



# INDUSTRIAL DARK SHELL FINISH-OUTS:

*UNDERSTANDING NEEDS, CHALLENGES  
AND SOLUTIONS*

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*Manufacturers can benefit from utilizing cold dark shells, but only if they recognize the most effective ways to overcome the challenges these finish-outs present.*

Every business faces challenges in its quest for growth, but growth itself brings its own share of challenges. This is particularly true in industrial manufacturing. Unlike the need to expand or add office space, production facilities need more than walls, offices and cubicles. Manufacturers looking to increase their output typically require large facilities with highly customized production lines consisting of varied machinery. Growing as a manufacturer can mean expansion projects of monumental scale.

For adequate industrial facilities, there are commonly several options to approach building out this new space, and how companies choose to proceed will have a dramatic impact on the construction and engineering needs for the project. A popular choice is finishing out a cold dark shell. Sometimes referred to as a “grey” or “dark” shell finish-out (or buildout), this can be an attractive choice for manufacturers that have specific or particular needs. But finishing out cold dark shells requires a full understanding of exactly what you’re getting into, what your needs and challenges are, and how to make sure it succeeds in line with your vision.

## UNDERSTANDING COLD DARK SHELL FINISH-OUTS

Construction lingo can have multiple terms for the same thing, and cold dark shell (aka grey shell) is an example. For this purpose, we’ll define cold dark shell, as a building enclosure that consists of its primary structural elements, including exterior cladding, a slab and a roof. It has essentially no interior improvements, such as drywall or stub-outs for utilities.

Of course, even this can vary within the industry, as some cold shells may not even have a concrete slab. But generally speaking, the cold dark shell will lack any form of HVAC or heating, lighting, or interior walls.

You will also find slight variations on the dark shell,

such as those that include a ceiling grid or HVAC. Thus, terms like warm shell, vanilla shell or white box can describe shells with various improvements, such as plumbing or restrooms. Because there can be some variation in use of terminology, it’s important to understand the exact condition of the shell before deciding to lease or buy.

## ADVANTAGES OF DARK SHELL BUILDOUT

The obvious advantage of finishing out a dark shell for an industrial manufacturing space is the range of options for improvements. This is, of course, particularly important when trying to fit (often large) equipment with special needs into a defined space.

Starting with a cold dark shell means not having to start with demolition of unwanted existing amenities or improvements. It also means no wasted construction or space by having to work around existing conditions. In other words, you have a proverbial blank canvas on which to start painting, providing maximum potential for customization while avoiding the costs of constructing the shell structure itself.

## CHALLENGES OF DARK SHELL BUILDOUT

Though they have the important advantage of allowing customization and efficiency in the finish out, dark shells aren’t without obstacles to overcome. Perhaps the most obvious being lack of control over the construction of the building itself. You’re at the mercy of the lessor or seller that the shell itself is adequately sound. This can be especially true in existing and older buildings that may have been retro-renovated into a dark shell condition. These buildings must be inspected for structural deficiencies, mold or asbestos, for example.

The other primary challenge of a dark shell, whether new or old, is that you’re still forced to design the build-out within the existing space. This means factoring in any special requirements for equipment, such as clearance issues, spacing, ventilation or utility service. It also means factoring for special needs beyond the equipment itself, such as docking, storage foundations or silos.



## SOLVING FOR PHYSICAL NEEDS – A CASE STUDY EXAMPLE

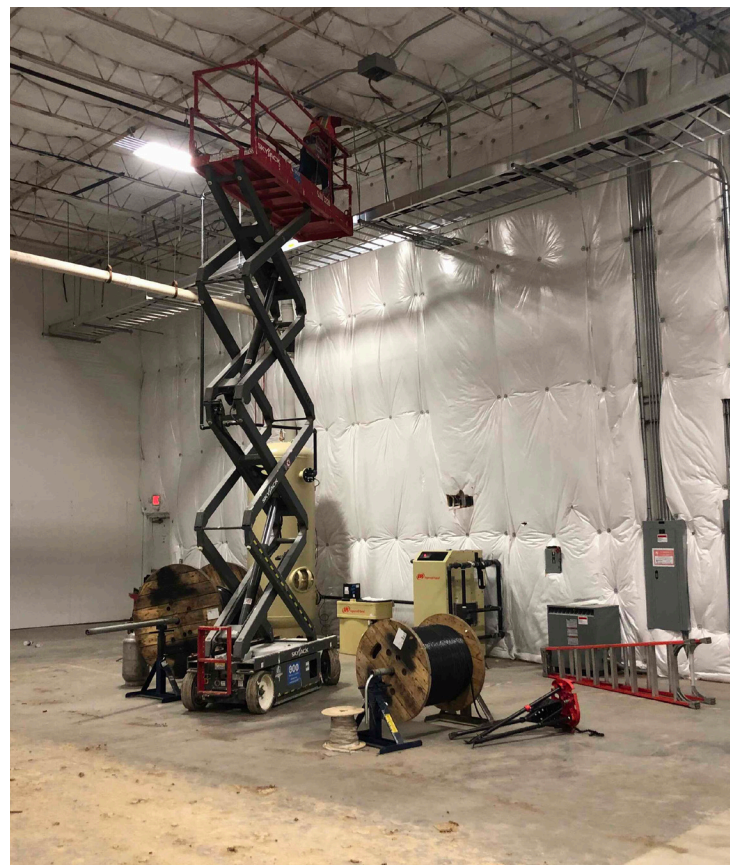
Los Angeles-based CarbonLITE Industries is one of the largest producers of food-grade, post-consumer recycled PET in the world. The company wanted to expand into a 200,000-square-foot dark shell facility in Dallas, Texas, but the building would need some special improvements beyond a simple or standard finish out. CarbonLITE's recycling equipment would necessitate modifications to the building's structural support, foundation, elevations to the roof height, and adjustments to the incoming power supply. Furthermore, the size of the machinery made it impossible to simply back it into the facility on a truck.

By utilizing design-build contractor C1S, CarbonLITE was able to adequately and effectively make these improvements in order to move into the building they wanted. The design-build approach allowed a highly coordinated effort of cranes, skates and lifting gear to fit the equipment into the building. This was after designers and project managers coordinated seamlessly to modify a section of the roof to allow for proper clearance. Furthermore, almost three-dozen exhaust fans and RTUs were installed via helicopter lift to properly ventilate the production area and condition the office spaces.

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Dark shell buildouts can also face challenges beyond physical limitations of the building itself. One of those is accurately calculating a budget. Many factors are involved, which sometimes leads to the so-called "soft costs" getting overlooked. These expenses, such as building permits, legal fees, and inspections, can account for up to 15% of the total project cost and must be accounted for.

Another important aspect of a dark shell finish-out that must be addressed in the planning stages is the schedule for completion. Manufacturers can seldomly afford the down time to production that might be necessary to uproot and resettle somewhere else. That means a careful coordination of taking down production lines and bringing them back online.





## NO TIME FOR DOWN TIME – A CASE STUDY EXAMPLE

Industrial Distribution Corporation was expanding and needed greater output to keep up with demand. IDC found a new space that could provide that needed capacity, but downtime was a concern. The company couldn't afford to shut down both its production lines at the same time.

With a carefully crafted design-build plan, IDC was able to decommission one line, successfully move it into the new space and recommission it prior to then moving the second production line. Though it may sound simple enough, with more than 100 pieces of equipment involved, nothing short of perfect execution would have succeeded. Engineers, contractors and movers needed a detailed and precise plan that ensured each piece of equipment would fit into its corresponding location and pair properly with utility hook-ups.

IDC's design-build approach allowed the company to move from dark shell to complete move-in and full-scale production in 22 weeks.

[Read Full Case Study>>](#)

Though the space itself, scheduling and budget are the primary concerns around a dark shell finish-out, it's also important to think about some concerns otherwise easy to overlook. Local conditions are an example. Whether it's strained labor conditions or material shortages that could impact schedules or particular permitting regulations, completing a finish-out on time and properly executed requires synchronization of many moving parts.

### ADVANTAGES OF A DESIGN-BUILD APPROACH FOR DARK SHELL FINISH-OUTS

There are several different delivery methods for a dark shell finish-out, and like anything else, each has pros and cons. The more traditional approach to finish-out construction has been the "design-bid-build" method, in which a design team is commissioned for its part before turning over the plans to the owner who then issues the project out to multiple general contractors. While this opens the door to a larger bidding and pricing pool, and can thus result in some reduction in construction costs, it also opens the door

to increased costs down the road when the lack of collaboration between design team and construction team leads to costly change orders or errors from miscommunication or misinterpretation of plans or specs. This lack of collaboration also typically extends the timeline for a completed project.

These are the primary concerns that have led to an increase in favor of "design-build" project delivery. In this scenario, there is a single point of responsibility for the entire process. The design team and construction team are essentially one and the same, ensuring a smoother (and often faster) route from start to finish.

In addition to having a single source of accountability, a design-build contractor is able to provide a more accurate project bid. Having visibility into the entire project, from concept to sub-contracting, the bid is less likely to suffer from cost overruns, providing the owner of the project the assurance of managing and meeting budget expectations.

Furthermore, in the design-build approach, the construction side can typically get a head start by working through the design phase to develop scope,

estimate costs, secure early procurement and receive contractor input – thereby shortening the overall timeline to help save both time and money.

The open, honest and constant communication that comes from a design-build approach also means the project owner can be as directly involved as it wants, actively participating in decisions that have trickle-down effect, because the entire project is operating from a unified team concept. This owner involvement becomes more stressful when the owner is forced to act as middleman between the design and construction team (which can often include multiple layers of subcontractors).

## DESIGN-BUILD TAKES THE RIGHT EXPERTISE

The advantages of design-build for manufacturing finish-outs make it a prudent choice in many scenarios. That said, it's important to trust that the design-build contractor you choose has the requisite expertise to carry out your project.

As the term design-build implies, the contractor must be fully expert at both design and construction. Most general contractors will naturally have some level of experience that lends itself to understanding design concepts. But given the intricacies so often involved in industrial build-outs, the principals should be licensed engineers or architects with formal education and training in design concepts.

The best design-build firms are those where collaboration is a basis for existence and feel like an extension of the project owner's business. They have engineers who think like builders and builders who can think like engineers. Importantly, they must have experience in the kinds of projects you're looking to complete.

This is what makes C1S a great partner for your next renovation or move. We understand that you have a job to do and our job is to make your construction project as seamless as possible.

