

# The Disposable (?) City

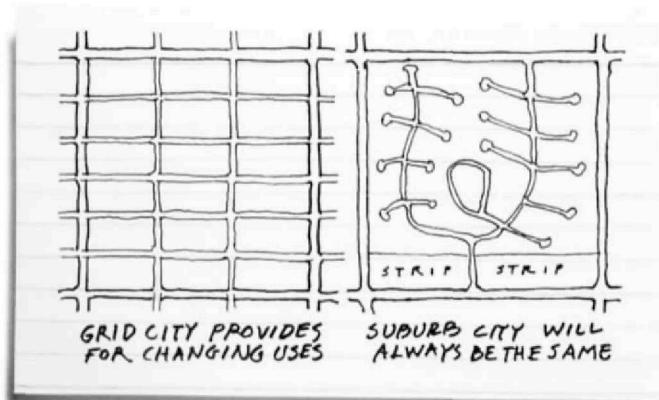
If you want your buildings to last, build them to change

BY DANNY MARC SAMUELS

**HOW OFTEN** have you driven down a familiar street and found predatory machines looming over a dusty pile of debris where a favorite bungalow once stood? And you realize another site is being cleared for three three-story townhouses that will cast long shadows over the traditional building scale of the neighborhood. In Houston's rapidly changing urbanscape, buildings that are here today can literally be gone tomorrow. This is particularly true of inner city neighborhoods where the demand for housing outstrips the supply of developable land. As a result the city has become denser, with more building bulk and more building units per lot. Increased density is what urbanophiles have been longing for. But is this the best way to get it?

The social cost of commuting from the suburbs has brought people back to the inner city and the older, gridded areas of town, where most sites already have dedicated uses. Streets and neighborhoods have acquired character, with mature trees and an established landscape to create a settled background. The limited supply of available land causes its value to go up, often to the point where its market value as a site overwhelms the value of existing buildings, rendering them disposable for the sake of more townhouses, a larger office building, or a condominium tower.

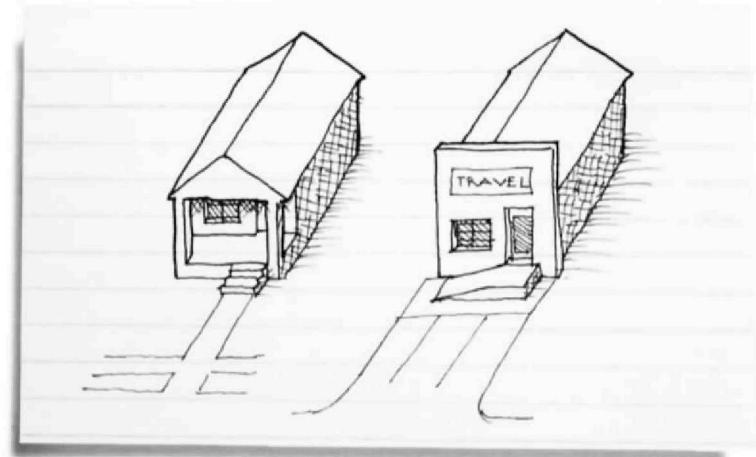
Land value can be seen as a measure of its potential for given uses. A great townhouse lot will have little value as a retail site. It is "location," but for a specific use. Even in a city with no zoning, this creates virtual zoning—commercial uses seek traffic, residential uses prefer residential neighbors. Further, the gridded and fine-grain nature of established close-in neighborhoods makes the land usable for diverse purposes, whereas suburban residential lots in discontinuous street patterns will never be anything but residential. This logic tends to set land value expectations, which are calibrated to the anticipated use. But in the absence of legislated zoning, an adventurous townhouse developer can foil expectations of use, and build townhouses in an industrial area, or a high-rise condominium in a quiet residential neighborhood. This dynamic can create upward land price pressures in unlikely locations, and lead to the demise of otherwise useful but economically noncompetitive structures.



Beyond this market driven virtual zoning, there are plenty of other land use controls at work in Houston that mitigate the otherwise "highest and best use" of a property. Most important among them are residential deed restrictions. These may have originated 70 or 80 years ago, but deed restrictions are a remarkably persistent and effective means for protecting the character of those mostly up-scale neighborhoods that aggressively enforce them. Such restrictions put certain residential neighborhoods completely out of play for other uses, but don't prevent the replacement of small-scale housing stock with mega-mansions.

The city ordinances governing land development—in particular the infamous Chapter 42—that stipulate rules for property division and subdivision, set-backs, off-street parking, landscaping, and the regulations for utility availability and storm water control, have had a powerful effect on the shape of the city, setting limits on density, and essentially assuring a modicum of suburban character even in the center of the city.

And oddly enough, in a city with a notorious indifference to its rare historic buildings, a de facto preservation ethic has grown out of the new marketability of older structures that can be turned into trendy restaurants, urban lofts, or boutique hotels. This includes both buildings of acknowledged architectural merit as well as more ordinary, background buildings that are place holders in the city's environmental history. Some of the finest spaces in Houston have been fashioned from structures of little architectural interest—just think of your favorite shop or restaurant.

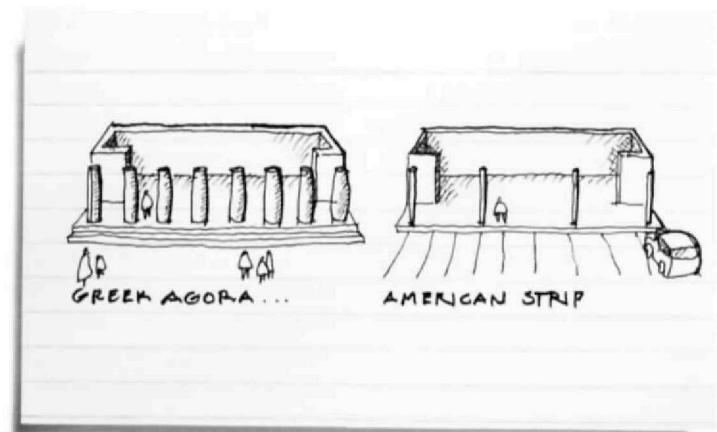


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Life cycle expectations for buildings are set according to their uses. Buildings intended for commercial uses (including apartments, which are more commercial in nature than residential) are built to produce an income stream during the life of the building by leasing space to various occupants. The building follows a pro forma: Income minus expenses equals profit, so the incentive is to keep the project cost down in order to increase the profit margin. This means that decisions about quality of construction, and even architects' fees, are often made with a bottom-line mentality with little incentive to provide more than the minimum acceptable. The building is viewed as a depreciating asset that must be paid for during the life of its loan, and need last only that long.

The developer provides a choice location (or the best one he can find) with access to traffic flow. He provides the required parking (as prescribed by the city) and the necessary services. He also provides the "shell," which generally consists of a pad, a steel structure, a roof, some or all of the enclosing walls, and air conditioning and other services. In the case of an office building, elevators, stairs, corridors, bathrooms, and a lobby are also included. Each tenant then "builds out" his or her space to accommodate their requirements—the store front and entry, the interior finishes, lighting, etc. Usually, the build-out will only last for the five- or ten-year life of the lease, if that, and then be completely changed out. The buildings must be able to adapt rapidly to changing and often unpredictable market conditions.

The strip center, another developer archetype, is a narrow rectangular building open along one of its long sides that faces a parking lot. Merchants rent as much length as they want, and personalize their frontage with color, design, and signage. In modern Houston the strip center and other strip buildings are the most ubiquitous commercial building types, cheap to construct, architecturally nondescript, and therefore easily adaptable to the changing needs of a succession of various tenants.



Buildings for chain operators are a little different. The buildings are owned by the chain and located on sites selected for their competitive advantage. Building designs, parking, and operations are substantially standardized. These market-scale formulations developed in the suburbs, and there is no allegiance to any urban character or local particularities that a site might offer. At the end of its useful economic life, or more likely, upon the operator's market consolidation, buyout, or bankruptcy, the building is readily sold, abandoned, or torn down, and written off as a bad investment.

A residential owner has a completely different take on her/his/their building. Here the primary goal is to provide shelter for the family, usually for a longer rather than shorter period of time. The house is also a major personal investment for the owner/occupant who expects the house to appreciate in value or at least hold its own against inflation. Potential resale is a major consideration. The changes that the structure will need to accommodate are slow and somewhat predictable. The structure must be durable and easily maintained and should readily accommodate modifications and additions. The wood frame system easily meets these requirements.

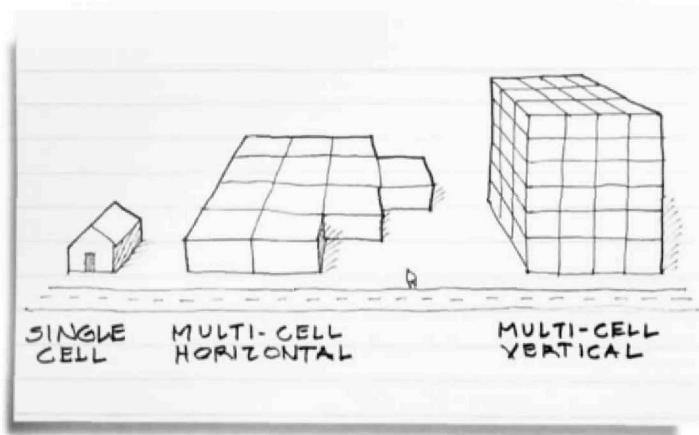
Institutional owners—schools, churches, libraries, public and governmental buildings, hospitals—build with aspirations to the long-view, expecting that the institution and its building will be around for long time. Change is slow and reluctant. Of course, the building should retain its usable value to the owner. The image that the building projects is important to the owner, and more attention is paid to its design.

Such buildings grow with the institution, and are replaced only through obsolescence, when they no longer fulfill their function. In the case of public buildings, however, funding is derived from taxpayer bases, and is often minimal or even inadequate for construction, let alone continuing maintenance. There must be no perception of extravagance at the taxpayers' expense.

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The typical American building systems, wood frame and steel frame, are ubiquitous in Houston. Both systems have long histories and are fit, flexible evolutionary survivors that continue to adapt well to their environments. Though often perceived as less firm and reliable than traditional bearing-wall systems, they are in fact strong, light-weight systems that can be easily and quickly erected from readily available components using simple tools and small work crews. And if periodically maintained and protected from water and oxidation (slow or rapid), they make indefinitely durable frameworks for buildings. Most importantly, these indigenous building systems are versatile, adjusting easily to changing uses.

In modular combinations—single cell, multi-cells extending horizontally or vertically—frame systems can be used for all our basic building stock—the wood-frame house, the convenience store and strip center, the office building, school, library, church, the mall, or the big-box retailer. All of these are frame structures defining cellular spaces of different sizes and permutations.



Stewart Brand, polymath, inventor/designer and founder, in the '60s, of The Whole Earth Catalog, has turned his attention to buildings (to the likely chagrin of most architects). In his book, *How Buildings Learn: What Happens After They're Built*, Brand looks at the processes that define buildings: their design, financing, construction, occupation by the users, energy exchange with the environment, adaptation to evolving circumstances, maintenance, addition, renovation, and reuse.

Brand sees buildings in terms of layers—"site, structure, skin, services, space plan, stuff"—that progress from most permanent and static to most temporary and changeable. The site endures. Once virtually and legally inscribed on the surface of the land, the property and its supporting rights-of-way are difficult to alter. These facts on the ground set the stage for the building, suggesting (or dictating in the case of zoned cities) by location, size, and cost the possible uses for that property.

The structure sketches the general shape and size of the building and provides the strength needed to resist forces of gravity, wind, flood, or earthquake. The structural steel, concrete, and wood are meant to be there for the life of the building. The skin is a protective membrane that separates the inside from the outside, and assures that the occupants can enjoy a comfortable life within regardless of what conditions exist outside. Less permanent than the structure, the skin may be replaced or expanded several times during the life of the building.

Modern buildings are served by extensive and largely invisible technical networks that provide water, sewer, electricity, gas, air conditioning, security, telephone, television, internet. These systems devolve at different rates, but as a system becomes obsolete, it must be able to be changed out—hopefully without much damage to the more permanent elements.

The space plan—basically the interior walls and surfaces—is changed with great frequency to fit new requirements and new occupants. This should be considered as flexible as possible. Usually gypsum board—a cheap and easily-worked material consisting of one-half inch of chalk bonded to two outer layers of paper—is the primary material for interiors in all types of buildings. Finally, in Brand's taxonomy, the stuff—furniture, plants, equipment, possessions, and everything else that fills the interior—is the most loose and flexible.

Brand's main point is that buildings are not fixed and static entities, but dynamic, living things that evolve progressively. Over time, through the cumulative actions of their occupants, buildings "learn" how to be—how to adapt to their environments and uses, and thus become important, long term constituents of the city.

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Everything falls apart. So says the Second Law of Thermodynamics, and it doesn't get much more basic than that. Formulated by Sadi Carnot in the 19th century to describe the limits of energy availability in steam engines, the Second Law has since been seen to describe ever more basic properties of our universe. Everything runs down, cools off, loses energy, encounters friction, and otherwise dissipates and disintegrates. Entropy increases, order decreases.

But there is a loophole. Even though the Second Law dictates the eventual unwinding of all systems, it does not preclude the opposite in certain circumstances. When energy is applied to a system, order can increase locally and temporarily. It is this fortunate loophole through which all creation squeezes, life exists, and our dreams are possible.

Buildings and cities are made by a considerable investment of energy in the form of intention, capital, labor, resources, and time. The sheer effort of such creation is astounding, no matter how often you have been through it: months and years of planning and designing, documenting, permitting, construction in all its particulars, occupation. The money required to stoke this anti-entropy engine is always staggeringly high. All buildings are expensive, regardless of their budgets.

Before a building is even finished, entropic forces begin wearing it down. Water is the primary demon, and in this regard, Houston's environment is particularly wicked. Changes in moisture content cause Houston's clay soils to expand and contract, heaving the building's foundations. Floods occasionally wreak special havoc on the lower portions of buildings. Airborne water (rain) and vapor (humidity) are always trying to leak, siphon, condense, blow, suck, or otherwise infiltrate the weathering membrane, to settle into the internal structure, where it can cause rot, corrosion and rust, and nurture destructive insects and moulds. If there is a way water can get in, it will. There is also the subtle deterioration caused by cycles of heat and cold, which expand and contract the building fabric. Or ultraviolet radiation that degrades the roof or the caulk that is supposed to seal everything up. Or just the long term wear and tear from normal everyday use.

To counter the steady effects of entropy and maintain the building in an ordered state requires the continual application of energy in the form of maintenance. For buildings that are cheaply built, life cycle costs for maintenance and repair can be a problem, especially as the building ages. In the end, it may fall apart by the time it is paid off. Usually it's not the developer who has to worry about these costs, but later owners and occupants who will need to put up with the never-ending chores of repairing and replacing.

Buildings that don't fall apart can become obsolete for other reasons. Sometimes a neighborhood changes in use or in character to the extent that that a building's original value is negated. Sometimes the original use or function built into the building may no longer be viable. Sometimes hazardous materials such as asbestos or on-site toxicity may render a building and its site unusable without costly remediation. And older buildings may not be able to measure up to modern energy standards. Sometimes new owners can be found to modify such buildings for new uses, but often they are abandoned, razed or otherwise disposed of.

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If we are to build cities that last, we must build buildings that last. They must be both durable and flexible. They must hold up against the destructive force of entropy. They must accept, anticipate, and even invite change.

Long-lived buildings are built well in ways that count. The parts that must last the longest—the foundation, the structure, the weathering membrane—are built to the highest standards. The building keeps the water out. The foundation does not move and the roof does not leak. Materials and the joints between them are protected from the elements. Surfaces resist the wear-and-tear of daily usage. But long-lived buildings also need to be adaptable and capable of accommodating changes—including modifications to utilities to accommodate new interior arrangements. Finally, such buildings should be designed for easy maintenance and repair.

Buildings that last can expect a long lifetime of change. Every building is a long-term contribution to the city. For a few singular and significant buildings, design exuberance is warranted. But as building blocks of the city, most buildings should be content to remain in the background as part of a well-built framework of continuity that can accommodate change. ■