FAILURE TO MANAGE CONSTANT CHANGE

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ABSTRACT

This study examines patterns of system failure (communication, typographic, material, economic, maintenance) and the resulting workarounds in signs that are intended to communicate frequently changing information in the built environment. The observed failures and workarounds in the communication of ephemeral data and the accompanying narratives in the everyday or vernacular expose a need for designers to expand their practice beyond the design of individual client-driven solutions to engage more fully in the design and distribution of open-ended systems and default templates that are affordable, accessible and successfully accommodate customization and ongoing change. Control of the scale, design and content of changing messages rests in ongoing negotiations with local zoning boards and more specifically in a revised relationship between designers and message senders in the context of evolving digital technologies and practices that offer message senders increased control over content appearance and display. The templates and defaults used in the everyday communication of frequently changing information are often

driven by decisions made by sign manufacturers and programmers, resulting in communications that are built upon conventions that are often unexamined by message senders, who chose methods from a limited selection of manufactured options and increasingly enact template driven message sequences displayed on digital screens.

COMMUNICATION IN THE PHYSICAL ENVIRONMENT

Signs are an active communication medium in a public, shared environment. Even when a sign is located on private property, the message and method of conveyance are often viewed in a public context and become a concern to all who frequent the area. Signs are ubiquitous, so much so, that few of us are fully cognizant of the plethora of signs and messages that are being sent, unless the signs meet our need for action or necessary decision-making. Signs constantly present messages, but not all passersby become receivers of the messages offered by the sign's sender.

TECHNOLOGIES IN SUPPORT OF CHANGING INFORMATION

Changeable, or dynamic message signs—those designed to accommodate messages that change over time—typically have built-in methods facilitating change by the message sender, either on site or virtually, with minimal means or effort. Changeability incorporates strategies of reconfiguration or reuse of parts and materials, though another perhaps simpler way to achieve changeability is through disposability.

Historically, professional sign painters have played an integral role in the frequent update of signs in instances such as retail price posting. In sign painting, an apprenticed craft, the artists' labor is the primary method used to achieve change. Signs are painted on inexpensive materials and then replaced as needed, or key elements such as prices are painted again on an isolated part of a sign's surface. Mechanical devices and the advent of computer-driven technologies and advanced materials have replaced the labor of the commercial sign painter for the most part. In instances where a large percentage of the displayed content was changed daily, large-scale chalkboards were used to record continually updated stock transactions—numbers were simply erased and rewritten in permanently painted grids. The subsequent use of preprinted number panels, rearranged in slotted tracks, further organized the process of constantly updating prices. Mechanical flap signs were used to communicate frequently changing train schedules and interchangeable panels were hung in predetermined slots on sports stadium scoreboards. Most of the large-scale display of data that requires daily change is now presented on light emitting diode (LED) screens.

US patent applications document many innovations in changeable sign design and engineering as technologies and materials have advanced *(figure 1)*. Methods used over the years to accommodate changing messages are: rotation (dial), flip (split flap), roll, hinge, erasure and rewrite (coated wipe off surfaces), insertion (tracks, grooved board

and pockets), adherence or attachment (suction, tie, screw, rivet, hook, hook and loop, magnetic, snap, chemically adhered–tape or self-adhered vinyl, static cling) and electronic (electromechanical dot matrix, liquid crystal display, light-emitting diode (LED), magnetic particle, light projection, optical fiber, interactive touch screen, multi-touch screen, Bluetooth and radio-frequency identification–RFID) (Smitshuijzen, 2007, 71-73).

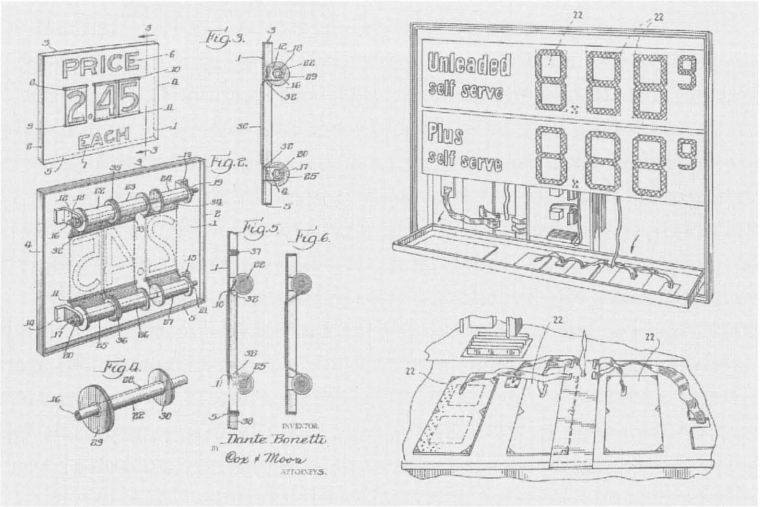

Figure 1
Two of many US patents detailing changeable sign methods
US patent 2118696, changeable letter sign, 1938
US patent 0246927A1, electronic sign, 2005

Future strategies include the incorporation of location-based data and wireless technologies. While data flows, such as time and temperature, have long been used to update signs on a continual basis, intelligent signs offer the ability to update in real time in response to audience data or presence, or environmental conditions. Hand held technologies and building-wide responsive systems are being conceived to incorporate textual or aural message channels as part of a seamless, responsive environment. In the future, implementation of technologies such as these may eliminate the need for a multitude of the individual signs in the built environment. But despite future projections for the potential of immaterial message technologies, many physical signs will likely require design, production and regulation for the foreseeable future.

Recent technical advances in LED technology have resulted in the increased economic viability of large-scale changeable screens and even building-scale responsive skins. Large-scale screens—long a part of urban entertainment zones such as Times Square in New York City and sports stadiums—are now being installed along many highways throughout the US, presenting an ever present, constantly changing, commercial image as part of the urban skyline. The increased viability of new technologies, especially those that blur the line between architecture and sign, have made it necessary to revisit existing local signage zoning regulations.

There is a long history of disagreements between civic groups and the sign and outdoor advertising industries regarding rights to free speech and government limitations on sign scale and location. The American Civic Association, City Beautiful and other civic groups worked to restrict urban outdoor advertising as a moral and aesthetic cause throughout the early 20th century. Their concern echoed the recognition that the American commercial audience was in motion with the "highway becoming the buyway." Outdoor advertising located on private property along highways, but "broadcast across public rights-of-way," (Gudis, 2004, 6) raised questions of control and the rights of multiple competing interests. Nature and scenic preservationists and reformers fought against outdoor advertisers, questioning the aesthetic value of the natural versus built environment. In 1965 the Highway Beautification Act brought legal legitimacy to sign control in the interest of improving visual character, eliminating and restricting many billboards along the US Interstate Highway System.

In 1976, the US Department of Housing and Urban Development sponsored an *Open Forum on Urban Signage* in Chicago to "provide a mutual marketplace for the exchange of competing ideas." The goal was to "provide local public officials, businessmen and businesswomen, and interested citizens with better data upon which to make sound decisions on the quality and character of their visual environment" (HUD, 1977, 1) The forum proceedings acknowledged that "in order to deal with the urban problem of sign proliferation along city streets, many cities have adopted graphic systems or enacted sign control ordinances" demonstrating that the "quality and character of the visual environment is an important local concern" (HUD, 1977, v).

City Signs and Lights: A Policy Study, developed by architects and planners and prepared for the Boston Redevelopment Authority and funded by the US Department of Housing and Urban Development (HUD) in 1971 claimed that "...an observer is often overloaded by messages competing for his attention or else his view is dominated and his privacy violated by advertising messages that are irrelevant to his purpose" (Carr, 1973, 9). The report, based on a two-year study of signs in Boston, acknowledged that signs were an undervalued resource for cities: "Public policy does not acknowledge the operation of private signs and lights as an information system, nor does it adequately reflect the system's real and potential value" (Carr, 1973, 118). The authors suggested a series of restrictions and systemization for both public and private signage, "...policies for private signs and lights should give priority to the needs of people living in and visiting cities over those of commercial senders of information, while protecting legitimate rights of identification" (Carr, 1973, 117).

Bringing an opposing perspective to the Open Forum on Urban Signage was a representative of *The Signs of the Times*, a sign trade magazine. One of the reference publications he provided, *Street Graphics: A Perspective* by Karen E. Claus, R. James Claus (1975), had been published in 1975 by Signs of the Times Publications as a response to the book *Street Graphics* (1971) by the American Society of Landscape Architects Foundation. The point of view offered by industry representatives at that time and then recently reiterated, was that if restrictive recommendations were enacted, "...planners, who have limited training or expertise in marketing, advertising, business management, First Amendment law, or transportation engineering, will be dictating to others how, when and where to speak, and even what to say" (International Sign Association, 2004, 46, 3).

Steven Izenour also made a presentation as part of the forum. Building on lessons from *Learning from Las Vegas,* a study coauthored with Robert Venturi and Denise Scott Brown (1972), Izenour emphasized the importance of learning from the vernacular landscape. "Our documentation of sprawl, strip, and city, in the context of one another and of the 19th century city, is part of a broader effort to understand American architectural taste and define the role of the architect in relation to it" (HUD, 1977, 26). In showing an image of a 19th century Eastern row house lined street, Izenour showed how over time each façade had become different. "Here we see that we allow the individual to do his own thing, to create variety and vitality in a part

of the city that without them would be a rather dull street" (HUD, 1977, 28). In showing a city street communicating through buildings and signs, Izenour stated, "The fact is that the city has always been a messy thing; and if it is to be a city, it probably has to remain a rather messy esthetic object. If we over-design-control this object, it really is no longer going to be the urban experience" (HUD, 1977, 31).

LEARNING FROM THE VERNACULAR

Venturi, Scott Brown and Izenour in *Learning from Las Vegas,* weighed change and permanence on the Las Vegas Strip. "The rate of obsolescence of a sign seems to be nearer to that of an automobile than that of a building. The reason is not physical degeneration but what competitors are doing around you." In their analysis of the Las Vegas Strip they determined that "the signs and casino faces are the most changeable" (Venturi, et. al., 1972, 34), referring to the entire sign as expendable compared with the buildings that supported the signs. But they did not directly address the even more readily changeable marquees that were significant elements of many of the casino signs they studied. In review of the Caesars Palace sign, they mention the "massive Miesian light boxes" with messages "in 1930s-style marquee lettering" (Venturi, et. al., 1972, 51). A diagram of the physiognomy of a typical casino sign, showed the marquee area as the "information" area, but this zone was not given further attention, as the applied imagery, symbol and identity were the focus of their exploration. A visual tour through the evolution of the Las Vegas Caesars Palace signs' changeable information zone or "massive Miesian light boxes" foreshadows the potential evolution of main street and highway signs *(figure 2).*

Figure 2
Caesars Palace marquee iterations

Learning From Las Vegas (LfLV) lists three major parties involved in sign control: Aesthetician: "...urban environment as medium of communication...Signs should enhance and clarify this communication." Sign Industry: "Signs are good, they're good for business..." and Legal Statutes: "If you'll just perform these minimal requirements we can collect a fee for the city and you gentlemen can continue your sender-message-receiver responses" (Venturi, et. al., 1972, 82).

The changeable light box marquees, a large percentage of the area of many of the casino signs studied in *LfLV*, suggests a fourth party with a role in sign control—the sender of the temporary message. Through traditional form and function associated with individual preordered letters and a track system—the message sender, presumably a casino or sign shop employee—was in charge of organizing new content on the tracks of the marquee and with each new show was in control (within constraints) of a large portion of the sign's message, content and appearance.

Venturi, Scott Brown and Izenour conclude, "Sources for modest buildings and images with social purpose will come, not from the industrial past, but from the everyday city around us, of modest buildings and modest spaces with symbolic appendages." If we reframe the 'symbolic appendages' or signs as 'marquee appendages' or as more recent digital technology allows, 'building as information screen appendages,' the promise of today's technology fulfills Venturi, Scott Brown and Izenour's conclusion that observed through light effects, "buildings are also signs," but now increasingly as an information area beyond the symbolic focus described by them (Venturi, et. al., 1972, 52).

In a more recent book, *Architecture as Signs and Systems: For a Mannerist Time,* Denise Scott Brown (2005) concludes,

> *The idea of the building as a shed with communication on it has influenced all our work but particularly our civic buildings. The changeable nature of light-emitting diodes (LEDs) permits quick shifts in communication, almost as events happen. Electronic banners have the same immediacy as flags or flowers.*

Further, Scott Brown isolates the issue of control as remaining critical, especially as the building surface becomes a digital screen:

> *A question for the future might be whether architects will be prepared to surrender the creative tasks of symbolic communication via architecture to the graphic artists who design the LED messages. Will we (or our clients) want this*

major element of the building to be expressed through a medium that is innately not subject to control?

But the control that is relinquished is not necessarily even given to a graphic artist or designer, but to a message sender using design templates to craft commercial or community-focused messages. In what ways can the design of the templates and limitations embedded within the technologies influence what is created when the screen or building is controlled by message senders, and projecting ahead to responsive buildings, even as modified by message receivers (or participants)?

REVISITING CONTROL IN THE BUILT ENVIRONMENT

Recently the sign industry and civic groups have engaged with new urgency in debates about restrictions and guidelines for the display of dynamic signs, specifically digital billboards. With new technologies and improved cost structures, outdoor advertising companies are moving to change static and tri-vision billboards to LED billboard screens. A series of reports authored by Scenic America, an advocacy organization formed with the goal of protecting "the scenic qualities of communities and roadways," promotes safety and aesthetics in an attempt to restrict what it sees as liberal misinterpretations of The Highway Beautification Act's unequivocal regulatory ban on flashing, intermittent and changing lights. Smaller video screen displays are increasingly seen throughout the everyday landscape, appearing in gas pumps and elevators, on taxi roofs, etc. Municipalities that already have sign codes in place to restrict flashing displays are in the process of determining whether these codes need to be amended to address new screen technologies.

In the early 20th century, changeable message signs were primarily visible as theater marquees—illuminated panels holding individual letters in tracks to announce the day's shows *(figure 3)*. Religious organizations frequently displayed smaller scale changeable message boards, incorporating service hours as well as narrative messages intended to welcome new members. Many businesses also adopted the practice of using stationary and portable changeable letter boards to announce hours or prices and initiate a dialogue with potential customers. Changeable message boards that are attached to commercial identification signs (perhaps with a digital time and temperature feature) are now frequently being converted to LED screen surfaces *(figure 4)*. The flat plane and rigid structure of the track system light box is being exchanged for a completely flexible, multi-state pixel grid.

Figure 3
Changeable marquee

Figure 4
Changeable message boards replaced with LED screens

LED screen signs can be programmed on site using template layouts or custom files to display images, data such as business hours and price specials and marketing messages or seasonal greetings. A selection of transitions between messages allows an active changeable message sequence. On a smaller scale, programmable one to three line high scrolling digital signs are also in use in storefront windows carrying hours and brief marketing messages.

A series of reports authored by Scenic America, an advocacy organization formed with the goal of protecting "the scenic qualities of communities and roadways," captures the view of many who would like to restrict such signs:

> *The visual character of a community—the appearance of its streets, neighborhoods and business areas—is essential to its long-term economic viability and helps determine how residents and visitors alike perceive it. Sign control is an integral part of improving visual character and quality of life. Nothing destroys the distinctive visual character of our communities faster than uncontrolled billboards and signs (Scenic America, 2007).*

The International Signage Association (ISA) has continued to publish reports that support their members' point of view,

> *No research or survey data is cited to support the notion that aesthetics are improved by restrictions on the quantity or size of signs, or design review of the content of signs. Consumers vote for their aesthetic preferences with their dollars, and retailers, who know their customers, typically seek to create a storefront aesthetic that will attract people to the store (International Sign Assocation, 2004, 47, 3).*

Many urban buildings and transit stations have long been covered with painted wall advertising and then as printing technologies improved, wrapped in branded large-scale advertisements. But there is an increasing pressure to revisit rules of control as screens of all sizes proliferate. An excerpt from a recent study on dynamic signage commissioned by Minnetonka, Minnesota with the League of Minnesota Cities reflects that the aesthetic value of dynamic, digital signs and billboards will likely be decided on a local level. They define a dynamic sign as

> *"A message being displayed using dynamic signage changes mechanically or electronically. This commonly includes any rotating, revolving, moving, flashing, blinking, or animated*

display and any display that incorporates rotating panels, LED lights manipulated through digital input, or any other method or technology that allows the sign face to present a series of images or displays" (SRF Consulting, 2007, 1).

Signs that are changed manually are considered static signs.

In the report, the positive aspects of dynamic signs are listed as the ability to transmit several times the information including advertising, holding the viewers attention for a longer period. The negative aspects listed are that dynamic signs are distracting to drivers and can be linked to traffic accidents with driver distraction as the underlying cause. Another negative aspect of dynamic signs cited in a Mankato, Minnesota City of Manager's Report is "that many citizens find dynamic signs aesthetically unappealing. This may vary considerably from community to community, as each will have its own values and standards concerning aesthetic quality" (Mankato, 2009, 2).

In a summary report on regulating dynamic signage, The League of Minnesota Cities suggests a variety of macro-level approaches regarding dynamic signage: From calling for a complete or near-complete ban that does not allow dynamic signs at all, to encouraging dynamic signs. The report points out that "Some communities like the clean, new look of dynamic signs and encourage them to remove old blighted and poorly maintained signs" (Merwin, 2007, 3).

Should a city decide to regulate dynamic signage, six main aspects that regulations can address are: 1) duration of messages, speed of changeover, 2) motion, animation and video, 3) brightness, 4) sign placement and spacing, 5) size of signs and 6) text size and legibility (Merwin, 2007). The increased number of variables subject to control may help manage taste, but engaging designers in the process of creating standard uses within the dynamic systems may have more impact on improved communication—through well designed standards—than municipalities pursuing additional code restrictions.

AN OVERLOOKED INFORMATION CHANNEL

Many of the sign regulation studies of the 1970s also determined that on-premise advertising and business identification was communication in need of control. "Roadside billboards, for instance, have been widely criticized, but the fact is that on-premise business signs are often even more offensive than billboards" (Ewald, 1971, 4).

The negative effect of street graphics that overload the visual sense is expressed as "...the viewer actually sees less, not more." Planners,

in proposing general rules for controlling street graphics, reviewed examples of European city codes, where a recommended reliance on the taste and expertise of an educated observer's aesthetic sense was suggested.

> *If the entire society is not to be forcibly subjected to the lowest common denominator of public taste, expert assistance is needed. Unlike radio and television, street graphics cannot be turned off by those who find them offensive; a billboard cannot be flipped over like advertising pages in a magazine. The presence of street graphics in the environment is relentless, and therefore the people who are consciously offended by inappropriate street graphics deserve consideration, even if they are a minority (Ewald, 1971, 36).*

Most sign design guides and code policies recognize a spectrum of scale change for information intended for those in cars on highways, on slower speed roads and for pedestrians. A multitude of signs are located in both municipal and commercial environments, providing business hours, prices and other frequently changing information in support of the everyday exchange of goods and services. The vast quantity of the signs affixed to building surfaces are secondary in size and importance to the larger scale building identification and marketing signs which are often the focus of business expenditures and zoning code negotiations. But the smaller scale, everyday channel of communication also creates a level of visual overload and can have a substantial impact on the physical experience of public environments.

Regulations have attempted to limit either the quantity of signs or the percentage of sign coverage. Recommendations also note that numerous stickers and sale signs are unattractive and obscure product and shop activity. But despite far reaching recommendations generated in the 1970s, delineating possible restrictions and systematized communication channels, on-premise signs and storefront windows have been subjected to little restriction in the US, other than a limit on flashing signs and illuminated awnings, which are considered illuminated sign channels by some municipalities. Issues of First Amendment rights have been tested and free speech rights have been protected, especially for on-premise signs.

Dynamic digital signs have been widely implemented for the display of changing information in large-scale municipal public transportation networks. But the economics of small business suggest that pedestrian level commercial information will not be transitioned to LED screens or seamless, responsive environments in a simple, consistent manner,

as there are many competing message senders rather than a single municipal authority determining best communication strategies.

COMMERCIAL ENVIRONMENT IN FLUX

Consumer culture encourages the production of change, not only as a cultural value but also as an economic business necessity, hence uses of the commercial built environment evolve frequently. The recent economic downturn and sustainability movements have resulted in the reduced retail exchange of products as well as personal services. Temporary stores that open and close with seasonal opportunities and variable services add to ongoing flux in the commercial use of the built environment. If each individual storefront is inconsequential and subject to change, then all of the ephemeral signage located within each storefront is all the more unstable.

If we examine the commercial information channel at a pedestrian level as a dynamic system, the observed failures and workarounds suggest potential avenues to expand design practice beyond the design of individual client-driven solutions, to an increased engagement in the design of open-ended systems and default templates that are affordable, accessible and successfully accommodate ongoing change of data and accompanying narratives.

A visual survey of many storefront neighborhoods suggests that a new business needs at minimum four generic signs: a vinyl window identification sign (or awning), an address sign, an LED 'open' sign and a business hours sign *(figure 5)*. The restaurants, convenience stores and personal service businesses occupying many storefronts are frequently operated with a very low overhead. The generic signs used by these businesses are often acquired through a minimal purchase from a hardware store, office supplier or sign shop, with the intent of providing immediate communication of the message sender's business viability. The amount of potentially changeable information to be communicated varies, but the signs used are typically not considered as a system and their appearance and prevalence in the urban fabric informs a good part of the pedestrian level communication channel in many cities and main street settings.

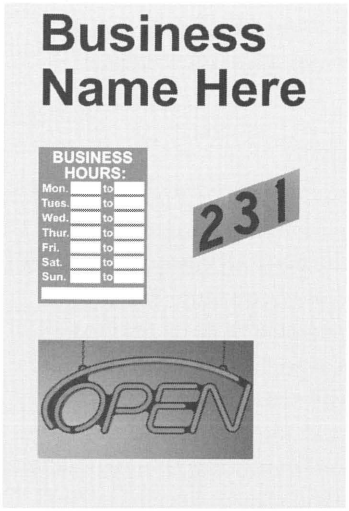

Figure 5
Off-the-shelf storefront signs

INCONSEQUENTIAL BUT PREVALENT FAILURES

In addition to the storefront architecture and neighborhood socioeconomic climate, image, typography and the materiality of signs all project subtle clues about a place of business. There are expected differences in the quality of signs between large corporate chains, established higher-end businesses and small individual retail concerns. Signs may perform multiple sets of communication functions–identify, inform, advertise, promote a business image and enhance or decrease neighborhood aesthetics, often simultaneously. Typical information that is communicated at an entry to a business include hours of operation, seasonal hours or other special extended periods, holiday hours and all other extenuating hour changes necessitated by that holiday, notes of apology and well wishes and emergency closing notices. In a market driven society, simple data, such as the cost of goods and services and hours of operation, change frequently and are often accompanied by narratives and contingencies that mirror nuanced human and business activities. Sign systems that are accessible to small businesses through minimal effort or cost, often fail to provide adequate flexibility and ease of maintenance; they are strained by everyday, constantly changing communication needs. The resulting system failures and workarounds are only marginally

communication failures, as key information is imparted regardless of the typographic and material system failures. Ad hoc modifications within the commercial information channel at a pedestrian level are so prevalent that we do not even notice the workarounds and unquestioned acceptance of conventions, or we accept the failures as a reflection of the reality of the current commercial condition.

Rapidly changing economic conditions have sparked fuel price swings, repeated markdowns and reduced hours. In 2008, US retail gas prices went through rapid price swings, reaching record highs above $4.00 a gallon. Added to the usual seasonal price and hour changes, these conditions pushed sign systems to a failure point commented on by the news media: "When prices passed $4, many stations ran out of 4s, and managers improvised by photocopying signs or stenciling numbers by hand" (Belson, 2008). As laws in many municipalities regulate the display of gas prices, station owners were required to address their sign inadequacies with some urgency. Rapid price changes in gas and cigarettes resulted in a failure to display change seamlessly—missing, mismatched and hand drawn numerals in gas price signs were a visual reminder of a breach in normalcy. Many independent gas station operators maintain older signs that use flip letters or individual letters held by magnetic or plastic tracks. In anticipation of ongoing volatility in gas prices, sign companies have marketed easy retrofit kits allowing gas prices to be displayed digitally within the existing sign framework *(figure 6)*.

Mechanical devices and systems designed to accommodate change break down for many reasons, including a lack of message sender motivation to maintain things as designed. Often parts and letterforms needed to maintain these systems must be stored and then retrieved for later use. There are also limitations imposed by the number of available letterforms provided or even the number of digits allowed. Adhesive based systems often fail because removal appears to be difficult, either too time consuming or due to a lack of appropriate solvents. The result is defunct information that requires masking or layering, resulting in an everyday palimpsest that exposes failed efforts to remove or hide past states.

Changing economic conditions, in addition to the typical seasonal and holiday disruptions, result in ongoing changes in business hours. As a result many information signs, even those designed to be changeable, fail to seamlessly keep pace. Workarounds such as handwritten patches taped to grooved message boards, vinyl times partially scraped off and handwritten numbers squeezed in remaining spaces are prevalent. Laser printed revised hours taped over existing hours, and amended times added next to the original hours were observed *(figures 7-22)*. Table 1 provides an analytical overview.

Figure 6
Changing price signs

Figure 7
Binary state signs–open or closed

Figure 8
Hand painted, hand written signs

Figure 9
Business hour signs, grid format

Figure 10
Business hour signs, grid format

Figure 11
Business hour signs, grid format

Figure 12
Business hour signs, grid format

Figure 13
Business hour signs, grooved board

Figure 14
Business hour signs, track

Figure 15
Business hour signs, decal grid format

Figure 16
Business hour signs, vinyl letters

Figure 17
Business hour signs, amended

Figure 18
Business hours signs, special note

Figure 19
Business hours signs, holidays

Figure 20
Business hours signs, holidays

Figure 21
Business hours signs, digital

Figure 22
Address numbers, accessible via convenient distribution system

Table 1 Analysis of figures 3 through 22

Figure #	Condition	Failure	Workaround
3	**Changeable marquees** • Require ongoing access to individual letters	• Lack of access to appropriate letters • Uneven letter and word spacing	• Hand-altered substitute letters
4a	**Changeable message boards** • Use strip and individual letter technology similar to early marquees • Require ongoing access to individual letters	• Lack of access to appropriate letters • Uneven letter and word spacing	• Hand-altered substitute letters
4b	**LED and plasma dynamic screens** • Increasingly replacing changeable message boards	• Multiple states delivered over time; viewer needs to invest time to see entire message cycle • Typographic illegibility and distortion created by gratuitous transition phases	
5	**Off-the-shelf storefront signs** • Small business predominately use off-the-shelf signs to communicate changing information at storefront level	• Based on unquestioned conventions of prior technologies • No consideration of signs as a system • Limited choice at low end of sign market	
6	**Changing price signs** • Communicate rapidly changing prices	• Inadequate quantity of numerals	• Hand-altered numbers, patches, mismatched letter forms, qualifying notes • Retrofit kits offered to convert mechanical systems to digital
7	**Binary state open/closed signs** • Communicate state at current point in time; open versus closed • Pull-down grill is ultimate closure • Paper or plastic flip sign with closed/open • Time of reopen set with dial or clock hands • Electronic signs; 'on' state signifies open and 'off' means closed	• Success of flip depends on user discipline to display proper position • Electronic 'open' message is visible even when turned off, can be counter to a daytime closed state of business	• Clock hands and dials appear to be hard to maintain, resulting in permanent alterations • Apologies such as 'sorry' often added
8	**Hand painted or hand written signs** • Professional sign painter increasingly replaced by an untrained user marking on erasable surfaces • Ephemeral nature allows on-location, instant updates with minimal effort • Information organized/emphasized in any method	• Handwritten signs easily erased by mistake • Lack of clarity due to palimpsest of iterations	• Creative customization (dependant on end user's creative skills and patience)
9-12	**Business hour signs, grid format** • Plastic panel with hours re-writable or decal applied • Hours presented in a 7 x 2 slot grid representing one week	• Problems adhering hour decals consistently • Grid forces repeat of unchanging hours • Contrast of grid and background color can overwhelm hour content • Some sign templates have AM and PM column headers; not pertinent for all • Minimal room for additional information	• Repeated need to change times results in illegibility • Lack of access to decals results in patches applied for changed hours • 'Closed' repeated or stretched across grid slots • Hours staggered to reduce repetition • Larger numbers used to cover 5 x 2 area to reduce repetition • Multiple hours squeezed into one slot • Custom grid or list created to show complex multiple daily opens/closes • Sign flipped and hours hand-written on reverse
13	**Business hour grooved board signs** • Individual letters allow flexibility in message content, placement • Individual letters allow custom business hour organization, reducing repetition	• Lack of access to appropriate letters • Uneven letter and word spacing • Broken or mismatched letters • Handwritten markings permanently alter changeable system	• Creative reuse of letters, numbers and abbreviations • Hand-altered substitute letters • Patches and handwritten markings added

Figure #	Condition	Failure	Workaround
14	**Business hour signs, track** • Individual letters allow flexibility in message content, placement • Individual letters allow custom business hour organization, reducing repetition	• Inadequate number of letters • Uneven letter and word spacing • Failure of tracks to hold letters or strips in place	• Handwritten markings added to permanently alter changeable system • Patches and notes ignore changeable track framework
15	**Business hour signs, decal grid** • Adhesive vinyl sheets with time decal patches adhered directly to glass • Hours presented in a 7 x 2 slot grid representing one week • Majority of decals are provided by corporate or related supplier; adding a branded message	• Problems adhering hour decals consistently • Adhesive is hard to remove, requires solvent and/or razor to remove • Same failures as other 7 x 2 grid solutions	• Defunct sign retained even when a new sign with revised information is added • Incorrect information scraped away and paper patches applied
16	**Business hour signs, vinyl** • Typically adhered directly to glass • Allows flexibility in message content and information grouping and placement • Custom letter forms provided on an applicator sheet for easy application • Vinyl cut based on custom files at a sign shop or through web interfaces that allow customization of fonts, sizes and information using template designs; Signazon.com is typical of web interfaces offering customizable vinyl signs	• Change in hours requires replacement of entire sign or patching	• Individual replacement numbers and letters added • Repeated paper patching added showing seasonal time changes • Incorrect information scraped away to leave area blank • Add the word 'CLOSE' in place of a specific closing time
17	**Business hour signs, amended** • Temporary sign added to amend or supercede the original more permanent hours already on display	• No method in existing system for additional temporary information • Two sets of conflicting hours posted adds confusion	• Signs added showing new hours • Signs added showing seasonal hours
18	**Business hour signs, special note** • Sign added to highlight special hours	• No method in existing system for additional temporary information • Hours become a marketing message	• Approximate messages added; 'Sish' or 'hours by chance'
19-20	**Business hour signs, holiday** • Temporary holiday hours added to amend or supercede the original more permanent hours already on display • Hand drawn or created digitally and laser printed (templates and clip art and photos are sometimes used)	• No method in existing system for additional temporary information	• Signs added using materials at hand such as placements or cardboard pizza circles • Signs added using colors and images specific to holiday • Signs added with an apology or a well wish for missed customer • Signs added to clarify open state despite a holiday
21	**Business hour signs, digital** • Programmed to display hours and multiple messages with customizable transitions	• Risk of back-end code display such as 'memory full' or 'start' • Multiple states delivered over time; viewer needs to invest time to see entire message cycle • Typographic illegibility and distortion created by gratuitous transition phases	
22	**Address number** • Address numbers, accessible via convenient distribution system • Typically applied once for non changing information such as address	• Unclear whether to install on angle, staggered or as italic letterforms	• This product is included as an example of a system that has achieved ubiquitous distribution and application. In designing future materials and tools that message senders use to communicate everyday changeable messages, distribution and accessibility are key considerations.

STREET LEVEL OBSERVATIONS

The observed failures of signs to seamlessly accommodate change is part of a larger design failure to address the creation of accessible products, rather than practicing primarily as service providers in the creation of custom solutions. If designers desire more influence on the visual and textual built environment, we need to engage the cultural habits, conventions and economic conditions that message senders face when they attempt to communicate with receivers in the physical world. The gathered and examined visuals of this study can best be summed up as the failure of designers to find a way to participate fully in the generation of inexpensive or free templates, inventive material systems or innovative distribution methods for everyday information rich, changeable communication.

This is not a rigorous study that included an interview process or comprehensive study of message senders' needs and concerns. But it is a poignant visual accumulation that may help designers look more closely at the limited means with which a multitude of message senders communicate changing information in an attempt to genuinely connect with their customers (or message receivers) and pursue commercial or service success. Visuals collected in this study are based on photographically recorded observation by the author, primarily in US urban/suburban storefronts and strip malls as well as adjacent small town areas in the Boston, Chicago and San Francisco areas. Observation in Vancouver, BC revealed many of the same conditions. These areas were accessible to the author and for the purposes of this essay will be considered typical of similar US locations.

THE VERNACULAR IN DIFFERENT LIGHT

Graphic design has long celebrated the vernacular as a stylistic influence. M&Co's 1980 era design of various print and sign communications for the New York City restaurant Florent, incorporated existing on-site grooved changeable menu boards that were used to display frequently changing menu items and political and meteorological messages. But a greater influence on other designers was the stylistic adoption of the failed vernacular and celebration of the mismatched and workaround use of letterforms used in the Florent restaurant identity and font *(see figures 23 and 24).*

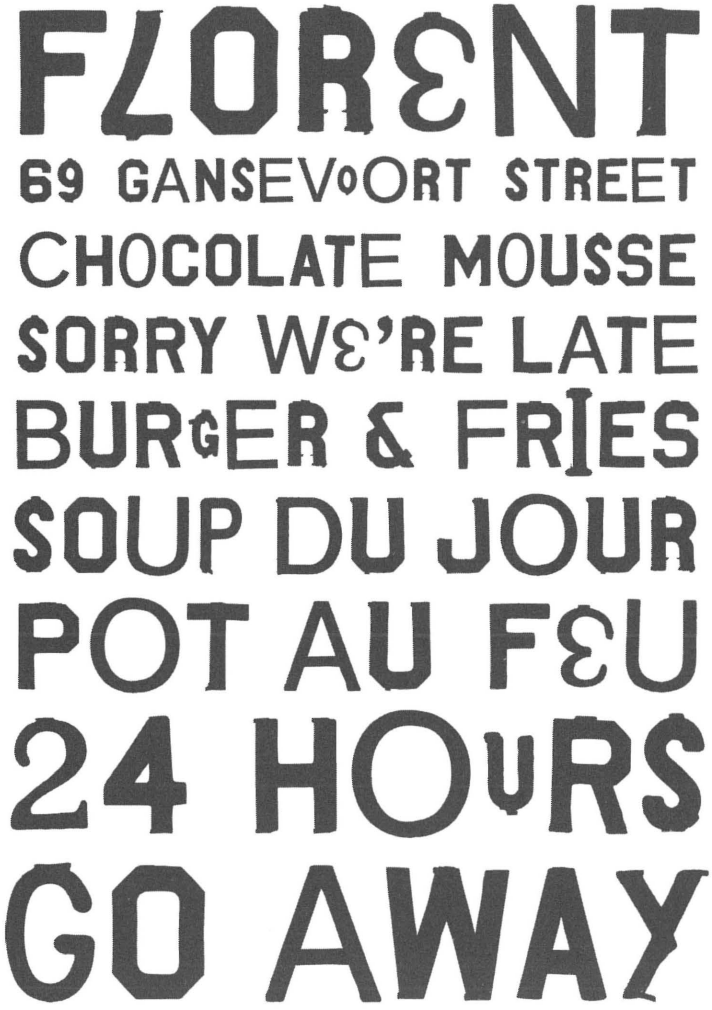

Figure 23
Florent vernacular restaurant signage

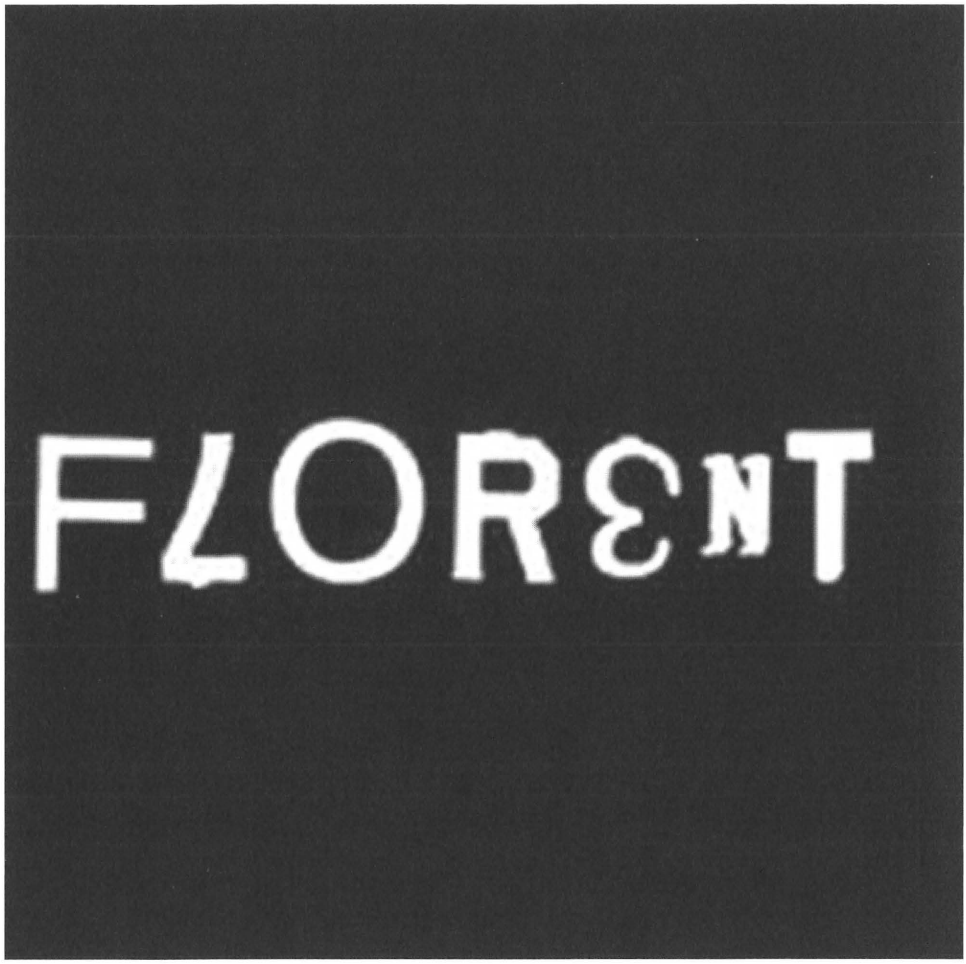

Figure 24
Florent vernacular restaurant signage

Lev Manovich (2008) in the Practice of Everyday (Media) Life extends Michel de Certeau's theory of the everyday spatial practice of walking in the city as a tactical writing or form of everyday expression, incorporating practices of networked social media. Manovich suggests that the general ideas he presents provide "...an excellent intellectual paradigm available for thinking about the vernacular culture." Further that "people build their worlds and identities out of these readily available objects by using different tactics: bricolage, assembly, customization..."

If we define the vernacular textual landscape as more than a stylistic resource for designers, but instead as a means for individuals to participate in the ongoing creation of artifacts in support of their exchanges with the world, how does that change the designer's relation to the artifacts, systems of distribution and to the messages of senders and receivers? How can we have impact on the distorted typography and transition defaults viewed in quickly proliferating dynamic screens? Are designers interested in engaging meaningfully in the design of templates for use by many, rather than exclusively crafting one-of-a-kind client-driven solutions? What role does the designer play in taking responsibility for creating systems for a populace that may or may not recognize room for improvement?

DESIGNERS' RESPONSIBILITY FOR THE BUILT ENVIRONMENT

Organizations such as Design for Democracy (2009) and its suggested improvements for clear signage as part of a service design model, suggest a clear path to bettering our voting experience, implementing "...design tools and thinking to increase civic participation." Other groups such as the International Urban Screens Association (2009) look for ways that commercial outdoor screens in public spaces can serve as a platform for "...user-generated civic and cultural expression, community building, multiculturalism and public engagement in issues related to social, cultural and environmental sustainability."

In the light of these broad social initiatives, it is hard to justify design engagement with the vernacular tools of commerce as any more than an extension of Philippe Stark's stated desire to bring design to the masses, "imbuing everyday objects with style, elegance and magic" through inexpensive products sold through his arrangement with Target (2002) stores. But the observed everyday failures of physical systems that message senders use daily to communicate in the built environment suggest the need for an innovative rethinking of tools of information dissemination. A model of proactively designed tools offered free or at negligible cost, could be made affordable by building

on Google's model of free internet tools or the automated public toilets that are free to any city willing to allow the continual display of ads. Are there other extensions of open source methods that could influence the vernacular without increasing advertisement streams? Digital communication tools accommodating customization are widely available for web sites and blogs. A selection of template formats guide the creation of books at sites such as Blurb, vinyl letters at Signazon, and personal signs at Pullsign.

Peter Hall (2009) in the essay, A Good Argument in *Metropolis* Magazine, presents criteria for evaluating design arguments today in the troubled economic, ecological and political climate of the early 21st century,

> *Arguably, these criteria provide an ethical framework for evaluating design so that the long-established yardsticks—design that is functional, beautiful, enduring, well made—are offset by values like affordability, accessibility, ergonomic strength, social benefit and necessity and emotional resonance.*

A critique of everyday changeable messages could easily result in a dismissal of this area of practice as inconsequential noise, devoid of taste and a decision to wall off the vernacular from professional design practice. But the observed failures suggest that affordability, accessibility, necessity and even emotional resonance (through message sender's accompanying narratives) are criteria met by the existing tools. Thus the challenge is to determine if there is room to increase functional and typographic organization and question established conventions in order to flexibly influence a wider part of the built environment through the design of improved systems for message senders to use in the creation of their everyday communications.

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PHOTO CREDITS

Figure 2
Top left: Caesars Palace, Las Vegas, two-panel changeable marquee
Photo: Pauline Reyes, 1968,
http://www.flickr.com/photos/tedmills/406049301/

Top right: Caesars Palace, Las Vegas, extended sig single-panel changeable marquee,
Photo: Gary L. Friedman,
http://www.friedmanarchives.com/Las%20Vegas/pages/009640-R3-1.htm

Mid left: Caesars Palace, Las Vegas, early LED screen sign
Photo: Ron LaRosa, 1987,
http://www.flickr.com/photos/vegasrob/253571643

Mid right: Caesars Palace, Las Vegas, single-panel changeable marquee,
script breaks limitations of marquee track system used for long running act

Bottom left: Caesars Palace, Las Vegas, two-panel LED screen sign
Photo: Ron Campbell (RonDeeView),
http://www.flickr.com/photos/rondeeview/1615795791/

Bottom right: Caesars Palace Las Vegas, changeab marquee,
used for community message immediately after September 11, 2001
Photo: Stimpson
http://www.flickr.com/photos/stimpson5000/196862973/

Figure 23
Florent restaurant font
Design by Kevin Dresser at Dresser Johnson

AUTHOR NOTE

Ann McDonald is an assistant professor at Northeastern University in Boston. She studied at the Institute of Design in Chicago, holds a BFA from the University of Washington and a MFA in graphic design from Yale University. Her research and design practice examine and encourage interaction and participation in order to foster increased understanding across disciplines and cultures. Interactive design projects for clients such as The Boston Symphony Orchestra, The New England Aquarium and The National Health Sciences Consortium offer access to complex topics and explore the relationship between narrative and information space. Her research also examines the tension between public and private uses of dynamic screens.