How a Pre-Bid Consultation **Changes Everything**

A CASE STUDY FROM BROOKHAVEN NATIONAL LABORATORY

COOK & KRUPA

STUART BERGER
A DIVISION OF COOK & KRUPA

BUTLER®

Proper planning prevents poor performance.

While some might write this statement off as a trite expression from a motivational poster, there is a critical function in the construction industry tied directly to this concept – **constructability**.

Long ago, we realized the **value of working collaboratively** with architects and engineers. This collaboration is most effective in "preventing poor performance" when it happens in the pre-bid planning phase.

Stuart Berger introduces **a different perspective** to these discussions by sharing knowledge of what actually happens on the job site once the project starts. Over the years, we have been successful in using that perspective to **enhance the constructability of projects** when we are brought in during the pre-bid construction planning.

A project that originated in 2019 has become the perfect case study for this.

Old Buildings. New Roofs.

Brookhaven National Laboratory (BNL) sits on a site formerly used as a U.S. Army base in Upton, Long Island. In 1946 the government closed the base and chose to use the site for a nuclear research facility. This long history is evident in **the age of some buildings** that are still used in the operations performed at BNL.

In 2019, officials there decided to replace the roofs on three metal buildings. The first is 100 ft. x 150 ft. wide, but it adjoins another building at an odd angle, which required a unique solution for the roof detail similar to a valley. The bigger challenge came in the form of two 50 ft. wide buildings that **share a deep roof valley**. On top of that, they were aluminum screw-down roofs, probably from three different manufacturers in the 60s.

The challenge was formidable.

Prior to the re-roofing project, the two buildings shared a deep roof valley.

Finding Solutions

The turning point came early when BNL hired an architecture firm that we worked with previously. The architect saw the challenge and immediately thought about Butler and Stuart Berger as a possible solution. He knew Butler has **the best metal roof products** available and considered Stuart Berger a source of expertise regarding metal building construction.

The fact that he called us **early in the pre-bid process** dramatically changed the course of the project. Following a visit to the job site and time reviewing the plans with the architect, we proposed a **solution that was unexpected**.

They were looking for a new valley, which Butler could produce for situations like this. But in this case, we saw a better opportunity – **get rid of the valley entirely**.

To eliminate the roof valley, we started by adding piggyback rafters.

“We can do that?”

Collaboration is a powerful thing. When a group of people put their heads together to solve a problem, **the best answer can be unexpected**. And isn’t that the point of collaborating to begin with?

The architect and officials at BNL didn’t realize eliminating the valley gutter was a feasible solution. But after we showed them the **standard slope build-up system** that Butler Manufacturing™ offers, everyone agreed it was the best path forward for this re-roof project.

In addition, the architect was happy to learn that Butler could engineer the solution with a relatively light dead load. The **slope build-up retrofit** system, including the Butler MR-24® roof panels, adds only 2.5 psf of dead load to the existing structure. That was an easy decision when it eliminated the valley, which creates a very heavy snow load risk.

All this happened before the bid packages were prepared.

We installed insulation and Butler MR-24® roof panels matching the original slope. It’s roughly 20’ from existing valley to the new ridge.

Another Layer of Planning

When we engaged the Butler Roof Group, which is comprised of specialists and engineers who work exclusively with Butler roof products, they expressed concerns that the distance from the original valley to the new eave height was very tall – nearly 20 feet. So, they **engineered a solution** that used piggyback rafters to supplement the slope build-up system.

While the piggyback solution required a deviation from the bid spec, it simply demonstrates the **number of resources Butler has available** to address the issues you face during complex construction projects. Working in collaboration with the engineer of record, the Butler Roof Group finalized how to share the load of the new roof on the existing frames with a minor amount of upgrade work to those frames.

Once the piggyback system was in place, all of the roofing work was performed above the original roofline, and the **client was able to continue operations** inside the building as needed. The building was relatively watertight throughout the process.

The two buildings now look like one, with the roof valley – and the associated maintenance risks – eliminated.

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Make the Call

One call for a pre-bid consultation changed everything for BNL. And because of the **nuances of metal building construction**, that call can change everything for your next project.

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