Published in BUILDINGS

Making Change Simple, Cheaper, and Green

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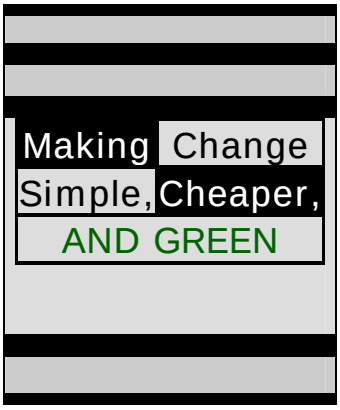

"Ask yourself two questions," says Alan Whitson, a corporate facilities consultant and national speaker based in Newport Beach, CA. "First, if the average churn rate is 40 percent a year and for some as high as 200 percent, why do we continue to design buildings that consume vast amounts of natural resources, time, and money whenever we need to make a change in the space? Second, while using recycled materials in projects is laudable, doesn't selecting building systems and materials that save time, money, and are reusable again, again, and again make even more sense?"

Whitson, who gives more than 50 presentations a year, drives home his point with an example that's repeated thousands of times each year in office buildings across North America. Hundreds of items are involved when changes are made to tenant spaces. Acoustical ceiling tiles, light fixtures, metal studs, gypsum wallboard, conduit and wire, paint, and carpet are among the most visible items. Let's follow one item – gypsum wallboard – to see the headaches and cost involved in the conventional process.

First, fixed gypsum walls are demolished to accommodate a change in office layout. The debris is removed by elevator, so it's usually done at night to meet tight construction schedules or avoid disrupting tenants. Overtime kicks in, as personnel are needed at night to operate elevators and provide security. The gypsum wallboard is placed in a dumpster or truck and ultimately finds its way to a landfill. Meanwhile, virgin gypsum is mined to manufacture new gypsum wallboard, delivered to the building, and brought up the elevator. Traffic lanes must be closed (requiring a permit) for trucks to load and unload construction materials if the building is in a central business district. Delivery and stocking of materials is often done at night or during off-peak hours, adding even more costs. Finally, there's the noise, dust, and disruption that leaves office workers distracted, inefficient, and frustrated.

A Plan for Change

Conservation of natural resources is a worthy goal. Yet, conservation moves to the back burner when budgets shrink. "Culturally, facilities people still struggle with

CFOs to get them to understand what their facilities can do for a company," says Dean Barone of Barone Design Group, Houston.
The paradox is that conservation is a key element in creating facilities where entire floors can be changed overnight or over the weekend. "Designing conservation into a building will ultimately result in lower building operating costs, quicker turnaround of tenant spaces, and sizable long-term paybacks," adds Whitson.

What's required is a modular planning approach, reusable elements, and enlightened facilities managers and building owners. This is not difficult to achieve since buildings are commonly designed and built based upon a 5-foot, 4-foot, or 3-foot 4-inch building module. Consistent use of the modular planning approach makes it easier to reconfigure space and reuse elements. The goal is to create a kit of parts for interior construction that can be used anywhere within the facility. An additional benefit is the ability to use this kit of parts within the shell of any building anywhere. The best news, according to Barone, is that manufacturers have really responded in the past five years with innovative products that maximize flexibility.

Let's start with the walls. An alternative to fixed gypsum walls is a movable wall system based on metal or gypsum panels. This system allows the walls to be quickly reconfigured or relocated. The benefits are four-fold:
• Less time and expense to reconfigure the walls because they are reusable.
• Reduced noise, dust, and disruption to tenants.
• Preservation of natural resources and reduced trips to the landfill. (Movable walls are over 90-percent reusable among the leading manufacturers.)
• Movable walls qualify for 7-year depreciation as they're classified as tangible personal property, resulting in huge financial benefits even if the walls are never moved.

Let's take a look at the typical company today.Since many companies work in teams, there's a mix of private offices and enclosed "team space." These teams are quickly formed, disbanded, and re-formed. As a result, problems often arise over the location and availability of space. Usually the problem is location. You have team space on the sixth floor, but need private offices. You haveprivate offices on the third floor, but need team space.

An easy overnight or weekend change is possible if the building was designed with this in mind.
Since the space was laid out using a modular planning approach, the two private offices on the third floor have the same footprint as a small "project team room." These offices were built using a movable wall system, so the wall dividing the private offices can easily be removed, converting the private offices into team space. Then the wall is used to convert the team space into private offices.

In a conventional facility, the cost and time needed to make these seemingly simple changes are often so prohibitive and disruptive the change is not made. As a result, productivity silently suffers

It Pays to Plug and Play …

Some access floor systems are available in adjustable hights, ranging from 3 inches for power and data to 18 inches for adding underfloor air distribution. Now sound-masking systems can hide beneath a 3-inch floor instead of behind ceiling tiles.

Systems furniture is popular because it can be reconfigured easily. However, this ability is constrained by the pipe and wires needed to connect electrical power, voice, and data to workstations.

Moving a group of workstations just a few feet can require drilling new holes through the floor, installing new lengths of rigid pipe, wires, and fireproofing in the ceiling of the floor below. Of course the floor below is occupied, so this work must be done at night and at overtime rates.

Now it's time to disconnect the workstations that have been hard-wired to a floor outlet, move the workstations, and hard-wire the workstations to the new floor outlet. All that remains is to remove the old floor outlets, dispose of the old rigid pipe and wire, plug the hole through the floor, and patch the carpet. Just one more detail: You'll need a building permit and have it pass scrutiny by two or three inspectors.

Contrast this approach with a building that was designed to handle change. Power, voice, and data run through flexible modular cables underneath an access floor. Components can be plugged or unplugged from underfloor distribution boxes. It's a system manufactured and tested under factory conditions. Components are interchangeable and can be used or reused on any floor or in any building.

Need to relocate power, voice, and data? Just disconnect the service box from the flexible modular cables and move the box to the new location and reconnect the cables.

Aesthetics and costs don't suffer as carpet tile is also modular. Carpet tile manufacturers, such as Dalton, GA-based Shaw Industries, produce it in 24-inch squares, resulting in a one-to-one ratio with the raised floor tile. It's simple, quick, and – best of all – can be done over lunch by the building support staff. "You can save $10,000 in the blink of an eye," says Tim Keefe, CompuSite Technologies, Pittsburgh.

Some access floor systems are available in adjustable heights, ranging from 3 inches for power and data to 18 inches for adding underfloor air distribution. Now sound-masking systems can hide beneath a 3-inch floor instead of behind ceiling tiles. Developers can take full advantage of this flexibility to increase the number of floors as lower slab-to-slab heights are needed, or keep an "open-air" ceiling look in building design. The flexibility of movable walls and access floors is also ideal for office markets where tenants want short-term leases since it allows the building owner to turn around the space faster to bring in a new tenant.

Flexibility is also an issue with lighting and fire protection equipment. Moving workstations requires moving light fixtures. It's an easy job since the lighting also uses modular cabling.

Oops! You discover a sprinkler head protruding through the center of space the light fixture was to occupy. If the traditional hard pipe method was used, relocating the head requires getting a permit, draining the line, dealing with foul odor, posting a

fire watch, and paying for at least a half day of a pipefitter's time. However, if the sprinkler system used a flexible head assembly rather than fixed pipes, a building engineer can do the job in less than 30 minutes.

No article dealing with churn and the environment would be complete without mentioning the ubiquitous cardboard box. Cardboard makes up 30 percent of North America's landfills. Of course, people need to pack their stuff into something when moving to another workstation, floor, or building. But there is a better alternative: a stackable plastic box and dolly specifically designed for moving.

This highly efficient moving system cuts packing and unpacking time, the number of trucks and trips needed, and survives 10 or more years. The cardboard box only lasts two moves before ending up in a landfill. Boston-based Rentacrate recently provided 17,000 crates to a major New York City law firm. The firm's facility manager reported saving a six-figure number on the cost of move, and tens of thousands of cardboard boxes didn't find their way into a landfill.

Turning Green Makes Green

The first step is to understand that material cost is only part of the total cost. The savings in lower labor costs and shorter construction time can reduce the total cost to below that of traditional methods. Compare the total installed cost of modular cabling to hard pipe and wire. Modular cabling costs 15- to 20-percent less than hard pipe and wire. The savings come from reduced labor costs and provide the added advantage of shorter turnaround time. Two electricians need 30 hours to wire three clusters of eight workstations with hard pipe and wire, yet only four hours using a modular cabling system.

The benefits of this modular approach are cumulative. With churn, it's only a matter of when, not if, those 24 workstations will consume another 30 hours of the electricians' time plus new materials. Using modular cabling, it's only four hours and no materials.

The logic is simple. Don't create waste in the first place. Designing conservation into a building is a more effective use of time, money, and natural resources.

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