

An Innovative Technology Company Providing
Custom Energy and Emission Reduction Solutions



FLU-ACE[®]

Dryer Exhaust Gas Applications



Win your fight to reduce energy and production costs:

- ▶ Reduce energy consumption;
- ▶ Reduce greenhouse gases and other emissions commensurate to fossil fuel reductions;
- ▶ Enjoy continued savings throughout the long operational life of the FLU-ACE® unit.
- ▶ Recover 200% to 300% more heat than conventional recuperator and economizer systems ... heat that is readily usable for many purposes.

- ▶ Recover and condense between 70% and 90% of the water vapor normally vented in the exhaust gas ... providing water for recycling to process.
- ▶ Achieve both efficient heat recovery and commensurate emission reduction with one cost-effective FLU-ACE® unit.

Contact Thermal Energy's experts to learn how you can apply FLU-ACE® to recover and utilize your valuable waste heat.

Read further to learn how FLU-ACE® works

Thermal Energy International Inc. offers industry a winning solution to escalating energy costs

FLU-ACE® provides an excellent source of heat at ideal temperatures for Thermal Energy's low temperature DRY-REX™ biomass drying systems.

In many cases, with clean fuels, the hot water can also be used directly in the process or boiler plant without any need for additional heat exchangers.

Electronic controls give FLU-ACE® optimum automated performance and "fail-safe" operation.

As a side effect of valuable heat recovery, FLU-ACE® provides you with a substantial environmental bonus... it reduces pollutant emissions by an amount equal to or greater than the percentage of energy saved.

FLU-ACE®, Thermal Energy's winning solution for your bottom line and the environment.



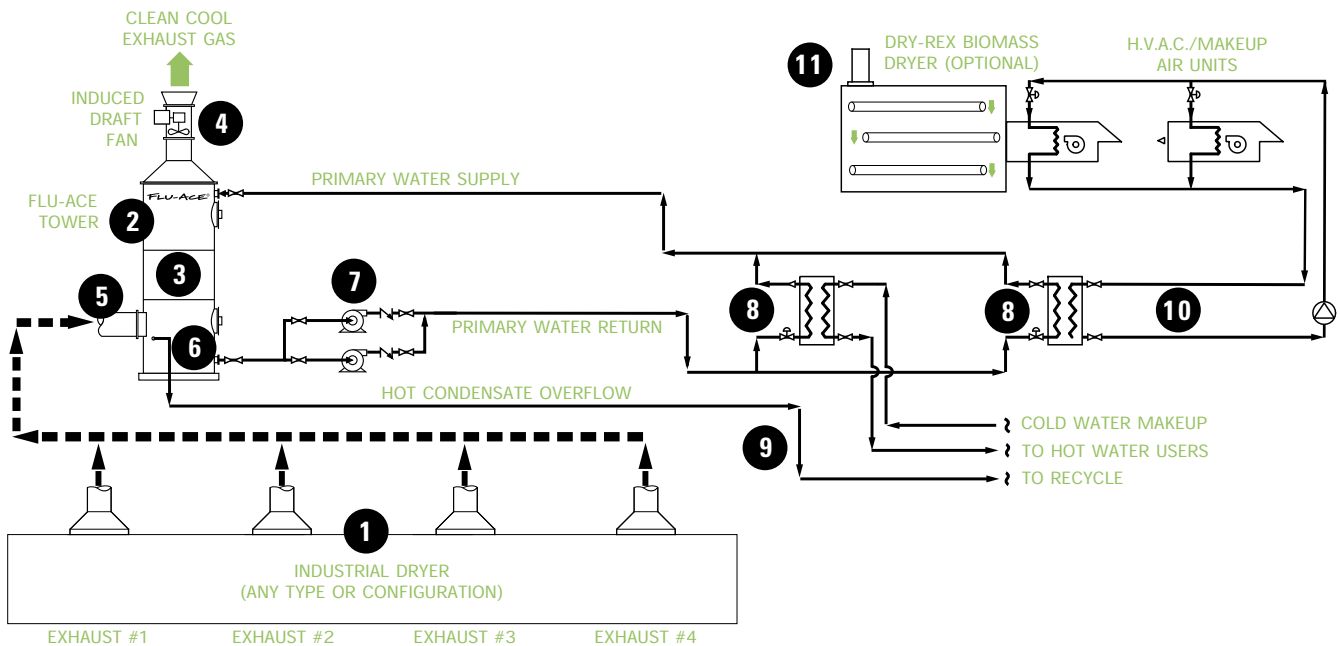
FLU-ACE® Installation at Minas Basin Pulp and Power Co. Thermal Energy completed its largest FLU-ACE® waste heat recovery project to date for Johnson Controls Inc. at Minas Basin Pulp and Power Co. in Nova Scotia. The FLU-ACE® solution provides energy savings of 20% by using recovered waste heat from the mill's No.6 paper machine.

FLU-ACE® is ideal for capturing waste heat from paper machines and other dryers to feed Thermal Energy's DRY-REX™ low temperature biomass dryers to create high efficiency biofuels from mill waste and residuals such as bark and sludge.



How FLU-ACE® works to cut energy costs

- 1** Conventional heat recovery technologies require a dedicated piece of equipment for each boiler exhaust – not with FLU-ACE®.
- 2** The varying flow of flue gases emitted from multiple boilers can be efficiently processed by a single FLU-ACE®. This means a lower initial investment, lower operating costs and a higher return on investment with FLU-ACE®. FLU-ACE® will have an ongoing positive effect on your bottom line throughout its long operating life (20+years).
- 3** The FLU-ACE® unit's unique internal structure ensures maximum condensing heat and mass transfer. It also enables an unobstructed flow of liquids and gases through the tower, guaranteeing virtually continuous operation with limited downtime.
- 4** Up to 90% of the heat normally lost through industrial dryer exhaust is recycled by FLU-ACE®. This is possible because the FLU-ACE® unique direct contact (gas/liquid) design enables optimal recovery of both sensible (dry) heat and latent (wet) heat, even in widely varying operating conditions. FLU-ACE® is equipped with a variable speed, induced draft fan at the tower outlet.
- 5** The fan automatically maintain the optimum exhaust gas static pressure set point at the tower inlet preventing interference with upstream dryer process.
- 6** Primary hot water is produced when dryer exhaust gas is cooled and water vapor is condensed in the FLU-ACE®. The primary water normally (at up to 63°C/145°F) accumulates in the receiver, where it is treated to neutralize acids, or remove suspended solids if necessary.



- 7** FLU-ACE® uses variable speed pumps to keep the temperature of the hot primary water leaving the receiver at the desired level.
- 8** Control valves regulate distribution of the primary water to the heat exchangers.
- 9** Heat can be transferred to secondary water for use as a plant hot water source.
- 10** Heat can be transferred to secondary glycol fluid for plant makeup air heating.
- 11** FLU-ACE® also serves as an ideal heating source for Thermal Energy's low temperature DRY-REX™ biomass dryer which further enables reduction in fossil fuel consumption or elimination of fossil fuels in your production process.

Thermal Energy: Supplying Innovative Award-Winning Energy Recovery, Conservation, Bioenergy and Emission Reduction Solutions.

TEI is a full service, design-build firm with engineering accreditation, established in 1986. We have designed and built many energy and emission reduction solutions on a design-build basis for our customers.

Our team of professionals is highly experienced in plant and process energy efficiency evaluations & innovative solution development. We conceptualize, design, manufacture and deliver custom solutions which reduce your energy costs, improve energy efficiency and reduce the environmental impact of your facility.

We pride ourselves on working with customers to gain an in-depth understanding of their business, corporate, social and fiscal challenges. With this sound footing, our team of professionals provides complete solutions from initial design concept to installation, to financing and servicing of varied technology solutions.

Typical applications include:

- ▶ Waste energy recovery (FLU-ACE® and other);
- ▶ Biomass and Waste stream Drying solutions (DRY-REX™ and Other)
- ▶ Steam & Condensate System Solutions (GEM® and Other)
- ▶ Ozone systems (THERMALOZOMAX™), and;
- ▶ Burner/Boiler System Improvements.

STOP delaying energy cost reduction programs and START saving up to 50% on your company's energy bill today with FLU-ACE®

Let us put our experience to work for you. Please contact TEI for installation case studies on FLU-ACE® winning solutions, or for a review and feasibility analysis for your company.

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