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High-Rise Buildings Versus San Francisco: Measuring Visual and Symbolic Impacts

Donald Appleyard
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In San Francisco the controversy over high-rise buildings has been going on for over ten years, since the Fontana Towers, a pair of curved apartment buildings, were built on the shoreline blocking the view of the Bay from Russian Hill. During its evolution, the controversy drew in an ever increasing number of participants, as one new building after another became the focus of conflict. Each battle emphasized different aspects of high-rise buildings. The Fontana Towers interfered with the view; the Alcoa Building (1964-1966) was black with outside diagonal bracing; the Bank of America (1965-1966) was condemned for its dark color, the U.S. Steel Building (1969-1971) for its height, the TransAmerica Building (1969-1971) for its shape. As the visual and symbolic issues developed, the economic and social impacts were increasingly considered.

An examination of San Francisco's newspapers by Alcira Kreimer (1971) over the ten-year period reveals dramatic changes in San Francisco's image of itself.

In the early 60's tall was positive: "I'm at home where the tall buildings grow. . . . I'll take the vertical city" [Herb Caen, July 1960]. In 1970 it is negative: "The entire concept of Manhattanization or 'verticality' seems old-fashioned [Herb Caen, September 1970].

Herb Caen, the city's leading columnist writing in the *San Francisco Chronicle*, in the early 1960s, became a leading antagonist by the 1970s. (Kreimer makes the point that the newspapers themselves, through their columnists, powerfully influence the image that people hold of a city.) In the high-rise controversy the image of each new building was shown to disrupt

This paper was originally presented at the Tall Buildings Conference in Mexico City, March 1973. It has since been revised. The authors wish to thank Professor Alcira Kreimer (now at MIT) for allowing them to draw from her unpublished term paper, "The Building of the Imagery of San Francisco," University of California, Berkeley, 1971.

We wish to thank the Chronicle Publishing Company and the *San Francisco Bay Guardian* for permission to publish Figures 7-1, 7-8, and 7-9.

the image of its setting—San Francisco, the stage on which it was to act. Increasingly, the new buildings were seen as foreign imports: “Manhattanizing,” “plastic,” “computerized,” “artificial,” “massive,” “inhuman,” “super-urbanized.” The people behind them were seen as “outsiders.” The buildings came, then, to be viewed as symbols. The picture of towering skyscrapers—gray, densely packed, and of exhibitionist design—scattered throughout the city is clearly at odds with the image that many San Franciscans hold of their city (Figure 7-1). San Francisco is still, perhaps romantically so, thought of by many citizens as a city of small, harmonious elements, a city which respects its natural topography, a glittering jewel on the San Francisco Bay. The high-rise buildings were contributing to its “rape,” encirclement,” and “Manhattanization.” “There may be no Heaven but somewhere there is a San Francisco. . . . It’s right here on what’s left of the hills and valleys and alleys, living a half-life in the shadow of the tall buildings that scrape the sky till it bleeds” (Herb Caen, *San Francisco Chronicle* 1974).

Throughout this conflict the environmentalists have been pitched against the developers and their architects. Later the building unions joined the developers, while the environmentalists were joined by large numbers of people from the middle and working class neighborhoods. The arbitrating bodies—the Board of Supervisors, the City Planning Commission, and the Bay Conservation Development Commission—tended to change their positions throughout the controversy.

The population of the city today probably has a large majority in favor of some high-rise controls. An initiative subjecting each new high-rise building to a referendum received nearly 40 percent support in a public vote. The Urban Design Plan and its subsequent zoning ordinance controlling building height and bulk has been criticized mostly by those who think it not nearly stringent enough. Many would like to stop growth in the city altogether.

While this conflict has developed in San Francisco,

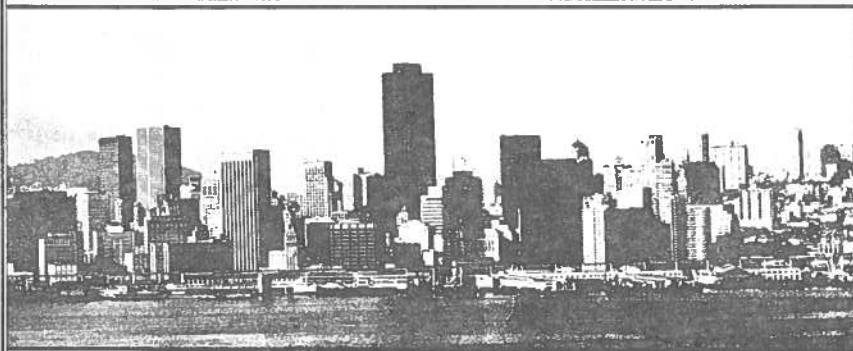
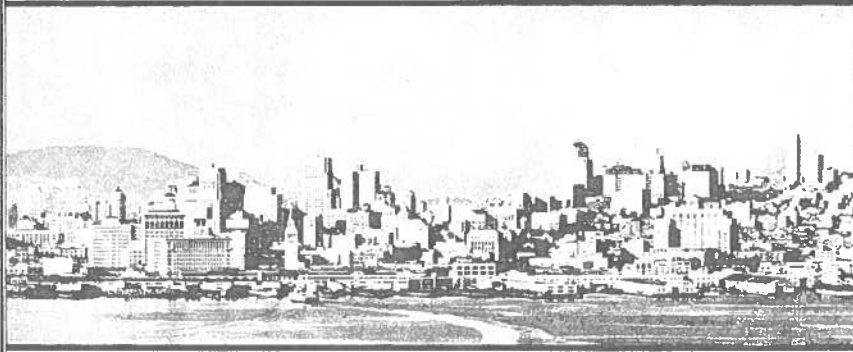
concern about high-rise buildings has grown internationally. A building in Boston cannot be opened because pieces of the façade keep falling off; Londoners are unhappy about high-rise buildings since one partially collapsed. The series of disasters that have struck Manhattan have become partially associated either with high-rise buildings or high densities. Though isolated examples, these incidents build up a fear and dislike of high-rise buildings that is difficult to combat.

Behind the news reports and political conflicts concerning high-rise buildings lie their effects on the everyday lives of those who live in and around them. Do such buildings make the city more livable? Reason would say that they have positive as well as negative effects.

There is very little hard empirical evidence of the impact of high-rise buildings on people’s lives. A few studies of the effects of high-rise housing on their inhabitants have been carried out (Newman 1972), but there has been almost nothing on the external impacts of high-rise buildings on cities (Dornbusch 1975). Much better predictions and simulations of impacts are needed *prior* to construction. Better understanding of public attitudes towards projects, full disclosure to the public of all possible impacts, and efforts to ameliorate impacts by cutting the size of projects, changing their location, or altering other qualities should be part of the process.

The National Environmental Policy Act of 1969 and the state of California’s Environmental Policy Act together require that all new significant building projects be considered for approval only after the preparation of an Environmental Impact Report, disclosing all their possible effects on the environment. Professionals involved in planning or controlling high-rise development now have to attempt to assess objectively the environmental and socio-psychological impacts of each new building, but predictions of impact will be no more than guesses until substantive empirical research studies have been carried out.

STOP THEM FROM BURYING OUR CITY UNDER A SKYLINE OF TOMBSTONES



Both the above pictures are of downtown San Francisco. Same spot. Same time of day. Same weather conditions. The top one was twelve years ago. The bottom one, last year. San Francisco was once light, hilly, pastel, open. Inviting. In only twelve years it has taken on the forbidding look of every other American city. Forty more skyscrapers are due in the next five years. They are as great a disaster for the city economically as they are esthetically. Ask a New York taxpayer.

What can you do to stop it?

Contact SAN FRANCISCO OPPOSITION, 520 Third Street (second floor) or telephone 397-9220.

Figure 7-1

This ad, first appearing in the *Examiner* and *Chronicle* in October of 1970, was the first step in Alvin Duskin's campaign to enlarge the citizen assault on the U.S. Steel Building into a general attack on high-rise development throughout the city. More than 10,000 newspaper readers clipped coupons from the ad and sent them to City Hall.

MEASURING SOCIO-ENVIRONMENTAL IMPACTS*

How should we go about measuring socio-environmental impacts? The definition of socio-environmental impacts is a complex task, and can only be dealt with briefly here. Let us start with a number of defining propositions.

1. *The environmental impacts of high-rise buildings must account for their effects on different population groups.* Determining *population responses* to high-rise buildings is more important or at least as important as determining the *physical impacts*. The same environmental impacts may have an entirely different meaning from one population group to another. The population groups impacted by an office building include:

- a. *the users*: executives, office personnel, visitors, janitors, merchants, building management, owners, etc.;
- b. *neighbors*: neighboring building owners, office workers, neighboring households, the street public;
- c. *the public*: the citizens of the city, their representatives, public agencies, interest groups, visitors from other cities.

This list is by no means complete, yet we can see that many people impacted by high-rise buildings presently have no say in their construction, nor do we know how they are affected by them.

2. *The impacts of different kinds of high-rise buildings, particularly office buildings, hotels, and apartment buildings may be so different in nature that they*

should be treated as quite separate environmental issues. Certainly the problems of a low income family living in a high-rise apartment tower are very different from those of an executive working in a high-rise office building, even if the buildings resemble each other externally.

3. *The external environmental impacts of high-rise buildings on surrounding neighborhoods and the city may be as important as their internal impacts on their inhabitants or office workers.* Indeed, the high-rise controversy in San Francisco has raged over the external impacts.

4. *The external environmental effects of high-rise buildings can be direct or indirect and cumulative.* The direct effects of a high-rise building may be the loss of old buildings and meaningful places, and view blockage, shadow effects, overlooking, etc., of the new building. The indirect effects may be increased *traffic* on the streets, in the subways, and *land use changes*—more high-rise buildings, restaurants, parking garages, etc. One building can therefore bring with it a *chain* of impacts.

5. *Environmental impacts are relative over time and between alternative choices.* The simplest relative measure is one comparing *before and after* conditions, that is, ambient environmental conditions before construction of the building and ambient conditions when the building has been built. A careful study of the environmental impact would examine conditions (a) before construction, (b) during construction, (c) immediately after the opening, and (d) after an impact stabilization period—if impact stabilizes.

The pre-construction period is usually the time when the negative impacts of a project are most acute. The eviction of an existing population, often of low-middle income, the tearing down of beloved buildings, places, trees, and views—all of these are sometimes felt as acutely as the loss of close friends and relatives (Fried 1963). The construction phase with its noise, dust, danger, and street blockage, while interesting to construction watchers (an exclusively male activity, according to a recent study

*Many of these concepts were developed in an empirical study of the environmental effects of a somewhat larger development project, the new Bay Area Rapid Transit (BART) system (Appleyard and Carp 1973). Later Donald Appleyard was on the Technical Advisory Committee for the San Francisco Planning and Urban Renewal Association's (SPUR) study of the environmental impacts of high-rise buildings in San Francisco (Dornbusch 1975).

[Yantis 1972]), can create misery for others, and occasionally put neighbors out of business. The opening period is a time when the image of the building—for better or for worse—is finally confirmed. Attention peaks. This is also a time when the occupants begin to crowd the local streets; use patterns change. The neighbors accept the new facility with pleasure or resignation. Finally, over the years the impact of a building may lessen as it becomes embedded in the changing urban fabric, absorbed into the public's image of its city.

Even measures of *before-after impacts* do not quite assess the relative impact of a new building, because other events may have occurred on the site had the building not been built. In other words, the *after-conditions* would have been different. In environmental impact studies the impact of *alternatives* for the same site—as well as *before-after conditions*—should be assessed, if that is possible.

6. *Cumulative impacts may be of more concern than the impacts of each successive building.* Alvin Duskin, a militant conservationist, showed the startling changes in San Francisco's skyline over the short period of twelve years in an advertisement in the *Examiner* and *Chronicle* (Figure 7-1). Ten thousand people clipped coupons from the ad and sent them to city hall. Images of an even more foreboding future followed. In a Sunday edition of the *San Francisco Chronicle*, two colored aerial photographs were featured. One showed the Bank of America and Trans-America towers jutting up through the San Francisco fog which enveloped the rest of the city. The second showed the same two buildings joined by the World Trade Center, the Chrysler Tower and other New York buildings—a forewarning of what could come. Another series of four cartoons put out by Ecology Action showed high-rise buildings gradually enveloping the city and ultimately Telegraph Hill. These doomsday images, though somewhat fantastic, trace out a trend which must be grappled with. The hidden effects of cumulative high-rise development—the vast consumption of energy, the generation of traffic,

and sharing of city resources—may be even more severe.

DIMENSIONS OF ENVIRONMENTAL IMPACT

To measure environmental impact, the most reliable research strategy would look at large numbers of high-rise buildings in varying situations. A wide variety of *environmental measures*, such as height, bulk, shape, shadow, noise emissions, traffic generation, etc., would be taken for each one, and correlated with a wide variety of population *response measures* from users, neighbors, and the public.

The departing point for identifying relevant measures would be the series of concerns that various populations might be expected to have about high-rise buildings. For example:

1. *safety*: from fire, earthquake, falling objects, traffic hazards, crime, etc.;
2. *stress/comfort*: microclimate, noise, glare, shadow, air pollution, places to sit, crowding, other aspects of psychological stress;
3. *convenience*: changes in pedestrian and auto travel patterns, commuting times;
4. *privacy and territoriality*: intrusion on neighbors, provision or reduction of public territory through plazas, etc.; availability of building to the public;
5. *social interaction*: encouragement or disruption of neighborhood cohesion, interest group cohesion, worker morale, etc.; isolation of high-rise inhabitants from the city;
6. *visual disruption*: disruption through height, bulk, color, shape, scale, detail, blockage of views; "dead" street environments; signs/billboards;
7. *symbolism*: private versus public symbolism, associations attached to buildings, "dominance," "friendliness," etc.;
8. *maintenance*: levels of vandalism, cleanliness, trash in surrounding area.

SURVEY TECHNIQUES

The following techniques can be used:

1. *interviews* seeking the public viewpoint; perceptions, evaluations and behavior of involved populations groups;
2. relevant *environmental measures* which affect people's attitudes taken from field analysis, aerial photos, and maps;
3. traffic, pedestrian, and street *behavior* from field surveys;
4. *census and other data* on the demographic structure of the impacted area, migration patterns, crime and accident statistics, traffic data, land use changes, land values, and rents.

THE VISUAL AND SYMBOLIC IMPACTS OF HIGH-RISE BUILDINGS

Let us focus here on the visual and symbolic issues, for they were central to the San Francisco controversies. Although "hard-nosed" professionals and the sociologically oriented consider the visual aspects of the environment to be trivial in comparison to technical and social issues, the fact is that the public is extremely sensitive to the visual environment, though as much for its symbolic as for its aesthetic quality. Matters of scale, color, shape, street character, and view affect a population's image of its city and of itself.* They convey powerful emotive messages which imply who runs the city, who dominates its environment, and the character of those in power. The following discussion provides some evidence of how San Franciscans responded to these qualities, and describes some ways in which they can be defined more tangibly.

*Besides the evidence from the news media that these were important items, two interview surveys confirm their importance, one carried out by students at the University of California, Berkeley (De Casanova et al. 1972), the other by Dornbusch and Company (1975), who conducted the SPUR high-rise study.

The San Francisco Urban Design Plan (San Francisco, Department of City Planning 1971) dealt with many of these attributes in its guiding principles, but the only quantified measures, which became the basis for the later zoning ordinance, were those of *height* and *bulk*. They became the central measures simply because they could be quantified, even though they were not the only concerns of the public. The question is: Could there be other measures? For now, let us speculate a little.

Scale

As revealed in the media coverage in San Francisco at the time of the proposed U.S. Steel Building, San Francisco is acutely protective of its "civilized" scale. Again and again newspaper accounts, and editorial, feature, and commentary articles reiterated that it is the "little things" which count in San Francisco. The little things are seen as the real contributors to the quality of city life.

In these accounts, a civilized scale is equated with a "reasonable" scale, with the humanization of nature. Anything out of scale, violating the relation of man to nature and man to preexisting man-made form, immediately conjures up images of New York City. These images of New York tend to be very much like the portrayal of that city in the movie *Metropolis* by Fritz Lang—a vast, overbearing, overpowering city, mindless of the fragile humans who inhabit it. The high-rise buildings were variously described as "gargantuan," "colossal," "mammoth," "Big Ugly," and "monumental." One oft-quoted San Francisco commentator put it this way: "The old timers who knew what San Francisco was all about built their buildings to scale and made their city grow beautiful. The giants have passed on and now we have rich pygmies with ego problems." The status of being the "highest" has led to the absurdity of Chicago's three isolated gestures, the vying of San Francisco's Bank of America and TransAmerica, and the disruption of downtown Manhattan. In this status hungry quest, all civilized

values and individual cities are sacrificed. Architects, control yourselves and your clients if you can!

How can scale be judged? It has both objective and subjective components. From a design point of view, buildings may be out of scale because they are too *tall*, dwarfing preexisting buildings into insignificance. Or they may be out of scale because they are too *bulky* for the block allotment in relation to other buildings. A new high-rise building may violate *the pattern of spaces and volumes* which give a block or a district its visual shape and character. In some cases it is the *detail* of high-rise buildings that is out of scale.

The public is quick to sense such violations. In San Francisco, for instance, the U.S. Steel Building, which would have stood over 500 feet at the Bay, was caricatured in the newspapers as a "steel giraffe," an ungainly, "out of scale" creature, disturbing to a sense of balance and proportion.

But a determination of scale also involves a subjective judgment. How do people feel when they are observing, walking past, working in, or experiencing the building in any way at all?

In downtown San Francisco, where many structures upwards of twenty stories have been built since 1967, a survey of employees in the Bank of America (De Casanova et al. 1972) showed a large percentage of them to feel personally *oppressed* by the buildings around them. Scale, then, implies a relation to human scale, not merely in terms of absolute height, but in terms of the whole "gestalt" which a person apprehends. How much of a building can be comfortably seen by a person at a given distance? To what extent does the building provide human-scaled amenities at its base to offset its tremendous height? How much "breathing space" is left around a building? How does it treat the prevailing street pattern and relate to surrounding older buildings?

Scale implies various relationships. *Human scale* implies a relation between the building and human figures. It also implies a relation with how much information the mind can process. *Neighborhood scale* relates new buildings with the scale of buildings in the surrounding neighborhood. High buildings,

even if out of human scale, will be less disruptive in a neighborhood of high buildings than in one of small buildings.

The *change in scale* may be the most negative characteristic of high-rise buildings. These effects can be severe enough to ask: "Why does any building have the right to be out of human scale?"

Some experimental measures that could be the basis of design guidelines or controls have been proposed to study this matter of scale more closely:

1. *Relative height*. Hans Blumenfeld (1953), in a famous article on scale, suggested that the "maximum angle at which an object can be perceived clearly and easily is about 27 degrees, corresponding to a ratio of 1:2 between the size of the object and its distance from the beholder" (Figure 7-2). By this criterion buildings over about three stories are out of scale on most urban streets. Above this height, street inhabitants must crane their necks. Most people in the Dornbusch interviews confirmed they preferred to look at high-rise buildings from a distance. Were this to become a control measure, new buildings would have to be lower or stepped back in gentle gradations. Perhaps some of Soleri's buildings and Safdie's Habitat are the only large buildings that can meet such a criterion. If such a criterion proved too severe, a small percentage of exceptions could be allowed to rise above such height angles, so that the ambient scale could remain within bounds.

Another aspect is the relation of high buildings to

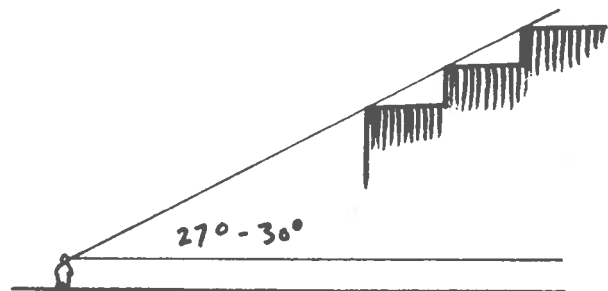


Figure 7-2
Relative height.

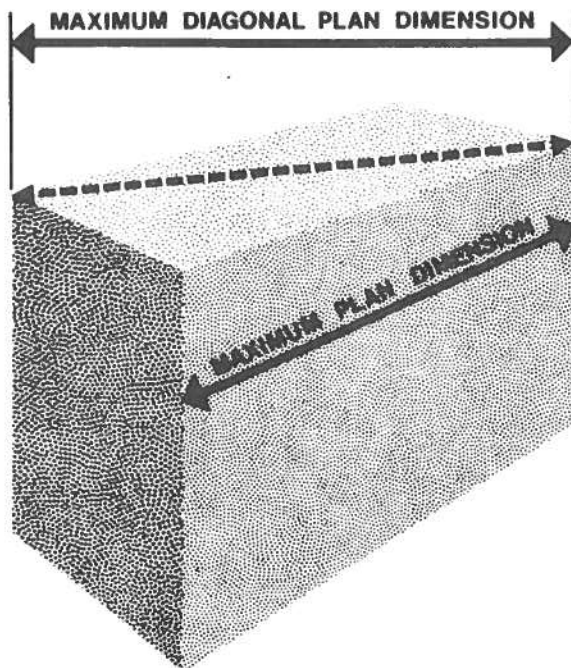
their neighbors. The outcry is sharpest when fifty- to seventy-story buildings are built next to three- and five-story structures. This is trauma more than drama. Limits on height relative to neighbors could comprise a more evolutionary control than the absolute height limits which were ultimately fixed upon in San Francisco.

2. *Relative length and bulk.* Buildings that are long horizontally without vertical breaks can disrupt the scale of a neighborhood of smaller ownerships (Figure 7-3). This was historically the technique for making buildings such as Versailles more monumental. If cities restricted the assemblage of small plots into large ones, their scale would be maintained. In San Francisco, the bulky high-rise buildings such as the Federal Building near city hall and the new Embarcadero Center are among the most dominating buildings in the city, especially since they are oriented east-west, creating massive shadowed façades over blocks to their north. In a small survey of building preferences, "slender" buildings were much preferred to massive ones. The controls of building bulk now written into the zoning ordinance seek to keep future buildings from being so bulky.

3. *Repetition.* In buildings that have too many components, such as thousands of similar windows, individual parts cannot be focused on because there are too many (Figure 7-4). There are limits to the amount of information we can process, and some buildings exceed those limits (Miller 1956). The individual parts become a texture and our attention is focused on the whole building, often as a meaningless, and always very large, entity. The human scale is lost and buildings are likened to "ant heaps" or "filing systems." A simple count of the number of similar parts, or a measure such as Krampen's (1974) type-token ratio, relating the variety of each detail, such as windows, to their total number, may supply us with a measured building scale (Figure 7-5). Any ways in which individual parts can be varied and grouped in smaller units will help bring attention back to them.

4. *Size of details.* If a building provides places to sit, normal size windows to look out of and into, humanly scalable steps, and doors that can easily be opened,

then the building is likely to be in scale. Too many high-rise buildings have no detail at ground level to which human beings can relate. People are dwarfed and excluded from them. Architects of the Bank of America building consciously tried to recreate in their



Note: The following measurements are used to determine whether a building would be excessively massive in relation to its surroundings:

Height: The height of existing, surrounding development. This would be the prevailing heights, not the exceptional ones.

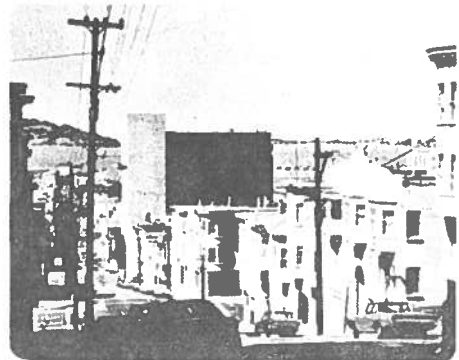
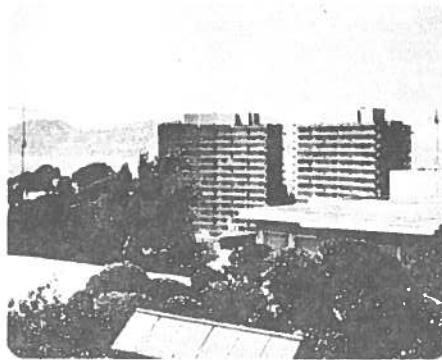
Maximum plan dimension: The longest possible dimension along a building's side. This is taken from a building's plan at the height of surrounding development.

Maximum diagonal plan dimension: This, too, is taken from the building's plan and is measured at the height of surrounding development. It represents the longest possible dimension between the most separated points of a building.

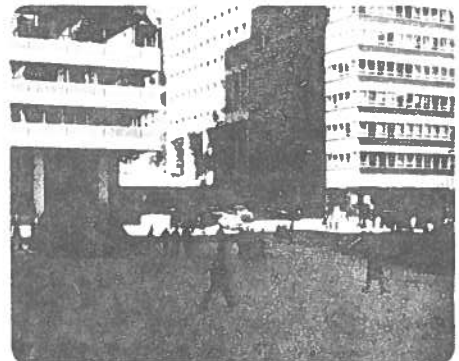
Figure 7-3
Method of measuring building bulk.

VIEW OBSTRUCTION

note: Special height limits
now exist in these areas.



ADVERSE SHADOW CONDITIONS



INAPPROPRIATE SCALE



Figure 7-4

Effects of massive buildings. Extracts from the San Francisco Urban Design Plan: Preliminary Project 8.

design San Francisco's bay windows. However, in a building fifty-two stories high, they are viewed more as "organ pipes" than bay windows.

There can be a conflict between these scale-creating characteristics. On a large building, windows, doors,

and other details relating to the human figure will be so small relative to the overall building that they inevitably have to be repeated in large numbers. Ways of grouping them into conceptually manageable components may resolve this problem (Figure 7-6).

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Figure 7-5
Three different versions of coding for two façades (from Krampen 1974).

Color and Tone

Some cities are thought of as characteristically lively, with paint-splashed dwellings and mosaic designs on façades; others are characteristically earth-toned. San Francisco is generally perceived to be simultaneously white and colorful. The predominant tonality of building façades has traditionally been cream-colored or white, occasionally perked up by a pastel fronting. The colorful element so often attributed to San Francisco is expressed through the

actions of individuals upon the urban environment. *Individuals* are responsible for sprightly flower stands, gaily decorated Victorian homes, display awnings, garden plots, etc.

Thanks to the keepers of the flame—the colorful, the individual, the old San Franciscans (of whatever age), the dwellers in proudly restored Victorians, the clangers of cable-car bells, peddlers of street corner noises, writers of graffiti, the thousands of anonymous people who have a clearer vision of San Francisco than those who dwell in penthouses. Thanks to the little things that give The City its true tone and texture [Herb Caen, *San Francisco Chronicle*].

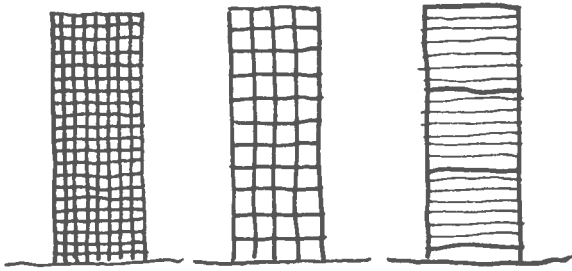


Figure 7-6
Scale-creating characteristics of buildings.

Most high-rises constructed since 1960 have respected this San Francisco tradition of light-colored buildings. In fact, one of the most recent, the new Hyatt House Hotel rising at the edge of famed Union Square boasts about how its cream color fits into the city image. What may happen when new high-rises do not respect the tradition of a given city can be illustrated by the now infamous case of San Francisco's Bank of America Building.

The Bank of America clearly violated the imaged norm on several counts. Not only did it sweep upwards to fifty-two stories, well above the twenty-odd-story buildings in its environs, but the Bank of America Building also presented a dark stone face to the public. The new brownish-black building was exceptionally conspicuous. Public reaction testifies just how out of keeping it was with other buildings around it. The media dubbed it a "monstrous" building thrown up by newcomers with *cold* New York hearts. Free descriptions of the building by people who work in the downtown area include such comments as "too large," "too drab and colorless," and "too dark for San Francisco." Even people working in the building, who might otherwise have cause to see it in a favorable light, describe it as "ominous," "like a tombstone," and "dark organ pipes reaching into the air."

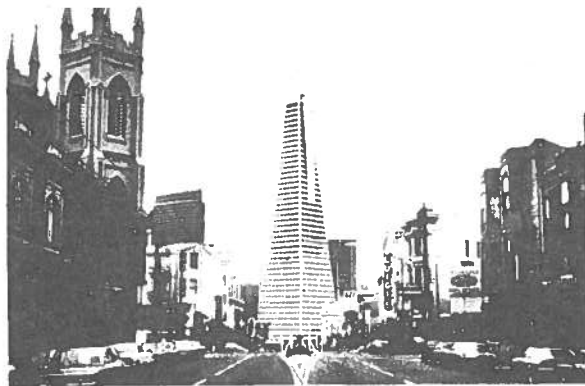
Since the construction of the Bank of America, other dark buildings have shot up in San Francisco's downtown. Public reaction, as in the case of the Alcoa Building, ranged from irritation to outrage.

Beneath the public outcry against dark high-rises lurks the fear that San Francisco is well on its way to becoming just another gray or black city, a Philadelphia, a Chicago, at worst a West Coast New York. The addition of each new dark-toned high-rise contradicts the treasured image of a sparkling San Francisco. Although color may not be a foremost consideration in evaluating potential high-rises in *other* cities, for San Francisco color *is* an issue.

In fact, *tone* appeared to be the more basic characteristic towards which many were reacting. The San Francisco Urban Design Plan set a range of tones which it considered appropriate. According to Allan Jacobs, former director of the Department of City Planning, architects are willing to go along on an informal basis with these Urban Design Guidelines.

Shape

The flurry of protest which greeted the designs for San Francisco's TransAmerica Corporation Building was, to a large degree, a reaction to the *idea* of a pyramidal building (Figure 7-7). The TransAmerica Building was the butt of countless jokes: it was pictured as a dunce's cap in newspaper and magazine cartoons; it has been called the Egyptian Embassy; it



was prophesied to be San Francisco's humiliation. Its shape was not consistent with the image of a "proper" downtown, as this was conceived by business-world leaders, employees, key public figures, and the citizens at large. It was not rectangular, predictable, and utilitarian, the way office buildings normally are thought to be. It did not economize on space. It was embarrassing. It made the city look silly. Although the TransAmerica now seems to be meeting with somewhat more acceptance, and fewer barbs, its stormy history underscores the need for respecting both the shapes of existing buildings and the public's image of the shape of their downtown.

Shape is a difficult quality to measure. Simple assessments of the singularity of building shapes have been made (Appleyard 1969), uniqueness in the local environment, in the neighborhood, or in the city as a whole being the basis for the scale. Degrees of difference from shape norms could be approximately measured, as a basis for a "look-alike" ordinance. The issue of attention will be discussed at greater length in the section on symbolism.

Plaza and Street Images

Within the confines of the "internal" central business district (CBD) environment, a new high-rise may bring about changes in images of the *street environment*. Plazas at the base of high-rises which create usable open space in the CBD can positively offset the image of downtown as a dark, dense jungle. Poorly designed, or purely cosmetic unusable plazas reinforce the image of downtown as an anti-human work-only area.

Much of the public dissatisfaction with the Bank of America, as judged by newspaper commentary, magazine articles, and interviews, rests with the design of the plaza. Although provided with a fountain and gay flower pots, the plaza itself faces northward and is submerged in shadow for the better part of the day. A recent random sampling of workers from

the offices within the Bank of America indicated that they do not spend what they would consider "any time at all" in the plaza, not even at lunchtime. One merely has to observe for a brief time to realize that people just do not linger there. The public uses the plaza merely as a corridor, as a path to scurry from one place to another.

More successful plazas can obviously enliven the street environment, encourage people to gather, provide the setting for miniparks, sidewalk cafes, displays, vendors, etc. It is possible to survey those high-rise plazas in a city which do thrive and to ascertain the particular characteristics or bundle of characteristics which create a sense of amenity. Such an inventory can then be employed to evaluate the designs of proposed high-rise structures.

The *shadows* cast by a new high-rise may transform the character of surrounding streets, darkening them to the point where people consider downtown a gloomy, chilly place (Figure 7-4). Similarly, the character of streets may be altered by the creation of *dead areas* resulting from the siting of a new high-rise or from a decrease in patronage in surrounding establishments due to a change in block composition. The presence of these dead areas directly attributable to high-rises has very real effects upon the public's sense of security in the downtown area. Any decrease in the sense of security may well influence the decision not to frequent the CBD in off-peak hours or to shun particular sections of it, even during the workday hours.

As with street plazas, the characteristics which make an area a "dead area" can be determined empirically. The first step, again, is to inventory the attributes of the area, to collect data about the physical environment. Then, by interviewing users of that area, it is possible to compile different sets of conditions which explain, produce, or are associated with particular public reactions. More likely than not, it is a *combination* of attributes which figure in the prevailing perception of an area. Unlit, long walkways, shielded from public view, may produce strong feelings of fear, for example.

View Blockage

In newspaper coverage of the period of the U.S. Steel controversy, the issue of view blockage overwhelmingly won first place as the most oft-mentioned concern. What was all the concern about? How are amenities reduced by view blockage, and who are the impacted peoples?

First, view blockage implies a reduction in the visibility of pleasing features which surround the city. The proposed U.S. Steel structure would have prevented many people in both residential and commercial areas from glimpsing the natural grandeur of the San Francisco Bay. Other high-rises block off other views: the Golden Gate Bridge and the hills of Marin County will no longer be visible to much of the city population because of increasing high-rise construction. The availability throughout history of these three views in particular—the bay, the bridge, and the hills—structured the image of San Francisco as the precious city by the bay. Indeed, San Francisco lore prides the city on being particularly attuned to its natural waterfront setting. A high-rise which cuts off a view of that setting obliterates the self-image of San Francisco as somehow different from all other waterside cities: "The bay blocked from view by a Waikiki wall of office buildings and hotels with a 'plastic park'."

As more tall buildings are constructed, the number of people who have views does not increase very much, while the number with blocked views increases a great deal. More people find themselves in offices which face directly into other office buildings, affording no view to speak of. Although nothing conclusive has been established, one study which interviewed workers with access to different kinds of views—wide bay views, partially obstructed views, totally blocked views—revealed that people with blocked views were very sensitive to their situation. They tended to be very concerned lest their view be further diminished in attractiveness and value. People who already had totally obstructed views tended to pull the curtains to avoid being reminded of their enclosed situation,

but they too registered resentment about their boxed-in condition.

This feeling of being enclosed when deprived of a desired view relates directly to a third effect of view blockage. This is a reduction in the overall sense of *spaciousness* within the city. When natural corridors of vision down avenues or streets are impeded by bulky buildings; the city, for many people, becomes a closed container. This attitude was given expression in the tendency for many people interviewed to describe their experience in downtown as being trapped or feeling oppressed.

In assessing the quality of views, the *depth* and *width* of a view may be its most important attributes. But the level of *interest*, what it reveals about the city or the surrounding landscape, is also a factor. The value of *view direction* may also be important. North-looking views, where the sun lights up the view, may be more valued in northern climes; east and west views of sunrise and sunset are apparently valued highly in Japan, where protest is rising because these views are being obliterated. More experiments on the meaning of different views to different people is needed.

The impact of potential view blockage due to new high-rise construction can be measured if the value of existing views are known. A recent study principally concerned with the alternative impacts of different forms of urban development upon property values suggests just such a technique for evaluating the *amount* and *quality* of views.

The view evaluation technique drawn from the study by S. R. Winter (1971) requires that a particular site be analyzed by means of a computerized mapping system. Under such a system, the site in question, be it a small section of a city, an entire district, or the city itself, is broken down into cells of a fixed size. These cells are then easily identifiable and locatable on the map. Small cell size is favorable because it allows for the representation of individual properties, hence individual buildings, by single cells.

In this system, a view index is generated by using a computer program (called VIEWIT) designed to

identify which cells (from the total matrix of cells) can be seen from a designated point, for instance, from a viewpoint on a particular floor within a building. Each visible cell is then scored according to its land use. The score for each floor of the building from which the view evaluation is taken is equal to the sum of the scores of all the cells visible from the elevation at eye level about that floor. The view index of the building as a whole, then, is the sum of the scores for each of its floors.

A ranking system has been established to score the views of different land uses which are seen from the viewing vantage point. Highest value is given to views of parks, open space, and ocean, equal to a value of 4. A ranking of 3 is awarded to views of residential areas. Street views are assigned a value of 2, commercial a value of 1, and industry is assigned a 0 value for view. In addition, whenever the edge of a site can be seen, as represented by glimpsing the horizon, the quality of the view is assumed to acquire the aspect of a *vista* and its value is thereby increased.*

In this way it is possible to quantify the view which is enjoyed by any present structure. But it is there-

*This technique can be employed as follows. The coordinates of the first viewing vantage point are identified within the computerized mapping matrix. The elevation of building height for that location are recorded. It is assumed that the observer is standing in the center of the building and that he can see in any direction without internal interference from the building he is in. Proceeding according to a pre-selected line of direction, each cell in the site falling along that line is examined. The elevation and building height of this next-in-line cell is recorded. The vertical angle required by the observer to see the cell is also calculated. The value of the land use is recorded and stored. This procedure is repeated for each cell in the chosen line of direction. The values of the visible land uses are added cumulatively. The process continues down the line of cells until the view limit is reached.

Similarly, a new line of direction is followed outward from the point of observation. This is repeated until all of the cells within the circular area bounded by the circumference of the view limit have been evaluated for angle of view and value of land use. The entire procedure is repeated for each floor of the building until ground level is reached. The total value of the view score for the building is summed and recorded.

fore also possible to quantify the *change* in value of view which would come about because of the introduction of an obstruction to the view area. Using this model for evaluation, the various mixes of height, bulk, and siting for proposed structures can be tested for the differential impact they would have on view from designated points and areas. The value of views added by a new high-rise could be compared with the value of views sacrificed by existing buildings.

When view indices were calculated for an area of San Francisco, they were found to have a higher correlation with assessed land values than any other factor. This partially confirms the fact that property loses value when its view is lost.

Clearly, the availability of such a method to assess the impact of view of proposed development would greatly aid in the determination of the most suitable and least disruptive sites for new construction.

Symbolic Disruption, Prominence, and Visibility

The symbolic image of the city is woven from a special blend of legend, reality, tradition, and memory. It is what attracts tourists, it is the stuff of travel blurbs, but it is also what many residents themselves savor about their city: the city of intimacy, the city of Victorians, the city of hills, the city by the bay, the fair city, the city of little old ladies, of taste, of charm, of cosmopolitan delights.

Buildings, too, are seen as symbols. In other words, when people are confronted with certain buildings, they interpret them as symbols of particular groups or of individual or social acts. They may think primarily of who owns them, who designed them, or who lives in them, and such inferences may well dominate the visual or architectural impacts of a building.

Architects and engineers are not always aware of this quality of high-rise buildings. They see the buildings as structures, functional spaces, or as sculptural forms, but many people see them more as the actions of large corporations, real estate developers, or public

housing authorities. The more unique, large, and dominating a building is, the more clearly will it be distinguished from others, and the more it is therefore susceptible to symbolization.

An article in the *New Yorker* a few years ago described exactly how the role of a new high-rise apartment building named Kawaida Towers (a Swahili name) became a symbol of black intrusion into Italian territory in Newark, New Jersey, where its function as an apartment building was completely subordinated to its symbolic role.

In the analysis of Italian political leaders in Newark, Kawaida Towers is not an apartment house for black people, but a power base for Imamu Baraka [local black leader]. . . . Even the calmest Newark view of Baraka's motives would interpret Kawaida Towers as an attempt at a symbolic triumph—a demonstration that even in a supposedly Italian area it is black people who now have the political savvy and organizational ability to erect a flashy, tax-supported apartment building [Trillin, *New Yorker*, December 30, 1972].

Further on in this article the author suggested that this symbol may, indeed, hasten the movement of the threatened white minority out of the city. Symbols therefore have a lot of power.

The opponents of high-rise buildings in downtown San Francisco see the buildings in the same symbolic way: large corporations are coming in to take over San Francisco (Figure 7-8). In the context of this

kind of thinking, environmental details of size, shape, and color are sometimes of less consequence than the question of whether there should be any large buildings at all. From the point of view of the younger conservationists, headed by Alvin Duskin, the aim is to stop them altogether, just as San Francisco stopped the freeways, a battle position in the effort to revolutionize environmental and societal values in the United States.

The issue can be phrased as a question: Whose buildings should dominate the public environment of a city? Should they be office buildings, residential buildings, civic buildings, hotels, or transportation terminals?

Again, it is not difficult to interview citizens to find out which kinds of buildings they think are most important in their city, and which ones they think should be accorded prominence. A study carried out some years ago on a Venezuelan city (Appleyard 1976) found that people were able to define which uses they thought most important to their city. Measures of the *prominence* of buildings are also possible. In that same Venezuelan city we found that the best known (not necessarily the best liked) buildings were those which were *visible* from major streets and at major intersections, were *unique* in their *form* qualities—shape, isolation, size, surface color, and texture—and were highly *used*. We developed a predictive model, which could predict how well known

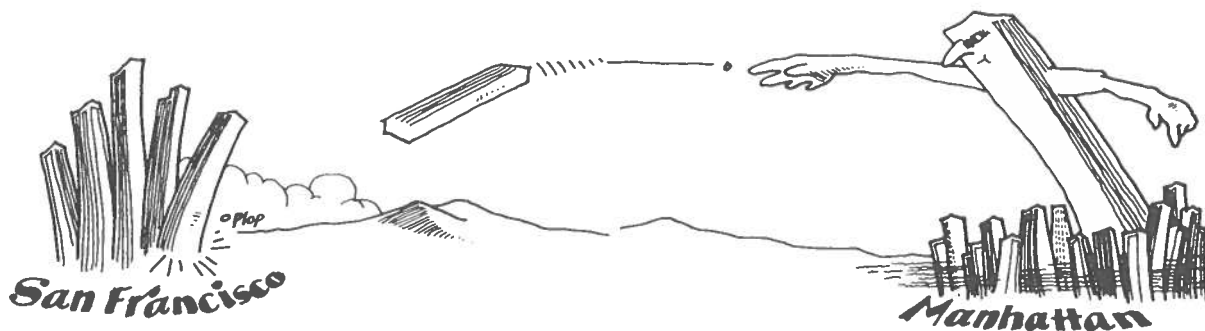


Figure 7-8
Cartoon by Louis Dunn from *The Ultimate High Rise* (Brugmann et al. 1971).

a building would be if we could measure its visibility, form qualities, and use level. The TransAmerica Building, on the basis of this model, always will draw extraordinary attention to itself, because in addition to its unique shape, it lies on the axis of Columbus Avenue, the most visible location in the city after the Ferry Building.

It is not surprising that the Bank of America and TransAmerica Buildings (until the Hyatt Regency came along) were the best known buildings in San Francisco. Highly visible buildings also polarize public emotions. In interviews carried out by Berkeley students, these two buildings were either the most liked or the least liked buildings in the city. Unfortunately; the new height controls will forever maintain their prominence.

The role of high-rise buildings in the *symbolic disruption* of a city's image has been an increasing source of public resentment. Just as the World Trade Center has disrupted the profile of lower Manhattan, the Hilton Hotel towers over Jerusalem, the ITT building transforms the skyline of Brussels, and the Montparnasse is overshadowed by a 56-story dark presence, so the U.S. Steel Building threatened the relatively coherent image of downtown San Francisco. This undermining of a city's identity can represent a loss that the public may view as intolerable.

Tall buildings also *devalue existing symbols*. Once heroic and respected buildings are reduced to toy-like dimensions—the Arc de Triomphe has been “conquered” by La Defense; the grandeur of London's St. Paul's is dwarfed by surrounding towers; the city's formerly great parks are perceptibly diminished by high buildings which intrude on their pastoral seclusion. Distances that along winding streets seemed considerable are now shown in a casual glance to be short. The devaluation of previous grandeur has only one arguable benefit. It makes the old city more “cute,” “human,” and endearing. In more and more cities the “old” is now preferred to the “new.” Is it worth the cost?

If we can measure the prominence of buildings and develop a clearer idea of the public's symbolic goals

for their city's environment, certain kinds of guidelines or limitations on the prominence of buildings are possible. The city could stipulate that no new building be more prominent than any other building of similar use. This might slow the trend to use buildings as “billboards” to advertise corporate entities. Another city might desire such diversity and encourage each building to be as prominent as it can, to give “life” to the public environment by openly revealing symbolic competition. Miami and Las Vegas have flourished on this unconscious policy, but not every city needs it.

Reducing the Uniqueness of the City

Each city wishes to be unique, but high-rise buildings from city to city are increasingly similar to each other. They are part of the trend towards homogenization of a world culture. Given photos of high-rise buildings, how many could tell to which city they belong? The fear that San Francisco is losing its uniqueness—with all that implies for the tourist industry, loss of city pride, deterioration of the quality of life, decline in property values—underlies much of the hue and cry against further high-rise construction. Each additional high-rise tarnishes the characteristic image of the city, making it less San Francisco and more like other cities. This is, of course, happening to London, Paris, Boston, Mexico City. Just as with building prominence, measures of city uniqueness and building conformity can be developed.

The choices here seem to be twofold. One is to prohibit new changes—to preserve what is valued, the uniqueness that exists. New buildings should be absorbed quietly into the unique setting, fitting harmoniously with its character. The other strategy is to create consciously unique buildings, and therefore a *new* uniqueness. This is much more risky and is unlikely to get much public support, unless a city feels it has already been homogenized. Cities without distinctive buildings may wish to go this path. The TransAmerica Building is an interesting case. It will

further increase San Francisco's uniqueness, and therefore may be accepted over time, although most San Franciscans may feel their city is already unique. Look-alike Midwestern cities might greet unique buildings with more acclaim, although their relative impropriety might only pass muster in cities like Miami or Los Angeles.

High-Rise as Political Symbol

Will the attitudes emerging in San Francisco combine with the non-growth, think-small, anti-technology movement which has worldwide support, especially among the young, to form a powerful and pervasive anti-high-rise ideology that effectively halts their spread? This symbolic question may override utilitarian questions of safety, efficiency, and livability of each individual building. Such an ideology could be fueled by isolated disasters such as the collapse of a building in London, the peeling façade in Boston, another book by Oscar Newman, or more films like *Towering Inferno*.

Myth plays as powerful a role in environmental politics as in all politics and as Edelman (1971) has argued, myths are essential to keep constituencies together. High-rise buildings, huge though they are, could be no more than pawns in the game of power, a game in which professionals may have to choose sides on political as well as functional grounds (Figure 7-9).

Yet each city and country will still make its own decisions depending on how much its government—or people—identify with high buildings. In the 1950s, after an era of stagnation, Boston welcomed tall buildings. They symbolized a break-out from an oppressive situation. In the late 1960s, in the midst of a boom, San Francisco had had enough. Moscow is proud of its thirty-story Kalinin Prospect, Singapore boasts fifty-story skyscrapers, Chicago vies for the highest of them all, but the struggles to stop them go on in San Diego, Portland, Paris, and Jerusalem.

San Francisco, basking in the dubious protection

of its height and bulk ordinance, has now become quiescent.

The last time a crowd rallied to protest the wrong building in the wrong place—U.S. Steel's 52-story tower on the waterfront—may literally have been the last time we shall see such a demonstration. Apathy is too lively a word to describe the mood of the city since then. The feeling is more one of justified helplessness [Herb Caen, *San Francisco Chronicle* 1974].

IMPLICATIONS FOR ARCHITECTS

Architects were to be found on both sides of San Francisco's controversy. Those involved in the design of high-rise buildings supported them, the local AIA chapter generally supported the height and bulk controls. A quote from the chief architect of one of the leading firms proposing a high-rise building illustrates an utterly different value set from those expressed in the newspapers: "If I had my way I'd tear [the Ferry Building] down tomorrow. It's the worst thing Arthur Brown ever did. It's nothing but a bus depot with a tower. In fact I'd tear down every building in town except the City Hall." This kind of arrogance deliberately devaluing the existing city may be accepted in Cleveland or Chicago, but it infuriated San Franciscans. It did not exactly endear architects to the public. Another example of the different worlds of architect and public: "They [the diagonal braces of the Alcoa Building] hold the building up and prevent it from falling down in an earthquake. That's a very good thing. Besides they remind me of a Franz Kline painting." Will the public understand such associations?

The architect usually designs his buildings for a physical environment whose meaning is unknown and therefore easily devalued. It is like working in a vacuum of meaning, perfectly illustrated by the gray-colored buildings which surround models of new building proposals. The San Francisco controversy was important because it brought out how other people felt about the city. The setting became alive.

Architects will, and should always, be torn between the demands of the "inside" and their clients, and the



Figure 7-9

The day the U.S. Steel Tower was turned down by San Francisco's Supervisors (SUPES) in favor of a 175' height limit. *San Francisco Chronicle*, February 18, 1971. ©1971 by Chronicle Publishing Co.

demands of the "outside" and the public. For too long buildings have been designed from the *inside-out*. Façades have been seen as cosmetic, trivial. But this is the public's concern and the public is more important than an individual establishment. The public may in the future be demanding that buildings be designed as much from the *outside-in*. This view was generally supported by San Francisco's AIA chapter.

The visual qualities of high-rise buildings and the messages concerning power and identity which they send are not issues to be taken lightly. They are one of the chief means by which the profession communi-

cates to the public. They are "read" more widely than the *AIA Journal* or *Progressive Architecture*.

The approach to the design of high-rise buildings suggested here seeks to base political and professional design decisions on a *knowledge* of public values and feelings. This is not to say that public views should be followed slavishly, but they should be known and respected. The method is to identify the environmental characteristics of high-rise buildings, relevant to the public, and the neighbors as well as the users: whether they be scale, shape, view blockage, color, prominence, or visibility.

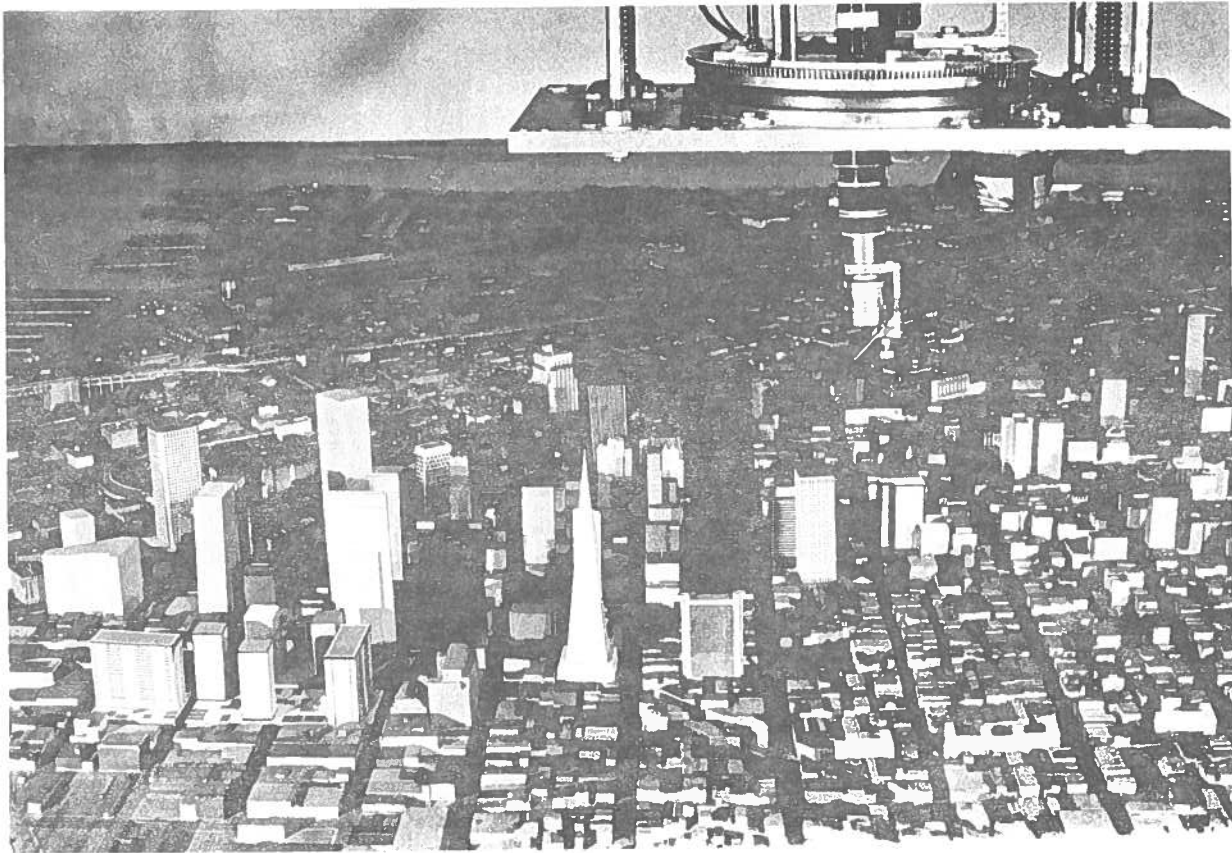


Figure 7-10
Still from a film of a model simulating high-rise alternatives for San Francisco made in the Berkeley Environmental Simulation Laboratory.

Since there are not at present, and may never be, universal principles of what is acceptable and desirable, each city will have to identify its own character, its own valued qualities and places, and stipulate in which ways new buildings can contribute. Architects should play a leading role, but they must also *listen*.

In proposing projects they must also communicate clearly and openly the kinds of impacts their buildings will make on the city's environment. A notable feature of the San Francisco controversy was the emergence of "opposition drawings." While the pro-

ponents of the U.S. Steel Building showed it blending neatly into the city as seen from the air to the south of the Bay Bridge, opponents depicted the actual view from Telegraph Hill, which showed how it dwarfed the Bay Bridge. The later twenty-story Haas Towers on Russian Hill were not opposed until a local lawyer had them drawn onto several perspectives of Russian Hill. A neighborhood opposition group was immediately formed.

"Truth in simulation"—open disclosure to the public—may seem hazardous and unnecessary, but in

the long run it may avoid deep and lasting resentment. Besides, it is the right thing to do.

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