R. BAKER & Son

OUTRIGGER

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R. Baker & Son Completes Port Mobil Tank Farm Demolition Project

R. Baker & Son recently completed a tank farm demolition project at Port Mobil in Staten Island, New York on the banks of the Arthur Kill. The thirty-eight steel above-ground storage tanks (AST), which had formerly contained a mixture of fuel oil and gasoline, ranged in size from 60 to 135 ft. in diameter and 35 to 60 ft. in height. We were also tasked with abatement and demolition of the facility's administrative buildings.

Due to the environmentally-sensitive nature of the area surrounding the 240-acre waterfront site, a wetlands delineation survey was performed at the outset of the project. We also worked in close conjunction with environmental engineers, the New York Department of Environment Conservation (NYSDEC), and USEPA.

The Baker team took an assembly line approach to the project due to its size and scope, assigning three separate HAZMAT-trained crews. One crew was tasked with preparing the equipment and tanks for demolition, a second crew concentrated on the mechanical demolition of the ASTs, and a third crew was responsible for the cutting, loading, and final cleanup of metal and debris down to the concrete slabs.

Equipment used to carry out the project included six 100,000 lb. - 180,000 lb. excavators equipped with shears, grapples, and scrapping magnets, as well as several wheel loaders and Bobcat skid steers. Demolition of the tanks entailed cutting the sides into large sections and peeling them away to allow the roof to collapse to the ground, where it was cut into manageable sections for removal. Each week, as many as 80 tractor trailer loads of scrap were transported from the work site to a ferrous metal recycling facility. A total of 12,000 tons were dismantled, removed, and recycled.

The project was successfully completed, injury-free and six weeks ahead of the owner's schedule.

View drone video of the Port Mobil AST demolition project here.

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Construction Workhorse: History of the Skid Steer

One of the most versatile machines in construction is the skid steer loader, a compact, rigid-framed, engine-powered machine with lift arms that can be fitted with a variety of different tools and attachments.

The skid steer loader was first invented in 1956 in Rothsay, Minnesota by a pair of blacksmiths named Cyril and Louis Keller. A turkey farmer asked the brothers if they could make a lightweight machine that could be used to clean manure from his barns. They came up with a three-wheeled vehicle that quickly caught the eye of other local farmers and became popular in the area. The Melroe Manufacturing Company bought the manufacturing rights in 1958 and hired the Keller brothers to further develop their creation. By 1960, the single rear caster wheel had been replaced by a rear axle, and in 1962 Melroe dubbed the four-wheel skid steer loader as “Bobcat”.

Skid steers are ubiquitous on R. Baker & Son projects due to their light weight, versatility, and maneuverability. Using two joysticks, they can be turned within their own footprint, making them ideal for tight spaces. Operating capacities range from 800 lbs. to over two tons, and multi-terrain versions are available. Attachment options include buckets, augers, hammers, brooms, saws, forks, shears, breakers, rippers, scrapers, backhoes, and more. Popular manufacturers include Bobcat, John Deere, Caterpillar, Gehl, and Case.

140-Year Basilica Construction Project Gets Caught Without a Permit

Barcelona’s La Sagrada Familia is a renowned masterpiece of Catalan Modernism architecture, drawing more than 4.5 million visitors each year, but construction of the ornate basilica still isn’t finished. And in an amazing twist, it wasn’t until 2019, more than 137 years after the cornerstone was laid, that a building permit was finally secured.

Progress on the privately-funded project has been hindered by major obstacles and delays since construction began in March 1882. Only one of the eighteen planned bell towers had been completed by 1926 when Antoni Gaudí, the temple’s famed architect, was struck and killed by a train. When the Spanish Civil War broke out ten years later, anarchists inflicted significant damage to the basilica and destroyed most of Gaudí.’s drawings and plaster models. Repairs took a decade to complete.

Another six decades of construction had slowly gone by when it was discovered by chance that a building permit had never been obtained for the project. An application had been filed in 1885, three years after construction began, but it was never granted nor rejected. The city finally issued a permit in 2019 at a cost of €4.6 million and imposed a €36 million fine on the La Sagrada Familia foundation for building without a permit. Construction had been slated for completion in 2026 to coincide with the 100 year anniversary of Gaudí’s death but the project has again been delayed, this time by the pandemic.

Safety: Selecting the Right Respiratory Protection

Construction and demolition can produce dust, fumes, and other harmful airborne substances that cause significant health problems or even death when inhaled or ingested. Workers should use respiratory protection to filter contaminants from the air and, under certain conditions, supply clean air. Selecting the right NIOSH-approved respirator depends on the contaminants present and the protection factor (PF) required. OSHA has outlined the various types of respirators and the conditions for which they should be used:

- **Filtering facepiece respirators** are disposable respirators that can be used to filter dust, mists, and fumes. They do NOT provide protection from gases, vapors, asbestos, or lead.
- **Half-facepiece respirators** are reusable and can be used for protection against most vapors, acid gases, dust, or welding fumes when equipped with the appropriate filter or cartridge, which must be changed periodically as required.
- **Full-facepiece respirators** use reusable canisters, cartridges, or filters to protect against most vapors, acid gases, dust, and welding fumes while shielding the face and eyes from contaminants.
- **Supplied-air respirators** provide clean compressed air through a hose. They are well-suited for working long hours in environments that are not immediately dangerous to life and health.
- **Powered air-purifying respirators** use a battery-powered fan to pull air through replaceable filters or cartridges and circulate it within a helmet or hood. Loose-fitting PAPR can be used with facial hair.
- **Self-contained breathing apparatus (SCBA)** deliver breathable compressed air from a tank. They are used for entry and escape from ILDH atmospheres (immediately dangerous to life and health).

R. Baker Innovations: Existing HVAC Slated for Demo Used for Dust Control

R. Baker & Son is always looking for innovative ways to use what's available and incorporate them into our project and safety plans. On a recent interior demolition project, existing air handling units and exhaust fans slated for removal were utilized to keep air changes moving throughout the facility and control dust during the demolition process.

Equipment that would need to stay in operation to provide the ventilation, along with electrical power and controls, were color-coded to remain until the end of the project. The majority of the ductwork was removed with the exception of what would be needed to supply air to one side of the building and exhaust to the other, thus creating cross-ventilation on the building's two floors and penthouse. We fitted MERV 8 fabric over the exhaust ductwork to filter the air and changed it on a daily basis.

As the project progressed and R. Baker crew members moved from task to task, other construction trades began renovation work in areas where demolition work had recently been completed. Eventually, the remaining air handling units were decommissioned and removed, along with most of their associated ductwork, leaving only six exhaust fans running for the final phase of demolition.