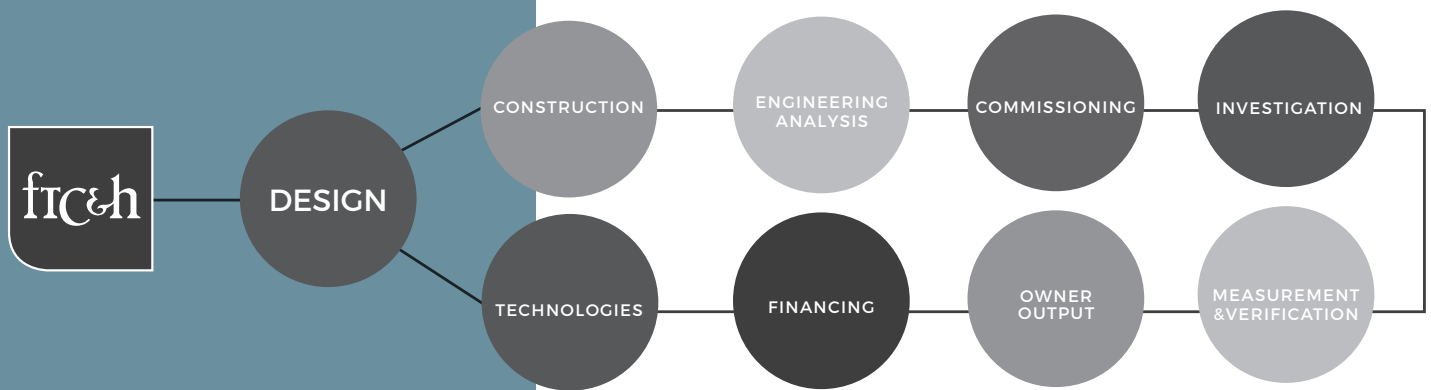


# CONCEPTS

Existing Building Commissioning — A Smart Energy Saving Option



## THAT ENGINEERING STUDY HAS BEEN COLLECTING DUST ON YOUR SHELF FOR THREE YEARS.

If advised you to rip out your facility's dusty, aging equipment and replace it with shinier new models. Of course you would like to do that, but it's not feasible right now. Although rising energy and maintenance costs are cutting deep into your bottom line, the price tag for an equipment replacement project is an even tougher pill to swallow. If this scenario sounds frustratingly familiar, there may be a solution you haven't considered yet — existing building commissioning (EB Cx).

## WHAT IS IT?

EB Cx falls under the larger umbrella of commissioning services. Commissioning is a process by which a building, facility, or plant and its associated equipment and systems are tested to verify they function according to their design objectives or specifications. As the name implies, EB Cx applies essentially the same process to an existing facility's systems and equipment, with a particular focus on "investigating, analyzing, and optimizing the performance of building systems through the identification and implementation of low/no-cost and capital-intensive Facility Improvement Measures!" to ensure their continued performance.

Most existing buildings have not undergone any type of commissioning process. Over time, facility requirements change and operational efficiencies may degrade. In turn, many buildings are performing well below their potential by using more energy than necessary, which means they cost more to operate than they should.<sup>2</sup>

EB Cx bridges the gap between doing nothing and doing something. It's a response to a building owner's objective to improve building performance, solve comfort and operational problems, and reduce costs. In many cases, **EB Cx should be the first option for saving energy.** As a process to systematically optimize building performance, EB Cx provides a customized approach that yields results.

## HOW DOES IT WORK?

Your selected Commissioning Authority (CxA) will guide you through the EB Cx process. From documenting existing conditions and developing the Current Facility Requirements (CFR) to systems functional testing and engineering analysis, the CxA will develop customized recommendations for your facility to help you get ahead of the game.

As with any process, correct implementation is crucial. And though some of the CxA's recommendations may be as simple as switching to more energy-efficient light bulbs, the energy conservation measures (ECM) that will deliver the most bang for your buck involve many of your facility's more complex, integrated systems. These systems cooperate with each other in various ways to keep your building operating effectively; you wouldn't want to make a change to one system without considering its effects on other systems. For example, you probably do not want to invest in a variable-frequency drive for a pump without considering how that change will affect the systems that serve, or are served by, that pump. What about valves, how will they be changed out? Are the valves accessible or will walls need to be cut out? Should you convert to direct digital controls? These are the types of questions EB Cx can help answer.

The key for successful EB Cx is in the thoroughness and validity of the recommendations. The details of energy, cost, and implementation feasibility must be understood and carefully evaluated. This is what you can expect from a qualified commissioning authority's EB Cx process — **energy, O&M, and facility improvement recommendations with realistic cost and energy savings analysis.**



## THERE IS NO SUBSTITUTE FOR EXPERIENCE

When it comes to energy, a recurring theme among building owners is that they have been burned in the past. There may be any number of reasons energy projects do not turn out as hoped in the beginning: auditors did not understand the building and its operational needs, assumptions in the savings calculations were severely flawed, or the true cost of implementation came in at twice the estimate!

Of course, each building is unique. A critical component of energy use is an understanding that any energy savings estimate is only as good as the assumptions and algorithms applied. Energy savings can be measured against theoretical baselines instead of actual building energy use. In this event, will you be surprised when your building only uses 5% less actual energy, even if it is 25% better than a theoretical baseline? Actual baseline energy use must be understood. Baseline energy can be estimated with a reasonable level of certainty, but with the right information, an experienced CxA can accurately assign facility energy use to its end-user.

The best approach will be firmly rooted in solid technical engineering experience. Your CxA will understand the big picture and the details, which are critical to slowing down an incessantly spinning meter. Too often facility managers end up with a report promising thousands in savings, but they can't do anything with it. The numbers might look good, but the energy savings are overestimated, implementation costs are underestimated, or changes will not meet building needs.

A solid understanding of the facility's design and implementation costs and associated challenges ensures a successful project – there's no substitute for experience when it comes to making the right recommendations.

## HOW MUCH DOES IT COST?

Compared to a general engineering study or condition assessment, EB Cx costs more up front. Yet there is no comparison to the value of results you can expect. Due to the level of investigative and testing detail, there are times when EB Cx pays for itself with the simplest system modifications. While each building will have distinct characteristics that need to be understood before pricing out EB Cx, the process that produces ECM recommendations can often be performed for less than \$0.50 per square foot, and sometimes significantly less.

## EB CX - FIRST OPTION FOR REAL SOLUTIONS

EB Cx, in coordination with an experienced CxA, offers real solutions and solves problems simple engineering studies cannot. For real building system performance optimization, EB Cx should be considered as a first option. The results will speak for themselves.

1. Best Practices in Commissioning Existing Buildings, Building Commissioning Association  
2. IBID

**#ftchfresh**

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