Operating a Lab in a Down Economy

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What Defines a Down Economy?

New Privately Owned Housing Units Started
U.S. Census - Annual Data
1959 - 2010

- Total Housing Starts
- Northeast
- Midwest
- South
- West
Since records began in 1959, the number of new housing starts has never been below 1 million until 2008 (905,500)

Prior to 2008, it has only dropped below 1.2 million 7 out of 49 years, the last time being 1990 – 1992

Yearly housing starts doubled from 1991 to 2005
The Last 6 Years

- 2009 – 554,000 – Lowest level since records began in 1959
- 2009 was 27% of peak in 2005
- 2010 showed some recovery, but was still far below historical average (1.5 million/year)
History of the Lab

- Started in 1954
- Kingsport, TN
  - Plant Site
    - One of the original General Shale locations
  - Has weathered many downturns in housing starts
- Brick production operations ceased in 2008
Relocated to Johnson City, TN

- Corporate Office
  - Completed January 2008
  - Lab moved in on September 2008
Lab Employees

- 2005 – 10 employees
  - 4 Ceramic Engineers
  - 1 Assistant
  - 5 Technicians

- 2008 – 17 employees
  - Addition of Robinson Brick

- 2011 – 6 employees
Current Lab Employees

- 6 Employees
  - 3 Ceramic Engineers
    - Jonathan Livingston
    - Rod Schutt
    - Ti Jones
  - 2 Technicians
    - Mike Sloan
    - Kenney McClaran
  - Steve German (Denver)
Areas of Service

- Product Development
- Process Research & Engineering
- Quality Assurance
  - Brick Materials
  - Brick Testing
  - Block Testing
  - Solid Fuel Testing
- Analytical Testing
- Training & Education
- Complaint Resolution
- Technical Support
  - Sales
  - Production
Product Development

- **Color Development**
  - Surface Colorant
    - Engobe
    - Sand
    - Mud Slurry
  - Body Colorant
    - Manganese

- **Texture Development**
  - Epoxy Texture Rollers
  - Tudor Texture
Product Development

- Since 2006 we have relocated
  - 19 of our top 20
  - 36 of our top 40
- best selling products to new locations
- More efficient plants
  - Lower fuel usage
  - Lower labor cost
  - Increased automation
Process Research & Engineering

- Plant Support
  - Traveling Thermocouples

- Project Support
  - On-Site Technical Assistance

- New Plant Engineering
  - Combustion System Design
    - Gas System
    - Coal System

- Result
  - More efficient plants
  - Lower production cost
Quality Assurance

- Brick Materials
  - Drill Samples
    - Absorptions
    - Shrinkage
      - Dry
      - Fired
  - Efflorescence
- Additive Testing
- Particle Size Testing
- Brick Body Development
- 2011 → Geology Department
  - Geologist runs extruder and most tests giving him “hands on” experience with the materials
- Stockpile Testing
  - 2011 → Tested at Plants
Quality Assurance

- Brick Testing
  - Absorptions
  - Dimensions & Voids
  - Compressive Strength
  - Efflorescence
  - Weights
  - Freeze-Thaw Durability
  - 2005 – Weekly
  - 2011 – Monthly / Quarterly
  - Urgent Testing Need ➔ NBRC
Quality Assurance

- Block Testing
  - Dimensions
  - Compressive Strength
  - Weights
  - Absorption
  - Concrete Density
  - Linear Shrinkage
- 2005 – Monthly
- 2011 – Quarterly
Quality Assurance

- Solid Fuels
  - 2005 – Every other week
  - 2011 – Quarterly
    - Samples taken monthly at every plant location
    - Composite sample tested
    - If personnel available – test
    - If not, send to an independent lab for testing
Analytical Testing
Analytical Testing

- Orton Gradient Furnace
Analytical Testing

- Orton Dilatometer
Analytical Testing

- Horiba EMIA-220V Carbon/Sulfur Analyzer
Training & Education

- Technical Training
  - Distributor Sales Seminar
  - Internal Sales Seminar
- Production Training
  - Brick Manufacturing Course
- Course Material
  - ASTM Specifications
  - Lab Testing / Services
  - Drying & Firing Discussions
  - Brick Cleaning
  - Complaint Resolution
Complaint Resolution

- Mike Sloan & Kenney McClaran
  - Color Correction Technicians
- Costs for correction are charged out to Sales locations
- When not working on complaints, they can help out with Lab tasks.
Complaint Resolution

- Leaky Walls
  - Hurricane Test
  - Wall Section Test
  - Rilem Tubes

General Shale Brick
Building The American Dream
Murals

- MasonArt®
  - Johnny Hagerman
Summary
Operating a Lab in a Down Economy

- Since 2005, the Lab has had a reduction in budget and workforce as well as a relocation to Johnson City, TN.
- Many services are still available, but it is no longer possible to react as quickly to all requests.
- Must concentrate on our core services and prioritize based on what items can create profit or provide a cost savings for the company.
- A good relationship with other departments within the company and outside labs & suppliers critical to getting tasks completed in adequate time.
Questions?

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