R. BAKER & Son

OUTRIGGER

Rigging, Dismantling & Demolition News from R. BAKER & SON

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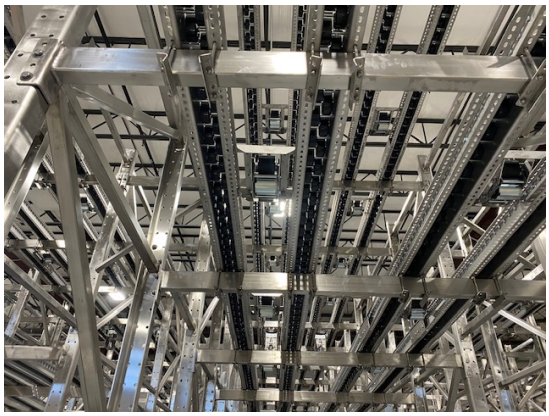
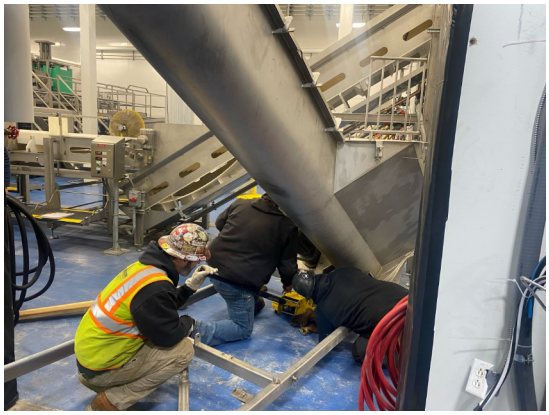
R. Baker & Son Builds Automated Conveyor System at Food Recycling Plant





R. Baker & Son successfully completed the rigging, assembly, and installation of an automated conveyor system at a cutting-edge food recycling plant. The system, which included a turntable, thirty gravity conveyors, several elevators, pneumatic braking systems, and two high-speed shuttles, would be used to move insulated bins of meat and produce from a receiving area, through a production line where it was milled, dried, and pelletized into animal feed, and out to a loading dock for shipment. As many as three hundred bins measuring 6'x3'x4' and weighing more than 400 lbs. when filled would be handled each day.

To ensure the functionality of the conveyor system, our first crucial step was to bring in a 3D laser scanner to measure the flatness and levelness of the concrete floor. The system had to be plumb and level, especially in areas where the bins would be conveyed by gravity according to the designer's precise pitch calculations. Significant irregularities were found, so we brought in a subcontractor to apply a self-leveling concrete overlay. When a subsequent 3D laser scan proved satisfactory, we moved on to the next step.

Component deliveries and installation phases were carefully preplanned due to space constraints at the facility. When a large hardware shipment was delayed in transit, the Baker team locally sourced various stainless-steel nuts, bolts, and washers so the project could proceed as scheduled.

Installation was executed by three separate Baker crews using scissor lifts, single manlifts, and two small articulating booms. Much of the installation took place at elevated heights, so temporary safety platforms were erected. Team members

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followed all fall protection and other safety protocols and adhered to the job hazard analysis (JHA).

Work proceeded systematically, beginning with laser aligning and marking the installation using information from the BIM model and manufacturer shop drawings. The first crew was tasked with installing the primary columns and vertical and horizontal structural sections, followed by a second crew that installed bracing, elevator hardware, and conveyor rails. The last crew installed pneumatic brakes, pistons, motors, link belts, pneumatic control panels, and process control panels. Several shuttle and conveyor line sections required welding, which we accomplished on a second shift.

As each section was completed, we worked with the vendor representative moving test bins filled with water through the conveyor system to ensure the process worked smoothly and no binding occurred. Problems were promptly addressed before we moved on to the next section. Two millwrights remained on the job for an additional two weeks to assist in the start-up, testing, and commissioning of the conveyor system, making adjustments as needed.

Through meticulous planning and collaboration, the project was safely completed well within the established project schedule. R. Baker & Son takes great pride in our contribution to delivering a high-performing conveyor system that meets all of the client's stringent demands.

NEW YORK BUILD EXPO 2024: Visit Us at Booth 1157

R. Baker & Son will be showcasing our services and expertise at the **New York Build Expo** at the Jacob K. Javits Convention Center on February 13-14, 2024.

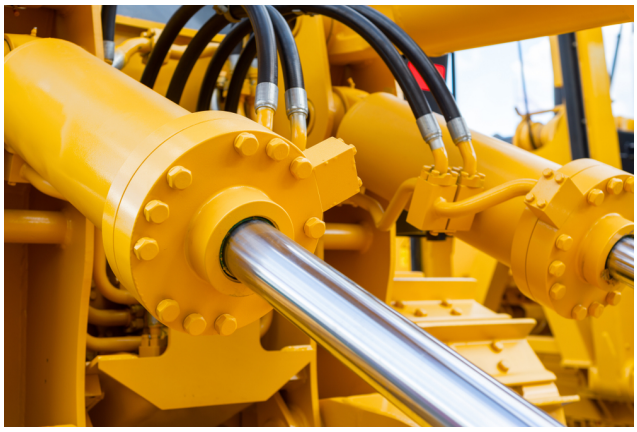
Attended by contractors, architects, engineers, developers, investors, and realtors, New York's leading construction and design show will feature 500+ high-level speakers, more than 400 exhibitors, workshops, networking events, entertainment, much more.

Admission and events are free.

See you at Booth 1157!

REGISTER – FREE TICKETS

The Muscle Behind Heavy Machinery: Hydraulic Science Explained



Hydraulics have been the workhorse of industry since the mid-1800s, when cranes powered by water were used to load coal onto barges. Examples of hydraulic power date back to ancient Rome where the technology was used in water clocks, water wheels, and pumping systems.

Wherever strength and force is required in our industry, hydraulics are overwhelmingly the technology of choice. On any given day, hydraulics provide the muscle for many of the tools and heavy machinery R. Baker & Son uses including crane booms, telescoping sections, and outriggers, and excavator steering, booms and attachments, as well as our loaders, dump trucks, lulls, and hydraulic hammers.

One of the most important trailblazers in hydraulics was 17th century French mathematician Blaise Pascal. Pascal's Law states that when pressure is exerted at any point on a confined, incompressible fluid, there is an equal increase in pressure at every other point in the container. Thus, when one piston in a simple two-piston hydraulic system is pushed down, the other piston is pushed up.

When applied to a more complex hydraulic system, Pascal's Law allows forces to be multiplied. The larger the surface area of the second piston is in relation to the first, the greater the mechanical advantage. Again using the example of a two-piston system, if the second piston has an area that is ten times larger than that of the first piston, the force on the second piston will be ten times greater because the pressure is equally distributed on the larger piston's entire surface area.

Controlling Hazardous Welding and Cutting Fumes and Gases

Oxy-fuel metal welding and cutting are activities that can produce harmful fumes and gas byproducts. Without strict protective safety measures in place, exposure to these byproducts can have health effects ranging from minor dizziness and nausea to serious long-term damage to the lungs, kidneys, stomach, and nervous system, as well as various types of cancer. In confined or enclosed spaces, welding gases can displace oxygen and asphyxiation can occur.

To protect our workers from the harmful health effects of welding, cutting, and brazing fumes, R. Baker & Son strictly adheres to all OSHA guidelines, standards and regulations, starting with detailed safety training. Proper ventilation is provided to reduce fumes and gas levels in enclosed work areas, but it is important to note that welding outdoors or in open spaces may not sufficiently protect workers from fume hazards without additional safety measures. At minimum, workers must position themselves to use natural drafts to keep fumes away from themselves and others. Local or portable exhaust systems can be used to remove fumes, with hoods, extractors, and vacuum nozzles positioned close to the plume source to draw maximum fumes and gases. Exhaust ports should be directed away from workers.

In the event that proper safety measures and ventilation cannot adequately reduce exposures to safe gas and fume levels, it is critical that respiratory protection be used.