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Celebrating 80 Years of Excellence

R. Baker & Son

Controlled Demolition: Asbestos Abatement

One of the first steps in any demolition project is to identify hazardous materials, including asbestos, that require abatement. Asbestos was widely used in an array of building materials – pipe insulation, fittings, caulk, ceiling and floor tile, etc. – before it was banned in 1981, and the majority of commercial and industrial buildings erected before that time contained asbestos in some shape or form. A substantial amount of ACMs, including asbestos mastic waterproofing, were identified in the circa-1949 pharmaceutical facility, 80 percent of which was slated for demolition. **A containment remediation plan was developed and executed before, during, and after demolition activities** of the large steel and masonry structure.

The entire demolition area was enclosed with a barrier and labeled with signage barring unauthorized entry before work could commence, and all personnel and equipment were required to enter and exit through one designated access point. Decontamination areas were set up for cleaning heavy equipment prior to leaving the abatement area and a personal decontamination unit was installed for workers to use when exiting the site.

Pre-demolition abatement activities took place on all exposed friable and non-friable materials. As the demolition crews progressed, steel building members containing non-friable asbestos mastic were removed and segregated for further abatement. The remaining abated building components were then removed as recycled materials.



inside this issue...

Controlled Demolition: Asbestos Abatement

Stranded in Seattle: Saving the World's Largest Tunnel Boring Machine

Construction Site: Hearing Protection / R. Baker Turns 80

Stranded in Seattle: Saving the World's Largest Tunnel Boring Machine

On July 30, 2013, the world's largest-diameter tunnel boring machine (TBM), nicknamed Bertha, began digging a 2-mile long tunnel beneath downtown Seattle to replace an aged and ugly double-decker viaduct along the city's waterfront. The Highway 99 Tunnel project was originally slated to cost \$1.35 billion and be completed last fall, but in December 2013, just 1,023 feet into the dig, Bertha began to overheat and her cutting head struggled to turn. The massive 326-foot long machine was stranded, inoperable, sixty feet beneath the streets of Seattle.

TBMs excavate tunnels much like an earthworm. A rotating cutter head equipped with spinning and stationary teeth chews away the rock and soil before it, and the excavated material is carried by conveyor belt and expelled through the back of the machine. After Bertha unexpectedly ground to a halt, investigators discovered that her bearing seals and main bearing had been damaged, possibly when she struck an 8-inch steel pipe, and dirt and grime had contaminated the inner works.

Since it was impossible to access the damaged cutter head from the back of the machine, engineers devised a plan to construct a shaft in front of the TBM to perform the necessary repairs. First, an interconnected ring of 73 concrete pillars were sunk into the ground in front of Bertha. A 120-foot pit was excavated and workers molded a concrete cradle on the shaft floor to support the cutter head. After a series of setbacks (groundwater pressure on the shaft, settling of buildings in Seattle's historic Pioneer Square), Bertha was finally moved slowly forward, breaking the access pit's 20-foot thick concrete wall on Feb. 19, 2015.



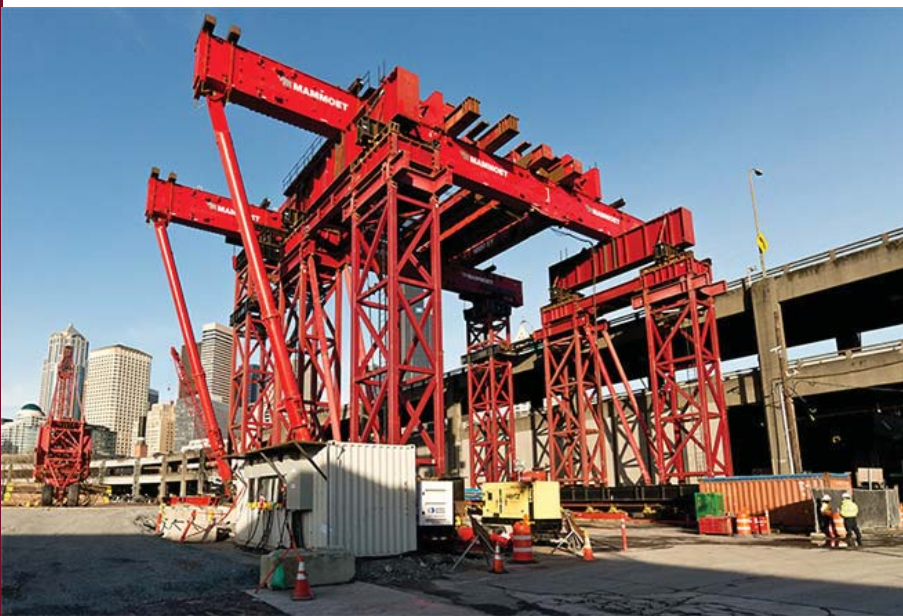
Once the front of the TBM is secured on the cradle, workers will detach the 57-foot diameter, 2,000 ton cutter head. A modular lift tower (MLT) will be moved over the pit to hoist the massive assembly to the surface, rotate it 90 degrees to the horizontal, and set it on the ground for disassembly and repair. Bertha's cutter head will receive a new bearing assembly, extended agitator blades, widened mouths to process more material, and

216 steel ribs and plates as added reinforcement. When completed, crews will reverse the rigging process and lower the assembly back into the shaft for reinstallation.

Barring any further major setbacks, a new tentative tunnel opening date has been set for August 2017.

Follow repair progress:
<http://www.wsdot.wa.gov/Projects/Viaduct/>

Narrated video explains the repair plan in detail.



CONSTRUCTION SITE: HEARING PROTECTION

Each year, 30 million people in the U.S. are exposed to hazardous noise in the workplace, and about 20,000 of them suffer permanent hearing loss. Fortunately, hearing loss can be prevented with administrative and engineering controls and use of hearing protection devices (HPDs).

Hearing loss due to prolonged exposure to excessive noise is cumulative and irreversible. Contrary to popular belief, neither surgery nor a hearing aid can correct this type of damage. In addition to effecting one's quality of life, hearing loss and high noise levels have been associated with stress, irritability, loss of concentration, decreased productivity, and inability to hear warning signals, all of which contribute to increased workplace accidents and injuries.

Exposure to excessive noise is a common problem in the construction industry. Pneumatic drills, excavation equipment, and power tools are among numerous sources that can cause significant hearing loss if workers are not properly protected. OSHA requires HPDs when workers are exposed to noise levels above a time-weighted average of 90 dB over an 8-hour day. At 100 dB, unprotected exposure of more than 15 minutes can cause hearing damage. At levels above 110 dB, repeated exposure of just one minute can significantly increase your risk of permanent hearing loss.



Hearing loss can be prevented in the workplace by using low-noise equipment, noise barriers, and limiting exposure time. **Hearing protection device types include earplugs, earmuffs, canal caps, semi-aural bands, and devices that electronically block out noise.** HPDs must carry a noise reduction rating (NRR) sufficient for workplace dB levels, and should be worn for the duration of exposure.



R. BAKER & SON TURNS 80

Still going strong, thanks to the trust and loyalty of our customers

R. Baker & Son All Industrial Services was **founded by Robert "Ruby" Baker in 1935** during the Great Depression. Though it may not have been the best time to start a business, Ruby was undeterred. R. Baker & Son flourished under his steady guiding hand, becoming one of the most highly respected contractors in the rigging, dismantling and demolition industry.

From the beginning, Ruby Baker understood that client relationships built on enduring loyalty and trust would sustain his company through good times and bad. This philosophy, passed down through Ruby's son Walter Baker, who still plays a vital role in the company, and grandsons David and Mark, remains embedded as an integral part of R. Baker and Son's culture.