



# Foamfrax™ High Temperature Insulation Installation Case Study #24

## Exterior High Temperature Insulation For Steam Boiler Tube Wall

*Foamfrax Grade I High Temperature Insulation  
3-4" (76-102mm) Thick, 8pcf (128 kg/m<sup>3</sup>), Full Thickness Refractory Ceramic Fiber  
High Temperature Insulation*

**Industry:** Power  
**Location:** NE United States  
**Installation Date:** November 2002  
**Operating Temperature:** 1800°F (982°C)

### More Information

Web: [www.foamfrax.com](http://www.foamfrax.com)  
Web: [www.unifrax.com](http://www.unifrax.com)  
e-mail: [foamfrax@unifrax.com](mailto:foamfrax@unifrax.com)



Coal- and oil-fired boilers produce steam to generate electricity for heat or for process use. They are typically very large structures with hard refractory lined interiors and exterior insulation on the boiler tube walls. The exterior insulation typically consists of blanket or board materials cut to fit against the tube wall.

This particular boiler design utilized cast-iron “Bailey Blocks” to secure the tubes and anchor the internal refractory tiles. If left uninsulated on the exterior, this type of boiler design is thermally inefficient.



**Unifrax I, LLC** ♦ Corporate Headquarters ♦ 2351 Whirlpool Street ♦ Niagara Falls, NY 14305-2413

Phone: (716) 278 3800

Fax: (716) 278 3900

e-mail: [foamfrax@unifrax.com](mailto:foamfrax@unifrax.com)

Web: [www.foamfrax.com](http://www.foamfrax.com)

Web: [www.unifrax.com](http://www.unifrax.com)

Also at:

[www.fyrewrap.com](http://www.fyrewrap.com)

[www.fiberfrax.com](http://www.fiberfrax.com)

[www.isofrax.com](http://www.isofrax.com)

[www.insulfrax.com](http://www.insulfrax.com)

[www.high-temperature-insulation.com](http://www.high-temperature-insulation.com)

[www.refractory-ceramic-fiber.com](http://www.refractory-ceramic-fiber.com)



Since it was a sidewall application and a very irregular surface, Foamfrax Grade I High Temperature Insulation was gunned directly against the boiler tubes and Bailey Blocks. No anchoring and/or surface preparation was used in this application.

The Foamfrax High Temperature Insulation formed a monolithic system to seal the boiler tube walls. Note that this installation was completed during a power plant shutdown. For complete adhesion of the Foamfrax foam /fiber mix, the substrate temperature must be below 200°F.



Once installed, the Foamfrax High Temperature Insulation was troweled smooth. Corrugated aluminum jacketing was then placed over the insulated tube wall.



After the installation was completed, the net result was a monolithic high temperature insulation system which effectively sealed the boiler tubewall.



Following the installation of Foamfrax Grade I refractory ceramic fiber High Temperature Insulation, the following customer benefits were realized:

- **Turnkey Installation** - A specially trained Unifrax distributor/contractor was able to supply Foamfrax High Temperature Insulation materials, equipment, and installation as a complete package.
- **Boiler Efficiency** - The full thickness installation of Foamfrax High Temperature Insulation served to lower heat loss through the boiler tube wall. The net result is a more thermally efficient boiler. In addition to the thermal performance of Foamfrax High Temperature Insulation, the installation technique filled all voids and openings in the existing wall structure, eliminating air infiltration, and conforming perfectly to the surface.
- **Installation Speed** - A Foamfrax High Temperature Insulation installation of this nature takes approximately 30% of the time compared to traditional insulation lining methods. The customer benefit is reduced unit downtime and increased productivity. Upon completion, the boiler could be immediately put back on line since Foamfrax High Temperature Insulation requires no critical cure out cycle.

**Foamfrax** High Temperature Insulation is an advanced gunnable monolithic insulation system comprised primarily of **Fiberfrax** refractory ceramic fiber. There are several Foamfrax grades available, suitable for application under various conditions and temperatures.

**Isofoam** High Temperature Insulation is a similar product, comprised primarily of revolutionary **Isofrax** soluble fiber – to meet European Health & Safety regulations for in-vitro solubility of vitreous fibers.

Both advanced high temperature insulation materials are installed in the same manner.

For more information on **Unifrax** advanced foam high temperature insulation systems visit [www.foamfrax.com](http://www.foamfrax.com) or contact Unifrax I, LLC directly by e-mail: [Foamfrax@unifrax.com](mailto:Foamfrax@unifrax.com)

**Foamfrax™ High Temperature Insulation is a registered product of Unifrax I, LLC**

**Unifrax I, LLC provides a wide range of woven and non-woven products for high temperature insulation, sealing and filtering applications**

**Unifrax I, LLC** ♦ Corporate Headquarters ♦ 2351 Whirlpool Street ♦ Niagara Falls, NY 14305-2413

Phone: (716) 278 3800

Fax: (716) 278 3900

e-mail: [foamfrax@unifrax.com](mailto:foamfrax@unifrax.com)

Web: [www.foamfrax.com](http://www.foamfrax.com)

Web: [www.unifrax.com](http://www.unifrax.com)

Also at:

[www.fyrewrap.com](http://www.fyrewrap.com)

[www.fiberfrax.com](http://www.fiberfrax.com)

[www.isofox.com](http://www.isofox.com)

[www.insulfrax.com](http://www.insulfrax.com)

[www.high-temperature-insulation.com](http://www.high-temperature-insulation.com)

[www.refractory-ceramic-fiber.com](http://www.refractory-ceramic-fiber.com)