



the **OUTRIGGER**

R. Baker & Son Magazine - 10 Years Strong
Service-Disabled Veteran-Owned Business

JANUARY 2018

R. Baker & Son Completes Large Process Rigging Project

When the health-science subsidiary of one of the world's largest food companies decided to establish its new headquarters and R & D hub in the Northeast, R. Baker & Son played a major role in installing new process and HVAC equipment in the facility's newly-renovated pilot manufacturing plant. The client would be developing therapeutic nutritional solutions for various medical conditions and age groups in the large 4-story plant.

The necessary equipment was manufactured in different parts of the world and shipped to R. Baker & Son's climate-controlled warehouse in Marlboro, New Jersey, where it was stored until the worksite was ready. Process equipment included batch tanks and platforms, protein injection skids, homogenizers, deaerators, ice water skids and tanks, waste neutralization, protein flash chambers, and heat exchangers of various sizes. On the mechanical side, MCCs, AHUs, package chillers, pump skids, RO, CIP and large control panels were kept at Baker's warehouse.

Meanwhile, the Baker team developed rigging and routing plans and engineered floor loading plans based on building information modeling (BIM) for each piece of equipment. These plans were also physically verified to make sure pathways were unobstructed when it came time to move the equipment through the building, as newly-installed pipes and ductwork locations occasionally don't match with original BIM specifications. In many cases, they also had to determine the appropriate anchoring methods and acquire the necessary hardware.

As each area was readied for installation, R. Baker & Son transported the equipment from our warehouse to the pilot plant and carefully maneuvered it into the building. An 80-ton crane was used to rig equipment to upper floors. **Setting and assembling the equipment required crew members to work with laser accuracy to make sure parts, piping, and wiring fit together perfectly, enabling other trades to begin the connection and interface process without delay.** Some of the equipment produced overseas required conversion from metric to standard measurements. Much of the assembly work was done under the guidance of equipment manufacturers.

As installation of each piece of equipment and various control panels had been completed, the Baker team worked closely with other trades to ensure that handoff went smoothly to expedite utilities connection and support an aggressive startup and commissioning schedule.



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Air Casters Enable 100-Ton Loads to Float on Air

Air casters, also called air skates, air sleds, air dollies, air planks, etc., is a unique rigging solution R. Baker & Son often uses for moving large machinery, fragile, unwieldy equipment, and other heavy loads within a building. Using hovercraft technology, loads weighing up to 100 tons can be floated on a thin film of air across flat, smooth surfaces, much like a puck on an air hockey table.

During a recent renovation project, R. Baker & Son brought in air casters to move several multi-ton lyophilizers. The plant owner, certain the move couldn't be done without damaging newly-finished epoxy floors, was pleasantly surprised to see the air casters in action, leaving behind nothing worse than a few shoeprints that were wiped from the floor.

How Do Air Casters Work?

Air casters are omni-directional and nearly friction-free, and just one to five pounds of force is required to move 1,000 lbs. of load, depending on the smoothness of the floor. This allows a single person or small crew to move thousands of pounds with minimal effort, complete control, and no floor damage. Low-profile caster modules are placed at strategic support points beneath a load to evenly distribute the weight and compressed air is used to inflate urethane diaphragms that lift the load from the floor. Air is then forced between the floor and the diaphragms, and the load begins to float. Air casters allow easy and precise positioning, even in confined spaces. If floors are not completely smooth, or loads must be moved over transitional areas, overlay materials like sheet metal or heavy-gauge plastic can be used to create an even surface.



New York City's 8.5 million residents use more than 1.3 billion gallons of water per day, more than half of which journeys from upstate New York through the Delaware Aqueduct. Built between 1939 and 1945, the 85 mile-long Delaware Aqueduct is the world's longest manmade tunnel. But the Delaware Aqueduct has two major leaks losing between 15 and 35 million gallons of water per day, 95% of which is escaping from a huge breach in Newburgh, NY. Challenged to come up with a plan to fix the leaks, the New York City DEP announced their solution in 2010: a 2.5 mile bypass tunnel drilled hundreds of feet below the Hudson River that would circumvent the leaks.

The first phase of the \$1 billion Rondout-West Branch Bypass Tunnel project began in 2013 with the drill-and-blast excavation of two access shafts in Newburgh (845 ft.) and Wappinger (675 ft.), taking three years to complete. Next, a 42-ft wide, 100-ft long, 40-ft high construction staging chamber was carved at the bottom of the Newburgh shaft to accommodate a 469-ft., 2.7 million pound tunnel boring machine, or TBM, which in September was lowered in pieces into the shaft. Assembly is expected to take about four months, after which the TBM's 21.6-ft. cutter head will begin boring through about 50 feet of rock per day, all while pumping 2,500 gallons of water per minute, installing a concrete lining, and conveying pulverized rock to underground rail cars, for the next twenty months. Finally, the tunnel will be reinforced with steel pipes and a second layer of concrete. A 6-month shutdown is scheduled for October 2022, at which time the bypass will be connected to the Aqueduct.



Photo courtesy of the NYC Department of Environmental Protection



Combating Fatigue in the Workplace

Job safety and productivity can suffer when workers are overly tired or sleep-deprived. Employers and employees alike should be aware of the negative impact fatigue can have in the workplace, know how to recognize it, and how to remedy it.

The average adult needs 7-9 hours of sleep per night, but a large portion of the population gets by on less. Though some of us may feel rested on just a few hours sleep, research has shown that people who sleep fewer than seven hours over consecutive nights don't perform as well on complex mental tasks as those who have gotten adequate sleep. Risks of fatigue include decreased alertness, slowed reaction time, decreased hand-eye coordination, poor communication, reduced vigilance, and reduced decision-making ability. More accidents occur, both in the workplace and while driving home, among night shift workers and in people who work more than 60 hours per week. Accident rates double after 12 hours at work.

We all have a responsibility to arrive rested and fit for work, and it is important that we understand how much sleep we require to function optimally. Establish a regular sleep schedule, exercise during the day, avoid heavy meals, limit caffeine and alcohol intake, and relax before bedtime. Turn off electronic devices. TV, tablets, smart phones

and laptops before bedtime keeps our minds racing and light exposure can disrupt sleep patterns. Most smart phones and tablets now have a nighttime setting that adjusts display colors to warmer colors, as blue light has been shown to disrupt sleep. Be careful with prescription and OTC sleep aids, which can linger in the blood stream and interfere with morning alertness and coordination.

It's important to recognize when you are feeling sleepy or losing concentration on the job and take steps to increase your alertness. Get up and stretch, walk around, have a snack to boost energy, or take five to chat with a coworker. Drink plenty of water as fatigue can be a sign of dehydration. If you feel unable to perform your job safely, let your supervisor know.



Meet The Team Behind the Scenes

R. Baker & Son would like to acknowledge our outstanding team of administrative and accounting professionals, the unsung heroes who provide the backbone of our organization. We owe them our deepest thanks and appreciation.

From Left to Right-

Tina Lefkowitz, CFO;

Patty DeFelice, Executive Administrative Assistant;

Ginny Otley, Payroll/AP Administrator;

Pearl Tiven, Executive Administrative Assistant;

Ashley Baker, Executive Administrative Assistant

