



StaBlox™ Reformer Flue Gas Tunnel System with BD Energy Systems Tunnel Optimization Performance (TOP) Technology



Maximizing SMR Performance with Better
Temperature Control

Powerhouse Partnership Brings Best-of-Breed Technology to Your SMR

Blasch Precision Ceramics mortar-free, patented, interlocking ceramic blocks offer the perfect vehicle for BD Energy Systems' patent-pending TOP technology for consistent temperature and maximum SMR performance.



Process Flexibility

Scale up by improving corrosion efficiency without rebuilding tunnels

Tunnel System Pressure Drop

Reduce pressure with greater allowable width and more evenly distributed velocity and mass flow

Tube Reliability

Better temperature control means fewer emergency shutdowns and better process safety

Catalyst Tube Temperature

Better temperature control means reduced methane slip and feedstock costs

Heat Storage

Reduce hot spots and heat-up/cool down effect

Variable Orifice Openings

Near-uniform flow along length of every tunnel with inserts

Traditional Brick and Mortar Tunnels

Non-ideal Physical Features

Openings

- Large increments
- Large step changes

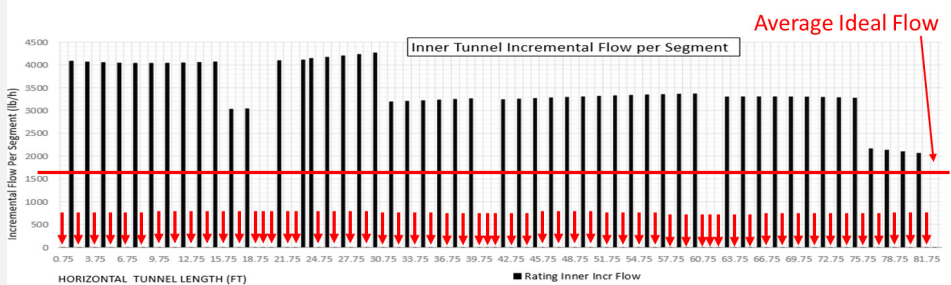
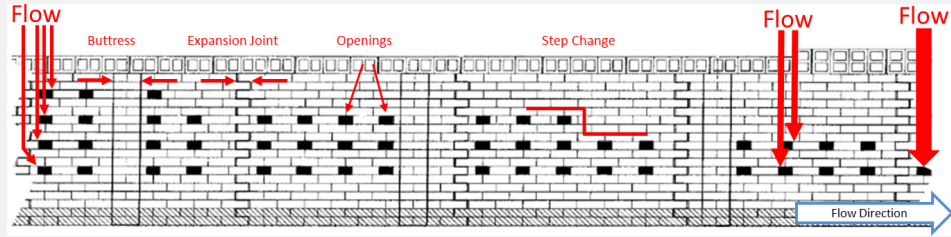
“No-flow” regions

- Buttresses
- Expansion joints

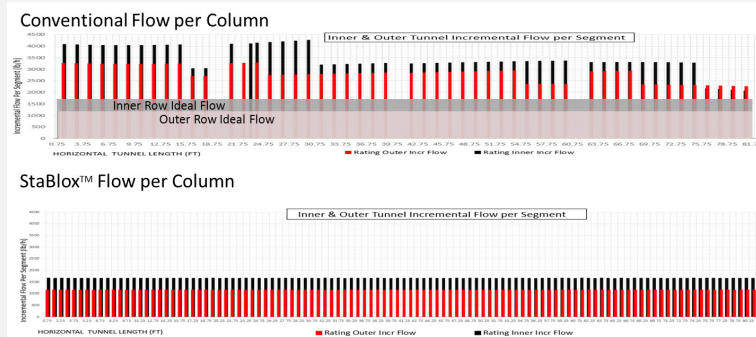
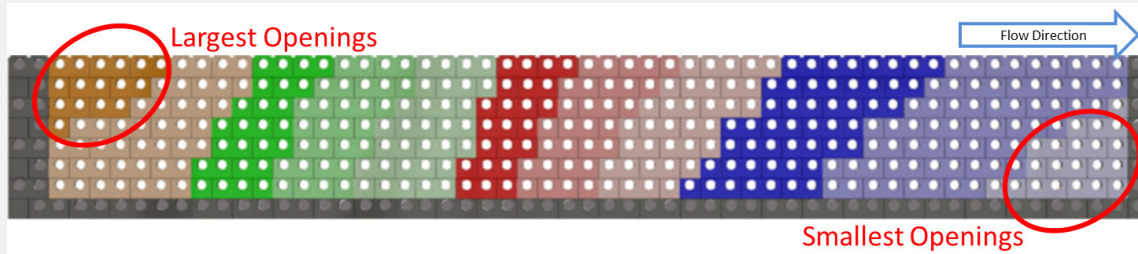
Non-uniform base course flow

Calculated Conventional Flow

- Flow (along length) is non-uniform
- No-flow regions exist for some tubes
- Too much flow exists for other tubes



StaBlox Flue Gas Reformer Tunnels and TOP Technology



Variable Orifice Diameters

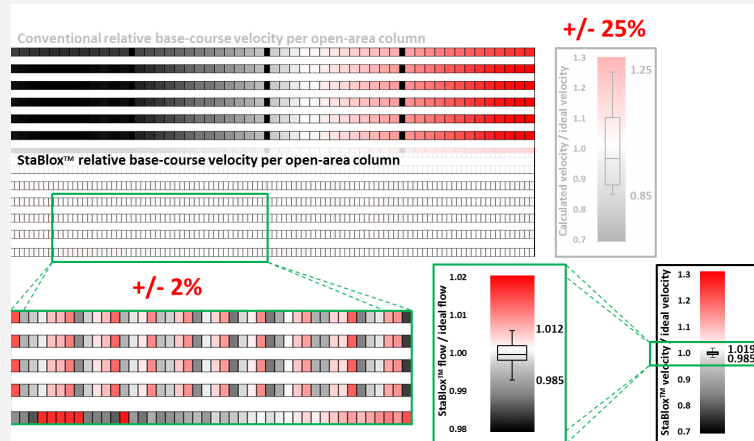
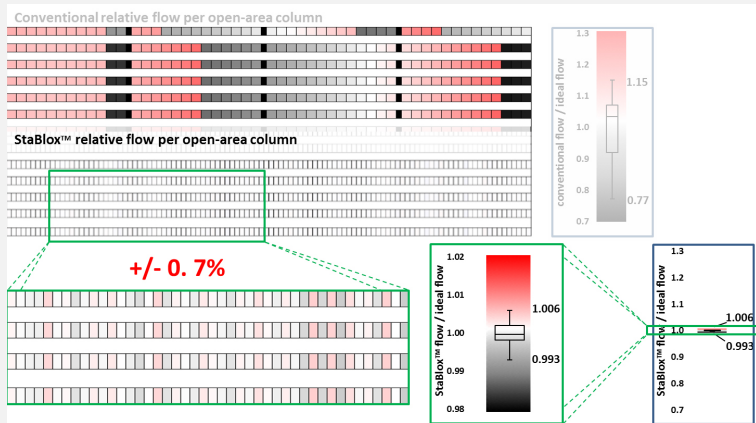
- Small open area increments
- Engineered step changes
- Gradual open area reduction
- Uniform no. of openings/column

StaBlox Tunnel Results

- Near-perfect flow uniformity
- Proportional inner-to-outer

Effect of TOP on Flow Rates and Velocity

View of reformer from above



Inconsistent flow rate and velocity leads to inconsistent temperatures, lost production, and possible tube damage.



Easy Preparation

Level the floor and set the base blocks at the proper spacing.
That's it!



Zero Discontinuities

Stack the blocks. Expansion joints are built in. No buttresses. No mortar.
It's that easy.



Fast Tunnel Building

Strong, lightweight lids are designed to sit atop the blocks, locking the walls into place. Multiple tunnels have been assembled in a single shift.

StaBlox + TOP = Money in the Bank

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