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Contact: David Holahan (860) 767-0175

As the Turbine Turns



When Bill Rutan, Centerbrook Architects' Facilities Manager, noticed last winter that the hydropower plant in the depths of the company's offices wasn't generating electricity as energetically as before, he discovered it was vibrating. He assumed the problem was coming from the gear box, which transfers the power from the water-driven turbine to the generator. The gears ratchet up the RPMs by a factor of 16.

As with most projects, one thing led to another. While disconnecting the gear box and connections Rutan discovered the turbine's blades were full of scale and gunk, as might be expected of equipment that had been installed in June 1982 – a week before that year's great flood, which disabled not only the new power plant but almost swept the firm's main office building down the Falls River. The dam and neighboring Centerbrook buildings were destroyed, and it would be several years before the firm, along with its riverine neighbors, rebuilt the dam, and the hydro-plant was reactivated.

Bill removed the turbine gunk, and right away generation improved significantly, by a whopping 25 percent. Hydropower accounts for more than 10 percent of the firm's annual electrical usage. The gear box, however, was still out of sync. On closer observation, Bill realized that rotting wood supports were causing misalignment of the input shaft from the turbine to the gear box, hence the wobbling and wear on the gears. Rather than remove the

entire plant and rebuild, Bill devised an ingenious solution. Drilling two holes eight inches into the nearby rock foundation, he implanted two metal posts and connected chains from them to equipment below. A few twists of the turnbuckles, a new stabilizing beam, and all was right again in the world of alternative power sources. The plant is good to go for the next 25 years of generation.

While much in the news of late, renewable power and energy conservation have been a staple of Centerbrook's practice since it was founded in 1975. Its offices currently get about 40 percent of their electricity from on site water, solar and geothermal systems, and the firm has designed sustainable features into more than 50 projects. Twenty-three of its architects are LEED (Leadership in Energy and Environmental Design) accredited.

The tradition of green energy along the Fall River site didn't begin with Centerbrook. The site has been used for water power since the 17th century. The architects of Centerbrook estimate that there are more than one thousand 'waterpower-ready' sites in Connecticut that could install similar turbines.

Centerbrook Architects was established in 1975 and has a national reputation for design excellence. In 1998 Centerbrook received the national AIA Firm Award, the highest honor that the American Institute of Architects confers on a firm.

Centerbrook Architects and Planners

67 Main Street, P.O. Box 955
Centerbrook, CT 06409

860.767.0175 Phone
860.767.8719 Fax

www.centerbrook.com