



# **Ferrock**

**a new carbon-negative building material**

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**Iron Shell LLC**

**David Stone, PhD, Founder and Inventor**

# Potential Product Applications

- blocks, pavers, tiles, other small modular units
- walls, slabs, roofs, and columns
- structural panels, thin shells, and backer sheets
- pipe, culverts, vaults and other precast products



# Market Focus and Customers

- high performance building systems
- exterior cladding and structural panels
- customized and specialty applications
- progressive architects and design-build firms



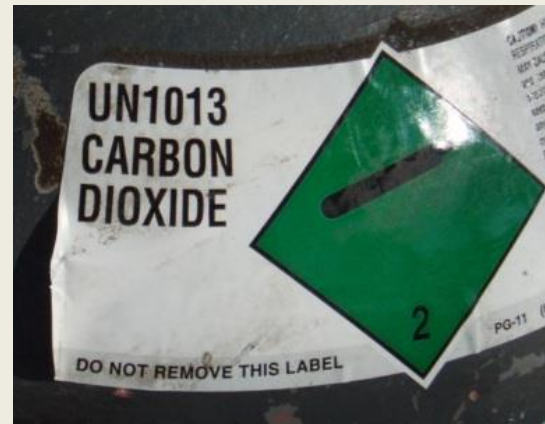
# Ferrock's Green Qualities

- recycles steel dust as its iron source
- recycles fly ash as its silica source
- captures CO<sub>2</sub> during hardening
- releases hydrogen as by-product



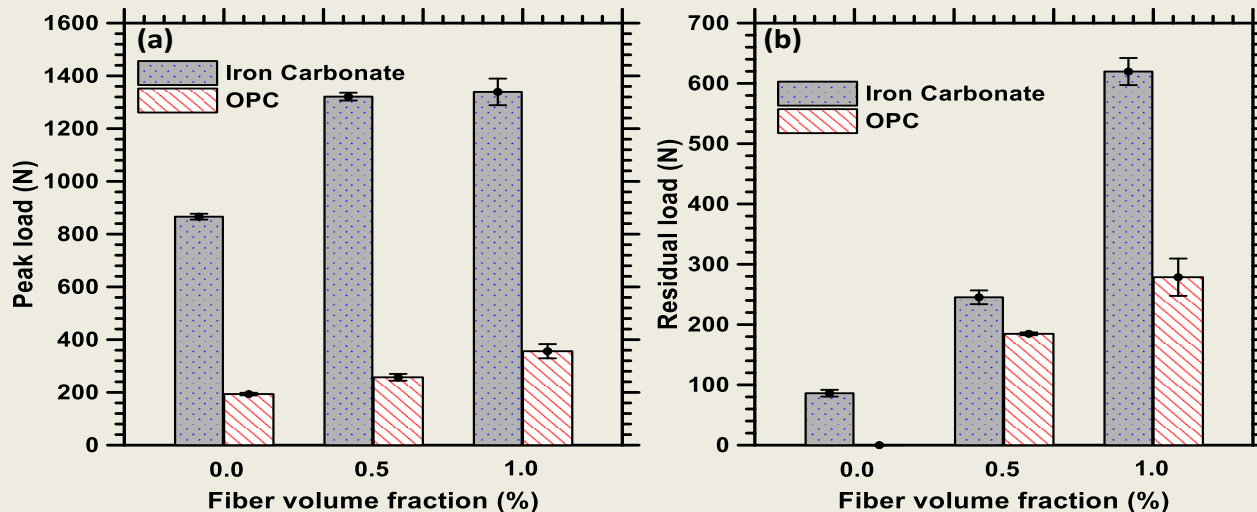
# Methods of CO<sub>2</sub> Capture

- pre-cast products in a gas-filled autoclave
- pumping through embedded perforated pipes
- injecting under pressure into a wet mix
- mixing in saturated CO<sub>2</sub> adsorbent



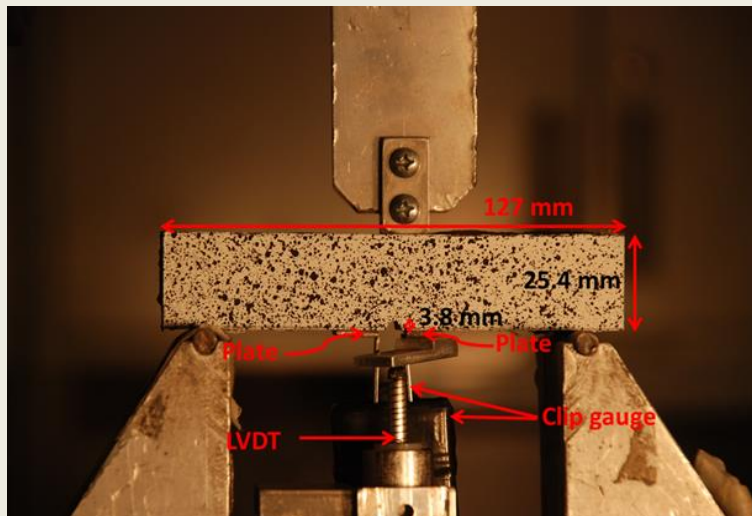
# Comparison with Portland Cement

- higher compressive strength
- much higher flexural strength
- greater crack resistance
- resists fire and heat much better
- lower cost at large scale operations

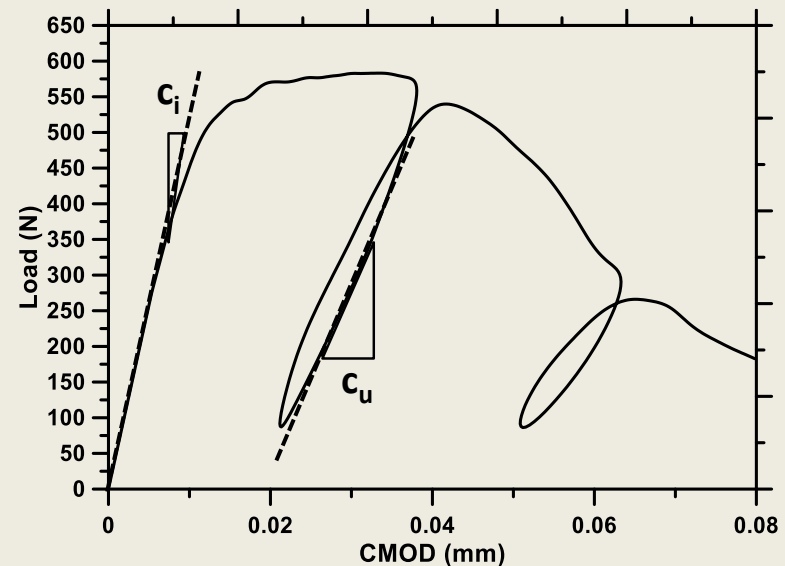


# Status of FerroRock

- US patent 8,366,820 B2, 2/2013, assignee: UA
- five scientific papers on characteristics
- basic testing on strength and other qualities
- prototype products and demonstration structures



(a)



(b)

# SCHEMATIC DIAGRAM OF THE IRON CARBONATE PROCESS AT AN EXISTING PLANT

