

# the OUTRIGGER

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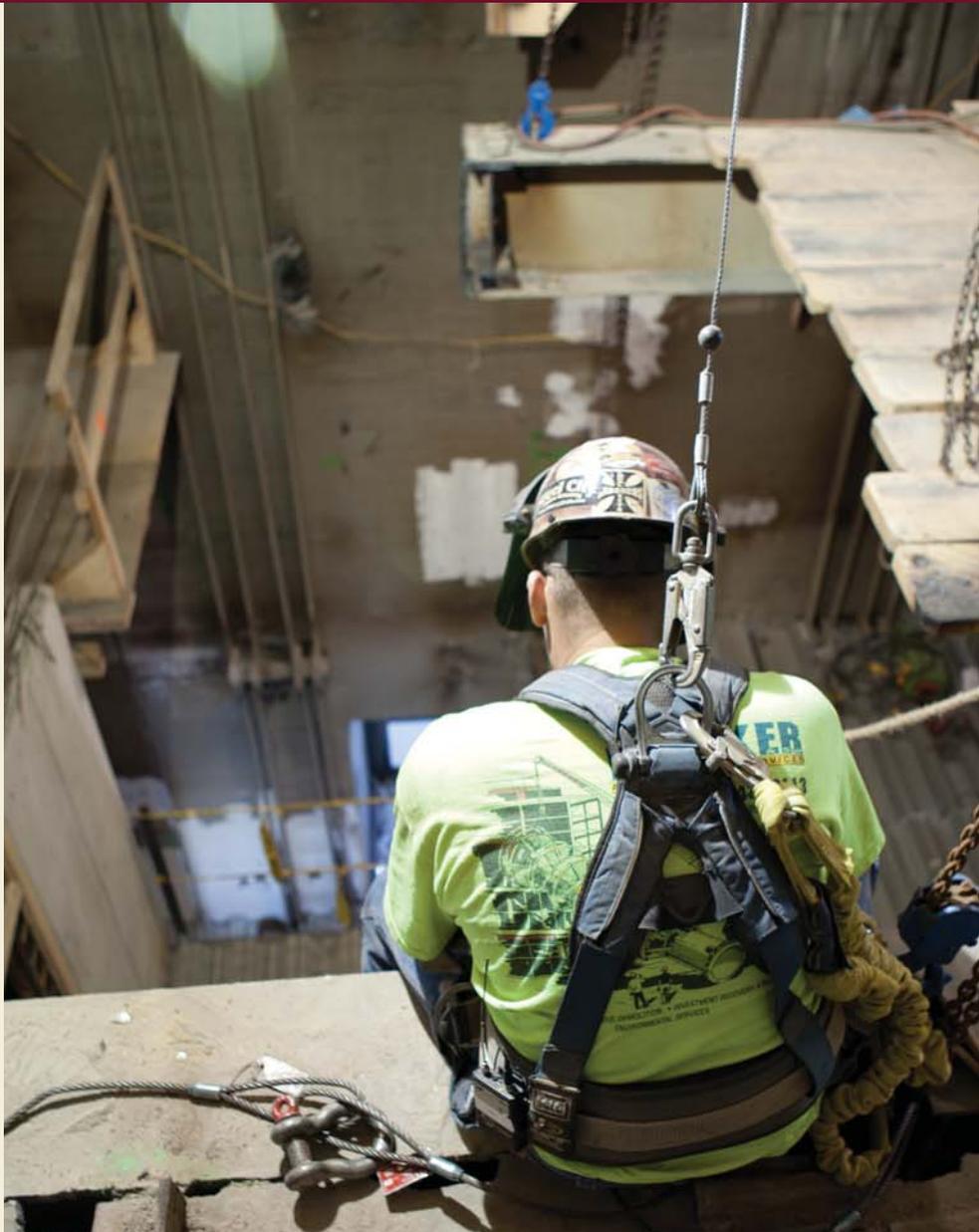
## R. BAKER & SON Building the Perfect Project Triangle

Times have changed in the construction industry. Nowadays, as recovery continues at its modest pace, clients embarking on new projects are taking a more lean-and-mean approach. Across the board they are tightening belts and reining in budgets, and contractors like R. Baker & Son are challenged to come up with creative ways to do more with less.

Many of us are familiar with the old saying, “you can have it good, fast or cheap – pick two”. This refers to what is known as the “project triangle”, whose sides consist of a trio of constraints – time, money, and scope – with quality as the ultimate goal. Emphasis on one “side” of the triangle will usually affect at least one of the other two. For example, if time is of the essence, the budget can be increased or features can be eliminated to finish a project faster. If more features are added, cost goes up and deadlines may change.

So, does the old “pick two” approach still apply to the construction industry today? Not so much. Even though economical prudence is the current norm and most projects are designed with firm budget constraints, time-efficient delivery with quality results is just as important as ever. Now, rather than settling for two sides of the triangle and forsaking the third, buckled-down clients are more adamant in their demand for an equal balance of all three. More contractors are competing for the same jobs, and they are increasingly called upon to come up with ways to deliver more while keeping the triangle equilateral and intact. This is a prime reason why it is important for clients to choose top-notch, experienced contractors for their projects.

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## Building the Perfect Project Triangle *continued from page 1*

Today's projects are developed with fewer design details (particularly when it comes to R. Baker & Son's specialties – demolition, relocation, rigging, assembly, etc.), leaving it to individual contractors to fill in the blanks. Seasoned, innovative contractors like R. Baker & Son have the ability to assess a project from every angle to determine the best way to deliver more for less. Experience in value engineering and constructability is essential, as are strong communication and coordination with the client. Logistical challenges must be overcome with increased efficiency. Where demolition projects were previously approached by the client with a rip-it-out-and-throw-it-away mentality, refurbishment and reuse is now implemented whenever possible. Significant savings can be achieved by reusing equipment and fixtures such as lighting, diffusers, panels, lab casework, furniture, etc., and today's clients are more than amenable to do so.

A superior contractor like R. Baker & Son has the ability to thoroughly assess a project, recognize the challenges, work out the fine details, and implement them within the triangular time-money-scope constraints to the client's satisfaction. Vast knowledge and experience is required to stay within today's stricter confines and meet project goals, and R. Baker & Son has been delivering unparalleled results for over 75 years.

## Holland Tunnel History

**When the Holland Tunnel first began carrying vehicular traffic between Manhattan and Jersey City, New Jersey in 1927, it was the longest, widest underwater tunnel in the world, and employed a pioneering ventilation system that is still utilized in new tunnel construction throughout the world today.** It set the standard for the Lincoln, Queens, Midtown, and Brooklyn-Battery, and many other tunnels that followed.

In the early 20th century, officials recognized an urgent need to build a Hudson River crossing for motor vehicles, but a bridge was deemed too costly. At an estimated \$11 million, a tunnel would be far cheaper. Clifford M. Holland's two-lane design for what was then known as the Hudson River Vehicular Tunnel was selected and he was appointed chief engineer.

Tunnel construction began in 1922. Large cylinder "shields" driven by hydraulic jacks bored through the riverbed from both ends, and the openings behind them were braced with cast iron rings and cement. Compressed air was used to pressurize the tunnel, and workers had to enter through a series of air locks and could only work for short periods of time to avoid the deadly condition known as "the bends".

Ventilating the 1.6 mile tunnel posed a significant engineering challenge. A two-duct ventilation system was developed that, with its eighty-four immense fans and four ventilation buildings, can completely change the tunnel air every 90 seconds. Tests at the time showed that air quality in the tunnel was cleaner than in Midtown Manhattan.

Construction of the tunnel took fourteen lives, including that of its namesake, Clifford Holland. Two days before tunneling crews met beneath the river, Holland died at a sanitarium at the age of 41 due to the stresses demanded by his work. The tunnel was quickly renamed in tribute. When the Holland Tunnel opened, the toll was 50 cents, and it was soon carrying 35 million vehicles a year. It is now designated as a National Historic Civil and Mechanical Engineering Landmark, as well as a National Historic Landmark.



## R. Baker & Son Featured in National Geographic Documentary Statue of Liberty Renovation Project

In 2012, R. Baker & Son participated in a major renovation of the Statue of Liberty's pedestal and was heavily featured in National Geographic Channel's documentary covering the project, **Access 360° Heritage: Statue of Liberty**, which aired in December. Baker workers performed seamlessly under unusual conditions during filming as Nat Geo camera crews followed their progress and curious onlookers watched and snapped photographs while large pieces were rigged into place.

The year-long \$27.25 million project to upgrade the pedestal's interior included a new exterior granite staircase, improved pedestal elevators, and wheelchair access to the observation decks, as well as bathroom renovations, updated electrical and mechanical systems, and fire suppression equipment. Two open staircases were separated from each other and replaced, and one was walled in for improved safety and emergency evacuation. Pedestal elevators were replaced and relocated to a new fire-resistant shaft.

R. Baker & Son's portion of the project required meticulous planning of demolition sequences and procedures. The project was on a very tight schedule, and work had to be performed as safely and quickly as possible while exercising extreme care to avoid any damage to the historic monument. Stairwells, landings and egress points were carefully measured, supported, cut and removed through small doorways and windows in order to preserve the architecture while avoiding destabilization of other areas.

R. Baker & Son's careful planning, hard work, and close coordination with project personnel led to significant improvements in the overall schedule and played a large part in bringing the project to successful, on-time completion.



### Safety Is Infectious!

**Safety, like many other human behaviors, is infectious. It is in our nature to be influenced by the positive example of others.** When a driver wears a seatbelt, his passengers are likely to follow suit. This tendency also holds true in the workplace. Studies have shown that, when good safety is demonstrated, workers naturally develop and observe safe work habits. But in environments where safety practices and procedures are lacking, even normally conscientious workers become more lax in their behavior, and more accidents occur.

Safe work habits are an ingrained part of our work culture at R. Baker & Son – our record consistently exceeds industry standards – and most standout contractors in the construction industry share a similar ethos. On projects where safety is emphasized and practiced, workers across multiple trades will emulate the good example set by others, and overall project safety is improved. To learn more about R. Baker & Son's commitment to safety, please visit <http://rbaker.com/safety.php>.