

R. BAKER
& Son

OUTRIGGER

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

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Camden Demolition Project Makes Way for New Renaissance High School



R. Baker & Son recently completed a dismantling and demolition project in Camden, New Jersey, clearing the way for construction of the new Uncommon Schools Camden Prep High School.

Uncommon Schools is a non-profit organization that starts and manages public renaissance schools for students in low-income urban areas. When Camden Prep first opened in 2014, only 3% of city students were proficient in math and 4% were proficient in English. By 2019, proficiency scores at Camden Prep had risen to 50% in math and 60% in English, outperforming the New Jersey state average. Camden Prep now boasts five public schools that are free to attend for all Camden residents. High school students currently learning from a temporary space at the newly-constructed Camden Prep Copewood Middle School will move just down the street to the new high school when it opens in the fall of 2023. The facility will include a modern three-story, 30,000 sq. ft. building with turf athletic field, parking lot, and landscaped areas.

For the dismantling and demolition portion of the Camden Prep High School project, our team was tasked with the removal of several abandoned buildings, a water tower, and large expanses of concrete slabs and foundations. Equip-

ment utilized included multiple large excavators equipped with grapple buckets, hammers, and shear attachments, skid steer loaders, and a concrete crusher. More than 180 truckloads of crushed concrete were transported to a recycling facility for further processing. Soil remediation was required throughout the site, amounting to 4,575 tons of impacted soil that were removed and replaced in seven separate areas. R. Baker & Son delivered the project safely and ahead of schedule and is honored to have played a small part in the continuing revitalization of Camden's public education system.



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Also in this issue:

**Spreader Beams • History of the Steam Shovel
Scaffold Safety • RB&S Environmental Services**

Spreader Beams a Top Choice for Rigging Stability and Safety



Baker team rigs Ladder Company 3 fire truck into National 9/11 Memorial & Museum

The spreader beam, also known as a spreader bar, is a popular below-the-hook lifting device used to widen lifting points and stabilize and support a load during a crane lift. It consists of a long horizontal beam or bar that holds two or more slings apart and converts lifting loads into compressive forces on the bar and tensile forces on the slings. Chains or slings at the top of the beam attach to two suspension points that angle up to a single central ring. Spreader beams should not be confused with lifting beams, which have a single central attachment point at the top of the beam.

Spreader beams provide a number of advantages over lifting beams. Because they depend on more-efficient compression forces, as opposed to bending forces, they are typically smaller, lighter, and less expensive than lifting beams. Two lifting points mean that the weight of a load is distributed evenly across the beam rather than at a single point, reducing the risk of the load tipping, sliding, or bending, and helping to prevent crushing or damaging the load. This makes spreader beams a good choice for rigging

wide and heavy-duty loads. Other types include four-point box spreader beams that are ideal for handling large loads with an offset center of gravity, and telescoping spreader beams that provide versatility for loads of varying sizes. As for disadvantages, spreader beams require more headroom than lifting beams to accommodate the overhead slings and thus are not ideal for rigging applications with height restraints. Also, loads that require support along their entire length may be better accommodated by a lifting beam.

Otis Steam Shovel was the Precursor to Today's Excavators



Before the steam shovel was invented in the early 19th century, excavation work was accomplished with picks, shovels, and horse-drawn scrapers. William Otis, cousin of Otis Elevator Co. founder Elisha Otis, recognized the need for a mechanical excavator, so in 1836, at the tender age of 23, he designed and constructed the prototype for the world's first working steam shovel. Three years later, a patent was issued for the "Crane-Excavator for Excavating and Removing Earth". William Otis, however, wouldn't live to see his invention's success; less than eight months after he received his patent, he succumbed to typhoid fever at 26.

Early steam shovels, also known as Otis excavators, were comprised of a 180-degree, partial-swing boom mounted on a railway chassis alongside a boiler and movement engine. Buckets had a 1.25 cubic yard capacity and output was about 100 cubic yards per hour. Today it's estimated that Otis's machine could do the work of 60 to 120 workers. Demand for the steam shovel grew slowly over the next few decades until popularity exploded in 1884 when a full-swing design was introduced in England. These more-versatile steam shovels were used for constructing railroads, digging foundations and basements for early skyscrapers, mining operations, road building, and excavating the Panama Canal. Steam shovels remained a major force in American construction until they were replaced by diesel-powered excavators in the 1930s .

OSHA General Requirements for Scaffold Safety



Falls are the number one safety hazard in the construction industry, accounting for about one-third of on-the-job fatalities, and about 15-20% of those deaths can be attributed to falls from scaffolding. By adhering to OSHA standards for scaffolds, almost all of these accidents could be eliminated. Here are just a few of OSHA's requirements for scaffolds.

First, and most importantly, proper training is essential for workers who build and work on and around scaffolds. Scaffolding must be erected, moved, and dismantled by

trained, experienced workers under the supervision of a competent person. Employees working on the scaffolding must receive safety training from a qualified person on hazards that include falls, falling objects, and electrocution.

Fall protection and/or guardrails between 38-45 inches in height must be provided on scaffolds more than 10 feet above the ground. Scaffolds must be erected on solid footing and able to bear their own weight plus four times the maximum intended load without settling or displacement. Safe access, such as a fixed ladder or access stairway, must be provided. Platforms and walkways should be at least 18 inches wide and fully planked or decked on all working levels. Toe boards, debris nets, protective canopies, and barricades should be utilized to protect against falling objects. Remove snow, ice, mud, and other slippery debris, and avoid working on scaffolding during severe weather. Scaffolds and their components should be inspected before each work shift and after any occurrence that could affect its structural integrity.

R. Baker & Son Provides a Wide Range of Environmental Services



Included among our core services are environmental remediation and decontamination. We boast a team of HAZWOPER-certified and CSE-trained environmental remediation personnel as well as an assortment of tools, equipment, and machinery including excavators, power and pressure washers, HEPA vacuums and filtration, industrial scarifiers, line-pigging equipment, and more.

Our remediation and decontamination services include, but are not limited to:

- **Surface cleaning and soda blasting**
- **Pipeline cleaning and pigging**
- **HVAC and other duct cleaning**
- **Non-ACM insulation removal**
- **Column, tank and vessel cleaning**
- **Scarification**
- **HEPA vacuum services**
- **Line flushing and first line breaks**
- **Power washing and steam cleaning of pipes and equipment**