

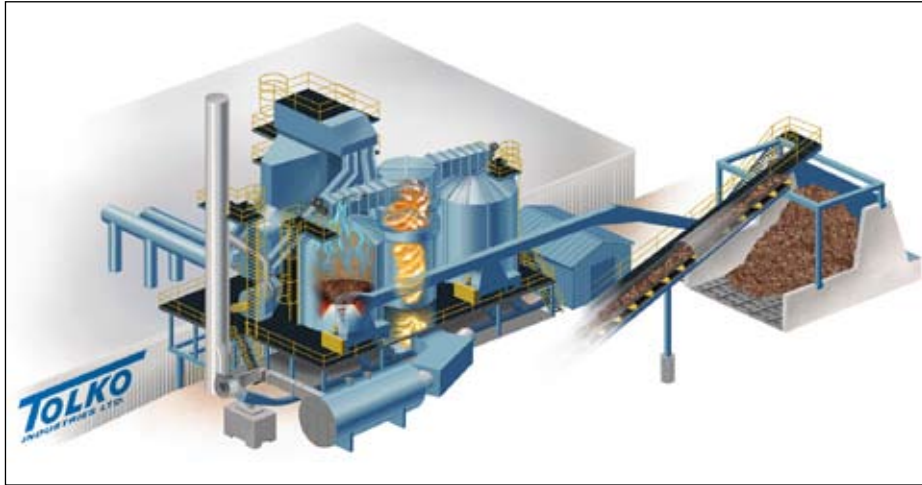
TOLKO
INDUSTRIES LTD.



nexterra

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TOLKO HEFFLEY CREEK BIOMASS GASIFICATION SYSTEM



■ Project Description

- Customer: Tolko Industries Ltd.
- Location: Heffley Creek near Kamloops, B.C.
- Application: Process heat for veneer dryer and log conditioning vats
- Nexterra Scope of Work: Turnkey gasification system
- Capacity: 38 MMBtu/hr net useable heat
- Fuel: Wood residues (hog fuel) from Tolko mill
- Fuel Moisture Content: 25 - 55%

■ System Highlights

- First system of its kind in North America forest industry
- Commissioned Date: May 2006
- Uptime: Approximately 96%
- Veneer Dryer VOC emissions destroyed in Nexterra oxidizer
- Displaces 100% of natural gas consumption from veneer dryer #1 and log conditioning vats (40% of overall mill consumption)

■ Expected System Performance

Natural Gas Displacement	235,000 GJ/yr
Annual Savings	\$1.5 - 2 million/yr
Reduced CO ₂ Emissions	12,000/tonnes yr
Reduced CO ₂ Emissions (Car Equivalent)	3,000 cars/yr
Avoided CO ₂ Tax (\$30/tonne)	\$360,000/yr

“Increasing our competitive advantage by reducing our operating costs was a primary goal for Tolko. To do it in a way that also dramatically reduced emissions really made it a win-win solution for us.”

- Michael Towers, Manager Tolko Energy Supply and Systems



Heat Exchanger & Ducts to Veneer Dryer



Gasification System



Gasification System





Foundations



Foundations



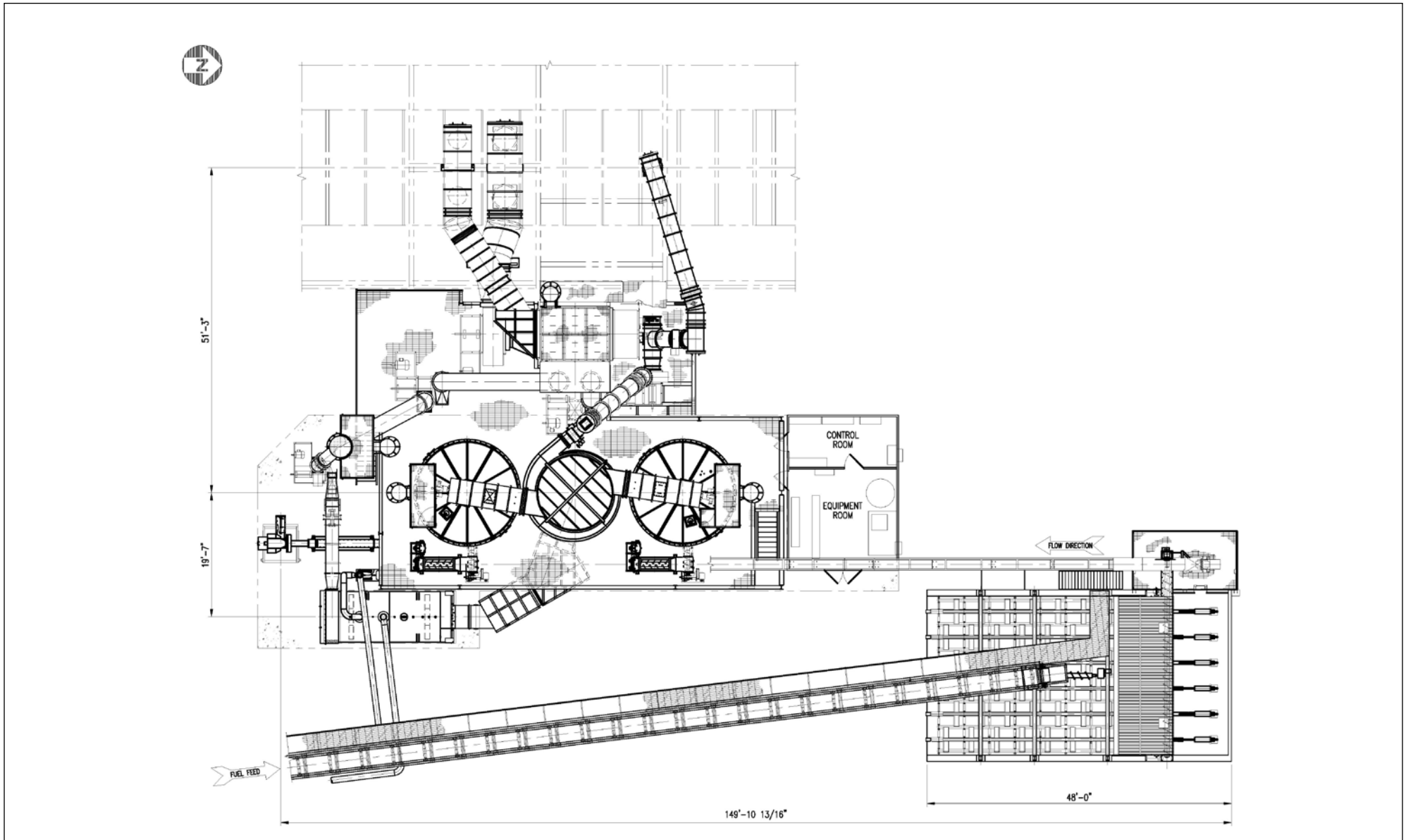
Air-to-Air Heat Exchanger

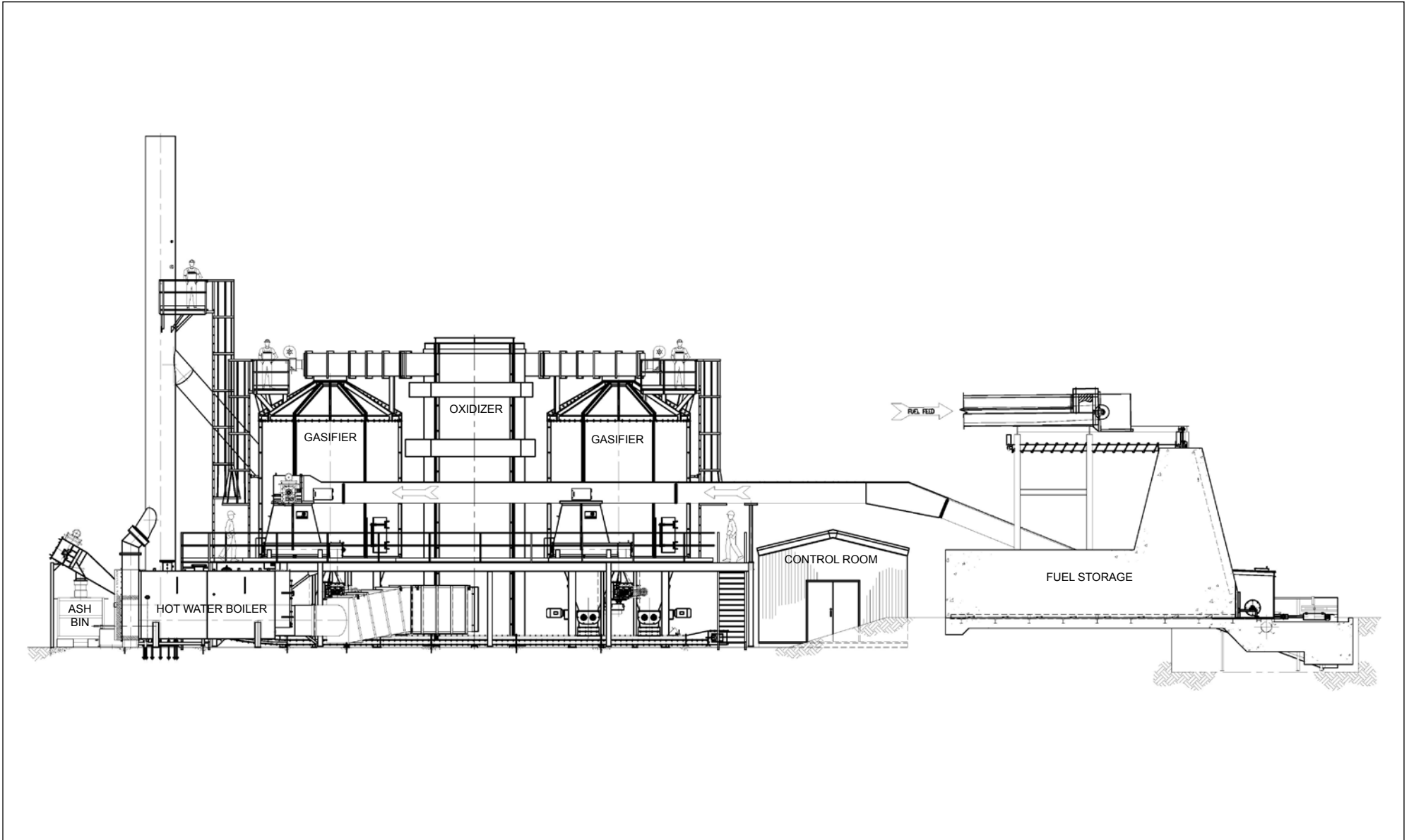


Installing Gasifiers



Installing Gasifiers





About Tolko Industries Ltd., Heffley Creek Division Kamloops, British Columbia

Tolko Industries Ltd. is a Canadian-owned forest products company that has manufactured specialty forest products since 1956. In May 2006, Nexterra commissioned a gasification system for Tolko's plywood mill near Kamloops, B.C., to help address the rising cost of natural gas prices. This is the first application of its type in the North American forest industry. The plant has operated since May 2006 with better than 96% reliability. In September 2009, a scheduled plant inspection proved the robustness of the system. The inspection team found little wear of the refractory and vertical auger as well as minimal abrasion or fouling in the system.

The project received financial support from the federal and provincial governments including Natural Resources Canada, TEAM (Technology Early Action Measures) and Ethanol BC.

"We are very pleased with the Nexterra gasifier system. It is user friendly, simple to operate, and we are working with Nexterra to identify opportunities where we can apply this and emerging technology at other Tolko mills."

- Jim Baskerville, Regional Manager, Okanagan Operations, Tolko

For more information:
www.tolko.com



Partners:



Natural Resources
Canada



Ethanol BC

About Nexterra Systems Corp. Vancouver, British Columbia

Nexterra is a leading developer and supplier of advanced biomass gasification solutions that enable customers to self-generate heat and/or power inside-the-fence at institutional and industrial facilities using low cost biomass fuels. Nexterra's strategic relationships include GE Energy, Johnson Controls and Fortis BC.

Projects include:

- U.S. Department of Veterans Affairs (DVA), Medical Center, Battle Creek, MI
- University of British Columbia, Vancouver BC
- U.S. Department of Energy (DOE), Oak Ridge National Laboratory, Oak Ridge, TN
- University of Northern British Columbia, Prince George, BC
- Dockside Green Development, Victoria, BC
- Kruger Products Limited, New Westminster, BC
- University of South Carolina, Columbia, SC
- Tolko Industries Ltd., Heffley Creek Division, Kamloops, BC
- Nexterra Product Development Centre (PDC), Kamloops, BC



For more information:
www.nexterra.ca