

Planning, Design & Construction

Your House on Campus

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"You've got to be kidding! I could build a nice house for that amount!!"

How many times have we heard that the cost of a "simple" renovation would buy a high-end home in a nice neighborhood? Customers typically react with sticker shock over the cost of a campus renovation when they receive the initial project estimate. This is the point at which worlds collide; where the institutional construction world of the project manager meets the customer's residential construction frame-of-reference.

Trying to justify the costs of institutional construction within a residential frame of reference is not easy. These two types of construction are a world apart. However, just for the fun of it, we wondered, what would it take to renovate your house into a campus facility? Suppose you request that we renovate the living room into a classroom, the kitchen into a lab, and the bedroom into an office, and that this facility is located on campus. Let's take a walk through your house to see what we will need to do.

To begin with, we'll need to make the facility safe and accessible. We'll add an elevator to the second floor, and an exit stair tower connecting all floors to the outside. To make this building look like it belongs on our campus, we'll arrange

for matching towers and give the building an identifiable look. Unfortunately, this will add considerable cost and space to the building, while not adding any space for program needs. After we widen the interior hallways and stairways for increased traffic, and install a utility chase from the basement to the attic, we will actually reduce the amount of assignable space.

As a university facility, the house will fall under a different classification as far building codes are concerned. This means we'll need to replace the \$15 battery-operated smoke detectors with a \$15,000 fire protection system. This system, which includes a fire alarm panel, wired sensors, and sprinkler system, meets all of the requirements of the local fire marshal. To inhibit the spread of flames and smoke from one room to another, we will have to reconstruct the walls that separate the rooms from the hallway and make them "fire-rated walls." This is not cheap! Neither are the solid doors mounted to the metal doorframes that we'll use to replace the house's hollow doors and wooden frames.

We know the budget for this renovation is limited. Before the money runs out, we need to look at the mechanical systems. By code, our lab, classroom, office and restroom require outside ventilation that your house doesn't have. The small air conditioning unit and gas furnace will have to go. With the big increase in airflow, it wouldn't keep up after the first five minutes. We'll connect to chilled water and steam from our central plant. Our campus building will need redundant, dependable, code-compliant, and cost-effective mechanical systems.

Finally, we move to the kitchen. To convert it to a lab, we'll take out the \$600 kitchen stove and hood, and replace it with

a \$25,000 variable flow fume hood. Let's hope we won't need a strobic air fan for that hood. You don't even want to think about that cost. Those kitchen cabinets will come out to allow for the built-in lab casework. The refrigerator will have to go, too. In its place will be a \$10,000 environmental chamber.

We'll open up the walls when we install the lab gases, electrical conduits, and corrosion-resistant plumbing. While we are in the walls, let's replace the wooden studs with metal studs. Then, to complete this "kitchen remodeling," we'll replace the linoleum with an \$8,000 epoxy floor, and the Formica counters with epoxy resin.

We're going to need to remove the ceiling above the kitchen to increase the structural support necessary to handle the small library in the office above. The anticipated weight of books will stress the existing floor joists. While the ceiling is open, we'll install the circulating hot water system, designed to serve the lab and restroom, and we'll upsize the mechanical ductwork to meet the new airflow requirements. Speaking of airflow, that "whooshing" sound will be distracting in the classroom next door, so we will need to put in sound attenuation devices.

To meet institutional standards, the wooden windows will need to be replaced with metal, commercial grade windows that have energy-efficient glazing. Similarly, the roof shingles will need to be replaced with slate, due to concerns about life cycle maintenance and architectural consistency. While we're on the roof, let's screen the unsightly mechanical systems. Oh yeah, we can't forget to do something about the pigeons.

Let's look at the outside again, just for a minute. Only the front

façade was bricked when your house was originally constructed, so we'll need to install bricks on three sides. After all, our university is trying to project a certain image, and your house is now on campus.

At this point, we have more scope than budget. Money is running out, and there are more things we need to do to bring your house into compliance with our institutional standards.

What happened here? In trying to meet the more stringent codes, efforts to reduce future operating costs, aesthetic requirements and programmatic needs, we exceeded the funds available for this renovation. For the money this renovation will cost, you really could build a nice house. But, not on our campus!