Image & Symbolism

SYMBOLIC MEANINGS OF BUILDING STYLE IN SMALL
SUBURBAN OFFICES

Jack L. Nasar and Junmo Kang

The Ohio State University

ABSTRACT

This paper reports studies of the connotative meanings inferred from various styles of office exterior.
Image capture technology was used to capture in color actual office exteriors of eight different styles and
to alter the captured buildings to be alike in other features such as size and siting. 42 adults in
Columbus, Ohio evaluated each building; and 34 adults in Columbus characterized the uses expected in each.
The results revealed differences in evaluation and expected use across the styles. For example, Cubist
and Tudor styles received the most favorable ratings; simpler modern styles received the most negative
ratings. Domestic styles were associated with real estate, Cubist with design professions, and Horizontal
modern with diverse uses.

"Architecture cannot be satisfactorily
described by means of geometrical concepts.
Architecture ought to be understood in terms
of symbolic form." (Norberg-Schulz, 1965).

INTRODUCTION

Can you understand a spoken sentence by
analyzing its structure (the number of words,
their order, etc.) without considering semantics
(the meaning of the words, their contexts)? Of
course not. Yet, much empirical work on archi-
tectural aesthetics analyzes structure and form
without considering the semantics of style; and
although designers speculate about symbolic
meaning, their designs often emphasize form,
formal precedents, formal systems. They fail to
evaluate the connections to public meanings.
Clients, believing they do not understand
design, often accept this "expert" wisdom. As a
result, much twentieth century architecture
(whether modern, post-modern or deconstructivist)
is meaningless or offensive to the public.

Rapoport (1969) has long argued that
architectural symbolism is important to people.
According to him, architects focus on perceptual
aspects of design (the structuring of surfaces,
textures and colors), while laypersons notice
associational aspects (Rapoport, 1982).

Presumably, symbolic meanings develop through
experience and education (Brunswik, 1965).
People make inferences, test them against
experience and refine their inferences.
Architects, who differ in personality type
(McCaulley, 1981, p. 323-325) and educational
experience from the public (Hershberger and
Case, 1974), differ from the public in how they
describe and evaluate buildings (Groat, 1982;
Devlin and Nasar, 1987; Hershberger and Cass,
1974; Leff and Deutsch, 1973; Purcell, 1986).
More importantly, they misjudge public responses
to architecture (Nasar, 1988).

Such differences may not create problems for
buildings occupied by the client or located in
private locations. The architect can work with
the client to meet or (as is sometimes the case)
change the client's preferences. As long as the

building is hidden, its design does not affect
the public. Problems arise, however, in highly
visible buildings (such as those along highways
or in the central business district) or when
the client differs from the occupants. The
choices of architect may not suit the passersby
or occupants who must regularly experience the
result. Knowledge of "pragmatic" meanings--the
meanings to the ordinary person (Rapoport,
1982)--is needed.

Conventional wisdom holds that no two people have
the same preference for building style.
Empirical evidence contradicts this view.
Studies have consistently found shared environ-
mental preferences (cf. Nasar, in press) and
shared evaluations and meanings in relation to
housing style (Langdon, 1982; Nasar, 1988;
Sadalla et al., 1987; Tuttle, 1983). With
different populations in several American cities,
researchers have found the public to favor
popular to modern styles, and, among the
popular styles, to favor Tudor and Farm.

Housing is a relatively private part of the
cityscape. More visually prominent is office/
commercial architecture, which often locates
along major arteries and in the central business
district. In 1985 alone, over 900 million
square feet of office/commerical buildings--
mostly office--was constructed (Bureau of
Census, 1987) changing the public face of our
cities.

Whether or not on private property, office
exteriors can affect the public realm. Their
design is subject to public controls for the
well-being and aesthetic pleasure of the public
(Pearlman, 1988). To the extent an office
exterior affects public space, it should not be
designed just for the pleasure of the client and
architect. It must respond to popular values.
Yet, unlike housing, which is often designed for
consumers by developers or plan shops, office
buildings are designed by architects. Architect/
lay differences may make for unpopular designs.
Design controls or user-sensitive designers can
make these buildings and the cityscape more
pleasant and meaningful to the public. Toward
this end, we need knowledge of "public"
meanings in relation to office exteriors.

Empirical research on the office has centered on the interior. Researchers have studied ambient conditions (such as lighting, temperature, air or sound), the work station and work space (Cohen et al., 1987; Locke, 1983; Parsons, 1976; Porter et al., 1975), the internal layout (Katz and Kahn, 1978; Sundstrom, 1987), and the full setting (Marans and Spreckelmeyer, 1982; Nemecek and Grandjean, 1973; Wineman, 1982). The present research moves outside the building to consider shared public meanings from various styles of office exterior.

Our emphasis on shared meanings does not imply a lack of concern for individual and group differences. We believe that knowledge of such differences also has importance. It can help in designs for specific socio-physical contexts. We simply chose shared meanings as a starting point.

Office structures come in a variety of scales and sites--including downtown skyscrapers, large suburban offices, small suburban offices. Because people use different criteria to evaluate different building types (Michelson, 1976), it makes sense to examine one building type at a time. We narrowed our inquiry to small-scale suburban offices. We expected to find differences in meaning associated with differences in style.

PRESENTATION OF THE BUILDINGS

Two concerns may affect the way buildings are presented to observers to evaluate. For generality, the mode of presentation should accurately reflect daily experience with actual buildings. For experimental control, the mode of presentation should allow one to systematically manipulate objects and control extraneous elements. How well do the various modes of presentation meet these concerns? Consider the most commonly used presentation techniques: on-site experience with actual scenes, photographs (still, film or video) of scenes and drawings of scenes.

Responses on-site and responses to color photos of buildings have been found comparable to our typical daily experience with buildings (Craik, 1983; Hershberger and Cass, 1974; Oostendorp, 1978), but the buildings and photos can not be easily altered for experimental control or specific tests. In contrast, drawings can be easily made to vary along a specified test dimension, but responses to drawings may not generalize to on-site experience. Researchers are stuck with trading off internal validity (experimental controls) with external validity (generality).

To overcome this problem, we used a new computer technology--Truevision image capturing. Truevision gives the accuracy of color photos and the flexibility of drawings. Full-color images can be captured from video in real time and displayed on a monitor. The captured image can be altered--elements moved, added or eliminated, colors changed, images super-imposed on one another and so on--and output to monitor, video or slides. Tests of the Truevision Image Capture Board (ICB) (256 x 256 pixels, 32,768 colors) and TIPS Imaging Software show that people judge the high-resolution continuous-tone color images as real and respond to them as they would to actual scenes (Vining and Orland, in press).(1)

OFFICE-STYLE MEANINGS

Using video and Truevision ICB and TIPS, we created color photos of eight offices that varied only in style--four traditional styles (Colonial, Farm, Federal and Tudor) and four modern styles (Glass, Horizontal, Vertical brick and Cubist). Figure 1 displays black and white photos of the color images.

To assess meaning, we interviewed two small but diverse samples of respondents in Columbus, Ohio. We asked 42 respondents for their evaluative impressions (the attractiveness, comfort, cost of services and waiting time) of and their familiarity with each building; and we asked 34 respondents about the uses they expected to find in each building. The methods are detailed and evaluated in Appendix 1.

As expected, we found differences in evaluations across the styles. Table 1 shows the rankings and test statistics for the four evaluative scales. Significant differences across the eight styles emerged on three of the four scales--attractiveness, comfort, and expected cost of services.

Respondents judged the Cubist and Tudor as most attractive. In describing their reasons, they mentioned preferences for a particular style such as Tudor, or dislike for too much glass, horizontals. They rated the domestic styles (Tudor, Colonial, Cubist and Farm) as comfortable, because these looked "friendlier" than the other styles which looked "cold" or too "fancy." They ranked the Cubist and Tudor styles as most expensive, because these looked "more costly to build so tenants would have to charge more." No significant difference emerged for expected waiting time. This probably results from differences in the way respondents thought building cost would affect waiting time. Some said, "expensive buildings would have longer waits." Others said, "cheaper buildings would be less professional and have longer waits."

The familiarity of the styles varied (Farm most familiar, Glass and Federal next, Cubist next, Horizontal and Vertical next, and Tudor and Colonial last), but most respondents rated each style as familiar. The ratings of attractiveness, comfort and expected cost, however, were not related to the familiarity scores. For example, the most familiar style (Farm) and the least familiar style (Tudor) ranked as attractive, comfortable and costly.
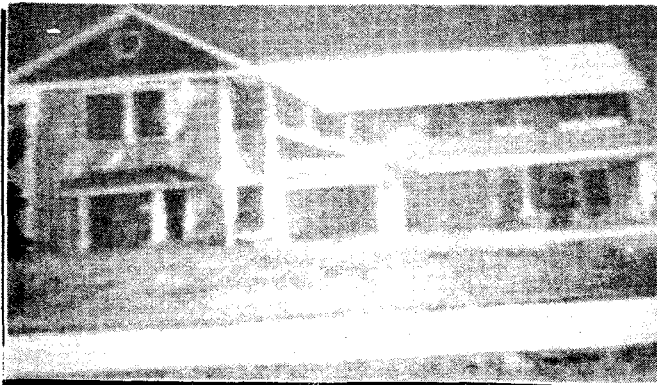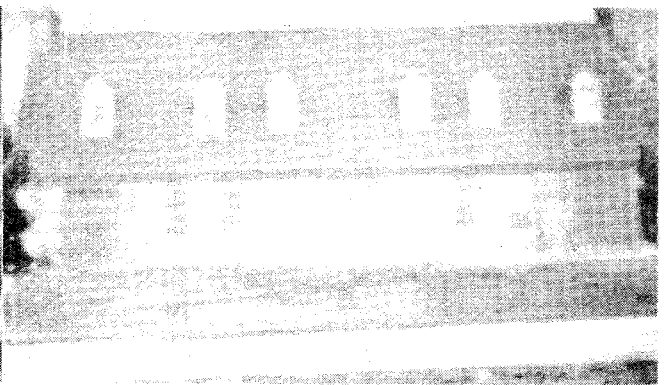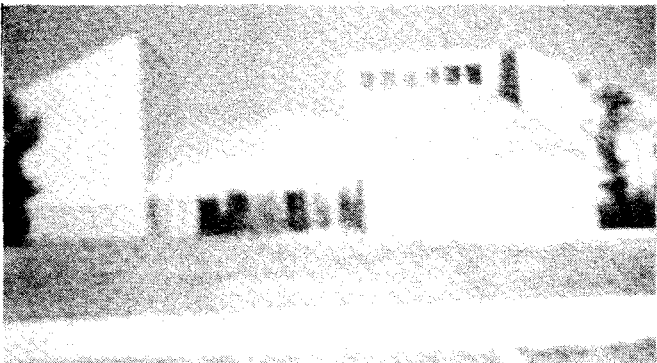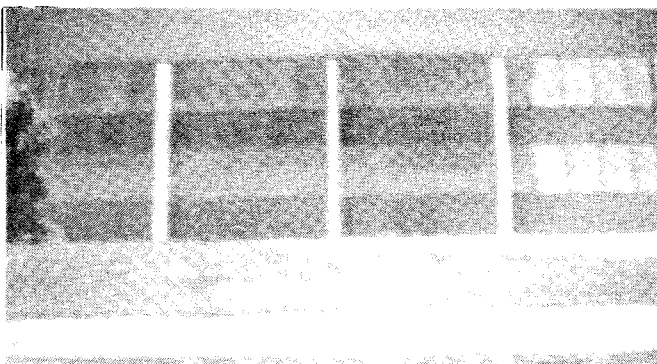
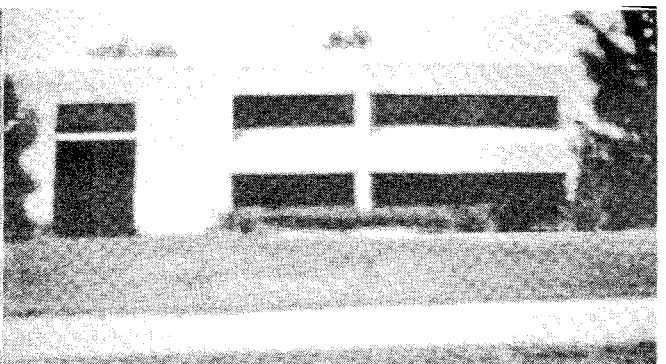Figure 1: EIGHT STYLES OF OFFICE
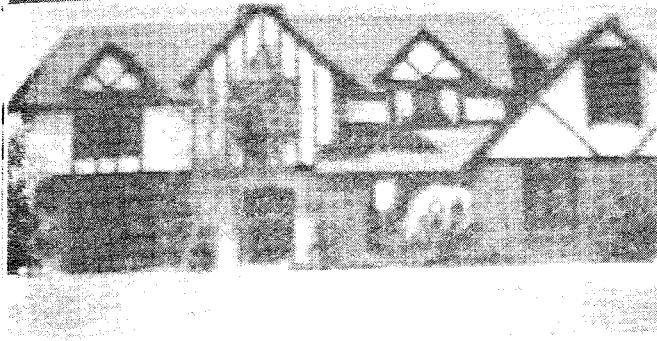
TUDOR

COLONIAL

FARM

FEDERAL

CUBIST

VERTICAL BRICK

GLASS

HORIZONTAL

167

Attractiveness (1=Most, 8=Least)		Comfort (1=Most, 8=Least)		Expected cost (1=Most, 8=Least)		Familiarity (%Familiar)	
Style	Mean	Style	Mean	Style	Mean	Style	Percent
Cubist	6.10	Tudor	5.38	Cubist	6.36	Farm	91
Tudor	5.21	Colonial	5.07	Tudor	5.26	Glass	74
Farm	5.10	Cubist	4.98	Glass	4.76	Federal	71
Colonial	4.93	Farm	4.86	Colonial	4.48	Cubist	69
Horizontal	4.12	Federal	4.24	Vert. brick	4.17	Horizontal	67
Federal	3.69	Vert. brick	4.10	Horizontal	3.74	Vert. brick	64
Glass	3.62	Glass	3.83	Federal	3.74	Colonial	52
Vert. brick	3.19	Horizontal	3.55		3.50	Tudor	52

Kruskal-Wallis tests
Attractiveness: $X^2 = 55.19$, 7df, $p < 0.01$
Comfort: $X^2 = 24.25$, 7df, $p < 0.01$
Expected cost: $X^2 = 50.81$, 7df, $p < 0.01$

Table 1: RANKINGS OF THE OFFICE STYLE

FARM (f=170)
  Real estate (38%)
  Interior design (35%)
  Lawyer, Physician (27% each)
  Architect (26%)
  Funeral home (24%)

TUDOR (f=133)
  Lawyer (35%)
  Real estate (32%)
  Interior design (32%)
  Physician, Insurance (27% each)
  Funeral home (23%)

FEDERAL (f=160)
  Real estate (35%)
  Insurance (32%)
  Library (27%)

COLONIAL (f=178)
  Funeral home (64%)
  Real estate (44%)
  Insurance (35%)
  Lawyer (32%)
  Architect, Accountant (24% each)

VERTICAL BRICK (f=207)
  Advertising, Library, Physician (32% each)
  Publishing (29%)
  Insurance, Psychologist, Phone
    soliciting (27% each)
  Accountant, Lawyer, Medical lab, Real
    estate, Secretarial service (24% each)

HORIZONTAL (f=225)
  Welfare office (41%)
  Research lab (38%)
  Utility company (35%)
  Medical lab, Vocational school (32% each)
  Community center, Computer science (29% each)
  Secretarial service (27%)
  Accountant, Advertising, Library, Phone
    soliciting, Physician, State office
    (24% each)

CUBIST (f=172)
  Interior design (41%)
  Landscape architecture (38%)
  Travel agency (32%)
  Advertising, Architect (29%)
  Psychologist (27%)
  Community center, Publishing (24% each)

GLASS (f=281)
  Research lab (56%)
  Computer science (47%)
  Medical lab (38%)
  Advertising, Insurance, State office
    (32% each)
  Lawyer, Library, Secretarial service,
    Vocational school (27% each)
  Accountant, Physician (24%)

Table 2: USES ASSOCIATED WITH EACH STYLE

Real estate	Funeral home	Landscape architect
Colonial, Farm Federal, Tudor	Colonial	Cubist
Insurance	Research lab	Travel agency
Colonial, Federal Glass	Glass, Horizontal	Cubist
Lawyer	Interior design	State office
Tudor, Colonial	Cubist, Farm, Tudor	Glass
Physician	Computer science	Welfare
Vertical brick	Glass	Horizontal
Advertising	Medical lab	Utility
Glass, Vertical	Horizontal	Horizontal
Library		
Vertical		

Table 3: STYLES ASSOCIATED WITH USES

The styles were also associated with different uses. In Table 2, we can see that domestic styles (Farm, Federal, Tudor and Colonial) were associated with real estate and such uses as interior design, law, insurance and funeral home. Glass can be characterized as scientific and administrative, Horizontal as community services and research, Cubist as design professionals and Vertical as varied. The number and variety of expected uses was greater for the contemporary Glass, Horizontal and Vertical styles than for the domestic (Farm, Tudor, Federal and Colonial) styles.

Respondents cited twelve uses more often than others: real estate, insurance, lawyer, physician, advertising agency, architect, library, psychologist, funeral home, accountant, research lab and interior design. Table 3 shows the styles associated with these uses by more than 30% of the sample. Real estate, insurance, law, and funeral home were associated with traditional styles; physician and library were associated with Vertical brick; design professions were associated with Cubist; and advertising, research, medical labs, welfare and utilities were associated with the plainer contemporary styles.

DISCUSSION

As in research on house-style meanings (Nasar, 1988), we found that respondents made snap judgments about not only preferences but also the character and kind of activities in the buildings. In addition, when asked what influenced their judgments, respondents often cited building style.

Our sample ranked the Tudor, Farm and Cubist as attractive, comfortable and as having costly services, and the Colonial (associated with funeral home) as attractive, comfortable and as inexpensive. These attractive, comfortable styles were associated with real estate and law. Respondents ranked the simpler Vertical, Federal and Horizontal styles as less attractive, comfortable and expensive, and Glass (associated with research) as unattractive, uncomfortable but costly. The favorable image of Tudor and Farm and the negative image of the modern styles agrees with findings on house-style meanings (Nasar, 1988). The favorable image of Cubist, however, suggests a difference across building types. In single-family houses, modern styles such as Cubist, are disliked by the public (Langdon, 1982; Nasar, 1988; Tuttle, 1983). Perhaps, respondents felt the Cubist offices fit the expected occupants--design professionals.

To jump to conclusions about the specific messages each style conveys to the public might be erroneous. The findings are based on a small set of responses from a small number of respondents (all in one city) to a small set of styles and prototypes of those styles. What the results do show is the presence of shared, "public", evaluations and meanings, which are affected by variations in office exteriors.

To better understand specific meanings, a host of questions should be addressed. How representative, typical or relevant are the styles? What is the impact of the snap judgments? Are there behavioral implications? What other kinds of meanings are inferred from the styles? Do the meanings change from day to night, over time, with experience? If so, how? How do the site and context affect meanings? To what extent are the findings stable or variable for individuals from other locations, for various socio-demographic groups, for different examples of each style, for variations within each style or for mixtures of styles? How accurately do design professionals and clients guess popular meanings? What are the effects of groupings of buildings of each style, of mixtures of the styles? What are the meanings inferred for other visible uses such as skyscrapers, convention centers, downtown malls?

In addition, for specific projects, the present studies show how design professionals could evaluate likely meanings of various design alternatives to the public. With image capture technology, they can create and present alternatives to test their visual impacts. For a project (such as a proposed skyscraper), a representative sample of those likely to experience the building can be asked to judge the merits and purpose of the alternatives. Responses can be obtained along a set of dimensions of evaluation (such as pleasantness, excitement, relaxingness), meaning (such as status, friendliness and so on) and activity, selected for their relevance to the project. While additional testing is needed, it seems likely that responses to Truevision simulations (because they are so life-like), will accurately predict reactions to completed buildings. The technology has great promise to both research and practice in environmental design.(1)

FOOTNOTES

1. Truevision makes boards with higher resolution (up to 2048 x 2048 pixels) and with more colors (up to 16,777,216). The input can be enhanced through the use of a VIDI/O Box and higher resolution video. It is also possible to overlay manipulated images with movement, so that cars, people or other features can be seen moving around to simulated buildings. Integrated with AutoCAD, Truevision allows you to import wireframe models from plans and elevations onto the actual site, and to then color and finish the building to look real. With animation software, you can simulate movement through or by simulated building.

APPENDIX I

We videotaped a variety of suburban office buildings. Using Truevision ICB and TIPS, we captured those color images on computer and altered them to be alike in size, siting and other features except style. We photographed the images in color from a high resolution RGB monitor. The resulting 4" x 6" photographs included four traditional styles (Colonial, Tudor, Farm and Federal) and four modern styles (Cubist, Glass, Horizontal, and Vertical Brick). Figure 1 displays black and white photos of the eight simulated offices. The photos were unlabelled for the interviews. Better simulation is possible through Truevision, as can be seen in Footnote 1, but our approach is consistent with that used by Vining and Orland (in press) which was found to accurately reflect on-site experience.

We interviewed 76 people in Columbus, Ohio: 42 in a study of evaluative impressions, and 34 in a study of expected uses. Participants were contacted in public places (office grounds, supermarkets, parks and streets) selected for locations in census tracts with distinct and varied socio-demographic characteristics. At each location, interviewers approached passersby (alternating males with females) for interviews. The resulting samples (Table 4) were diverse in gender, age, education, occupation and home-ownership status. For testing whether building style affected response, the small samples were adequate. A larger representative sample of respondents would be preferable for design decisions about exterior style.

	Study 1 Evaluation (n=42)	Study 2 Use (n=34)
Gender		
Male	55%	53%
Female	45	47
Age		
18-25	29%	30%
26-34	31	30
35-49	29	30
50-65	10	10
65 +	2	0
Education		
H.S.	24%	43%
Some college	38	30
College grad	26	15
More	12	12
Occupation		
Low class	0	7%
Blue collar	7	27
Mid, non-prof.	10	23
U. Mid. non-prof.	29	7
U. Mid. prof.	38	13
Student	10	7
Housewife	6	13
Retired	0	3
Ownership status		
Rent	48	63
Own	41	37
With family	12	

```
Monthly housing payment
   0-199                    16%        14%
   200-299                  28         23
   300-399                  18         20
   400-499                  14         23
   500-599                   8         10
   600 +                    16         10
```

Table 4: SOCIO-DEMOGRAPHIC CHARACTERISTICS
OF PARTICIPANTS

Interviewers told participants that we were
studying public reactions to office styles.
They shuffled the eight photographs, presented
them unlabelled and told participants there
were no right or wrong answers, that we only
wanted their honest opinion. They reminded
participants that the buildings were alike in
location, size, area.

From all participants, we requested information
on gender, age, education, occupation, home-
ownership status and housing payments (a
surrogate for income). For the evaluation
study, we had participants rank order the eight
styles in terms of their attractiveness,
comfort, expected cost of services and waiting
time. For example, for cost of services,
participants placed the buildings in order from
the one that would charge the most for services
to the one that would charge the least. To
mitigate order effects, we randomized both the
order of questions and the pole for each question.
We also asked respondents their reasons for the
judgments and whether or not the building style
looked familiar.

For expected uses, we handed participants a
checklist of 36 office uses, which were
chosen by SIC category to represent a diverse
sample of uses. Then for each photo separately,
we asked them to choose the uses (as many as
they would like) they expected to find in the
building. The order of the list was varied
from respondent to respondent. Such a list
(designed to include a variety of uses) may be
limiting. Similarly, the evaluative questions
(designed to include several dimensions of
responses) may have missed other relevant
dimensions. One alternative would be to obtain
open-ended responses to the styles.

REFERENCES

Brunswik, E. Perception and the Respresentative
Design of Psychological Experiments. Berkeley:
University of California Press, 1956.

Bureau of Census. National Data Book and Guide
to Sources: Statistical Abstracts of the
United States (107th ed.). Washington, D.C.:
U.S. Department of Commerce, 1987.

Cohen, A.J.; Campanella, A.; Marshall, L.; and
Grant, C. Perspective on Acoustics in Environ-
mental Design. Journal of Architectural and
Planning Research, 1987, 4:162-179.

Craik, K.H. The Psychology of the Large Scale
Environment. In N.R. Feimer and E.S. Geller
(eds.), Environmental Psychology: Directions and
Perspectives, New York: Praeger, 1983.

Devlin, K. and Nasar, J. Beauty and the Beast:
Some Preliminary Comparisons of "Popular" vs.
"High" Architecture and Public v. Architect
Judgments of Same. Department of City and
Regional Planning working paper. Columbus, OH:
The Ohio State University, 1987.

Groat, L. Meaning in Post-Modern Architecture:
An Examination Using the Multiple Sorting Task.
Journal of Environmental Psychology, 1982, 2:3-
22.

Herschberger, R.G. and Cass, R. Predicting User
Responses to Buildings. In D.H. Carson (ed.),
Man-Environment Interactions, EDRA 5, Milwaukee,
WI: EDRA, 1974.

Katz, D. and Kahn, R.L. The Social Psychology of
Organizations. New York: Wiley, 1978.

Langdon, P. Suburbanites Rating House Styles,
New York Times, 1982, April 22:C12.

Leff, H. and Deutsch, P. Construing the Physical
Environment: Differences Between Environmental
Professions and Lay Persons. In W.F.E. Preiser
(ed.), Environmental Design Research: Vol. 1
Selected Papers, EDRA 4, Stroudsburg: Dowden,
Hutchinson and Ross, 1973.

Locke, E. The Nature and Causes of Job
Satisfaction. In M. Dunnette (ed.), Handbook of
Industrial and Organizational Psychology. New
York: Wiley, 1983.

Marans, R.W. and Spreckelmeyer, K.F. Evaluating
Open and Conventional Office Design. Environment
and Behavior, 1982, 14:333-351.

McCaulley, M.H. Jung's Theory of Psychological
Types and the Myers-Briggs Type Indicator. In
P. McReynolds (ed.), Advances in Psychological
Assessment, Volume 5. Jossey-Bass, 1981.

Michelson, W. Man and His Urban Environment: A
Sociological Approach. Reading, MA.: Addison-
Wesley, 1976.

Nasar, J. Architectural Symbolism: A Study of
House-Style Meanings. In D. Lawrence and B.
Wasserman (eds.), Paths to Co-existence: Pro-
ceedings of EDRA 19. Pomona, CA.: Enviornmental
Design Research Association, 1988.

Nasar, J. Perception, Cognition and Evaluation
of Urban Places. In I. Altman and E. Zube (eds.).
Human Behavior and Environment: Public Places.
New York: Plenun, in press.

Nemecek and Grandjean, E. Results of an
Ergonomic Investigation of Large-space Offices.
Human Factors, 1973, 14:111-124.

Norberg-Schulz, C. Intentions in Architecture.
Cambridge, MA.: MIT Press, 1965.

Oostendorp, A. The Identification and
Interpretation of Dimensions Underlying
Aesthetic Behavior in the Daily Urban
Environment. Doctoral Dissertation. University
of Toronto, Dissertation Abstracts Inter-
national, 40(028), 990, 1978.

Parsons, H.M. Work Environments. In I. Altman
and J.F. Wohlwill (eds.), Human Behavior and
Environment: Advances in Theory and Research.
New York: Plenum, 1976.

Pearlman, K.T. Aesthetic Regulation and the
Courts. In J.L. Nasar (ed.), Environmental
Aesthetics: Theory, Research and Application
New York: Cambridge University Press, 1988.

Porter, L.W.; Lawler, E.E.; and Hackman, J.R.
Behavior in Organizations. New York: McGraw-Hill,
1975.

Purcell, A.T. Environmental Perception and
Affect: A Schema Discrepancy Model. Environment
and Behavior, 1986, 18:3-30.

Rapoport, A. House Form and Culture. Englewood
Cliffs, N.J.: Prentice Hall, 1969.

Rapoport, A. The Meaning of the Built
Environment: A Nonverbal Communication Approach.
Beverly Hills, CA.: Sage, 1982.

Sadalla, E.K.; Verschure, B. and Burroughs, J.
Identity Symbolism in Housing. Environment and
Behavior, 1987, 19:569-587.

Sundstrom, E. Work Environments: Offices and
Factories. In D. Stokols and I. Altman (eds.),
Handbook of Environmental Psychology, Vol. 1.
New York: John Wiley & Sons, 1987.

Tuttle, D.P. Surban Fantasies. Master's Thesis,
University of Wisconsin, Milwaukee, 1983.

Vining, J. and Orland, B. The Video Advantage:
A Comparison of Two Environmental Representa-
tion Techniques. Environmental Management.
in press.

Wineman, J. Office Design and Evaluation: An
Overview. Environment and Behavior, 1982,
14:271-298.