energy-efficiency, cost and effectiveness.

### About RavenBrick technology

RavenBrick has patent-pending intellectual property that manipulates the electron structure of semiconductor materials, altering their properties in real time. Using this nanotechnology, RavenBrick's windows automatically reduce the amount of light they transmit at certain temperatures. On a hot sunny day, a RavenBrick window will instantly transition to a darkened state, blocking hot sunlight from the building's interior. On a cool day, the window will stay in its neutral state and transfer solar heat to the inside.

The benefits of this technology applied to windows include:

- Significantly reduced heating and cooling costs, the greatest energy consumers in commercial buildings
- A fully automatic transition, free from wires or activation devices
- Easy to install in new windows or retrofit existing ones
- Affordability, particularly compared with current smart windows

- A quantifiable and short-term ROI which can be easily determined for any specific building
- Aesthetic appeal, enabling the use of natural sunlight in building design
- Improved temperature and light-glare comfort for people in the building

### RavenBrick in the market

RavenBrick's signature product, RavenWindow™ has been installed at the Department of Energy's National Renewable Energy Laboratory (NREL), their revolutionary headquarters building in Golden, Colorado. Long touted as one of the most eco-friendly commercial structures in the country, the NREL headquarters complex includes only the most effective and valuable green technologies that pass extensive testing.



RavenWindow at NREL in the clear state, inside view



RavenWindow at NREL in the tinted state, inside view



RavenWindow at NREL in the clear state, inside view



RavenWindow at NREL in the tinted state, outside view

### RavenBrick's financial backing

Due to the innovation and clear market advantage of RavenBrick's technology, the company successfully achieved all its funding goals within one year. Composed of angel investors and venture capitalists, the list of RavenBrick's investors is impressive.

Key investors that also act in advisory roles include:

Michael Barnstijn, Inventor, founder of Research in Motion (RIM), purchased by Blackberry

Dr. Carl Forest, Partner, Patton Boggs, LLP

Drew Crouch, Vice President & General Manager, Ball Aerospace

Jim Griffey, Managing Partner, Chisos Capital, LLC

Robert Fenwick-Smith, Principal, Aravaipa Venture Fund LLC

John Keane, Founder King Hill Capital

Byron Haselden, CEO, Haselden Construction LLC

### Future applications

Today the company is focused on creating and delivering intelligent solar-controlled windows, but RavenBrick's technology is useful in a variety of building and construction scenarios.

Development of RavenSkin™, a wall system which will intelligently conduct solar heat in and out of commercial buildings, will be available commercially in 2013. This product will generate further cost-savings and temperature control.

RavenBrick's nanotechnology has virtually limitless applications in photovoltaics, color-changing materials, thermal and optical switches, switchable magnets, thermoelectric devices (e.g., solid-state coolers), and emissive or reflective displays. The company's prestigious research team will continue to innovate using RavenBrick's impressive intellectual property.