

## CASE STUDY: KILN EFFICIENCY IMPROVEMENT ANALYSIS

SYSTEM TYPE: Gas Heated Brick Kiln

### PROJECT FINANCIALS

- Total Bid-Based Turnkey Installed Cost: \$ 642,990
- Annual Energy Cost Savings: \$502,000
- Simple Capital Payback: 1.3 years
- Average Project IRR: 78%
- CO2 Equivalent Reduction: 1,289 tCO<sub>2</sub>e (Nat. Avg. Emission Rate)

**BRICK MANUFACTURING Facility installs new mass flow controls, balances undercarriage air delivery and exhaust system, saves \$ 502,000/Yr in Natural Gas Costs.**

### System Description

- Brick kiln—open undercarriage type
- Gas heated
- Nominal capacity of 19,825 pounds per hour/127,000 bricks/day

### System Opportunities

- The brick kiln at this facility was used for extended runs for high quality bricks for the housing industry
- Reductions in natural gas usage by reducing the infiltration from the undercarriage areas into the heated section of the kiln
- Combustion analysis and air flow measurements were taken and a model was developed to analyze the effect of controlling undercarriage air infiltration
- Decreasing excessive amount of undercarriage air infiltrating into the high temperature kiln zones, decreasing the use of natural gas



### Project Description

- Install patented pending mass flow controlled and balance undercarriage air delivery and exhaust system,
- Equip individual kiln zones with temperature controls and set at 350-450 F, based on operator set point
- Control supply air mass flow with a variable speed supply fan and control and balance the exhaust mass flow to supply flow
- Start-up system and balance air flow to optimize savings

### Project Benefits

- Large reduction of natural gas consumption
- Proportional savings will also be realized when using coal, saw-dust, electric, propane, or other similar kiln heating systems
- Decrease in cost per finished unit of product
- The technology can be used on any kiln system producing fired ceramic products

## Plant Profile

- Brick Manufacturing Facility
- Production Areas
- Packing Areas
- Warehouse Areas

## Key Benefits

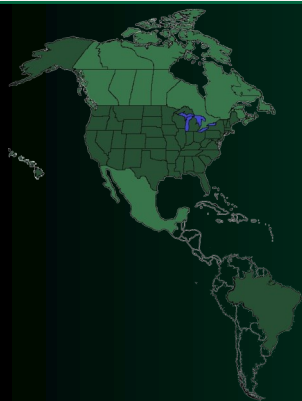
<b>Annual Cost Savings</b>	\$ 502,000 in Natural Gas Savings
<b>Carbon Reductions</b>	1,289 tCO2e (Natl. Avg. Emission Rate)
<b>Payback</b>	1.3 Years
<b>Project IRR</b>	78%

## Financial Data

<b>Investment</b>	\$642,990
<b>System</b>	Gas Heated Brick Kiln
<b>Life Expectancy</b>	N/A
<b>Incentives/Rebates</b>	N/A
<b>Payback Period</b>	1.3 Years



Achieve energy/sustainability goals & increase profit - Guaranteed



Solution Dynamics is a team of certified energy experts committed to improving the environment by implementing sustainable solutions that reduce use of precious natural resources.

We serve clients in commercial and industrial sectors who are seriously committed to reducing their energy consumption, cost, and environmental impact.

Guaranteed results are delivered on a risk-free basis. For additional case studies, or to schedule a free, no-obligation consultation, contact us at 888-435-9226.

Corporate Office: Kansas City, KS | Web: [www.sol-dyn.com](http://www.sol-dyn.com) | Email: [info@sol-dyn.com](mailto:info@sol-dyn.com)