

AGENDA

Clallam County Planning Commission

Meeting of September 21, 2022 6:00 p.m.

The Clallam County Planning Commission will conduct a regularly scheduled meeting on **Wednesday, September 21, 2022, at 6:00 p.m.** in Room 160 of the Clallam County Courthouse, 223 East Fourth Street, Port Angeles, WA 98362. The meeting can also be attended via Zoom through meeting number 857 7304 5582 with passcode 12345.

The information provided to the Commission in preparation for this meeting is available at:
<https://websrv7.clallam.net/forms/uploads/PlanningCommissionPacket.pdf>

- A. CALL TO ORDER**
- B. PLEDGE OF ALLEGIANCE**
- C. ROLL CALL**
- D. WELCOME**
- E. APPROVAL OF MINUTES**
- F. ANNOUNCEMENTS**
- G. PUBLIC COMMENT – Please Limit Comments to Three Minutes**
- H. UNFINISHED BUSINESS**-none
- I. PUBLIC HEARING:** none
- J. WORK SESSION ITEMS:** Continued Sign Ordinance Discussion
- K. PUBLIC COMMENT – Please Limit Comments to Three Minutes**
- L. ADJOURNMENT**

Members:

Chair, Steve Gale & Vice-Chair, Ron Long

Robert Miller; N. Bonnie Booth; M. Ingrid Carmean; Jeff Carter; Thomas Butler, Kenneth Reandeau

Department of Community Development Staff:

Donella Clark, Principal Planner

MINUTES

Clallam County Planning Commission

Meeting of August 17, 2022, 6:00 PM

- A. CALL TO ORDER: The meeting was called to order at 6:05 p.m.
- B. PLEDGE OF ALLEGIANCE.
- C. ROLL CALL: Members present were Vice-Chair Ron Long, Ingrid Carmean, Jeff Carter, Thomas Butler, and Ken Reandeau. Donella Clark, Principal Planner represented staff from the Department of Community Development. Guest speaker James Carpentier from the Northwest Sign Council.
- D. WELCOME: Vice-Chair Ron Long welcomed all in attendance.
- E. APPROVAL OF MINUTES: July 20, 2022
- F. ANNOUNCEMENTS: Staff briefed the Planning Commission on the appointment of Rich Meier as an interim Administrator for the Department of Community Development while the County works through issues regarding the possible vacation of the position of the Director. DCD staff continues to process permits, so it is mostly business as usual for the Department.
- G. PUBLIC COMMENT PERIOD: None.
- H. UNFINISHED BUSINESS: None.
- I. PUBLIC HEARING ITEM: None.
- J. WORK SESSION ITEMS: Staff began by providing a proposed timeline for the sign ordinance, hoping to bring the ordinance to the PC at least one more time to discuss standards, then wants to hold a Stakeholder meeting to gather comment before holding a public hearing.

The bulk of the work session was a presentation by James Carpentier from the Northwest Sign Council discussing Electronic Message Centers. County Sign code is outdated regarding lighted and electronic signs. Can control aspects of sign such as the brightness, speed of messaging, animation, and driver safety. We can require automatic dimming. Explained difference between foot candles and nits. Nits may depend on color and is too exact. 0.3 footcandle above ambient light is the recommendation. Commission asked questions regarding standards, as well as staff. Staff will come up with some language for the next Planning Commission meeting.

Staff then asked to go over Goals and Intent and discuss definitions and get comments how to proceed. Planning Commission provided comments that staff will take back and present changes at the next meeting.
- K. PUBLIC COMMENT PERIOD: None.
- L. ADJOURNMENT: The meeting adjourned at ___7:05___ p.m.



MEMORANDUM

Clallam County Department of Community Development

Date: September 14, 2022
To: Clallam County Planning Commission
From: Donella Clark, Principal Planner
Re: Sign Code

Provided in the packet:

Revised Draft Sign Code
Sign Research Foundation Glossary
Urban Design Associates Model Sign Code
James Carpentier comments
Enforcement Section CCC 33.59
Invitation Letter to Stakeholders

Discussion

Previous discussions included Goals and Intent, and upon review Staff recommends changing the section to a Purpose section to reflect other codes and just use the list in the original code to outline what we are trying to accomplish through the sign code.

Definitions have been added and revised to reflect the Sign Research Foundation Glossary. Staff recommends that we continue to update this section as we work on specific standards, exempt signs, and prohibited signs to ensure the definitions exist in relation to these sections.

The list of **Exempt Signs** has been retained, and a few additional exemptions added for consideration.

- Election signs were previously listed as exempt but were dependent on the content of the sign, which is not allowed. Wording has been changed and further discussion on this topic is needed to clarify if this exemption should be retained.
- Replacement of the face of permitted and legal non-conforming signs has been added to clarify that no permit is needed to reface a sign.
- The definition of construction signs and real estate signs as temporary signs has been removed and replaced with an exemption to allow signs at a construction site with a timeline and also allow real estate signs to be exempt.
- An exemption for grand opening displays is added with a timeline.
- Banner signs are currently used throughout the County. Use should remain temporary and the expectation to replace the sign with a permanent sign within a certain amount of time. Staff stated 3 months, but can be discussed. If affixed to a wall (since it is noted in the prohibited signs as possibly being allowed) the sign would count toward the amount of façade signs allowed and would require a permit.
- Another type of temporary sign that is being used frequently are feather signs. Under current code, feather signs would appear to fall into the category of a portable sign and would be prohibited. Staff recommends either allowing these to be exempt for a certain distance of road

frontage, or clarify them as being strictly prohibited except when used as a "grand opening" display and limited to 2 weeks.

The list of **Prohibited Signs** should be clarified and better reflect the Commissions objectives. The highlighted portions are areas that specifically need to be discussed. Some of the proposed changes in this section include:

- Move illegal sign up in the list to inform the public they need to seek a permit if changes are made to the sign beyond refacing.
- Statement has been added "Any sign that interferes with safe sight distances at an intersection or causes an intersection to be illuminated." With appropriate standards do we need a statement about signs that interfere with safe sight distance or cause intersections to be illuminated.
- Clarify what is being prohibited regarding portable signs:

(20) "Portable or movable sign" means any sign which is not permanently affixed to the ground or a structure or building. This definition includes movable reader boards, outdoor soft drink dispensers located farther than nine (9) inches from a building and sandwich boards that are placed so as to be seen from public right-of-ways.

Is it the intent to prohibit feather signs completely? What about those informational signs that have event information and law enforcement recruitment that have been placed around the County?

- Number 7 of prohibited signs needs to be clarified and possibly reduced. Is the code suggesting that banner signs on a wall are allowed (may need to change exemption)? Would banner signs on a fence be prohibited? Is this clear? Language may be needed to clarify that banner signs are not allowed unless they are temporary or permitted as a façade sign. And do we need to specify what temporary means? Three months, 2 weeks?
- Should the list of prohibited devices remain? Staff feels this list is helpful when people use those inflatable tube men, which are clearly prohibited by the code. Being able to cite the code is always a plus.

Enforcement

One of the struggles with the sign code is enforcement. Enforcement already exists per CCC 33.59, which references the process in Title 20, however, because DCD functions from complaints, signs are generally ignored by the public or become a low priority for enforcement. There is also the issue of enforcement being political since an elected Director of DCD does not want to send a letter to the Jamestown Tribe or the County Sheriff telling them of a violation over signs. Staff would like the code to be applied equally and would like to see compliance. Any suggestions from the Planning Commission would be appreciated.

Nonconforming Signs

It is the hope of this section to bring signs into compliance with current codes. The question is at what point do we require the sign to come into compliance. A large portion of this section has been removed because it referenced a program that has not existed for many years. Simplifying this section will help clarify when nonconforming signs must come into compliance. It is clear by the Model Sign Code, City of Bremerton, and the City of Lacey that we can require these signs to come into compliance when structural alterations to the sign are made. Bremerton and Lacey also require that a nonconforming sign come into compliance when a remodel to the building is made or a change to the type of business. To encourage economic development staff would recommend that these provisions be left out of our code at this time and allow businesses to change without the requirement to replace nonconforming signs.

The current code does not have a section regarding maintenance and does not feel necessary until we can get a handle on enforcement of the prohibited and illegal signs.

Variances and Appeal

Staff would like to recommend removing the variance section and leaving the appeal language as is. The sign code should be written with a maximum size that would not warrant a need for variation, but allow for an appeal. DCD has not seen a sign variance or an appeal in at least a decade.

Next Steps

Staff would like to incorporate the comments from this discussion and discuss the actual design standards at our October 5, 2022 meeting in anticipation of a stakeholder meeting either October 19th or November 2nd. Staff have provided a letter for the Commission to review that will be sent once a meeting date has been determined.

33.57.010 ~~Goals and intent.~~ Purpose.

~~(1) The goals of these sign regulations are:~~

- (a) To encourage the effective use of signs as a means of communication in the County;
- (b) To maintain and enhance the visual environment and the County's ability to provide an attractive area sources for economic development and growth;
- (c) To minimize excessive lighting in rural Clallam County along designated scenic highways;
- (d) To maintain and enhance scenic views along the County's scenic highways;
- (e) To improve traffic and pedestrian safety and to eliminate distractions to vehicle drivers;
- (f) To minimize the adverse effect of signs on nearby public and private property;
- (g) To prevent damage and personal injury from signs improperly constructed.
- (gh) To ensure compliance with the Scenic Vistas Act and the Growth Management Act; and
- (hi) To enable the fair and consistent enforcement of these sign regulations.

~~This chapter is adopted under the zoning authority of the County in furtherance of the more general purposes set forth in this title.~~

~~(2) It is the intent of this chapter that signs may be erected, placed, established, painted, created or maintained in the County only in conformance with the standards, procedures, exemptions and other requirements of this chapter. The intent of this chapter, as more specifically set forth herein, is:~~

- ~~(a) To permit a variety of types of signs in commercial and industrial zones and a limited variety of signs in other zones, subject to the standards of this chapter;~~
- ~~(b) To permit certain temporary signs which are small, unobtrusive, and incidental to the principal use of the lots on which they are located subject to requirements of this chapter; provided, that these types of signs are not portable signs which often cause safety problems due to blockage of vehicle/pedestrian sight lines, and are further subject to the substantive requirements of this chapter;~~
- ~~(c) To prohibit signs not expressly permitted by this chapter; and~~
- ~~(d) To provide for monitoring and compliance with the provisions of this chapter. This chapter distinguishes between signs by their structural type and duration of use but to the maximum extent possible does not distinguish between signs by their content. Certain types of signs are classified as temporary if they are only up for a short and specified period of time. Signs required by law, public signs required for safety, and public signage, the purpose of which is to inform the traveling public of public roadside facilities, are exempt from the ordinance requirements.~~

33.57.020 Definitions.

Except where specifically defined herein, all words used in this chapter shall carry their customary meanings. Words used in the present tense include the future, and the plural includes the singular. The word "shall" is mandatory; the word "may" denotes a use of administrative discretion in making a decision. The words "used" or "occupied" shall be considered as though followed by the words "or intended, maintained, arranged or designated to be used or occupied."

(1) "Abandoned sign" means a sign that, for a period of more than six (6) months, no longer correctly identifies, exhorts, or advertises any person, business, lessor, lessee owner, product or activity conducted or available on or off the premises on which the sign is located. Signage on a property which is continuously listed for sale or lease shall not be considered abandoned. ~~for a period of six (6) months after which it shall be considered abandoned and subject to conformance with this chapter.~~

(2) "Administrator" means the Director of the Clallam County Department of Community Development or his/her designee.

(3) "Advertising" means to announce publicly by emphasizing a printed notice or to call public attention to desirable qualities so as to arouse a desire to buy or patronize. This also includes logos, borders, backgrounds and accents.

(4) "A-frame" or "Sandwich Board" means two usually hinged boards not permanently attached to the ground and generally oriented to pedestrians.

(4) "Animation" means the manipulation of electronic images in order to create moving images. Or a sign depicting action, motion, light, or color changes through electrical or mechanical means.

() "Backlit sign" means a sign whose face is illuminated from behind.

(5) "Banner sign" means a flexible substrate on which copy or graphics are displayed. (Do we want a permit for these or do we want a time limit for these?) These signs can be mounted to a structure with a cord, rope, cable, or a similar method, or that may be supported by stakes in the ground.

(6) "Billboard" means a large outdoor board for displaying advertisements.

(7) "Building frontage" means the linear frontage of a building facing an abutting public or private street. When a building fronts on multiple streets, the building frontage shall be the one building front that would result in the greatest linear frontage.

*(85) "Community event sign" means a temporary informational sign that pertains exclusively to a specific upcoming event sponsored by a nonprofit organization or by a governmental entity and is removed soon after the event.

~~*(96)~~ “Construction sign” means a temporary informational sign that identifies the architect, engineers, contractors, suppliers or grant agencies involved in construction project or announces the character of the building and is removed soon after completion of construction.

~~*(107)~~ “Election sign” means any sign which serves to influence, is intended to influence, or appears to be of the type which is commonly erected to influence, an election or ballot proposition.

~~()~~ “Dwell time” means the amount of time that text or animated content is required to stay in place on a digital sign.

~~(11)~~ “Digital or Electronic Sign” means changeable copy sign that uses illumination (LED-light emitting diodes, LCD- liquid crystal display, plasma display, individual light bulbs) to display or project copy.

~~()~~ “Exterior illuminated sign” means a sign illuminated by a light source that is directed towards and shines on the face of a sign.

~~(128)~~ “Facade sign” means a sign which is attached parallel to and within nine (9) inches of the wall of a building, or vertical face of an awning or parapet which is supported by and confined within the limits of such wall, awning or parapet and which displays only one sign surface. “Facade sign” also include signs affixed to (within nine (9) inches at one point) or painted on an awning, canopy or roof so long as they do not extend above the primary roofline or more than eight (8) feet from the outside edge of the building. Soft drink dispensing machines will be considered a facade sign if located within nine (9) inches of the building.

~~(13)~~ “Fade” means a mode of message transition on a digital sign accomplished by varying light intensity or color, where the first message gradually grows faint and disappears.

~~(14)~~ “Feather sign, Flutter sign, or Blade sign” means a freestanding portable sign that contains a harpoon-style pole or staff driven into the ground for support that resembles a sail made of fabric of nylon.

~~(914)~~ “Flashing sign” means a sign or a portion thereof which changes light intensity or switches on and off in a repetitive pattern at less than one-minute intervals, or uses electrical energy to provide motion or the optical illusion of motion.

~~(1510)~~ “Freestanding sign” means a sign which is supported by permanent uprights, pole or braces to the ground and which is not connected to a building.

~~(161)~~ “Grade” means the average elevation of the natural ground surface immediately below the sign before construction, exclusive of any filling, berming, mounding or excavating solely for the purpose of locating the sign; and provided, that when the elevation of the natural ground surface of a freestanding/monument sign is below the grade of the edge of the adjacent roadway, then the height of a freestanding or monument sign shall be measured from the grade at the outer edge of the roadway nearest the proposed sign location.

~~*(127)~~ "Grand opening sign" means a temporary sign of no more than thirty (30) days' duration announcing the new opening of a store or a complete change in ownership or product line sold.

~~(18) "Height" (should we move "sign height" to here and just be height?)~~

(193) "Illuminated sign" means any sign illuminated in any manner by an on-site artificial light source. These signs include both exterior-illuminated and backlit signs.

~~() "Illegal sign" means any sign placed without proper approval or permits as required by any applicable zoning or building code and also any sign placed contrary to the terms or time limits of any permit, or out of compliance with any applicable code.~~

~~(20) "Legal Nonconforming sign" means any sign in existence within the County on the date of adoption of the ordinance 694 codified in 2000 which did conform to all applicable laws in effect on the date the sign was originally erected.~~

~~(2144)~~ "Monument sign" means a ground-related, freestanding sign which is attached to the ground or to its base on grade by a solid sign structure and which structure extends from the ground or base to the sign face at the same or greater width as the sign face. Signs on fences are considered a form of monument sign.

(15) "Multiple-business complex" means a group of structures housing at least two (2) separate businesses or agencies operating under separate State tax numbers, or a single structure containing more than one business with separating walls and at least one outside or inside access for each business which shares a common lot, access and/or parking facility operating under separate State tax numbers.

~~(16) "Multiple-business complex sign" means a sign that is designated to identify a multiple business complex including directory signs for businesses within the complex. (this has been used in the past for businesses to qualify for larger signs that just display one business)~~

~~*(17)~~ "Mural" means an outdoor wall painting on a building which consists exclusively of paint applied to the wall or to framework attached within nine (9) inches of the wall and which contains no advertising.

(18) "Noise" means any intended or unintended sound created by the sign or its installed equipment which exceeds forty (40) decibels as measured from the nearest point adjacent to the property or place of business, whichever is closer.

~~(19) "Nonconforming sign" means any sign in existence within the County on the date of adoption of the ordinance codified in this chapter which does not conform with the provisions of this chapter, but which did conform to all applicable laws in effect on the date the sign was originally erected.~~

“Permanent sign” means a sign attached to a building, structure, or the ground in a manner that enables the sign to resist environmental loads, such as wind, and precludes ready removal or movement of the sign.

(20) “Portable or movable sign” means any ~~moveable~~ sign which is not permanently affixed to the ground or a structure or building. This definition includes movable reader boards, outdoor soft drink dispensers located farther than nine (9) inches from a building and sandwich boards that are placed so as to be seen from public right-of-ways.

(21) “Primary roofline” means the roofline under which a majority of the square footage of the business is located.

(22) “Projecting signs” means a sign attached to a building or other structure that projects away from the structure more than 12-inches.

*(22) “Real estate sign” means a temporary sign advertising real estate for sale, rent or lease.

(22) “Rotating signs” means a moving sign that physically revolves about an axis.

() “Sidewalk/Sandwich Board sign” means a moveable sign not secured or attached to the ground or surface upon which it is located, supported by its own frame.

(23) “Sign” means any object, device, fixture, placard, banner, structure or portion thereof, including any letters, figures, design, symbol, trademark or device that uses any color, form, graphic, illumination, symbol or writing intended to advertise, announce the purpose of, or identify the purpose of a person or entity, or to attract attention to any message, activity, service, place, subject, person, firm, corporation, public performance, article, machine or merchandise or to communicate information of any kind to the public, and which is visible from any right-of-way open to the public. Lighting that highlights an architectural feature of a building and does not consist of lettering, symbols or graphics shall not be considered a sign.

(24) “Sign area” means the entire face of the sign, including advertising surface, backlit surface, and any framing, trim or molding but does not include the supporting structure. Sign area is measured by multiplying the maximum horizontal width by the maximum vertical width. The surface area of a sign painted on a wall, awning or roof shall be measured by multiplying the maximum width of the copy by the maximum length of the copy. Sign areas may also be calculated by measuring the smallest square, circle, rectangle, triangle or combination thereof that will encompass the extreme limits of the advertising copy, together with any material or color forming an integral part of the background of the display or used to differentiate the sign from the backdrop or structure against which it is placed, including an awning. Supportive framework which contains no written copy or other advertising and is clearly incidental to the display itself shall not be included in sign area calculations; provided, that the sign support structure shall be the minimum necessary to support the sign. For the purpose of this chapter the total sign area of any two (2) faced sign with parallel faces or V-type sign having an interior angle of forty-five (45) degrees or less shall be calculated as the area of the larger of the two (2) faces or one face if equal in size. All other multiple-faced or paneled signs shall be the total area of all faces or panels combined.

(25) "Sign surface" means any surface of a sign upon which there is lettering, logos, symbols or other advertising messages.

(26) "Sign height" means the vertical distance from grade to the highest point of a sign or any projection thereof.

(27) "Sign structure" means any structure that supports or is capable of supporting any sign as defined in this chapter. A sign structure may be a pole or poles, or may be an integral part of a building. Structures that perform a separate use, such as a telephone booth, bus shelter, recycling or used goods container, etc., shall not be considered a sign structure. Sign structures shall be the minimum necessary to support the sign and shall not depict any product being advertised.

(28) "Street" means a public or private way open to the general public for the purpose of vehicular traffic, including all classes of roadways and easements.

(29) "Temporary sign" means a nonpermanent sign intended for use for a short period of time, ~~which includes election signs, construction signs, real estate signs, grand opening signs, community event signs and residential yard sale signs.~~

(30) "Under common ownership" describes a situation where one person, corporation, legal entity or related legal entities owns contiguous properties occupied by closely related businesses in which case these businesses will be considered to be one business, operating on one property for the purpose of applying this chapter (i.e., a car dealership may cover multiple contiguous parcels and have several related businesses on these parcels but shall be considered to be "under common ownership" for the purpose of interpreting the provisions of this chapter).

(31) "Vehicular signs" are signs affixed or painted on work vehicles, tractor-trailers, busses, vans or other vehicles.

"Window sign" is any sign viewable through and/or affixed in any manner to a window or exterior glass that is intended to be viewable from the exterior.

33.57.060 Exempt signs.

The following types of signs shall be exempt from the standards established within this code and from the ~~certificate of compliance~~permitting requirements of this chapter; provided, that ~~the any~~ standards in this section are met:

(1) Official notices authorized by a court, public body or public safety official, provided they are removed within seven (7) days after conclusion of the subject of notification;

(2) Directional, warning or information signs authorized by federal, State or municipal governments or signs required by law not exceeding 200 square feet of sign area and twenty (20) feet in height. Directional signs located within State or County right-of-way shall be administered by State standards for directional signs and, if within Clallam County right-of-way, shall be administered by the Motorist Informational Sign Ordinance, Chapter 9.21 CCC;

(3) Memorial plaques, building identification signs and building cornerstones which are cut or carved into a masonry surface or when made of noncombustible material and made an integral part of the building or structure. Plaques, tablets, or inscriptions indicating the name of a building, its date of erection, or other commemorative information, which are an integral part of the building structure or are attached flat to the face of the building, and which are not illuminated, except incidentally from light sources used for other purposes;

(4) Sculptures, murals, landscape features, fountains, mosaics, religious symbols, and design features which do not incorporate advertising or identification;

(5) The flag of a government or noncommercial institution such as a school;

(6) Traffic or pedestrian control signs or signals, or signs indicating scenic or historic points of interest which are erected by, or on the order of, a public officer in the performance of his/her public duty;

(7) Exterior signs or displays not visible from streets or ways open to the public;

*(8) "No trespassing," "no dumping," "no parking," "private," and other informational warning signs which shall not exceed four (4) square feet in surface area and eight (8) feet maximum height above grade;

(9) Commercial or residential address signs with lettering not exceeding twelve (12) inches in height and newspaper boxes located within ten (10) feet of an existing commercial/industrial building; and

(10) Signs erected in anticipation of an election (for the purpose of advertising a candidate or proposal)–Election signs no greater than thirty-two (32) square feet in area and five (5) feet in height above grade. Do we want to add a cap to the total number? Timeline?

(11) Replacement of permitted or legal non-conforming signs if not changed in height, shape, size, lighting/illumination and does not affect the structure of the sign.

(12) Signs at a construction site that may identify the architect, engineers, contractors, suppliers or grant agencies involved in the construction project or announces the character of the building. This type of sign shall be removed one month after completion of construction.

(13) Signs advertising real estate for sale, rent or lease and removed after the real estate transaction is complete no greater than thirty-two (32) square feet in area.

(14) Grand opening displays, such as temporary banners, flags, or balloons, are permitted for a period of fourteen days to announce the opening of a completely new business or new management. All materials not been permitted shall be removed immediately after fourteen days.

(15) Businesses located within commercial zones may use one banner sign as a temporary monument sign for no more than 3 months. After 3 months it is the expectation that a permanent

sign be constructed and appropriate permits obtained. Banner signs affixed to a wall shall be required to be permitted as a façade sign.

(15) One feather/flutter sign placed per 200 feet of road frontage. If fronting two or more roads the total of the road frontages determines the number of signs allowed. The sign shall remain in good condition with no rips, tears, frayed edges or be sun-faded.

33.57.070 Prohibited signs.

The following signs or displays are prohibited and subject to enforcement action and/or removal by the County, except as otherwise specifically allowed within this chapter. Prohibited signs are subject to removal by the County at the owner's or user's expense or penalty???

(1) Signs which, by reason of their size, location, movement, content, coloring or manner of illumination may be confused with or construed as a traffic control sign, signal, or device, or the light of an emergency or radio equipment vehicle; or which obstruct the visibility of any street sign or signal device;

(2) Signs erected, constructed, altered or relocated without a permit issued by the County or any other governmental agency that requires a permit under law;

(2) Signs identifying activities, products, businesses or services which have been discontinued for more than six (6) months on the premises upon which the signs are located;

(3) Private signs on public utility poles;

(4) Any sign that interferes with safe sight distances at an intersection or causes an intersection to be illuminated.

(4) Portable signs, due to fact that they are often placed where they block safety sight lines of motorists pulling into or out from a business or within safety sight triangles on corner lots; (is this where we need to clarify portable sign, or specifically prohibit feather signs?) What about the informational signs throughout the county?

(6) Signs that rotate or have a part or parts that move or revolve shall not be permitted in any zone except for the face of a clock less than six (6) square feet in size;

(7) Signs or advertising displays consisting of clusters of posters, banners not affixed to a building wall, (is this suggesting banner signs are allowed, but do they count as façade sign and would need a permit?) should this portion just be reduced to () Banner signs not affixed to a building wall?

() Pennants, ribbons, streamers, strings of lights other than holiday lights used exclusively for decorative purposes, spinners, twirlers or propellers, flashing signs, rotating or blinking lights, chasing or oscillating lights, light projections on other natural or manmade surfaces, television type video, flares, balloons, inflatable signs, bubble machines and similar devices of carnival nature, or containing elements creating sound greater than 40 decibels as measured from the nearest adjacent property or business boundary shall not be permitted in any zone;

(8) Signs within the public right-of-way unless erected by Clallam County or the State of Washington. These signs are subject to removal by the Clallam County Road Department.

33.57.030 Permitting

No sign may be erected, relocated, constructed, or altered within the areas of the County under Clallam County jurisdiction without a permit obtained from the Clallam County Department of Community Development, unless specifically exempt under this code (CCC 33.57.080).

Painting, cleaning, refacing, or replacement of defective parts may be completed without a permit, however, replacement of the sign structure will need to be reviewed by the building department to determine if a building permit is required in accordance with the International Building Code.

The application for permitting of a sign shall include drawings and details of the proposed sign, associated support structure and method of attachment, drawing of all exterior lighting (if any), a site plan with location of all proposed and existing signs, and dimensions of all existing signs. If the applicant is not the property owner the application must include a statement from the property owner verifying that permission is granted for the submission of the application.

33.57.040 Commercial and Industrial sign standards.

There are only four (4) basic types of signs that are used by business and industry. Those four (4) types include signs that are attached to the building (facade), signs that are set apart from the building (freestanding/monument), vehicular signs and temporary signs that are needed when certain conditions are met. Any sign that cannot be configured to qualify as one of these four (4) sign types and is not an exempt sign is prohibited in all zones. The time, place, number and manner regulations of these four (4) types of signs is as follows:

(1) The total area of signage attached to any face of the building(s) in one or more facade signs shall not exceed the square footage limit for a facade signage of one square foot of sign area for each linear foot of building frontage facing a single public or private road. No facade sign may extend above the primary roofline or project more than eight (8) feet from the roofline edge of the building. For multiple-business complexes each business within a plaza may have one facade sign attached to the commercial structure that is limited to one square foot of sign area per linear foot of each businesses building frontage.

(2) A freestanding sign or monument sign within a commercial or industrial zone shall be limited to one sign for each area of land under common ownership that is not the site of a multiple-business complex. This one sign (either freestanding or monument) shall not exceed thirty-two (32) square feet of sign area and shall not exceed ten (10) feet in height above grade. For multiple-business complexes, one freestanding sign or one monument sign may be used to advertise the plaza or complex name and the businesses within the complex. This sign shall be limited to one sign not exceeding the signage area limit of 100 square feet and whose height shall not exceed ten (10) feet in height above grade.

(3) Vehicular signage visible from a State scenic and recreational highway shall be limited to thirty-two (32) square feet and vehicular signage shall be set back from the lot line or right of

public use line that fronts on the State scenic and recreational highway a minimum of fifty (50) feet. Firm identification signage and other signage at the minimum sizes required by State or federal law on commercial/industrial vehicles shall not be calculated as part of the thirty-two (32) square foot signage limitation. Work vehicles making a delivery or making a service call away from the home base of the business are not subject to this provision, as the purpose of this provision is to prevent vehicular signs from being used as a form of long-term freestanding sign. Likewise, local franchise holders for national moving van companies are not subject to the square footage limitation of this provision, as the local franchise holder has no control over the size of signage on the vehicles.

(4) When the conditions for a temporary sign are met, one temporary sign may also be allowed on a commercial/industrial property. Conditions present to qualify for a temporary sign would include the sale of property/business, a grand opening, construction of a business, and when advertising a community event. Such signage is limited to one unlit thirty-two (32) square foot sign that shall not exceed five (5) feet in height above grade.

(5) Externally illuminated signs shall not exceed background area average illumination levels when measured five (5) feet beyond any vertical surface of the sign; lighting fixtures shall be carefully located, aimed and shielded so that light is only directed on to the sign surface with a light source that is not directly visible from the adjacent roadway. Internally illuminated signs using 800 milliamp ballasts shall not have lamps spaced closer than twelve (12) inches apart or if using 425 milliamp ballast shall not be closer than six (6) inches apart.

Illuminated signs

Electronic signs

~~(6) Commercial/Industrial zoning includes the following zoning districts~~

33.57.050 Residential/Resource zoning district sign standards.

There are only four (4) basic types of signs that are used in residential/resource zones. Those four (4) types include signs that are attached to the building (facade), signs that are set apart from the building (freestanding/monument), vehicular signs and temporary signs that are needed when certain conditions are met. Any sign that cannot be configured to qualify as one of these four (4) sign types and is not an exempt sign is prohibited in all zones. The time, place, number and manner regulations of these four types of signs is as follows:

(1) Freestanding, monument and facade signage in Residential/Resource zoning districts, regardless of use, is limited to one unlit sign of one type with a maximum of six (6) square feet of signage; and provided, that within a Commercial Forest zoning district (CF) the maximum sign size is twenty (20) square feet of signage.

(2) If the one sign allowed is a freestanding sign or monument sign, it shall not exceed five (5) feet in height above grade and shall be unlit.

(3) Vehicular signage visible from a County road or State scenic and recreational highway shall be limited to a total of thirty-two (32) square feet and vehicular signage shall be set back from the lot line or public right of use line that fronts on the State scenic and recreational highway a minimum of 100 feet. On parcels that predate the effective date of this chapter that cannot meet the 100-foot vehicular sign setback due to lack of lot depth, vehicular signs can be parked within twenty (20) feet of the lot line farthest from the scenic and recreational highway. Firm identification signage and other signage at the minimum sizes required by State or federal law on commercial/industrial vehicles shall not be calculated as part of the thirty-two (32) square foot signage limitation. Work vehicles making a delivery or making a service call away from the home base of the business are not subject to this provision, as the purpose of this provision is to prevent vehicular signs from being used as a form of long-term freestanding signs.

(4) When the conditions for a temporary sign are met, one temporary sign may also be allowed on a Residential/Resource property. Conditions present to qualify for a temporary sign would include property/home sale and when advertising a community event. Such signage is limited to one unlit six (6) square foot sign for a property/home sale, construction sign and community event and shall not exceed five (5) feet in height above grade.

33.57.080 Nonconforming signs.

It is the intent of this section to ensure that nonconforming signs are brought into compliance with the standards of this code. ~~of exceptional size and height are reduced in size and height in accord with this section, and to ensure that nonconforming signs are retrofitted into conforming signs as expeditiously and fairly as possible while avoiding any unreasonable invasion of established property rights.~~ The following standards apply to nonconforming signs:

(1) No nonconforming sign maintenance shall be conducted that increases the nonconformity ~~pliance~~ of the sign.

(2) A nonconforming sign shall not be altered in height, shape, size, lighting/illumination, or affect the base or support without conforming with the provisions of this chapter. No off-premise sign shall add electronic components that move, flash, or change copy.

(3) Properties with nonconforming signage shall only be allowed ~~to erect~~ new or replacement signage requiring a certificate of compliance permit after bringing an equivalent number of nonconforming signs on the property into conformance with the standards of this chapter.

33.57.090 Signage visible from a scenic highway.

A permit or other written approval is required from the Washington State Department of Transportation prior to review of certain types of sign permits by Clallam County for those areas within 600 feet of a designated scenic and recreational highway to show conformance with the Scenic Vistas Act and the Highway Advertising Control Act (Chapter 468-66 WAC).

33.57.100 Variances.

~~Applications for a variance from the standards established by this code shall be processed as Type III permits as set forth in Chapter 26.10 CCC and the review criteria outlined in Chapter 33.30 CCC, Variances. Variances shall not be permitted for modification to the number of signs and sign types specified in this chapter. Sign size variances shall not exceed 10 percent of the standard required unless it can be demonstrated that the sign qualifies as a community landmark sign and must show that the increase is required to allow the sign owner to purchase a standardized sign required by a national manufacturer who does not offer signs in a conforming size. A sign size (area) variance of less than 10 percent in area that meets the preceding criteria shall be processed as a Type II administrative variance as set forth in Chapter 26.10 CCC. Sign height variances over the 10 percent limit are available to those business owners that can demonstrate that their nonconforming sign qualifies as a community landmark sign. A community landmark sign must predate the effective date of this code by at least 20 years, have advertised the same business under the same name for all of that time, have become an important cultural landmark to County residents and would be difficult to retrofit to the nonconforming sign standard without destroying the unique character of the sign.~~

33.57.110 Review of Administrator's action (appeals).

Any person aggrieved by the granting, denying or rescinding of a decision of the Administrator made under this chapter may seek review from the Hearing Examiner in accordance with Chapters 33.33 and 26.10 CCC. The request must be in writing setting forth the basis of the appeal and must be accompanied by the appropriate fees outlined in Chapter 5.100 CCC.

33.57.120 Severability.

If any provision of this chapter or its application to any person or circumstance is held invalid, the remainder of this chapter or the application to other persons or circumstances shall not be affected.

Sign Glossary

INTRODUCTION

THIS IS A LIVING, BREATHING DOCUMENT.

The sign, graphics, and visual communications industry's continual adaptation will dictate ongoing additions and deletions.

We hope it helps you gain a better understanding of how the industry's many moving parts work together.

THE SIGN RESEARCH FOUNDATION

(SRF) has created a glossary that captures commonly used, essential industry terms.

We have divided the glossary into 10 sections:

**1
General**

p 2

**2
Lighting &
Electrical**

p 5

**3
Materials &
Components**

p 9

**4
Equipment, Production
& Installation**

p 12

**5
Digital
Printing**

p 16

**6
Government, Regulatory
& Safety**

p 20

**7
Digital
Signage**

p 23

**8
ADA &
Accessibility**

p 25

**9
Design**

p 27

**10
Associations
& Resources**

p 29

ABANDONED SIGN

A sign that does not advertise or identify a legal business establishment, product, use, or activity for a specified period.

ADVERTISING MEDIA

The means by which an advertising message is carried to potential customers; including internet, magazine, newspaper, radio, signage, and television.

AIR-ACTIVATED GRAPHIC

A sign, all or any part of, which is designed to be moved by action of forced air to make the sign appear to be animated or otherwise have motion.

ARCHITECTURAL SIGNAGE

A term to identify visual communications and wayfinding information in the built environment. Hence, physical enhancements to a building or space with the purpose of identifying or communicating information. See also the definitions for **environmental graphics** (page 7, 107) and **sign** (page 14, 73).



Architectural signage integrates with a structure to create a sense of place and brand identity. This can include dimensional signage, printed wall wraps, accenting graphics and other visual communications that enhance built environments. Image provided by ArtFX Signs (Bloomfield, CT).

AWNING

A shelter extending from the exterior wall of a building and composed of nonrigid materials except for the supporting framework. See also the definition of **canopy** (page 5) and **marquee** (page 10).

AWNING SIGN

Any sign painted on, attached to, or supported by an awning.



Photo taken by Steve Aust.

BACK-TO-BACK SIGN

A sign having two faces mounted in opposite directions. Back-to back signs may also be referred to as a **double-faced sign** (page 7).

BALLOON SIGN

A sign that is an air inflated object, which may be of various shapes, made of flexible fabric, resting on the ground or a structure, and equipped with a portable blower motor that provides a constant flow of air into the device. Balloon signs are restrained, attached or held in place by a cord, rope, cable, or similar method. See also the definition for **air-activated graphics** (page 3).

BANNER SIGN

A temporary sign composed of cloth, canvas, plastic, fabric or similar lightweight, non-rigid material that can be mounted to a structure with cord, rope, cable, or a similar method, or that may be supported by stakes in the ground.

BENCH SIGN

A sign located on the seat or back of a bench, or seat placed, typically on or adjacent to a public right-of-way. A bench sign is often considered a type of street furniture.

BILLBOARD

Large format advertising displays or signs intended for viewing from extended distances, generally more than 50 feet. Billboard displays include, but are not limited to, bulletins, junior posters, posters, and spectaculars.

BLADE SIGN

A type of projecting sign mounted such that the face of the sign is perpendicular to the normal flow of traffic. It may also be referred to as a flag sign. A blade sign may occasionally refer to a temporary sign, in the shape of a blade, which can also be referred to as a feather sign or other temporary sign on a pole. See the definition of **feather sign** (page 8) for the definition of such temporary signs.



A blade sign is installed perpendicular to a structure. Some sign codes favor installing blade signs instead of those flush to the wall. Photo provided by ArtFX Signs.

BOLLARD

A thick low post, or series of posts that help define or border a pedestrian or other public area. Bollards can be constructed to resist vehicular impact forces to protect pedestrians and property.

BREAKAWAY FOUNDATION

A pole and foundation system where the pole detaches cleanly from the foundation upon impact.

BUILDING-MOUNTED SIGN

A sign that is applied or attached to a building. Building-mounted signs can include, but are not limited to, wall signs, parapet signs, painted wall signs, projecting signs, awning signs, etc.



Numerous factors, such as structural integrity, lighting and scale, have to be addressed to render a durable, effective building-mounted sign. Photo courtesy of ArtFX Signs.

BUILDING FASCIA

That portion of any elevation of a building extending vertically from the grade to the top parapet wall or eaves, and horizontally across the entire width of the building elevation, including a slanted wall surface or mansard.

CABINET SIGN

A sign structure consisting of the frame and face(s), not including any embellishments or the support structure. See also **lightbox sign** (page 10).



Photo taken by
Steve Aust.

CANOPY

A freestanding, permanent roof like shelter that may be either freestanding or attached to an adjacent building or structure.

CANOPY SIGN

Any permanent sign attached to or constructed on a canopy. These signs are below a projecting structure that extends over the pedestrian walkway, which effectively prevents the wall signs from being visible to the pedestrian walking under the canopy. See also **projecting sign** (page 13).

CHANNEL LETTER

Fabricated or formed 3-D letters, numbers, or symbols that can be made of metal or plastic, which are covered in a translucent plastic material, generally internally illuminated. The space between the letters is not part of the sign structure.

COMMERCIAL MESSAGE OR SPEECH

Any sign, wording, logo, or other representation that, directly or indirectly, names, advertises or calls attention to a business, product, service, or other commercial activity.

COMMERCIAL SIGNS

Any sign that contains a commercial message or speech.

COMPOSITE POLE

A fiberglass-reinforced pole that is offered as an alternative to wood, steel or concrete poles because of its lighter weight and greater corrosion resistance.

CONCRETE SIGN

Includes poured-in-place, precast, or other sign products having the qualities of cement. Concrete is the substrate to which plaques, letters, or panels are attached, painted on, cast into, incised into, sandblasted into, etc., to create an identifying device.

CONTENT NEUTRALITY

The principle of administering sign codes without regard to the substance of the message, and regulating only its time, place, manner, and material.

CONSTRUCTION SIGN

A temporary sign on a building or site during the period of construction. This type of sign may be considered a **content-based sign** (page 79) type.

CONTRAST

The difference or degree of difference between things having similar or comparable natures, such as light and dark areas, colors, or typefaces.

COPY

The words, logos, symbols, or message displayed on a sign.

COPY AREA

The total area that encompasses the actual copy on a sign.

COST PER THOUSAND IMPRESSIONS (CPM)

Not to be confused with CPM as it refers to cost per mile. Refers to the cost for an advertiser to send a message to 1,000 recipients. The measure is calculated by dividing the amount of money spent for a given advertisement by the number of people exposed to it. Based on this measure, signs are usually considered to be the least expensive form of advertising.

CUSTOMER ACQUISITION COSTS

Basic value calculation used to measure the cost versus return from the presence of signage; the cost of acquiring a customer.

CUSTOM SIGN

A sign designed, manufactured and installed to meet the requirements of a specific location or the specific needs or vision of the customer.

DAILY EFFECTIVE CIRCULATION (DEC)

The average number of daily potential exposures to a display or group of signs determined by counting only those vehicles traveling toward the face of the sign, and then multiplying that number by the average number of people per car during the hours the sign is visible. Pedestrian and mass transit circulations are not included. This is the basic measure in establishing cost per thousand exposures on signs. The basic traffic numbers can usually be obtained from your State Department of Transportation.

DECK CABINET

Similar in detail and use as a raceway except larger in cross section to provide a background area. See definition for **raceway** (page 13, 26).

DIMENSIONAL LETTER

A specification description of a letter or logo, either cut out or fabricated of metal, plastic, or other rigid materials to create a raised condition. Unlit letters are generally referred to as dimensional or unlit channel letters; and lit letters are commonly referred to as channel letters or illuminated channel letters.



Photo courtesy of ArtFX Signs.

DIRECTORY SIGN

A sign that identifies the names and locations of tenants in a multi-tenant building or in a development made up of a group of buildings. May provide text listings or include maps, site plans, or diagrams. This type of sign may be considered a **content-based sign** (page 79) type if not utilized for an interior sign.

DIRECTIONAL SIGN

A sign intended to provide directional information or to guide pedestrian and vehicular traffic. This type of sign may be considered a **content-based sign** (page 79) type.

D.O.T. / DOT SYMBOLS

The U.S. Department of Transportation has issued international symbols for transportation graphics that have become a standard in vehicular and pedestrian signing in the United States.

DOUBLE-FACED SIGN

See **back-to-back sign** (page 3).

DRIVE-THROUGH FACILITY SIGN

A freestanding sign that is located along the path or aisle utilized for a drive-through facility.

DRIVEWAY SIGN

A small permanent sign located near driveway access points and/or at the intersection of internal access drives.

EDGE

The part of the sign that encloses the back and face or faces. May also be referred to as the **frame** (page 8).

ELECTRIC SIGN

Any sign containing or using electrical wiring.

ELECTRONIC MESSAGE CENTER (EMC)

A sign designed so that the characters, letters, or illustrations can be changed or rearranged automatically on a lamp bank or through mechanical means (e.g., electronic or digital signs).



Photo courtesy of ArtFX Signs.

ENVIRONMENTAL GRAPHICS

The planning, design, and execution of graphic elements in the built or natural environment. Environmental graphics includes communication systems that identify, direct, inform, interpret, and visually enhance the environment.

EXTERNALLY ILLUMINATED SIGN

A sign that is illuminated by a light source on the sign's exterior.

FABRICATE

To manufacture a sign or its components.

FASCIA-MOUNTED SIGN

A flat sign that is mounted on a fascia, and whose face runs parallel to the fascia. See also **wall sign** (page 16).

FEATHER SIGN

A temporary sign that is constructed of cloth, canvas, plastic fabric or similar lightweight, non-rigid material and that is supported by a single vertical pole mounted into the ground or on a portable structure. This sign may also be referred to as a temporary blade sign, teardrop sign, or flag sign.

FLAG SIGN

See **blade sign** (page 4) or **feather sign** (page 8).

FRAME

The part of the sign that encloses the back and face or faces, which may be referred to as the **edge** (page 7).

FREQUENCY

The average number of times an individual can see an advertising message during a defined period of time. Typically measured over a four-week period.

FULL-SERVICE SIGN COMPANIES

Sign companies that complete the entire signage project, including surveying, designing, engineering, permitting, manufacturing, installing, and maintaining signs.

GATEWAY SIGN

A sign at the entry to a neighborhood or large development to identify the neighborhood or development. Also called a precinct sign, this type of sign may be considered a **content-based sign** (page 79) type.

GOOSENECK LIGHTING

A type of externally illuminated light fixture in which a lamp or lightbulb is attached to a flexible, adjustable shaft to allow the user to position the light source without moving the fixture or item to be illuminated.

GOVERNMENTAL SIGN

A sign erected and maintained pursuant to, and in discharge of, any governmental functions, or required by law, ordinance, or other governmental regulation. This type of sign may be considered a **content-based sign** (page 79) type.

GROUND SIGN

A freestanding sign with no visible support structure. See also **monument sign** (page 11).

HANGING SIGN

A projecting double-faced sign mounted to a wall, building or pole that hangs from a bracket or support arm. See also **blade sign** (page 4), **canopy sign** (page 5) and **projecting sign** (page 13).

HALO-LIT

A form of channel lettering where the illumination is from behind the lettering, creating a glow behind the signage. May be referred to as **reverse-lit** (page 13) signage or **individual reverse channel letters** (page 9).



The wall-mounted at the Washington Post's headquarters provide a dramatic backdrop that reinforces the legendary paper's groundbreaking journalistic work. From Creative Sign Designs.

HIGH-RISE SIGN

A tall, freestanding sign that is typically a pole or pylon sign, and often located on the side of a freeway.

IDENTIFICATION SIGN

A sign giving the name of the business for purposes of identification. This type of sign may be considered a **content-based sign** (page 79) type.

ILLUMINATED SIGN

A sign which is lighted by either an internal or external light source, such as floodlights, gooseneck fixtures, wall washers or other outside sources.



This movie-theater sign incorporates enclosed, LED-lit channel letters. Electric signs can also be illuminated by fluorescent lamps, neon tubing, incandescent bulbs or fiberoptic cables. Photo provided by Cima Network.

IMPULSE BUYING

An unplanned or shifted purchase, which point-of-purchase signs, electronic digital signage, and other types are designed to encourage.

INTERIOR SIGNS

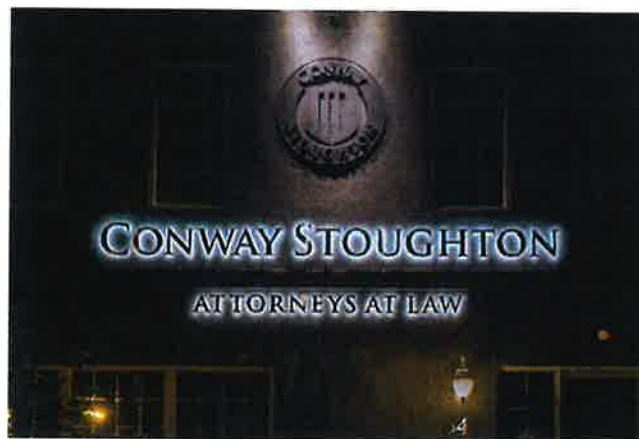
Signs that are located inside a building or other facility.

INCIDENTAL SIGN

Signs that are often attached to doors, windows, gas pumps, or other structures that are small in nature and typically designed to be read by a user up close, rather than from a distance by pedestrians or drivers. Examples of incidental signs include hours of operation, location of restrooms, and entrance and exit signs. This type of sign may be considered a **content-based sign** (page 79) type.

INTERNALLY ILLUMINATED SIGN

A sign illuminated by a light source contained inside the sign.



Signs with integral lighting, such as this halo-lit wall sign, are increasingly durable and energy-efficient. Photo provided by ArtFX Signs.

INDIVIDUAL REVERSE-LIT CHANNEL LETTERS

A form of channel lettering where the illumination is from behind the lettering, creating a glow behind the signage. May be referred to as **halo-lit** (page 8) or **reverse-lit** (page 13) signage.

INSTRUCTIONAL SIGNS

A sign designed to instruct the reader regarding special needs, such as traffic flow, safety needs, or other operational issues. This type of sign may be considered a **content-based sign** (page 79) type.

JOB SITE SIGN

See **construction-site sign** (page 5). This type of sign may be considered a **content-based sign** (page 79) type.

LATERAL FORCE

A force acting in a horizontal direction, such as wind, earthquake, or soil pressure against a sign face, foundation wall, or footing.

LIGHTBOX SIGN

General term for a traditional cabinet or box type sign made up of a face and back or two faces, with designs ranging from simple plastic faces to metal faces with push-through letters. Often called a **cabinet sign** (page 5), lightboxes can be internally illuminated, externally illuminated or non-illuminated.

LIGHT POLE BANNER

A temporary banner or sign that is designed to be attached to a permanent light pole or other pole structure, and where the temporary sign element can be changed without modifying the permanent structure.

MARQUEE

A permanent, roof-like canopy with an integral sign that extends from part or all of a building face that may or may not project over a public right-of-way.



The Garde Arts Center in New London, CT enjoys a strong identity thanks to its vibrant marquee. Photo provided by ArtFX Signs.

MEMORIAL SIGN

A sign memorializing a person, event, or significance related to a site, building, or structure. This type of sign may be considered a **content-based sign** (page 79) type.

MENUBOARD

A changeable sign that allows a retailer to list products and prices, for example the bill of fare for a fast-food restaurant. This type of sign may be considered a **content-based sign** (page 79) type.

MOBILE SIGN

A portable sign mounted on a trailer.

MOLDED LETTER

A letter created by heating a sheet of acrylic or plastic until it is pliable and then shaping it into the desired form using a mold of the letter. After the plastic cools, it retains the molded shape, and any excess material is trimmed away.

MONUMENT SIGN

A freestanding sign with low overall height whose sign surface is attached to a proportionate solid base or structural frame.



Landscaping, masonry, and lighting play vital complementary roles in creating an impactful monument sign. Photo provided by Creative Sign Designs.

MURAL

A picture on an exterior surface of a structure that, depending on the image or use, can be defined as a sign.

NAMEPLATE

A sign that identifies the name, occupation, and/or professional title of the occupant of a desk, office, or building. A building nameplate might also have the name of the building and other directional information. This type of sign may be considered a **content-based sign** (page 79) type.

NEON SIGN

Any illuminated sign that is comprised of glass tubing that contains neon or other gases that light up in various colors when an electric discharge is applied to the gas.



Since being introduced during the 1920s, neon signs have played a vital role in creating a powerful form of on-premise branding. Because of greater ease of installation and reported energy efficiency, LEDs have replaced neon for most sign installations. The photo was taken at the American Sign Museum (Cincinnati).

NONCOMMERCIAL SIGNS

Any sign that does not contain a commercial message or speech.

OFF-PREMISE SIGN

A sign that is not located on the building or property of the business it advertises. The most common example of an off-premise sign is a billboard.

PAINTED WALL SIGN

A sign message painted directly onto a wall surface. See also **building-mounted sign** (page 4).

PAN-FORMED FACE

A plastic sign face molded into a 3-D shape. Also called molded face, molded and embossed face, or molded and debossed face.

PAN CHANNEL LETTER

A dimensional letter that is constructed with side walls, back and a face making the letter a solid integral unit with the side walls and back having a pan-shaped cross section.

PARAPET SIGN

A sign mounted on the parapet of a building. See also the definition of **building-mounted sign** (page 4).



The increasing cost-effectiveness and durability of signs has helped transform walls and other previously unused spaces into effective branding tools. Photo provided by Screaming Images (Las Vegas).

PENNANT

A triangular or irregular piece of fabric or other material, possibly containing a message, and commonly attached in strings or strands, or supported on small poles intended to flap in the wind.

PEOPLE SIGN

A person attired or decorated with commercial insignia, images, costumes, masks, or other symbols that display commercial messages with the purpose of drawing attention to or advertising for an on-premise activity. Such person may or may not be holding a sign. People signs may be also referred to as human mascots, sign spinners, or human signs.

PERMANENT SIGN

A sign attached to a building, structure, or the ground in a manner that enables the sign to resist environmental loads, such as wind, and precludes ready removal or movement of the sign.

POINT-OF-PURCHASE SIGNS/ ADVERTISING

In-store advertising designed to stimulate impulse purchases by shoppers inside a store. The term applies to a store's internal sign system, as well as special displays and dispensers created by and for specific product manufacturers. Also known as point-of-sale advertising.

POLE SIGNS

A freestanding sign with a visible support structure that is usually double-faced, mounted on a round pole(s), square tube, or other fabricated member without any type of secondary support. Also referred to as **pylon signs** (page 13), pole signs may be internally or externally illuminated.

POLE/PYLON COVER

An enclosure for concealing and/or for decorating poles or other structural supports of a freestanding sign.

PORTABLE SIGN

A movable sign with a power cord for electrical connection that is not permanently attached to the ground or building and is readily removable using ordinary hand tools.

POST-AND-PANEL SIGN

An unlit sign fabricated by using one or more visible posts to support the sign body.

PROJECTING SIGN

A sign with the face mounted perpendicular to the building facade or fascia.

PROJECTED-IMAGE SIGN

A sign which involves an image projected on the face of a wall, structure, sidewalk, or other surface, from a distant electronic device, such that the image does not originate from the plane of the wall, structure, sidewalk, or other surface.

PYLON SIGN

A freestanding sign with a visible support structure enclosed with a pole cover. Often called pole signs, pylons may be internally or externally illuminated and offer excellent visibility from a distance.



Pylon signs are erected on freestanding poles, which may be encased within metal cladding, such as this church sign. Photo provided by Creative Sign Designs.

RACEWAY

A form of mounting structure for signs that are a narrow structure attached to a wall where electrical conduit can run within, and where the sign structure itself is mounted to the raceway. Also referred to as a **wireway** (page 17).

READABILITY

The quality that enables the observer to correctly perceive the message. In transportation engineering, this word is being replaced by conspicuity.

READER BOARD

A variable message sign that where the content is changed manually.

RECOGNITION

Refers to the ability of a viewer to identify the message.

REGULATORY SIGN

A sign with the primary purpose of conveying information concerning rules, ordinances, or laws.

RETAINER

A framing member mounted around the perimeter of a sign face and attached to the sign cabinet structure. It is designed to attach the face to the cabinet and/or intended to provide a decorative trim piece.

REVERSE-LIT

A form of channel lettering where the illumination is from behind the lettering, creating a glow behind the signage. May be referred to as **halo-lit** (page 8) signage or **individual reverse-lit channel letters** (page 9).

ROOF SIGN

Any sign erected upon a roof, parapet, or roof-mounted equipment structure and extending above a roof, parapet, or roof-mounted equipment structure of a building or structure.

ROUTED SIGNS

A sign created by the cutting away solid material, such as metal, plastic, stone, or wood, where the lettering and/or design is cut down into the surface of the sign blank. Unlike hand carved pieces, routed signs refer to those that are CNC-routed or machine-carved.

ROUTED SIGNS

A sign created by the cutting away solid material, such as metal, plastic, stone, or wood, where the lettering and/or design is cut down into the surface of the sign blank. Unlike hand carved pieces, routed signs refer to those that are CNC-routed or machine-carved.



Whether it's a dimensional letter, 3-D applique, or machine-cut metal or plastic, a CNC router provides numerous fabrication possibilities. Photo courtesy of Creative Sign Designs.

REVOLVING SIGN

An animated sign that can turn 360° because an electric motor drives its movable parts. All or a portion of the sign may revolve at a steady or variable speed.

SPECTACULAR

Large, elaborate, non-standard structures designed to gain maximum attention through such eye-catching special effects as luminous tubing, fiber optics, backlit panels, hydraulic movement, electronic message centers, three-dimensional sculpted features, and strobe lights.

SANDBLASTED SIGNS

A sign created by placing a rubber stencil over letters and images and etching the background with a high-pressure mix of sand and air. The lettering and design areas are then sanded smooth and painted.

SIDEWALK/SANDWICH BOARD SIGN

A moveable sign not secured or attached to the ground or surface upon which it is located that's supported by its own frame. A common form of sidewalk sign may be referred to as a sandwich board sign that has the cross-sectional shape of the letter A. Sidewalk signs may also be in a form that has a cross-sectional shape of an upside-down letter T.



Signs that promote physical distancing and public safety have become a vital part of businesses' engagement with customer throughout the COVID-19 pandemic. Because of the heavy restrictions that were enacted to slow the virus' spread, exterior, street-level signs such as sandwich boards become an essential communication tool.

SIGN

Any object, device, display, or structure, or part thereof, visible from a public place, a public right-of-way, any parking area, or any navigable body of water which is designed and used to attract attention to an institution, organization, business, product, service, event, or location by any means involving words, letters, figures, designs, symbols, fixtures, logos, colors, illumination, or projected images. The definition of sign shall include all parts, portions, units, and materials composing the same, together with the frame, background, and supports or anchoring thereof.

SIGN CABINET

See **cabinet sign** (page 5).

SIGN CAN

An informal term for sign cabinet.

SIGN FACE

An exterior display surface of a sign including non-structural trim exclusive of the supporting structure. Typically refers to the most prominent message area of a sign, but may refer generically to the surface area on a sign where advertising copy is displayed.

SIGN TYPE

The style or use of each unique sign component in a system. Sign types are individually determined in each sign project. A sampling of sign type descriptions: freestanding, pole, monument, driveway, post and panel, banner, etc.

SIGN BAND

A horizontal area above a multi-tenants' building's entrances, architecturally designed to accommodate signage in a sign centric manner.

SINGLE-FACE SIGN

A sign with only one face as compared to a back-to-back sign that is considered a double-face sign.

SNIFE SIGN

A temporary sign illegally tacked, nailed, posted, pasted, glued, or otherwise attached to trees, poles, stakes, fences, or other objects.

STATIONARY SIGN

A sign that is not readily moveable or portable.

STREET FURNITURE

Items that include benches, trash bins, recycling bins, honor boxes, phones, and other service furnishings generally located on a sidewalk or in a designated right-of-way. Signage may be digitally printed, applied with vinyl, or painted onto street-furniture surfaces.



Structural amenities such as this interpretive panel serve the dual purpose of providing information about the site and helping orient viewers to their surroundings.

TARGET AUDIENCE

The profile of the most desired consumer prospects for a product or service, listed by characteristics such as demography, lifestyle, brand or media consumption, purchase behavior, etc. This is common to all media.

TEMPORARY SIGN

A sign that is not permanently anchored to the ground, affixed to a structure, or mounted on a chassis, and is intended for a limited period of display. Examples of these signs include, but are not limited to, banners, feather signs, air-activated graphics, or temporary yard signs (e.g., real estate signs, political signs, etc.).

TEMPORARY YARD SIGN

Any temporary sign placed in the ground.

TRADE AREA

Most retail businesses have a relatively fixed area that customers come from to do business at their store. In general, the trade area is either the living or work locale for the customer. The selling zone of place-based retail business will be dynamic for two reasons; the customer is moving residences or jobs, or the customer is passing through on a trip that intersects the trade area. The trade area for most small businesses is 3 to 5 miles.

TRAFFIC COUNT

The number of vehicles and pedestrians passing a given point, usually in a day.

UNDER-CANOPY SIGN

Double- or single-face signs designed to be mounted underneath a canopy. May also be referred to as **hanging sign** (page 8, 69).

VARIABLE-MESSAGE SIGN

A sign that includes provisions for message changes. Also called changeable copy panel, changeable-copy sign, time and temperature sign, electronic message center, menu board.

VEHICLE SIGN

Any sign permanently or temporarily attached to, or placed on, a vehicle or trailer so that the sign is used primarily as a stationary identification or advertisement sign.



With their widespread visibility and modest price point, vehicle wraps provide small businesses with a cost-effective, powerful branding platform.

VISIBILITY

The quality of a letter, number, graphic, or symbol, which enables the observer to distinguish it from its surroundings or background.

WALL-MOUNTED SIGNS

A single-face sign mounted, painted, or applied directly to or on a wall.

WALL SIGNS

A sign attached directly to an exterior wall of a building with the exposed face of the sign in a plane parallel to the building wall.

WAYFINDING

Signage and other forms of visual communication that help those visiting a place, in particular a large building, facility, or site, familiarize themselves with their surroundings and navigate to their destination. The term was initially coined by Kevin Lynch in his 1960 book, *The Image of the City*.



Helping visitors navigate a large property or campus requires a comprehensive system of environmental graphics to direct them to their destinations. Photo provided by Cima Network.

WINDOW SIGN

Any sign viewable through and/or affixed in any manner to a window or exterior glass door such that it is intended to be viewable from the exterior (beyond the sidewalk immediately adjacent to the window), including signs located inside a building but visible primarily from the outside of the building.

WIREWAY

See **raceway** (page 13, 26).

Engineering & Electrical

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ABSORPTION

The dispersal of visible light as it interacts with matter, decreasing its transmission. The result is a modification of the material's color and the brightness of light it transmits.

ACCESS DOOR

A hinged or removable panel that, when opened, provides access to the interior of a sign, allowing for the inspection and servicing of its internal components. Also called an **access panel** (page 42).

AMBIENT LIGHT

The general level of light, or background light, in a given environment. The ambient light level is the sum of all light (direct and indirect) in a given area emitted by natural and manmade sources at a given time. It can affect the legibility of signs and may require alterations in illumination methods.

ANIMATED SIGN

A sign which has any visible moving part, flashing or oscillating lights, or other apparent visible movement achieved by any means that move, change, flash, oscillate, or visibly alters appearance. Such signs may use the sequential switching on and off of graphically arranged fluorescent lamps, cathode tubes, LEDs, or incandescent lamps to provide the illusion of movement.

BACKLIT LETTER

An illuminated reverse-channel letter where the light from the letter is directed against and reflected off the surface behind the letter, thereby producing a glowing effect around the letter. See also **halo lighting** (page 23).

BACKLIT SIGN

A sign whose face is illuminated from behind. Also called an illuminated sign. See also **internally illuminated sign** (page 9) and **exterior illuminated sign** (page 21).

BALLAST

An electrical device that limits the amount of current in an electrical circuit. A ballast required to operate fluorescent lamps.

BLACKOUT (OR BLOCKOUT)

1. A specially formulated, opaque paint or coating for use on electric signs to block light emission where needed, for example crossover connections between letters in a neon sign. It adheres well to glass, and resists weather, heat, light, and electrical discharge. Paints with metallic bases should be avoided because of their ability to conduct electricity.
2. A type of liquid mask used to seal accidental holes in a stencil in areas not intended to be screenprinted.

BORDER TUBING

Neon or LED-illuminated tubing that forms a lit perimeter around a sign or the perimeter of a structure. Neon tubing is made from glass; LED border tubing is typically sheathed in plastic.



Border tubing is the exterior perimeter of neon tubing that frames the sign. Historically fabricated with neon, flexible, LED-lit tubing offers another option for illuminated borders. Photo taken at the American Sign Museum.

BURNING IN

A process used to prepare a neon tube for its proper brilliance. It is done by connecting the completed tube to a transformer similar to that which will be used in the installation, and allowing it to remain lighted until proper brightness, color, and electrical properties are achieved. Also called aging.

CANDELA

Abbreviated cd, a metric unit of measurement that indicates the luminous intensity produced by a ray of artificial light in a given direction (used for point-by-point calculations).

CHASER

1. An electronic component or computer control that can be programmed to turn lights on and off in sequence.
2. The illusion of movement in illuminated signs created by turning the lighting elements on and off in sequence.
3. To decorate metal, typically by engraving or cutting.

CROSSOVER

The connection between two portions of a neon tube, including the stroke between the end of one letter or word and the start of the next letter or word. It is not supposed to be seen in the finished sign. Typically, crossovers are coated with blackout paint, although they can also be wound with tape.

CLASSIC GLASS

Tubing used for neon signs or artwork in which the glass itself is colored, achieving a deep, saturated color not possible with clear glass and phosphorous coatings. It is typically a soda-lime-based glass.

COATED TUBING

Clear glass tubing, coated on the interior surface with phosphorus powder. Coated tubing produces a variety of different light colors, dependent upon the reaction of the specific mixture of phosphorus powders utilized and the gas filling the tube.

COLD CATHODE

The technical name for all forms of pumped gas, e.g., neon lighting. In the United States, this term is typically used to refer to 18-25mm tubing operating at currents between 60 and 240 milliamps (mA). Neon lights also have electrodes that depend on a large emission surface area, rather than high temperature, for their operation.

COLOR TEMPERATURE (CCT)

CCT is a term used for white LEDs to determine how warm or cool the LEDs are and is expressed in degrees Kelvin (K). Lower values like 3000K indicate a soft incandescent light color. Bluer-tone LEDs are usually above 7000K. The whitest part of the color spectrum that causes the least amount of color shift is between 5000-6000K.

COLORLED TUBING

Transparent glass tubing manufactured with color pigments, typically color examples include ruby red, canary yellow, green, and midnight blue.

CONDUIT

A channel or pipe for protecting and routing electric cables.

COVE LIGHTING

A type of indirect illumination created by placing a lighting source inside a continuous trough or cove to hide the light source and produce an upward glow. Usually produced using neon, cold cathode, or fiber-optic tube lighting.

CURRENT

The flux, or rate of flow, of electrical charge in a conductor. A unit of current is typically given in amperes or milliamps (mA).

DIRECT ILLUMINATION

Illuminating a sign by means of an external light source directed at the sign face. See also **exterior-illuminated sign** (page 21).

DOUBLEBACK

A 180-degree bend used in neon tubes to produce such letters as R, E, F, and G, as well as other designs. Often used to describe the technique and placement of the electrode on a neon unit.

DOUBLE TUBE

Two neon tubes running parallel to each other, often used to create outlines or borders.



Here is an example of a double-tube exposed-neon letter. Photo taken at the American Sign Museum.

DRIVER

An electrical circuit used to power LEDs. The circuit must provide sufficient current to light the LED at the required brightness, but must limit the current to prevent damaging (or overdriving) the LED.

EDGE LIGHTING

A technique used to illuminate (by internal refraction) carved, incised, or sandblasted lettering and images, usually glass or acrylic, by lighting the edge of transparent material.

EFFICIENCY

The amount of light emitted per unit of power, often expressed as lumens per watt. Light sources with higher efficiency require less power to put out a certain amount of light. Luminous efficiency is best for comparing white sources of light, as colored LEDs are fairly monochromatic and should only be used to compare LEDs that are the same wavelength.

ELECTRIC SIGN

A sign that contains electrical fixtures or connections.

ELECTRODE

A terminal that conducts an electrical current between two conducting substances. Electrodes are found at both ends of a neon unit.

EXTERIOR-ILLUMINATED SIGN

A sign that is illuminated by a light source that is directed towards and shines on the face of a sign. See also **direct illumination** (page 21).

EXTERIOR ILLUMINATION

Illumination that is provided from a source separate from the sign itself, such as a spotlight.

FIBEROPTICS

Strands or bundles of light-transmitting fibers, usually plastic or glass, used in specialty lighting conditions for signage. The light source can be several feet away from the display, and the light can be emitted from the sides of the bundles or from the ends. It is easier to maintain (and uses less energy) than other methods, as a single light source can service long runs of fiberoptic tubing.

FIBEROPTIC DISPLAY

A type of sign that transmits the message utilizing light directed through threadlike fibers of glass or plastic.

FLASHING SIGN

A sign with an intermittent or flashing light source. Generally, the sign's message is constantly repeated, and the sign is most often used as a primary attention-getting device. Government highway departments frequently use flashing signs to improve highway safety. The use of flashing signs for messages on privately owned signs has been curtailed significantly under the Highway Beautification Act.

FLUORESCENT LAMP/TUBE

A type of lamp in which the light is produced by the fluorescence of a phosphor coating in the tube. The coated tube is filled with argon and mercury vapor. When electrical current passes between the electrodes, the gas mixture emits ultraviolet (UV) light. The UV light is absorbed by the phosphors, which then radiate the energy as visible light. A starter and ballast help regulate the current and voltage necessary to ionize the gases in the tube. Fluorescent lamps are more efficient than incandescent bulbs and are popular source of illumination for many signs.

FLUORESCENT LIGHTING

A fluorescent light source is a low-pressure, argon and mercury-vapor, gas-discharge lamp that uses fluorescence to produce visible light. An electric current in the gas excites mercury vapor, which produces shortwave UV light that causes a phosphor coating on the inside of the lamp to glow.

FOOTCANDLE

A nonmetric measure of illumination on a surface that is one foot from a uniform source of light of one candle, and equal to one lumen per square foot.

FRONT/BACKLIT LETTER

A channel letter or logo lighting through both its face and back.

GOOSENECK LIGHTS

The curved support for a light fixture normally constructed out of steel conduit. It is used on billboard and storefront signs as a traditional solution.

GRID TUBES

Neon tubes laid out in regularly spaced parallel or concentric lines for lighting translucent signs or channel letters. Also applies to fluorescent tubes in a cabinet sign.

"H" CHANNEL LETTER

A dimensional letter with baffles at the center of the cross-sectional shape for support of neon tubing and mounting of transformers.

HALATION

A spreading or reflection of light, a halo-like effect that occurs in reverse reading letters. The background is significantly darker than the illuminated letters.

HALO

A ring of light, the effect achieved by reverse channel letters, which appear to be ringed by light because the light source is reflecting on the background from which the letters are pinned out.



An example of halo-lit, reverse-projected lighting. Photo courtesy of Creative Sign Designs.

HALO LIGHTING

Typically used for backlit letters (reverse-pan channel letters), this type of sign lighting contains a light source located within or behind a sign that reflects off the mounting surface. The result is that the sign appears to be surrounded by a halo of light.

HOUSING

Made from insulating porcelain or PYREX® glass, a housing is mounted in the sign and provides the contact between the electrode and the lead-in wire.

ILLUMINATED SIGN

Any sign for which an artificial source of light is used to make a sign's message readable, including internally and externally lighted signs and reflectorized, glowing or radiating signs.

INCANDESCENT BULB

A lamp that produces light through the application of electrical energy to a wire filament, which glows as it is heated.

INTENSITY

1. The amount of light (which measures the number of lumens falling upon a surface, and is expressed as lux) put out by a lamp in relation to the distance at which it is viewed. The greater the output and the closer the viewing point, the greater the perceived intensity.
2. The relative saturation of a given color.

INTERNALLY ILLUMINATED SIGN

A sign that is lighted via internal electric fixtures or lamp banks. See also **backlit sign** (page 19).



KELVIN SCALE

The base metric thermodynamic temperature scale. In lighting, the Kelvin scale is used to measure a light source's intensity. Measured in units from 1,000 to 10,000 Kelvin (K), illumination on the lower end of the spectrum emits "warm", yellow light. The higher up the K scale light goes, the more cool-blue and like daylight it becomes.



LIGHT-EMITTING DIODES (LEDs)

LEDs are semiconductor light sources that emit light when current flows through it. LEDs combine a P-type semiconductor (larger hole concentration) with an N-type semiconductor (larger electron concentration). Applying a sufficient forward voltage will cause the electrons and holes to recombine at the semiconductors' junction, releasing energy in the form of light. Unlike conventional light sources that first convert electrical energy into heat before light, LEDs convert electrical energy directly into light, delivering efficient light generation with little wasted electricity.

LIFETIME

A measure of how long the light source lasts. The lifespan of a bulb often is characterized in terms of average rated lifetime hours. Many light sources do not burn out, but typically will degrade over time. In common usage, the "L70 life" is often quoted in evaluation of LED lighting. This is the life in which 70% of the initial luminance is maintained. For example, an LED with a 20,000-hour lifetime will, after 20,000 hours of use, produce on average 70% of the light it produced when new.

LIGHTBOX

A self-enclosed, internally illuminated, typically rectangular, lighted display panel used for advertising purposes. The panel can be illuminated by fluorescent lightbulbs or LED lighting strips.

LM 79/80 TESTING

Validated third-party testing methods approved by the Illuminating Engineering Society that measure the change in luminous output and color temperature over a minimum of 6,000 hours of testing.

LUMEN

A metric unit of luminous flux. Measuring the total quantity of visible light output emitted by a source per unit of time, one lumen equals the product of one candela times one steradian.

LUMINESCENCE

The quality of given off light by the absorption of radiant energy. Used to describe any cold light. See also **fluorescent** (page 34).

LUMINOUS TUBING

See **neon tubing** (page 25).



MANIFOLD

A part of the neon-pumping system; the manifold is a system of vacuum-tight tubing arranged so that one or more tubes can be attached to it, evacuated with a vacuum system, and filled with rare gases.

MERCURY

A heavy, silver-white metallic element liquid at room temperature. When heated to a vapor through which an electronic current is discharged, it produces a bluish-green light. It may be mixed with rare gases, most typically argon, to produce the UV light necessary to excite the phosphors in neon tubes and in florescent lamps.

MOMENT CONNECTION

A connection between two structural members that is highly resistant to rotation between the members, as differentiated from a pin connection, which allows rotation.

NEON TUBING

Glass tubing filled with various gases and charged with electricity creating an illuminated tubular sign or decorative elements. Neon tubing is a term that often is used to describe tubing filled with any of several inert gases, even if neon itself is not present. Neon itself is a rare inert gas which, when an electric current is discharged through it, produces a reddish-orange glow. Other gases, such as argon and mercury, can be used, and will produce other colors. This term is also often used to describe a type of luminous-tube sign. The phosphor-powder coating and color of the glass tubing will also dictate the color of the illuminated tube. Also called **luminous tubing** (page 24).



A unique example of an animated neon sign. Photo taken at the American Sign Museum.

NEON GAS

An inert gas that remains colorless in its natural state. When a sufficient electrical charge is applied to neon gas, it produces a distinct orange-red glow.

NEON SIGN

A sign that incorporates one or more neon lamps. The sign's message is created by bending and forming the neon tubes into lettering and/or shapes.



Neon signs such as this have long been common fixtures in restaurants, bars, and taverns. Photo taken at the American Sign Museum.

OPAQUE

Any material or substance that conceals light, i.e., it is neither transparent nor translucent.

OPEN CHANNEL LETTER

A dimensional letter that has no translucent face and is illuminated with the light source visible (usually exposed neon or LED tubing). Many open channel letters have a transparent face that protects internal components against hail, wind, or other threats.

PATTERN

A full-sized layout of a design. May refer to the design into which neon tubes will be bent, the configuration of vertical sides of channel letters to be constructed, or for painting. See also **pounce pattern** (page 26).

PHOSPHORS

Chemical powders used to coat fluorescent tubes. They become excited when subjected to the UV light produced by the discharge in a luminous tube. A range of phosphors is available, and they can produce a large variety of colors and shades of white.

PHOTOCELL

A dusk-to-dawn, light-activated sensor that powers signs on and off. More advanced photocells also can adjust the brightness of signs in response to the changes in ambient light, based on clouds, time of day, or changes in nearby light sources.

POUNCE PATTERN

A full-sized pattern of any design to be painted. Once the pattern is created, the outline is perforated using a manual or computer-driven perforation wheel. The pattern is then held firmly against the substrate and the perforations patted with powder, charcoal, or colored chalk dust, leaving an outline of the design.

PUMPING SYSTEM

In neon-tube production, a pumping system removes impurities from the tubes and fills them with rare gases. A pumping system typically consists of a manifold, vacuum pumps, rare gases, a bombardier, and electrical controllers.

PUSH-THROUGH

A letter or logo cut out of a backing material that is thicker than the sign face material and mounted on the inside of the sign face so that the backing material's thickness extends through and beyond the front plane of the sign face.

RACEWAY

A metal electrical enclosure that forms a physical pathway for electrical wiring and components. An electric-sign raceway may serve as a visible mounting structure for a wall sign attached to the front of a storefront fascia.

REMOTE

A channel letter or logo that is installed directly to fascia, no raceway included. A remote letter will have the electrical wiring and power supplies installed behind the fascia.

RETURN

The sides of a channel letter.

REVERSE CHANNEL LETTER

A dimensional letter with an opaque face, side walls and an open or translucent back that is pinned out from a background surface. Light from the letter is directed against the surface behind it, producing a halo-lighting effect around the letter.

SELF-CONTAINED

A channel letter or logo that is prewired with the power supply located inside the channel.

SPOTLIGHT

A source of illumination for an externally illuminated sign; a lamp with a strong, focused beam directed toward a sign.

SPUTTERING

A visible lighting effect that occurs when the electrode in a neon tube, because of heat and electrical forces, gradually erodes, blackening the ends of the tube near the electrode and decreasing gas pressure, eventually making the tube inoperable.

SUPPORTS

Insulators that support a neon tube and hold it away from the background surface, also providing some impact resistance. Also called **standoffs** (page 50).

**TIME SWITCH**

A switch that utilizes a clock or timer to automatically turn on and off electric signs at set times each day.

TRANSFORMER

In general, a transformer is any apparatus that continuously increases or decreases the voltage of a power supply. In electric signs, the mechanical or electronic component that transforms the voltage coming into the sign (the primary voltage) into a higher or lower voltage (the secondary voltage) necessary to run the sign. Most signs – especially neon, which operate at 990-15,000 volts (V) – require a higher voltage to operate, but all low-voltage lighting requires a step-down transformer (unless powered by a battery). They are an important element in all neon signs, due to the high voltage required. Fluorescent lamps require a specialized type of transformer unit called a ballast.

TRANSLUCENCE

The property of a material, such as vinyl, paint, or ink, that allows the passage of some light by scattering it. Internally illuminated signs rely on translucent paints and vinyl.

TRANSPARENCY

The property of a material that allows light and images through and, unless clear, conveying a color tint.

TUBE COLORS

Tubing for neon signs is produced as a clear glass, or in colors. Different tube colors serve as filters that only allow the desired color to shine through. In many cases the only way to achieve rich primary colors is through colored glass.

TUBE DIAMETER

The term used to describe the width of a tube. The standard measurement to describe the width of neon tubing is expressed in millimeters (mm).

**ULTRAVIOLET LIGHT (UV)**

Part of the electromagnetic spectrum ranging from 185 to 450 nanometers (nm). Within the sign industry, UV has both a negative and positive influence. When UV strikes certain surfaces, such as the phosphors in neon and fluorescent tubes, it is transformed into visible light. UV is also used for curing some screenprinting inks and paints. But when exposed to sunlight after sign installation, UV light is the prime cause of pigment failure in some paints and vinyls, especially causing red signs to fade.

**UNDERWRITERS LABORATORY
(UL)**

A nationally recognized testing laboratory that tests electrical devices and their construction and certifies their safety. UL is the testing lab most commonly used by sign shops and manufacturers of sign components to evaluate electric signs and sign components and provide a "listing" as required by the National Electric Code. Separate from electrical certification, UL also administers and develops UL48, the Standard for Electric Sign safety that is used by all testing laboratories to describe the methods of sign construction consistent with the requirements of NEC Article 600.

**WALL WASHING**

A technique used to illuminate flat walls that provides even light distribution from floor to ceiling.

WEEP HOLE

A small opening or hole in the bottom of a letter or a sign cabinet, placed at the lowest point to prevent water from accumulating in a unit. Weep holes or drain holes may be required by the UL 48 standard or the National Electric Code for any sign installed in a wet or damp location.

WET-LOCATION FIXTURE

A watertight electrical or light fixture that is sealed to protect against moisture.

The background is a solid light blue color. Overlaid on this are several large, semi-transparent circles in various shades of blue. A large, dark blue number '2' is positioned in the center of the page, partially obscured by the circles. The text 'Materials & Components' is written in a bold, white, sans-serif font, centered horizontally and partially overlaid by the number '2' and the circles.

Materials & Components

ACRYLIC

A transparent, extruded thermoplastic material used in sign making as a shatter-resistant glass alternative. Sold usually in sheets, but sometimes in rolls, under trade names such as Plexiglas® and Acrylite®, acrylic is characterized by clarity, excellent machinability, a range of transparent and opaque colors, and paintability. Acrylic sheets have different thicknesses, properties and tolerances.



Well designed and properly situated, acrylic letters can make an impactful branding statement.

ADHESIVE

A material or substance able to bind and hold two surfaces together. Examples include glue, epoxy and tape, as well as chemical adhesives designed to adhere metals, plastics or cross-bonding compounds that join different types of materials.

ALUMINUM

A lightweight metal material used in sign panels, poles and frames. It is strong and durable in relation to its weight, and resistant to rust and corrosion.

ACRYLIC PAINT

A type of paint or ink with an acrylic-resin base, normally used in screen-printing, and hand painting signs.

ANCHOR

Any device that secures one object to another and does not give way, as well as the process of installing those devices. In sign making, this term refers particularly to the fasteners that are used to secure awnings and fascia signs to facades. See also **J-bolt** (page 47).

ANGLE

An extruded length of material, usually plastic, aluminum, iron or steel, in the shape of an L (right angle). A structural angle has rounded, or radiused, interior corners and more inherent strength than architectural angle, which has crisp, 90-degree interior corners.

BINDER

A substance that binds two other substances together. For instance, lacquer is used as a binder when painting with some metallic dusts. Many paints require binders.

BLIND FASTENERS

Mechanical attachment devices hidden from view that facilitate the attachment of signs, lettering or sculptured pieces to other surfaces. Can be vandal-resistant, tamper-proof, removable, or permanent. Also called concealed fasteners.

BRONZE

An alloy of copper and tin with traces of other metals (zinc, nickel, and lead), used for sculpture, sign plaques, and dimensional lettering. Letters or forms can be cut out of solid material (using a band saw or a waterjet). It can be cast (sand-cast, ceramic mold-cast). It can be fabricated from thin sheets to create dimensional letters (fabricated and soldered). Bronze signs may be lacquered to prevent oxidation, pre-oxidized, or left to oxidize naturally. Many finishes are available: patina, oil-rubbed, clear-lacquered, polished, brushed, etc.

BRUSHED FINISH

A non-reflective, textured finish mechanically or chemically applied to metal for decorative purposes. Grained effect is usually created using sandpaper. Long-grain finishes are applied by hand or via belt sander; short-grain finishes are completed with a drum sander.

BULLETIN COLORS

Specially prepared enamel paints preferred by many sign painters for hand lettering. Bulletin colors are formulated to cover well, dry quickly, and resist fading.

CALENDARED VINYL

Material formed from plastic sheeting with roller-applied pressure. Calendared films are easier to handle and more scratch-resistant than cast films, but are less able to conform to curved surfaces.

CARVED LETTERS

Usually V-carved, U-carved or square-carved into wood or stone. Created by hand carving with a chisel and mallet, sandblasting, or a computer-controlled router or engraver. Two types of carving, bas-relief and incised, are generally done by hand.

CARVED SIGNS

Letters or shapes incised or relief-carved into substrates. It can refer to the routing process, but is normally used as term with regard to hand-carving or sandblasting into stone, wood or glass.



Whether fabricated from wood or HDU, by hand or with equipment, such as CNC routers, carved 3-D signs can create distinctive branding. Photo courtesy of Creative Blast Signs (Cincinnati).

CAST ACRYLIC

A type of plastic sheeting formed by spreading a molten vinyl mixture on a carrier sheet or web, and then baking at high temperatures to remove solvents and to fuse the remaining material into a film.

CAST DIMENSIONAL LETTER/NUMERAL

Forms typically made from cast aluminum, bronze, acrylic, or resin.

CASTING

A method for mass-producing metal or plastic letters or individual metal signs. Depending on the material, a rubber, metal, or sand form mold of the item to be cast is prepared. The molten material is then poured into the mold. Once the cast material is cool, it is removed from the mold and finished.

CAST-METAL SIGN

A plaque or sculptural element typically made from aluminum or bronze.

CAST VINYL

A flexible vinyl substrate that begins as a liquid mass that is formed on a casting sheet. Cast materials are generally thinner and more flexible than calendared vinyl, and is more capable of application to contoured surfaces, such as for vehicle wraps.

CLADDING

A facade or decorative cover added to an existing sign pole or base, installed well after the rest of the sign is built.

CORIAN®

The trade name for a Dupont-manufactured material made from acrylic polymer and alumina trihydrate that is a substrate used for architectural and donor-recognition signage, among other types.

CORONA TREATMENT

A process that alters static charge of sheet material, especially corrugated plastic, for greater adhesion of media used for decoration.

CORRUGATED BOARD

A board created by gluing a corrugated piece to a flat face, or between two flat faces to increase the strength. Corrugated board is made from a variety of materials (most commonly plastic in sign work), and comes in a range of strengths and thicknesses.

CORTEN STEEL

A steel alloy that forms a tenacious, self-protecting rust layer when exposed to the atmosphere. A material with a unique appearance well used in applications where maintenance is an issue. Also called **weathering steel** (page 40).

DEBOSSING

The process of producing depressed letters in a surface, particularly those produced by engraving dies or plates.

DENSITY

The quality of being close or compact. In physics, density is a ratio of the mass of an object to its volume. In sign making, it is a measurement used to express the hardness of foamboards, expressed in lbs. per cubic ft.

DIMENSIONAL LETTERS

Formed or fabricated, non-illuminated letters. Dimensional letters create lower-profile identification than illuminated or channel letters, but offer a wide variety of uses at an economical price.

DYE

A colorant that is dissolved in a liquid and applied to a surface or texture to change appearance.

**EGG CRATE**

A patterned piece of plastic installed below a light source in illuminated awnings or light fixtures to protect the light source from damage or direct visibility, as well as to soften and evenly distribute the transmitted light.

EMBEDDED FIBERGLASS

A common misnomer for **fiberglass embedment** (page 33).

EMBELLISHMENTS

Any addition to a sign face that provides a three-dimensional effect. Cut-outs, push-through shapes/letters, neon strips, and clocks are all examples of embellishments.

EMBOSSSED-PLASTIC SIGN FACE

A plastic sign face that has had three-dimensional lettering or graphical elements vacuum-molded (embossed) into its surface. Also called **pan face**.

EPOXY

A common form of adhesive (glue) that produces a very strong adhesive bond between substrates. Epoxy comes in liquid or putty form, and in two parts, a resin plus a hardening agent. The epoxy base is intermixed with a catalyst immediately before application. Epoxies are capable of bonding together a wide range of materials, including woods, composites and metals. Once the two parts are mixed, working time is limited.

EXTRUDED ACRYLIC

See **extrusion** (page 33).

EXTRUSION

A part that's created by forcing a raw material (usually metal or plastic) through a die to create the desired shape. Often used to refer to the extruded-aluminum members that make up the frames of signs and awnings. PVC boards are also created through the extrusion process.

**FABRICATED LETTER/NUMERAL**

A dimensional letter that is usually fabricated from thin metal, joined, and soldered to appear solid.

FASTENERS

Mechanical items, including nuts, clips and bolts, which help hold a sign together.

FIBERGLASS

Shorthand term referring to glass-fiber-reinforced polyester. It can be used in sheet form to compose sign faces and cabinets, or can be cast into custom forms, both projecting and in relief. May also be called **spun glass** (page 39) when used in dimensional forms.

FIBERGLASS EMBEDMENT

Subsurface signage usually used outdoor signage and maps composed of paper or other media, embedded in glass-fiber-reinforced polyester resin. Also called **embedded fiberglass** (page 33).

FIBERGLASS-REINFORCED PLASTIC (FRP)

Glass fibers are added to heat-resistant polyester resin to form FRP. It has durability, a clean surface after the forming and heat treatment, flexibility in size, light weight, heat resistance, and good insulation qualities.

FLAG

A piece of plastic or cloth, usually square or rectangular in shape and suspended by its top or on one side. It may or may not be decorated; and is most often used as a temporary attention-getting device. See also **banner** (page 54).

FLAT CUT-OUT (FCO) LETTER

A non-illuminated letter cut from sheet metal or plate stock.

FLEXIBLE-FACE MATERIAL

A sign face made of a flexible material stretched over a supporting frame.

FLUORESCENT

Absorbing radiation and sending it back out as visible light. Primarily a light source technology, but can also refer to some specialty colors of paint and vinyl, and inks used in screen printing.

FOAMBOARD

A general term for rigid, flat boards formed from closed-cell foam material, which can range from lightweight boards used for interior signs to heavy, outdoor-grade substrates that simulate wood.. Foamboard consists of a plastic foam sheet laminated on one or both sides by a variety of paper or plastic substrates.



Synthetic-wood materials such as high-density urethane (HDU) provide a durable, water-resistant material that's more easily machined and decorated than wood. Photo provided by Creative Blast Signs.

FOAM TAPE

Adhesive tape, typically double-sided, used for mounting sign plaques, letters, or other sign materials to vertical surfaces. Comes in black or white and in various thicknesses (1/32 to 1/8 in. thick) and widths (1/2 to 1 in. wide).

FORMED

Refers to plastic faces or letters that have been heated and shaped to create dimension.

FRANGIBLE SIGN MOUNT

A breakaway sign mount, typically used on posts along roadways to break away on impact and cause less damage in accidents.

**GLASS-FIBER REINFORCED CONCRETE (GFRC)**

Concrete with an integral strengthening admixture of short alkali-resistant glass fibers.

GLASS SIGNS

Interior signs made from vitreous material. Painting, carving, sandblasting and/or etching are the most popular ways to decorate glass for signage.

GLAZE

A ceramic coating matured to a glassy state on a formed ceramic article, such as tile. This is achieved through application of intense heat in a kiln. The term also refers to the material or mixture from which the coating is derived.

GLAZING

1. The act or process of furnishing or fitting with glass.
2. A transparent or translucent color applied to modify the effect of a painted surface.

GOLD LEAF

Gold is manufactured into thin leaves for gilding. Gold leaf comes between sheets of tissue, with each leaf 3.375 in. sq. gold leaf comes in a range of colors and karats (K), with 14 to 18K for use on interior applications such as glass. The best gold leaf, 23K, is reserved for exterior work on vehicles, signs, and architectural applications.

GROMMET

Reinforced-metal eyelets found around a banner's perimeter that are used to receive cords or other fasteners. It prevents fraying of the material around the hole and provides a durable, easily threaded opening for rope or twine. Also called an eyelet.

HIGH-DENSITY URETHANE (HDU)

A rigid, closed-cell, simulated-wood substrate designed for hand carving, sandblasted and routed-wood signs. It's highly weather-resistant, weighs one-third what wood does, and readily accepts paint and is impervious to petroleum-based solvents. Density, measured in lbs. per cubic ft., ranges from 10 to 36 lbs.; 15- and 18-lb. HDU are the most commonly used HDU types for signage. Brands include Sign*Foam®, PrecisionBoard® and Duna.

KICKPLATE

A metal or plastic plate or strip that runs along the bottom edge of a sign structure or kiosk to protect against marring of the finished surface by kicking or cleaning equipment.

LACQUER

A clear finishing material similar to varnish and preferred by sign makers because of its abilities to dry quickly and to not be affected by the presence of dust. It may also be used as a binder with pigments such as silver dust.

LAMINATED GLASS

A glazing material consisting of outer layers of glass laminated to (and held together by), and encasing, an inner layer of transparent polycarbonate film. In graphics and architecture, patterns and images can be applied to the plastic interlayer to create desired design effect.

MAGNESIUM PLATE (MAG PLATE)

A composite metal sign material which can be acid-etched with fine detail for use in interior and exterior signs. Good for exterior-grade ADA signs and more durable than photopolymer. Lighter weight and less expensive alternative to cast bronze or aluminum plaques. Because it is somewhat porous, it should be primed and painted rather than used as raw metal finish.

MAGNETIC SHEETING

Magnetized sheet material laminated to a flexible plastic sheet and available in rolls. Cut to size and decorated, magnetic sheeting works well for temporary signs applied to magnetic metal surfaces.

MALLEABLE METAL

Any metal that can be hammered or bent into a desired shape with minimal chance of breaking or cracking.

MASONITE®

A brand of hard substrate made from wood chips that have been steamed and pressed into boards.

MEDEX®

A chemically treated, moisture-resistant, exterior-grade particleboard used as a substrate in sign manufacturing.

MEDIUM-DENSITY OVERLAY (MDO)

A type of plywood considered an ideal base for paint and recommended for signs. MDO is exterior-grade plywood with a smooth impregnated-paper veneer on both sides.

METALS

Metals used in sign making include: aluminum, brass, bronze, cast iron, copper, gold, iridium, lead, magnesium, mild steel, muntz metal, nickel, pewter, platinum, silver, stainless steel, tin, titanium, weathering steel, zinc.

METAL FINISHES

Sign finishes vary greatly between silver metals and yellow metals. Typically, both include polished, brushed, satin, matte, painted, anodized, antique, oxidized, galvanized, chrome-plated, nickel-plated, engine-turned, and many others. Metals typically come in a mill finish (as fabricated by the manufacturer). There are many levels of finishes that relate to gloss and reflectance including matte, satin, nondirectional, abraded, brushed, and mirror finish.

MILD STEEL

Steel containing less than three-tenths of one percent (0.003%) carbon. Not used in structural applications due to its relatively low strength.

MOLDING

A trim, commonly made of wood or metal, available in many shapes and profiles, used as detail on many different types of signs. Also a name for the metal or wood that frames a billboard.

MONOLITH

A body of stone, plain or reinforced concrete, cast or erected as a single integral mass or structure.

MOSAIC

Tile with a series of small inlaid pieces of porcelain or natural clay materials that form decorative patterns, images, or words.

MUNTZ METAL

An alloy of copper (55 to 61%) and zinc (39 to 45%) with up to 1% lead. This brass is highly malleable, and is used for sign plaques and letters.

N
NEOPRENE

A type of synthetic rubber with outstanding oil resistance. It is used with quick-setting, high-strength adhesives as a cushioning, gasketing, and weatherproofing material.

NICKEL PLATE

A thin layer of nickel that has been electroplated onto another metal, or the metal so plated. See also **metal finishes** (page 36).

O
OPTICALLY CLEAR

The transparent property of a material that allows materials such as vinyl to be unnoticeable by the average viewer.

P
PAINT

A liquid coating made up of a pigment suspended in a vehicle or binder. Common paint vehicles include resins dissolved in solvents or water. Paint may be brushed, sprayed, or rolled onto a substrate. It dries to a hard film that bonds the pigment to the surface.

PAINT FINISH

In descending order of reflectance: gloss, semigloss, 20% gloss (preferred by the A.D.A.), eggshell, and matte ("dead flat finish").

PLASTIC

A generic term for a wide range of synthetic materials which consist of a long chains of polymers that are moldable and soften when heated. Many plastics used in the sign industry are of the thermoplastic variety, which means they can melt and solidify repeatedly.

PLASTIC-FACED LETTERS

Channel letters in which the front of the channel is covered by a translucent plastic face, diffusing an internal light source.

PLEXIGLAS®

The trade name for a brand of acrylic sheeting, which (like Kleenex®) is often mistakenly used as a generic term.

POLYCARBONATE

A specific thermosetting resin characterized by its durability, flexibility, machinery, and endurance under UV exposure. Polycarbonate has 250 times the impact resistance of standard glass, compared with 17 times for acrylic, and it is easily machined, molded and thermoformed. However, polycarbonate is more prone to scratching and crazing. Lexan® is a popular brand of polycarbonate. See also **acrylic** (page 30, 97).

POLYPROPYLENE

A type of plastic sheet used in banners, noted for its flexibility at low temperatures and its resistance to chemicals.

POLYURETHANE

See **high-density urethane (HDU)** (page 35).

POLYVINYL CHLORIDE (PVC)

A specific thermoset plastic which is weather- and chemical-resistant, available extruded into many forms or cast as sheets in a variety of colors and thicknesses. (It is also used for drainage and plumbing piping). See also **vinyl** (page 40).

PORCELAIN ENAMEL / PORCELAIN SIGN

A traditional process to coat metal with a ceramic slip which is fired at extremely high heat to create a durable, glasslike surface that is impervious to the environment.



Porcelain enamel is a durable material that, during the mid to late 20th Century, was commonly used for gas and automotive-service stations. Photo taken at American Sign Museum.

PUSH-THROUGH

A letter or graphic which is cut out, then pushed through a corresponding space that has been removed from the sign substrate. The push-through is typically different color and/or material than the rest of the sign. Typically used with an opaque sign cabinet and internal lighting. "Push-through letters" are most often translucent acrylic letters that are pushed through a sign face panel to be flush or over flush with the front surface of the sign face.

PVC

See **polyvinyl chloride** (page 38).

QUARTER ROUND

Wood or metal molding and trim which in profile is the equivalent of a quarter circle.

RETAINER

The projecting rim around the sign face that holds it in place.

SHEETMETAL

Metal formed into sheets, commonly aluminum and steel, typically by rolling or hammering into shape, which can be cut and bent into a variety of shapes. Thickness is measured by gauge; the higher the number, the thinner the sheet.

SILICONE

1. Trade name for a popular adhesive used in installation of letters and signs because of its elasticity, strength, reasonable curing time, and impermeable nature.
2. Any of a group of polymers characterized by wide-range thermal stability, high lubricity, extreme water repellence, and physiological inertness, used in adhesives, lubricants, protective coatings, paints, electrical insulation, and synthetic rubber.

SIZING / SIZE

The substance applied to the substrate before gilding in order to make the gold leaf stick to the work surface, and its application. Today, the most common sizing used by glass gilders is made of gelatin capsules dissolved in boiling water and then strained.

SKELETON

The metal frame on which a sign is installed. See also **substructure** (page 39).

SPACER

Any device used in mounting letters or signs that separates them from the surface to which they are being installed. A spacer allows letters to be pinned out.

SPUN GLASS

See **fiberglass** (page 33).

STEEL

An alloy of iron, carbon and other metals, this stout material has high tensile strength, and is commonly used for sign substructures and support poles.

STONE SIGNS

Typically sandstone, granite, marble, limestone, and other common decorative stone material. Letters can be stud-mounted to stone, or they can be carved or incised into the face of the stone.

SUBSTRATE

The material out of which the face is made. Wood, metal sheeting, paper, and acrylic are some examples of sign substrates.

SUBSTRUCTURE

An underlying structure that supports monument signs, which is commonly constructed from steel.

**TACK**

The stickiness of an adhesive under a given condition. Some adhesives require a particular temperature range for maximum tack.

TEMPERA

Pigment mixed in a water medium, usually with a binder and adhesive. Tempera paints produce a luminous effect.

TERRAZZO

A floor-tile material of concrete with an aggregate of marble chips selected for size and color, and ground and polished after curing. Terrazzo can be used to integrate words, graphics, shapes and maps into floors of heavy-traffic areas.

THINNER

Any liquid used to reduce the thickness of paint or ink.

TRANSFER TAPE

A medium-tack adhesive coated on translucent paper. Transfer tape is placed on weeded-vinyl images still on the original carrier liner; the tack of the tape is stronger than the adhesion of the vinyl to the coated liner, so the image is pulled off the liner in a transfer to another surface.

TRANSLUCENT

The property of a material, such as vinyl, paint or ink, that allows the passage of some light through it without being transparent. Internally illuminated signs rely on translucent paints and vinyls.

TRANSPARENT

The property of a material that allows light and images through, and may also show a color tint.

V

VHB

Very-high-bond-tape produced by 3M™. Available in many grades and thicknesses, VHB joining systems are applied between mated parts to eliminate the need for mechanical fasteners or welded attachments.

VINYL

Polyvinyl chloride (PVC) film that, in sign making, is backed with an adhesive that creates a strong bond to a surface when pressure is applied. Many different integral colors are available with adhesives having different levels of aggressiveness (adhesion) for various applications from permanent to semi-permanent to temporary.

VINYL GRAPHICS

An adhesive-backed sign made of vinyl film, generally applied to windows, floors, wall-mounted displays or vehicles. Vinyl graphics can range from stock letters and die-cut decals to custom computer-cut lettering, logos, and full-color photo wraps.



From banners to building wraps to vehicle graphics, numerous varieties of vinyl are essential ingredients for a multifaceted signage and branding campaign. Photo provided by Screaming Images.

VINYL LETTERS

Letters cut from adhesive-backed material, in dozens of opaque, translucent, metallized, and transparent colors and patterns.

W

WEATHERING STEEL

A steel alloy that forms a tenacious, self-protecting rust layer when exposed to the atmosphere. See **corten steel** (page 32).

Z

ZINC

A malleable metal that has a unique gray appearance, somewhat like lead, and can be used raw in exterior applications.

**Equipment,
Production &
Installation**



ABRASIVE METHOD

Acid-etching or sandblasting to alter the surface of a material. The material is masked and an abrasive media is applied to create a chemical reaction (acid-etching) or under high pressure (sandblasting), incising a graphic into the substrate.

ACCELERATION

The force of a knife-plotter head moving from a stopped position to its fastest linear (straight-line) speed. Measured in grams, it gives the zero-to-60 indication of plotter speed, but a better overall indication is throughput.

ACCESS DOOR

A door or panel that provides access to concealed equipment, most often electrical components, for inspection, maintenance, and repair.

ACCESS PANEL

Removable or swinging panel, usually flush with the adjoining surface, that provides access to concealed equipment or system components for inspection, maintenance, and repair.

ACID-ETCHING

A method similar to sandblasting, used primarily for marking glass. A stencil of the artwork is either hand-cut or computer-cut and applied to the glass, which is then brushed with an acid mixture, such as ammonium or sodium bifluoride. After a specified length of time, the surface is washed and the stencil removed. Also called **etching** (page 45).

ADHESION

The force that holds the surface of one material to another. The strength of adhesion is affected by the type and condition of the surfaces in question and the adhesive used. Generally, the surfaces need to be clean and porous enough to allow for a certain amount of penetration by the adhesive. Chemical adhesives are designed to join metals, plastics or cross-branding compounds that join different types of materials.

ANODIZED FINISH

A thin, aluminum-oxide coating applied electrochemically to the surface of a metal object. The coating hardens, protects, and enhances the appearance of the object. An anodized finish can be created in a variety of colors.

AXIS

The geometric guidelines used to place a coordinate that determines knife and/or tool paths for plotters and routers.

AXIS SWAPPING

The process where sign-production software temporarily transposes a plotter's x- and y-axes. The function allows long, thin jobs along the x-axis to be cut across a vinyl sheet's width, saving material.



BASE

1. The trim beneath the bottom molding of a sign or bulletin.
2. The foundation or support of freestanding sign. See also **footing** (page 46, 68, 85).
3. The first or background color(s) in screen-printing.

BLISTERING

The end result of poor adhesion by either paint or vinyl to a substrate, leaving the surface covered with bumps of various sizes and shapes, similar to blisters on skin.

BONDERIZING

A process where sheet metal is zinc-coated and then treated to allow paint to adhere. Used to fabricate baked-enamel signs.

BURNISH

To polish by rubbing. For instance, after gold leaf is applied to a substrate, it is burnished with a cotton cloth to bring up the shine and reveal any holes where the leaf will have to be applied a second time.

CAN

An informal term for the edge and components of an electric sign. Some sign companies buy ready-made cans and only manufacture the faces of electric signs. Also called **sign cabinet** (page 15, 50).



These metal cans, which are decorated with vinyl-clad plastic faces and internally illuminated, provide handsome branding for a Flix Brewhouse cinema/taproom. Photo provided by Cima Network.

CHROME PLATING

An electrochemical process to plate steel, brass, or aluminum, most commonly with mirror chrome, but it can also be brushed or dulled down. Black chrome and nickel plate are created by the same electrochemical process but using different metal compounds. See also **metal finishes** (page 36).

CHANNEL

An extruded length of material – plastic, aluminum, steel – in the shape of a squared-off U (a rectangular box with one side removed). Structural channel has rounded, or radiused, interior corners, and more inherent strength than architectural channel, which has crisp, 90-degree interior corners.

CHANNEL LETTER

Fabricated or formed 3-D letters which may accommodate a light source. The channel letter may be open-faced, plastic-faced, or a reverse channel letter with halo illumination.



Channel letters are a versatile focal point in any sign program. Photo provided by Cima Network.

COORDINATE

A point that can be referenced by its position on the x-, y-, or z-axes of a plotter or router. The use of line or arc segments to connect coordinates creates paths for knives or bits to follow when cutting or routing an image.

COATING

The process of applying protective overcoat to a sign. Coating includes such diverse applications as a layer of liquid clearcoat or varnish over gold leaf to laminating clear vinyl over a digitally produced graphic.

COAT-OUT

To paint the surface of a sign face before the art is applied. In addition to priming new substrates, it is possible to coat-out an old sign and apply a new message.

COMPUTER-NUMERICAL CONTROL (CNC) ROUTER

A cutting machine designed to machine wood, composite material, aluminum, plastics and other commonly used sign substrates. Its benefits include automation, precision, reduction of waste and errors, and less time to get a product to market. CNC routers are often used with two software applications—one to make designs (CAD), and another to translate those designs into a G-code program of instructions for the machine (CAM) in vertical, horizontal, and perpendicular coordinates.

COVERAGE

The area (usually given in sq. in. or ft.) that a given material will coat-out, e.g., a quart of paint will provide coverage for 100 sq. ft.

CRANES

A piece of heavy equipment that uses a hydraulic lift to move heavy objects from a projecting arm or beam. Types of cranes include truck-mounted, with a crane secured on a truck chassis; knuckle-boom cranes, with lifts that expand and retract; and rough-terrain cranes, with a self-propelled boom mounted on a truck that's designed for rough conditions. Certification, based on OSHA-created guidelines, is required to operate a crane lifting a load that exceeds 2,000 lbs.



Cranes, such as this Wilkie 52XLR, are an essential tool for sign installation. Operators of cranes with a capacity of more than one ton are required to be certified by a federally approved school or facility. Photo provided by Wilkie Mfg. Co. (Oklahoma City)

CRAZE

Thin cracks or breaks in paint, plastic, or vinyl. Although the main cause of crazing is weathering, it may also be caused by the incompatibility of paint layers or solvents.

CROSSBAR

A horizontal arm that is attached to a sign. The crossbar typically runs perpendicular to the sign's face and parallel to the building's facade. One is used with guy wires to help stabilize building-mounted signs.

DIE-CUT

Refers to the outline made with a steel-rule die manufactured for the purpose of cutting out a particular shape or job. Die-cutting is common for large runs of items to be cut, such as decals, or if the shape consists of something other than straight lines. Die-cut can also refer to the object that has been cut.

DRAW

In the manufacture of plastic letters and sign faces by embossing, debossing, or vacuum-forming, draw is the depth of the shaped letter or face from the original plane of the material.

EDGING

The act of chamfering a sharp corner.

EMBOSSING

The process of producing raised letters, particularly those produced by engraving dies or plates.

ENGINE-TURNED

Descriptive term as applied to metal and gold leaf finishes. Appearance of material altered by spinning (turning) a series of uniform circles into the surface in rows. The rows then overlap in a symmetrical orderly manner to produce a unique finish. It's most commonly applied to burnished, gold leaf, or stainless-steel surfaces.

ENGRAVING

A method of marking metal, plastic, or glass in shallow, negative relief utilizing a bit or graver. Engraving may be done freehand, using a pantograph, or by computer-driven equipment. The engraved area may be filled to create greater contrast.

ETCHED AND PAINT-FILLED

Etched (chemically) or incised (mechanically or by abrasion) and then filled with color to create a desired contrast and appearance.

ETCHING

See **acid etching** (page 42).

FABRICATE

To manufacture a sign or major sign components from raw materials or parts. Common steps in fabrication process include, but are not limited to, cutting, welding, grinding, machining, riveting, bending, rolling, sanding, polishing, routing, waterjet cutting, laser cutting, taping, painting, etc.

FILLET WELD

A weld at the inside intersection of two metal surfaces that meet at right angles to one another.

FIRST SURFACE

Refers to the application of paint, adhesive-vinyl, or similar material applied to the front or face surface of a substrate, often referencing application to a transparent or translucent substrate, such as glass or acrylic. See also **second surface** (page 50).

FLAMMABILITY

The ability of a material to burn under certain conditions. Flammability becomes a concern with electric signs and some indoor displays, and is usually subject to fire-code control.

FOOTINGS

A concrete-and-metal-rebar foundation used for installing freestanding signs. Variations include caisson (or round), block and spread, which are suited to different structures, weight requirements and soil conditions, among other factors.

 GALVANIZING

The process by which steel or iron is protected by a zinc coating or plating, achieved by hot-dipping the metal into molten zinc or by electrolysis. The galvanized coating protects the underlying metal for between 15 and 30 years, but requires a special primer before coating.

GAUGE

A measure of the thickness of sheet metal or wires; the lower the number, the thicker the sheet. In the sign industry, most sheet metal ranges from 10 to 26 gauge. Thickness varies by metal; for example, 10- to 26-gauge galvanized steel measures 0.1382 to 0.0217 in. thick, and aluminum 0.1019 in. to 0.01594 in. thick.

GILDING

The application of thin metal sheets to glass, signs, and vehicles. After the work surface is cleaned and the design is marked out, a gelatin size is brushed on the area to be gilded. The gold leaf is lightly applied to the work site using a gilder's tip and static electricity. After the entire area is dry, the gold leaf is burnished and holes and imperfections in the gild are filled. The final step, if the gild is reversed on a window, is painting the backs of the letters (and an outline) or outlining them if it is a direct gild. On outdoor application, a protective clearcoat is sometimes applied when the gilding is on incised stone.

GRIT WHEEL

The motor-driven roller that moves material through a friction-feed plotter. The grit-feed wheel is usually machined to roughen its surface and provide a better grip on the material. Some are still coated with a coarse, fine-grit material to provide traction, hence the name.

GUI (GRAPHIC USER INTERFACE)

The combination of menus, icons, and point-and-click functions for controlling computer programs.

 HEAT-BENDING

The process of heating any thermoform plastic, such as PVC boards, acrylics, laminates, etc., and then bending them to desired shapes.

HINGED SIDE

The face on a double-faced sign that swings open for service.

HYDRO CUTTING

See **waterjet cutting** (page 51).

INCISED

Decorated by cutting into or indenting the surface of a material. Incised letters are carved or engraved into surface of stone, wood, plastic, or sandblasted into glass or stone.

INSCRIBE

To write, print, carve, or engrave (words or letters) on or in a surface. To mark or engrave (a surface) with words or letters.

INGRESS PROTECTION (IP RATING)

IP ratings are a two-number system in which the first number references the product's resistance to dust, and the second is the product's resistance to water. For example, an IP66-rated product is rated as dust-tight and protected against powerful waterjet cutter. IP67 and 68 products are rated to be submerged in water.

J-BOLT

An angled rod, usually steel, embedded in a concrete footing, or anchor, and threaded at the exposed top end for attachment to a freestanding sign.

KERF

The cut made by a saw or blade.

KNIFE BEVEL

The angle of the vertical cutting edge of a blade. The angle is increased to aid knife travel through thicker material that produces more friction between the blade and substrate.

MASKING

In painting, screen printing or sandblasting a 3-D sign, the process of covering areas, usually with tape or paper, to protect them from receiving subsequent layers of paint, ink, or abrasive.

MAXIMUM YIELD

In production, the amount of material utilized versus what is wasted or dropped. To achieve maximum yield, objects, letters, etc. are nested manually or via computer to allow the smallest amount of waste in a sheet of material. Also used in reference to organizing cuts on lengths of stock (e.g., bar stock, tube, rod, etc.) to minimize wasted material. See also **nesting** (page 47), **yield** (page 52).

MICROMETER

A finely tuned measuring device used to determine thickness, or gauge, of thin objects.

NESTING

Placement of images or letters in an arrangement to minimize waste of material when cutting. Used mainly in cutting or routing individual letter image backs in metal for channel letters and other electric signs; also seen in vinyl-production software to assemble elements of same color. See also **maximum yield** (page 47).

NOTCHING

Cutting channel letters out in the back to fit over a raceway.



OIL-CANNING

Typically used to refer to a metal surface that shows uneven deflection from an unsuitable inner structure, poor attachment, or insufficient thickness of face material.

ORIGIN

The point marking the zero coordinate on the x-, y-, and z-axis. Used as a starting reference by plotters and routers for knife- and toolpaths.

OUTGASSING

The tendency of solid or liquid elements in a plastic or composite material (such as particleboard) to vaporize over time. Outgassing can occur in some plastics and paints if they have not finished drying, resulting in adhesive failure to anything applied over them. Outgassing also describes the release of impurities in vacuum systems such as neon tubes during processing. Also referred to as off gassing.



PATINA

A finish applied or achieved by age, to metal surfaces, especially copper, brass, and bronze. May include statuary bronze (classic brown color), verdigris (green-gray), and various other colorized finishes.

PERFORATING WHEEL

A toothed wheel on a handle that allows it to rotate freely. After a full-sized pattern is created, the perforating wheel is used to trace its line, creating perforations that can be brushed with dust or powder, creating an outline on the surface to be painted. Also called a pounce wheel. See also **pounce pattern** (page 26).

PINNED OUT

Describing letters mounted so they are separated from the surface to which they are attached. Pinning out is an important part of affixing reverse channel letters, but metal, plastic, or wood letters may also be pinned out to prevent stains from washing down the letters, or for visual impact. Also called pegged out.

POURED IN PLACE

Refers to concrete footings for signs. Wet concrete is delivered or mixed onsite and poured into a form, creating the desired shape. Normal curing and finishing techniques are applied as necessary. This is an alternative to precast concrete, which is formed, poured, cured, and finished offsite, then brought onsite and installed.

POWDER COATING

A specific process for sandblasting, priming, and applying a textured, very durable protective surface. Powder coating enhances a sign's resistance to scratches and chips, and inhibits rust and corrosion.

PRE-ASSEMBLED

Includes the installation of letters, face, LED; installed; the customer completes the wiring to illuminate the sign.

PREFORMED/NOTCHED

A term used to describe a machine-notching method used in the way channel letters or box signs are manufactured.

PREWIRED

Includes letter, face, LED; installed and wired with whip (a prefabricated piece of flexible-metal-conduit cable with a connector), ready to install.

PRECAST CONCRETE

Steel- or glass-fiber reinforced concrete cast in a mold.

PRIME

To coat a substrate prior to the application of paint or adhesive. A primer coat prevents subsequent coats of paint or adhesive from being absorbed. The process is intended to improve the performance and life of the product.

ROUTER-CUT SIGN

Describing a sign cut with a hand router or by a computerized router, using various shaped cutting blades (in a variety of sign materials).

ROUTING

Elimination of material in a substrate, using a tool bit that has been machined for this purpose. In computerized sign making, using a CAD/CAM machine, a tool is programmed to eliminate material along a toolpath created along x-, y-, and z-axes.

SANDBLASTING

A method for decorating glass or wood. A rubberized stencil of the artwork is either hand- or computer-cut and applied to the substrate, which is then sprayed with a pressurized stream of sand or synthetic particles to texture the unprotected area. Once the desired depth has been achieved on the item being blasted, the stencil is removed, and if performed on wood, the surfaces may be painted.



The sandblasting process uses abrasives blasted at high pressure onto a substrate, to create a dimensional signface. This suburban-Cincinnati restaurant and bar gains significant curb appeal. Photo provided by Creative Blast Signs.

SCORING

Cutting or notching a material prior to bending it. Sufficient scoring of some substrates – glass and some thicknesses of PVC boards, for example – will also allow them to be broken cleanly without cutting them all the way through.

SEAM

A line formed by the joining together of two separate pieces of the same or different materials at their edges, as with flexible-face fabric material or wood, metal, or plastic sheet. Also called butt joint.

SECOND SURFACE

Refers to the application of paint, adhesive-vinyl, or similar material applied to the back surface of a transparent or translucent substrate, such as glass or acrylic, while remaining right-side reading. Often used to create a layering affect, or to allow improved tamper-resistance or life expectancy of the applied substance or material. Some large exterior signs are painted that way, as are many smaller identification, wayfinding, restroom, and evacuation signs that are subject to handling on a regular basis. See also **first surface** (page 45).

SERVICE

The general maintenance of a sign. It may include cleaning, repainting, replacement of bulbs or lamps, and repairs, which may be provided on a regular basis under contract.

SERVICE COVER

In an electric sign cabinet, a panel that allows ready access to the bulbs or lamps and the electrical connections for their replacement and maintenance.

SIGN CABINET

The enclosure of an electric sign, not including the components and mounting structure.



Whether a formed-plastic face or second-surface, routed aluminum, cabinets are the backbone of many sign installations. Photo taken by Steve Aust.

SIGN CAN

An informal term for a sign cabinet.

SLIP-BASE

Foundation consisting of two bolts fastened between the foundation plate and the concrete footer.

SOLVENT

A petroleum-based liquid used to modify oil-based paints and inks, or to remove them from sign components, frames, and brushes.

SPECIFICATIONS

A detailed account of the scope, quantity, size, production methods and materials scheduled to be used for a sign project. They may include general requirements, products, and completion sections for sign-specification packages. They resemble architectural construction-format specifications per CSI (Construction Specifications Institute) standards.

STANDARD FRAME

The structural supports found inside a sign cabinet.

STANDOFFS

Hardware, typically metal, designed to mount signs and panels at a fixed distance from a surface.

SPACER

Any device used in mounting letters or signs that separates them from the surface to which they are being installed. A spacer allows letters to be pinned out.



TENSILE STRENGTH

The maximum load a material can withstand before it breaks.

THERMOFORMING

A process that takes a flat sheet of material and gives it dimension by heating plastic, and then forcing it into a mold either mechanically or pneumatically. See also **vacuum-forming** (page 51).

THROUGHPUT

The amount of or rate of production for material that passes through a machine or process.

THREE-DIMENSIONAL (3D) ENGRAVING

A routing procedure where the tool bit can be moved independently along the up-and-down z-axis while still traveling an x/y-axis tool path. 3D engraving can create relief effects and hand-chiseled looks while removing material from a substrate.



VACUUM-FORMING

Taking a flat sheet of material and giving it dimension by placing it in a mold, heating it until pliable and then drawing the air out of the mold, creating a vacuum and forming material to the mold.

VALUE ENGINEERING

Assessing a sign based on the cost of its materials, design, installation, and maintenance, with the goal of getting the best value for the money.

VITREOUS

Resembling glass in terms of transparency, brittleness, hardness, glossiness, etc.



WATERJET CUTTING

Computer-controlled machining process that ejects high-pressure streams of water, sometimes mixed with an abrasive, to cut stone and metal up to 2 in. thick. Because no heat is applied, cutting is done without impacting the material's integral strength. Thus, sharply beveled edges and other intricate shapes are possible. Also called **hydro cutting** (page 46).

WATERPROOF

The use of the term in relation to treated cotton ducks is prohibited by the Fair Trade Practices Act unless the product can be verified impervious to absorption of any water the fabric may encounter. "Water Resistant" is the proper designation for cloths treated to resist water penetration and leakage.

WATER-RESISTANT

Describing a face that has been treated to make it resistant to damage or deterioration caused by water.

WELDING

The process of connecting pieces of material by heating until molten and fusing together. Common types used for sign fabrication are metal-inert gas (MIG), which creates an arc that connects a wire electrode to the substrate, and tungsten inert gas (TIG), which uses a tungsten electrode to deliver the current to the welding arc. TIG welding is similar to oxy-acetylene welding in that a filler material is used for build-up or reinforcement.



X-AXIS

Theoretical horizontal line providing a lengthwise reference point for plotters and routers.



Y-AXIS

Theoretical vertical line providing longitudinal reference point for plotters and routers.

YIELD

1. In regulatory signs pertaining to traffic flow, concede right of way.
2. In production, the amount of material utilized versus what is wasted or dropped. See also **nesting** (page 47), **maximum yield** (page 47).



Z-AXIS

Theoretical line providing a depth reference point for routers. It adds a third dimension when plotting coordinates as part of x, y, and z axes.

The background is a solid blue color with several overlapping, semi-transparent geometric shapes. These shapes include a large rectangle in the upper left, a large circle in the lower right, and a smaller circle in the lower left. The shapes are in various shades of blue, creating a layered, abstract effect.

Digital Printing



ACETATE

A thin, flexible plastic sheet usually available in roll form. Durable and stretch-resistant, this clear material is normally used as a substrate in point-of-purchase signs. Available in glossy and matte finishes.

ADDITIVE COLOR

Color produced by light falling onto a surface, as compared to subtractive color. The additive primary colors are red, green and blue.

APPLICATIONS PROGRAM INTERFACE (API)

System software that allows computer programmers to create interface features or, in a network, determine how the various features will be used.

AQUEOUS INK

Ink that uses water as its main carrier. The ink is nontoxic, virtually odorless and more expensive than solvent-based inks.



BANDING

In a color gradation, visibly distinct differences, or sequential patterns between color levels, instead of a smooth transition of colors or other effects. Banding can take place in continuous-tone images on a display using less than 24-bit information, or when printing gradients without sufficient color information.

BANNER

A sign composed of lightweight material. Promotional banners include those used to announce open houses and grand openings, make special announcements, or communicate events. Ornamental banners use images or colors of a decorative nature.

BINARY INKJET

A drop-on-demand print head that can eject either a specific-size drop or no drop at all. This contrasts with grayscale inkjet printers, which can transmit various ink-droplet sizes and densities.

BLEED

In screen printing, bleed refers to the portion of an image that extends beyond the area of the finished print. When the print is cut or die-cut, the bleed is cut away. Bleed is also used to describe the area where one color overprints or traps another for purposes of registration. See also **trapping** (page 63).



A bleed on a graphic provides edge-to-edge color that maximizes graphic impact. Photo provided by Screaming Images.

BLOCK COLORS

Colors that are printed without gradations, tints, or shades, that is, in "poster style."

CAPPING

Covering print heads when a printer is not in use for an extended amount of time. This prevents evaporation with solvent inks, or light exposure with UV inks.

CMYK

Abbreviation for the ink colors cyan (blue), magenta (red), yellow and black. Combinations of these four colors of inks are used in printing to create all other colors.

COLOR GAMUT

The complete color range that can be printed with a particular combination of printer, ink and media.

COLOR SEPARATION

In screen printing, the prepress process during which each individual color in the art is isolated for creation of its own stencil. In process-color printing and digital printing, the image is divided into separate stencils for yellow, magenta, cyan, and black. Although the process of making color separations used to be done manually or using colored negatives or filters, today the job is relegated to the computer, which also generates color separations for large-format imaging.

CURING

The process of effecting a chemical change in some inks by the application of heat or UV light.

DECAL

An applique of words, graphics, or a combination of the two, screen printed or digitally printed on the no adhesive side of vinyl film, then cut to a specified shape using a plotter or die. Decals are often created when a large number of identical pieces are required.

DELAMINATION

The separation of layers in a laminated substrate. The main cause of delamination is adhesive failure.

DEPOSIT

The amount of ink applied to a substrate.

DIGITAL COLOR SIGNAGE

Computerized output (usually sheet materials) that can be applied to fabric, vinyl, paper, high-pressure laminates, fiberglass embedment, and other material.

DITHERING

A halftone-patterning technique that allows an extended range of tones and colors by applying small ink drops and varied spacing. See also **halftone** (page 57).

DROP-ON-DEMAND

Print heads that are controlled to only drop ink when required. All modern inkjet printers, whether based on thermal or piezo systems, use this technology.

DROPLETS

The ink that is transmitted onto substrates is measured in picoliters (one millionth of a liter). Droplet sizes range from 3 to more than 100 picoliters.

E

ECO-SOLVENT INKS

Inks that contain less aggressive solvents than conventional solvent-based inks, and therefore emit fewer volatile organic compounds (VOC), and are therefore have less of an environmental impact.

ELECTROSTATIC FILM

Polyvinyl chloride (PVC) medium treated with a small charge of electricity, enabling the sheeting to temporarily, but firmly, adhere to glass and similar smooth substrates.

EMULSION

A semiliquid material that dries hard and is used in preparing stencils for screen printing.

EXTENDER

A substance added to an ink to improve is working quality or to extend the volume.

F

FIRING FREQUENCY

The number of drops each second in a print head. For example, a print head with a firing frequency of 7kHz has an ejection rate of 7,000 drops per second.

FLEXIBLE-FACE MATERIAL

Translucent woven vinyl cloth that is decorated and then stretched across a frame to form awnings, billboards, and other types of backlit sign applications.

FLOOD STROKE

In screen printing, inking the image areas of the screen between printing strokes.

FOUR COLOR PROCESS

A halftone printing process that uses the four essential ink colors of cyan, magenta, yellow and black (CMYK) to create a full range of colors on a printed surface. Also called **process color** (page 60).

FRICTION FEED

A process where material is fed through a plotter by placing it between a motor-driven grit wheel and two tensioned pinch rollers.

FRISKET

An adhesive masking of paper or plastic used for (stencil-like methods of) painting, sandblasting, silk screening, and other processes. Friskets may be hand-cut or digitally cut.

G

GLOSS

The shine on a smooth surface, such as paint or vinyl. Varying degrees of gloss are high gloss (also called "mirror finish"), semi-gloss, eggshell, satin, matte, etc.

GLOSS METER

A device used to measure the reflective degree of a surface, from specular (mirror finish) to matte (dull, nonreflecting).

GRAYSCALE HEADS

Print heads that are able to vary the density of individually printed dots, which contribute to an image's color tones.

HALFTONE

The process of converting images into a regular array of dots of various sizes with equal spacing between centers. Also the process of reproducing an image as a series of dots of various sizes within a fixed grid.

HAND-CUT

A method for making a stencil where a knife is used to manually cut a design into a film temporarily affixed to a support sheet.

HEAT-ACTIVATED

A type of adhesive that isn't sticky at room temperature, but undergoes a chemical transformation when heated.

HIGH-PRESSURE LAMINATES

Papers impregnated with thermosetting melamine and phenolic resins bonded at high temperatures, which are available in sheet sizes up to 48 in. x 144 in. x 1/16 in. deep, and come in dozens of standard colors and patterns. High-pressure laminate materials are now available with custom-digital artwork embeds suitable for outdoor use as well.

HINGING

A vinyl-installation process where a cut-vinyl image, the carrier liner, and the transfer tape are placed on the target surface; a piece of masking tape is then attached to the top edge of the transfer tape. The liner is then slowly rolled off from the top edge and then the transfer tape and vinyl image are slowly smoothed onto the surface. A variation of this leaves an exposed strip of transfer tape above the top edge of the liner, instead of separate piece of masking tape, to act as a hinge.

INFLATABLE

Plastic or fabric signage that assumes a three-dimensional shape when filled with pressurized air or helium gas. Inflatables are temporary signs often seen as part of a special promotion.

INK

The mixture of colored pigments in a suitable liquid used for screen-printing or digital printing. Inks are typically either water-based or solvent-based, and their selection is based primarily on the substrate to be printed. They form a solid surface after either curing or drying.

INK-RECEPTIVE

Describes a substrate that can receive ink when printed and will contain the ink after drying or curing.

JAGGIES

An informal term for the visual stair-stepping edges that occur in an image when the image resolution is too low. See also **bitmapped** (page 103).

LAMINATION

A process by which different materials are mechanically bonded together. The end result may be the creation of a substrate, such as medium-density overlay (MDO) plywood, or protection of the underlying surface, as when a clear film is laminated to a decorated surface. Protective laminates typically provide UV and mechanical protection to the underlying surface.

LAP JOINT

A connection in which two pieces of material are overlapped before fastening.

LATEX INK

A modified, aqueous-based ink suitable for outdoor signage, which contains copolymer resins and pigments held in emulsions in water.

LINE SCREEN

Used to define the density of a screened or halftone image. That is, a 133-line screen contains a pattern with 133 halftone dots per linear inch. The higher the number, the higher the resolution, and in turn, the higher quality of detail in reproduction of original artwork.

LINES

In lamp arrays, vertically stacked lamp banks creating a single line of copy. A line is typically seven or nine lamps in height.

**MATTE / MATTE FINISH**

Having a dull surface; not shiny or reflective.

MESH

In screen printing, the material stretched across the frame. Also referred to as the fabric.

MIRROR

1. Function of reversing type or an image in design. Used mainly for cutting copy or images to be installed on the inside surface of a transparent substrate such as a window.
2. Highly polished, virtually specular finish on surface or material.

MOIRÉ

An interference pattern created by the overlay of two regular patterns. In screen printing, it's the undesirable pattern on halftones caused by incorrect screen angles.

MOTTLED

1. Marked or patterned with irregular patches of color.
2. Describing a surface finish that is rough or uneven.

MULTICOLOR PRINTING

Any printing job involving the application of more than one color of ink.

MURAL

Wall surface that has been treated with a paint, tile, or vinyl graphic pattern, image, or shape. Historically, murals have been either hand painted or mosaic-tile installations. Now, murals can be achieved using large-format digital prints that can emulate any material or finish desired.



Whether an exterior building wrap or interior wall décor, murals provide a creative, colorful way to brand a space or create atmosphere. Photo provided by Screaming Images.

**OFF-CONTACT**

A way of screen printing in which the screen is raised at least 1/8 in. above the substrate. It is the preferred method for printing nonabsorbent substrates.

OPAQUE

Not clear or translucent; not allowing light to show through.

OUTGAS

The evaporation process of solvents emitted from a printed piece. If a solvent-ink-printed graphic is to receive a laminate, the solvents must have completely outgassed prior to application, or bubbling will occur under the laminate.

OVERLAP

The amount of material either cut or printed in the one panel or tile that duplicates what is done in the previous panel or tile. The overlapping image allows for alignment when assembling and installing a large image.

P

PAGE

The production area of a plotter or printer. Most plotters have a limit of page size along the y-axis (usually a few inches less than the width of the material), and the x-axis (although most allow 1,000 in. or more). See also **panel** (page 59).

PANEL

A section of artwork based on the production area of a device, such as a plotter or printer. If the artwork size exceeds the production area, different panels are set up by the sign software, and can be produced by selecting individual panels. See also **tiling** (page 62).

PARALLEL COMMUNICATIONS

A method of sending information from a computer to another device (such as a plotter or printer) by sending multiple signals at once through a cable. These move faster than serial communications, but a computer may not be able to sense errors in the device receiving the information. Available with most computers and some plotters/printers.

PENNANT

A piece of plastic or cloth, pointed at the bottom and suspended by its top. Often undecorated, it is a temporary promotional device.

PIEZO-ELECTRIC PRINT HEADS

A print head that enables drop-on-demand ink delivery. The piezo-electric material, which resembles a crystal, expands or contracts when an electric current passes through it, and the effect forms an actuator, or pump, that transmits inks within the print head chamber.

PIGMENT

A compound used to color other materials, such as paints and inks. Pigments are insoluble (unlike dyes), finely ground particles, may be organic or inorganic, and are generally more resistant to fading than fully dissolved dye colorants.

PINCH ROLLER

A wheeled holder, usually tensioned by springs, which clamps vinyl or other materials between it and a grit wheel for transporting the material through a friction-feed plotter. Plotters use two pinch rollers, with one or both movable along the y-axis to accommodate materials of different widths.

PINHOLES

Tiny, unsealed spots in the nonprinting areas of a screen, which allow ink to flow onto areas that aren't supposed to be printed.

PLOTTER

A computer-controlled printer or cutter. Often referred to as a CAD (or Computer Aided Design) device.

POLLING

A method where a computer sends a signal to a plotter or printer requesting information on the current production area. The device sends back an answer on production parameters; the production software then sets panels, or tiles, based on the information. Works only with serial communications.

POSTER

1. A series of paper sheets printed for use on a billboard. Other substrates used for poster include plastic and cloth.
2. Also, a sign typically printed on paper and intended for indoor use. Other substrates used for posters include plastic and cloth.

PPI (PIXELS PER INCH)

The number of pixels in a raster image that will occur in one line in the span of one inch. The higher the PPI, the greater the resolution and the less distinguishable each pixel becomes.

PRESSURE-SENSITIVE

An adhesive that reacts when pressure is applied to create the bond to the substrate. Sometimes used to refer to vinyl with a pressure-sensitive adhesive.

PRINT HEAD

A printer's core component, print heads contain an array of nozzles that eject droplets of inks towards the printed substrate.

PROCESS COLOR

The three primary colors of printing – yellow, magenta, and cyan – plus black. When printed as halftones in that order, they create a full range of natural colors. Also called **four-color process** (page 56).

**QUADRATONE**

A printing process that uses varying concentrations of black ink instead of different colors such as CMYK (four-color process). The result is heightened midtone and shadow appearance in black and white images.

**RAIN LAP**

A method for applying printed paper or vinyl sheets by starting at the bottom of the area to be covered and working upward. As each strip is applied, it overlaps the one below it, preventing rain from getting into the seam and weakening the bond with the substrate.

RECLAIMING

Removing a screen printing stencil from a screen mesh so it can be used again.

REFLECTIVE SHEETING

Film with very small glass or glasslike bead materials (or prisms) encapsulated below its surface, creating the ability to redirect light beams back to their source, such as from a car headlight back to the driver. The amount of light reflected, along with the angle of vision for which the reflective property is effective, is rated in different grades, such as promotional, engineer, and highway.

REFLECTORIZED SIGN

A sign that has been coated with a highly reflective material. See also **reflective sheeting** (page 60).

REGISTRATION

1. In screen printing, the correct placement of the image to be printed on the substrate.
2. In multicolor printing, registration also refers to the correct alignment of the colors with one another. Failure to register an image will result in unwanted mis-coloring along the edges, as well as blurred halftones.

RESIN TRANSFER

A method of heating a colored resin material and printing it onto vinyl. The resin is sublimed, or momentarily turned into a gas without passing through a liquid state. The gas seeps into the vinyl and then re-solidifies, creating a permanent image.

RESOLUTION

1. In digital imaging, the number of pixels shown on a screen; the higher the number of pixels in a given space, (i.e., the greater the density of pixels), the more precise the pictured image.
2. In plotting, the degree of accuracy with which a plotter will place a knife head in relation to a theoretical, perfect location of a coordinate.

RETARDER / RETARDANT

An additive that slows the drying time of ink.

RIP (RASTER IMAGE PROCESSING)

Software or hardware used to convert data to specific information needed by a printer or other digital output device to produce finished output. Action referred to as "RIP'ing" the file.

**SATELLITE DROP**

A small ink drop that forms behind the main drop as it ejects from the nozzle. Ink that drifts from its intended path can create blurred prints.

SCREEN

A frame over which fabric is stretched for use in screen printing. The screen supports the stencil or emulsion through which the ink is forced by the squeegee, creating the print.

SCREEN PRINTING

A stencil method of applying paint or ink to surfaces, such as wood, paper, glass, metal, through a resist applied to fabric stretched over a frame. Can utilize a photographic process to create/control the resist for more precise imaging. The artwork is also cut into rubylith resist on computer-driven plotters or tables. Also called silk screening.

SMOOTHING

A method used to vary speed and movement of material and knife head of a plotter, making for less-jagged transitions between nodes during cutting.

SOLVENT

Inks that contain pigments suspended within volatile organic compounds (VOCs). This is most commonly used type of inks for outdoor signage.

SPOT COLOR

A specific color that cannot be produced with standard CMYK process combinations.

SQUEEGEE

1. In screen printing, a flexible blade mounted in a wood or metal handle and used to force ink through a stencil mounted on the screen.
2. In sign making, a hard plastic, nylon, or soft felt or felt-edged, blade used to apply pressure to increase surface adhesion between cutting vinyl and the transfer tape or between the vinyl and sign face.

STOCHASTIC SCREENING

A silk screening process that conveys the tone of a screened image by varying the number and location of dots rather than just varying the size of the dots within the grid.

STREAMER

A long, narrow banner included in interior or window displays only.

STRETCHING

1. The process of securing mesh to a frame in screen printing.
2. The stretching of vinyl sign face material over a flex-face sign cabinet.

SURFACE TENSION

The attraction between molecules at a fluid's surface. High surface tension equates to high bonding ability, while low surface tension refers to lower substrate bonding.

SUPER GRAPHIC

A digitally printed design that covers all or a major portion of a wall, building, or structure. A super graphic is a sign only if it is related by language, logo, or pictorial depiction to the advertisement of any product or service, or the identification of any business.



Supersized printed graphics such as these provide solid branding impact in stadiums, stores and other public spaces. Photo provided by Screaming Images.

**TANGENTIAL KNIFE**

On a plotter, a blade holder that is mechanically turned to aid in deflecting the edge to create curved cuts.

THROUGHPUT

The actual speed of a plotter in completing a job. Difficult to measure, but it represents a plotter's ability to process information and then cut an image.

TILING

The digital process of dividing a large image into individual sections to print with overlap.

TRANSLUCENCE

The property of a material, such as vinyl, paint, or ink, that allows the passage of some light through it without being transparent. Internally illuminated signs rely on translucent paints and vinyls.

TRANSPARENCY

The property of a material that allows light and images through, and may also show a color tint.

TRAPPING

In screen printing, to overlap one color on another. Trapping may result in the creation of a third color in the overlap area, or, if opaque inks are used, the edge of the first color may be hidden for purposes of registration. See also **bleed** (page 54, 104).

TUNNELING

The separation of a laminate from a substrate, appearing in a straight line or channel, due to insufficient adhesion, inadequate tension/stability, improper curing during application, or an inadequate quality of substrate.

**VEHICLE GRAPHICS**

Any type of advertising applied to any type of vehicle.

VEHICLE WRAPS

Vinyl, printed with a custom, full color design is applied to the entire surface of a vehicle. This effect is similar to a custom paint job, but with a much lower cost and the added bonus of being able to remove the wrap with no damage to the underlying surface.



The cost per thousand impressions (CPM) makes vehicle wraps an effective investment for any branding campaign. Photo provided by Screaming Images.

VISCOSITY

The thickness or density of a paint or ink.

**WASHOUT**

The process of opening up the image area of a screen after a photo stencil has been exposed.

WAX TRANSFER

A method of heating a colored wax material and printing it on to vinyl.

WEEDING

The process of peeling extraneous vinyl or matrix away from a plotter cut, leaving only the sections representing the final image. Pulling the extra material away in one quick stroke is known as "rip weeding."

Government, Regulatory & Safety



ABATEMENT

In law, the removal or control of an annoyance, such as a sign not meeting a community's sign code. This is commonly a term associated with removal of asbestos.

ALLOWANCE

A total value of area or space, typically expressed in square feet., related to the amount of sign area permitted on a site.

ALTERATION

Any change in copy, color, size, material, height, shape, or other physical characteristic that changes the appearance of a sign, or a change in position, location, construction or supporting structure of a sign. A change of sign copy may also be considered an alteration.

AMORTIZATION

1. In accounting terms, this refers to the method in which an intangible asset is depreciated over a specified time.
2. In terms relevant to signage and urban planning, it conveys the "grace period" beginning on the date a sign owner is notified that removal of a previously conforming sign has been ordered and ending on the date removal is required. This process makes a structure, which was legally erected with all permits, temporarily legally non-conforming. After an amortization period, the sign becomes illegal and nonconforming. Amortization is a form of regulatory taking. The legality of amortization depends on state law and numerous other conditions and is frequently unenforceable.

ANIMATION

Motion graphics or displays on a digital sign, or moving parts on any type of sign. Some sign codes prohibit sign animation.

ANNUAL AVERAGE DAILY TRAFFIC (AADT)

Measurement representing the total number of vehicles passing a given location each day. These counts can usually be obtained from your state's highway department.

APPROACH

The area along a street, sidewalk, or similar path from where a sign first becomes visible until the display is no longer readable as the viewer passes by.

AUTHORITY-HAVING JURISDICTION (AHJ)

The organization, office, or individual responsible for approving layout drawings, equipment, an installation, or a procedure. The AHJ may be the building-code manager, building administrator, city planner or zoning board of the local community in which the jobsite is located.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

Based in Washington, D.C., ANSI's primary goal is the enhancement of global competitiveness of U.S. business and the American quality of life by promoting and facilitating voluntary consensus standards and conformity assessment systems and promoting their integrity. The Institute represents the interests of its more than 1,200 companies, organizations, government agencies, institutions, and international members.

B

BUILDING

Any structure, either temporary or permanent, that has a roof supported by columns or walls, and intended for the shelter, or enclosure of persons, animals, or property of any kind.

BUILDING CODE

State and/or local regulations governing public health, welfare and safety of construction and maintenance.

BUILDING FRONTAGE (OR FAÇADE WIDTH)

The length of an enclosed building facade. When calculating width of any façade, such calculation shall be based on viewing the façade from a 90-degree angle (i.e., straight on), regardless of façade insets, offsets or angles.

BUILDING UNIT

Any building subdivided into separate units or spaces, any interior space occupying any portion of the ground floor of any building, and tenant having its own exterior entrance, and separated from other such spaces by a party wall or walls.

C

CERTIFICATE OF OCCUPANCY

A document issued by a local government agency or building department certifying a building's compliance with applicable building codes and other laws, and indicating it to be in a condition suitable for occupancy. The procedure and requirements for the certificate vary widely from jurisdiction to jurisdiction, and on the type of structure. In the U.S., obtaining a certificate is generally required whenever a new building is constructed, a building built for one use is to be used for another (e.g., an industrial building converted for residential use, or occupancy of a commercial or industrial building changes, or ownership of a commercial, industrial, or multiple-family residential building changes.

CHANGEABLE-COPY SIGN

A sign, or portion thereof, on which the copy or symbols change, either automatically through electrical or electronic means, or manually, through placement of letters or symbols on a panel mounted in or on a track system.

CLEARANCE

The shortest distance between the lowest portion of a sign or awning and the finished, average grade at the base of the sign. See also **height** (page 69).

CODE

This term typically refers to a community's sign regulations. May also be called a sign resolution, sign ordinance, or similar terms.

CONTRACT DOCUMENTS

Written specifications and design control drawings. Usually used to define the deliverable sign products between two parties (typically between the designer / owner and the fabricator / contractor). See also **design intent drawings** (page 67, 107), **shop drawings** (page 113).

CONFORMING SIGN

A sign that is legally installed in accordance with federal, state, and local laws and ordinances.

CONTENT NEUTRAL (TIME, PLACE OR MANNER)

Consistently applicable non-discriminatory sign regulations that specify, without reference to the content of the message, when, how and where a sign can be displayed, with physical standards, such as but not limited to height, size and location.

COST APPROACH (VALUATION)

An approach to estimating the value of real property whereby the appraiser determines the production cost of the property minus any accrued depreciation. This approach does not merely include the hard costs of construction, but includes all soft costs such as interest, permits, and fees. In sign appraisal this concept includes the cost of replacing the message delivered to viewers.

DESIGN INTENT DRAWINGS

Drawings that show only the size, profile, and basic relationship of parts, but no specific details of material or construction. Usually, these drawings are provided as bid documents from which the selected fabricator develops shop drawings and/or prototypes to define and confirm specific details.

DOCUMENTATION

Process of recording and conveying design intent information. Used as a tool for recording and reviewing shapes and data throughout design process, from schematics through design development to design intent drawings and finally to contract documents. See also **schematic design** (page 113), **design intent drawings** (page 67, 107), **contract documents** (page 67, 105).

DWELL TIME

The amount of time that text or animated content is required to stay in place on a digital sign per code regulations. Code-sanctioned dwell times can vary from two seconds to 15 minutes; eight seconds is frequently a code- or ordinance-established dwell-time standard.

ERECT

To place a sign and sign support structure in its final location; to install.

F FAÇADE

The exterior wall on the front, side, or rear elevation of a building regardless of whether the building side faces a street.



Given the variety of sign-fabrication solutions available, building facades provide a blank canvas ideal for any sign campaign. Photo provided by Cima Network.

FAIR-MARKET APPROACH

A property-appraisal method, by which the highest price at which a property could be sold given a reasonable exposure period in the market. The price is arrived at by a willing seller and willing buyer, neither being under duress to act.

FOOTCANDLE

A unit of illumination on a surface that is one foot from a uniform source of light of one candle, and equal to one lumen per square foot.

FOOTING

The projecting base of a sign pole or pylon, including the portion that is buried in the ground. The footing bears all the weight of the sign, keeping it straight and true while anchoring it against overturning moment. Normally engineered to withstand wind gusts of 90 miles per hour or more depending on geographic region. Also called foundation.

FREESTANDING SIGN

A sign that is generally supported upon the ground by a monument, pedestal, pole, bracing, or other permanent measure not attached to a building or other structure. Such signs are typically supported by a masonry or concrete foundation, such as a monument sign, or a pole, such as a pylon sign.



Where codes allow vertically oriented signs, freestanding pole signs provide a commanding branding platform. Photo provided by Cima Network.

G **GOVERNMENTAL MESSAGE SIGN**

Any sign installed by a governmental body to inform the public. Such signs may include, but are not limited to, traffic signs, wayfinding signs in the rights-of-way, emergency signs, etc.

GRADE

The average level of the finished surface of the ground adjacent to the sign, building, or other structure being measured.

GRANDFATHERED

A sign that is exempt from specific regulations because it was legally installed before such regulation was enacted.

H **HANGING SIGN**

A double-face sign that hangs from a bracket or support and projects from a wall, building, or pole. See also **projecting sign** (page 13).

HEIGHT

The vertical distance from the average grade at the base of the sign to the highest point of the sign face.

HEIGHT OF SIGN

The vertical span of a sign, which is frequently regulated by sign codes.

HOLIDAY DECORATIONS

Signs or displays, including lighting, that are a nonpermanent installation celebrating religious, national, state, and local holidays, or holiday seasons, that does not contain advertising.

I **ILLEGAL SIGN**

Any sign placed without proper approval or permits as required by any applicable zoning or building code at the time of sign placement. Illegal sign shall also mean any sign placed contrary to the terms or time limits of any permit and any nonconforming sign that has not been brought into compliance with any applicable code.

J **JUST COMPENSATION**

The full monetary value to be paid for property taken by the government in accordance with the Fifth Amendment of the U.S. Constitution. Just compensation is generally determined by obtaining an appraisal.

I **LIGHT REFLECTANCE VALUE**

A scale that determines the quantity of visible and usable light reflected by all directions and all wavelengths when a surface is illuminated. Essentially, this scale is used to identify how much light a color reflects or absorbs.

LISTED SIGN

A sign labeled to indicate that the manufacturer of the sign is identified in a list published by a nationally recognized testing laboratory as producing signs in conformance with the applicable American National Standard.

M

MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)

This manual is the grandfather of all sign codes in the U.S. Available from the US Dept of Transportation, it defines highway sign standards and traffic control graphics. It sets minimum standards of placement that a sign must provide to achieve readability and conspicuity. The manual covers a range of traffic control devices, specifically signs, which it breaks into three categories—guide signs, warning signs, and directional signs. It works with the idea that signing deficiencies cause traffic accidents.

MBE

A minority-owned business enterprise. For many building contracts, particularly those signed with governments, certain percentages of business are set aside for MBEs, woman-owned business enterprises (WBE) and various economically disadvantaged groups.

MODEL SIGN CODE

A hypothetical code that provides guidance on best practices in the regulation of signs that can be related to evidence-based research or general best practices.

MATERIAL SAFETY DATA SHEETS (MSDS)

A material safety data sheet, provided by the manufacturer, is required by the Occupational Safety and Health Administration (OSHA) to communicate a substance's potential hazards, such as the toxicity, flammability, and best-practices for storage and handling.

MULTI-TENANT BUILDING

Any building that contains more than one building unit with the primary entrance or access made from the exterior of the building.



Multi-tenant developments and buildings require substantial, highly visible signs that provide clearly legible branding for individual merchants. Photo provided by ArtFX Signs.

N

NEC (NATIONAL ELECTRIC CODE)

Developed by the National Fire Prevention Association, the NEC is a regionally and locally adoptable set of standards to ensure safe electrical wiring and equipment usage. In some cases, the NEC may be accepted, modified, or rejected in lieu of regulations established by local governing bodies. The code undergoes updates every few years, which its most recent revisions being made in 2020.

NITS

Units of measurement of luminescence of a digital sign, which is used to determine limits of digital-sign brightness.

LEGAL NONCONFORMING SIGN

A sign that was validly installed under laws or ordinances in effect at the time of its installation, but which conflicts with the current provisions of this code.

OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA)

Establishing by Congressional approval of the Occupational Safety and Health Act signed by President Nixon in 1970, OSHA's mission is to ensure safe working conditions by setting and enforcing proper training, education and assistance. The organization also enforces various whistleblower statutes and regulations.

ON-PREMISE SIGN

A sign whose message and design relates to a business, an event, goods, profession, or service being conducted, sold, or offered at the same location as where the sign is erected.



An on-premise sign advertises the business that occupies that building or property where the sign is located, whereas an off-premise sign, such as a billboard, may market offsite businesses. Photo courtesy of Creative Blast Signs.

OVERLAY DISTRICT

A district shown on the zoning map within which, through super-imposition of a special designation, certain regulations and requirements, including potentially for sign regulations, apply in addition to those of the underlying zoning districts to which such designation is added. Examples of an overlay district may be a historic overlay, design overlay, entertainment overlay, or other specialty regulations.

PANELBOARD

Within a building, the center of the electrical-distribution system. Also referred to as a distribution board.

PERMIT

For the purposes of sign regulations, a permit is a license granted by the appropriate authorities to allow a sign to be erected. A permit may be referred to by other names, including, but not limited to, a license, certificate, etc.

PLANNER OR ADMINISTRATOR

Often an employee of a local or regional community who fulfills an administrative role of establishing land-use practices for a community, which sometimes includes the development and administration of sign regulations and guidelines.

PLANNING COMMISSION

A group of citizens appointed by the city council or board of supervisors to consider land use planning matters including proposals to adopt or amend a general plan or zoning ordinance, take action on subdivisions, and approve use permits and variances.

PERMIT

A legal document (license) granted by the appropriate government agency that gives official permission to take a specific action, e.g. erect a sign.

PLOT PLAN

A drawing or sketch showing the layout looking down on the site on which a sign is to be erected. A plot plan will commonly show such things as the sign's relationship to buildings, parking, pedestrian walkways, etc. A plot plan is sometimes required to obtain a permit. Plot plans may be referred to by other names, including, but not limited to, site plans, drawings, etc.

PORTABLE SIGN

A movable sign with a power cord for electrical connection that's not permanently attached to the ground or building, and is readily removable using ordinary hand tools.

PRIMARY FAÇADE

The façade of a building that 1) faces the primary street or 2) contains the primary entrance of the building, for single-tenant buildings, or contains a majority of customer entrances, for multi-tenant buildings, as determined by the committee, board or administrator enforcing the code.



REVIEW BOARD

A panel selected by a government or institution with oversight over the review of a sign plan. Review boards can include traditional community boards such as, but not limited to, planning commission, zoning commissions, historic commission, legislative boards, boards of zoning appeals, etc. Review boards may also be established for more specialized purposes including, but not limited to, economic development, architectural review, or to design review.

RIGHT-OF-WAY

An area or strip of land, either public or private, on which an irrevocable right-of-passage has been recorded for the use of vehicles or pedestrians or both.



SECONDARY FAÇADE

All façades that are not defined as the primary façade.

SETBACK

The minimum distance a sign must be built from a lot line, right-of-way, building, structure, or other point. The distance is typically measured in a straight line from the base/bottom of the sign.

SIGN

Any object, device, display, or structure, or part thereof, visible from a public place, a public right-of-way, any parking area or right-of-way open to use by the general public, or any navigable body of water which is designed and used to attract attention to an institution, organization, business, product, service, event, or location by any means involving words, letters, figures, designs, symbols, fixtures, logos, colors, illumination, or projected images. The definition of sign shall include all parts, portions, units, and materials composing the same, together with the frame, background, and supports or anchoring thereof.

SIGN AREA

The surface area that encompasses the entire display area of a sign including the advertising surface located on one or more sign faces and any framing, trim and molding, but not including the supporting structure. The sign area may be calculated by the actual shape of the sign or through the calculation of the area of a geometric shape that contains the area of the sign face, as may be determined by the local jurisdiction.

SIGN CODE

A sign code may be part of a government body's land use planning regulations, or it may be a separate document designed to interact with other land use codes. As part of the police powers granted to local governments, a sign code normally seeks to promote the health, safety, and welfare of the public. Sign codes may regulate size, placement, illumination, structure and aesthetics of sign content and design. May be referred to by other terms including, but not limited to, sign ordinance, sign regulations, or sign resolution.

SIGN FACE

The front surface of the sign (in elevation), where the graphics are placed.

SIGN-LOCATION MAP

Usually a site plan or floor plan indicating where signs will be placed (called "sign locations"). Also referred to as a **plot plan** (page 72).

SINGLE-TENANT BUILDING

Any building that is considered a singular building unit or that is leased by a single person or business.

SITE

All the contiguous ground area legally assembled into one development location which is a zoning lot. A zoning lot can be defined as a permanent parcel (lot of record), multiple lots of record, or a portion of a lot of record.

SOIL BEARING

Refers to the ability of uncompacted soil to support a weight, such as the footing for a sign. The figure usually must be obtained from an engineer (or soils engineer), and is expressed as lbs. per sq. ft.

SPECIFICATIONS

May include general requirements, products, and execution sections for sign specification package. Similar to architectural construction format CSI (Construction Specifications Institute) standards.

SPINNER SIGN

A sign, either freestanding or wall-mounted, where the messages rotate in the wind.

SQUARE FOOTAGE (SQ. FT.)

The most common unit of measurement for calculating permissible on-premise sign area.

STREET FRONTAGE

The length of a front boundary line or lot line that is parallel and coincides with a street right-of-way line.

STAKEHOLDERS

Those involved in a sign project or establishing and updating sign codes. This includes several layers of involvement, from the fabricator and the client to code administrators, other government entities, nonprofit organizations, and historical review boards, among others.

STRUCTURE

Anything constructed or erected, the use of which requires location on the ground or attachment to something having location on the ground. All signs and all buildings are considered structures. In the sign industry, a fabrication designed for and capable of supporting a sign, which can refer to internal or external skeleton (exoskeleton) of sign as well as support pole or mechanism.



TEMPORARY CERTIFICATE OF OCCUPANCY (TCO)

A temporary permit that typically allows a new building to be occupied before it is fully complete and therefore requires life-safety signs to be in place to protect the public at large.

TRADEMARK

A trademark is a legally registered brand or identification that may include, but is not limited to, a name, symbol, word, or combination of those. Trademarks are protected by the federal government.

TRAFFIC COUNT

A traffic count is a tally of the number of vehicles passing a location in a day. Traffic count can be calculated as the annual average daily traffic (AADT), peak hour traffic, or variations of such.



UNDERWRITERS LABORATORIES (UL)

A nationally recognized testing laboratory that tests electrical devices and their construction and certifies their safety. UL is the testing lab most used by sign shops and manufacturers of sign components to evaluate electric signs and sign components and provide a "listing" as required by the National Electric Code. Separate from electrical certification, UL also administers and develops UL48, the Standard for Electric Sign safety that is used by all testing laboratories to describe the methods of sign construction consistent with the requirements of NEC Article 600.

V

VARIANCE

A method by which a government body formally deviates from the terms of its legal standards or regulations. Typically, obtaining a variance for a sign requires the applicant to show that it would not be contrary to the public interest or that a literal enforcement of the regulations would result in a practical difficulty or an unnecessary hardship, due to conditions peculiar to the property.

W

WBE

A woman-owned business enterprise. For many building contracts, particularly those signed with governments, certain percentages of business are set aside for WBEs and minority-owned-business enterprises (MBE).

WIND LOAD

The force that wind exerts on a sign and its support structure. Local code administrators establish requirements for wind loads that signs must withstand. In areas prone to hurricanes, tornadoes and other wind-induced weather events, wind loads are commonly higher than other areas.

WINDOW, AREA OF

The area of a single window includes all windowpanes in an area that is separated by mullions, muntins, or other dividers.

Z

ZONING CODE

Rules that define how property located within a specific zoning district. The regulations can include requirements for signs including, but not limited to, the size, type, location, and design of signs allowed within that specific zoning district.

ZONING DISTRICT

A section or sections of the community for which regulations governing the use of buildings and premises. Under these designations, such as residential, commercial, industrial or agricultural, the height of buildings, development standards, yards, lot areas, signs, and other standards are uniform.

ZONING PERMIT

A permit granted pursuant to the zoning ordinance to allow development or use of a specific project on a specific site under the terms of the permit. Required prior to obtaining building permit. Also referred to as a zoning certificate or land-use permit.

Digital Signage



ACTIVATION

1. A buying decision motivated at the point of purchase by such factors as buying convenience, price, promotion, impulse selection, etc. Digital signage is often used in retail environments to activate these types of impulse buys.
2. A reference to the installation and initial powering up of a digital display.

AD AUDIENCE

Refers to the number and type of people exposed to the specific ad, with an opportunity to view it.

AD-EXPOSURE FREQUENCY

The number of separate ad exposures of an ad-audience member during a venue visit, or another defined or measured period.

AD-EXPOSURE TIME

The number of seconds spent watching and listening to the ad.

ALINGAP (ALUMINUM INDIUM GALLIUM PHOSPHIDE)

LED-chip technology containing aluminum, indium, gallium, and phosphorus, which produces red, orange, and amber colors.

AMP (OR AMPERE)

A unit for measuring the electrical current's rate of flow within an electrical system. Current (Amps) = Power (Watts) / Voltage (Volts). For example: a 1,200-watt system on 120-volt service would equal 10 Amps.

ANIMATED SIGN

A sign depicting action, motion, light, or color changes through electrical or mechanical means, although technologically similar to flashing signs, the animated sign emphasizes graphics and artistic display.

ADVANCED RISC MACHINE (ARM)

A closed-system, embedded controller used to manage simple, direct tasks, like basic animations or video, embedded font list and modes. Due to its limited processing and memory, it cannot be expanded or upgraded with more features or capabilities.

ASPECT RATIO

The width-to-height ratio of an image. For example, a high-definition television image has an aspect ratio of 1.78:1 (commonly referenced as 16:9), meaning that for every 1.78 in. of image width the image extends 1 in. in height.

ATM TOPPER

Video screens built into the top of ATM machines used to display advertising and other information, independent of the ATM itself.



BANDWIDTH

In video applications, the range of available frequencies that can be encoded and decoded, as well as the signal-carrying capacity in a video path; measured in hertz (Hz) or bits or bytes per second (bps/Bps).

BIN

A grouping of LEDs based on certain performance parameters (flux, color or CCT, and Vf) into smaller groups that meet aesthetic requirements for LED assembly.

BINNING

A sorting of a particular set of LEDs into bins containing common properties (color, flux, forward voltage (Vf)).

BIT

Reference to the number of shades possible making up the total number of shades/color available. For example, most systems are 8-bit, with many newer systems having 16- or even 32-bit shading available. Example: Each color in an 8-bit RGB display is capable of 256 RGB colors per channel:

Full Color Reproducibility for 16.77 Million Colors Using 8-bit RGB Color:

8-bit (2^8) = 256 Tones per color
 256 tones (R) x 256 tones (G) x 256 tones (B)
 = 16,777,216 colors

Though the human eye can reportedly only perceive up to 10 million colors, the added color depth creates a smooth texture and sharper image, which can be perceived.

BOUNDING BOX

The area of an on-screen image at its maximum x- and y-axis measurements. Altering the bounding box by moving its control points can change the shape or size of an image. Bounding boxes allow scaling of all graphics images in PostScript file types.

BROWSER

A software application used to access, retrieve, and present information on the World Wide Web. Can be used for accessing internal networks and files as well.

**CANDELA**

A measurement of light intensity. 1 candela = the light power of a single candle. In the lighting industry, candelas are used to measure the intensity of light both projected on (lumens) and reflected from (lux) a surface. LED displays are typically rated by measuring candelas per square meter (referred to as nits).

CAT5 & CAT6

Ethernet network cables used for digital-signage connectivity. Cat5 cables offer bandwidth of up to 100MB per second (MBPS) of data transfer speed at 100 MHz bandwidth; Cat6 cables provide a maximum data-transfer speed of 10GB per second (GBPS) at 250 MHz bandwidth.

CE MARK

The European Commission describes the CE mark as a "passport" that allows manufacturers to circulate industrial products freely within the internal market of the European Union (EU). The CE mark certifies that the products have met EU health, safety and environmental requirements that ensure consumer and workplace safety. All manufacturers in the EU and abroad must affix the CE mark to those products covered by the "new approach" directives to market their products in Europe. Once a product receives the CE mark, it can be marketed throughout the EU without undergoing further product modification. See also **declaration of conformity** (page 80).

Tests that electronic devices must pass to earn the CE mark include EN 61000-3-2:1995+A14:2000, which limits harmonic-current emissions, and EN 61000-3-3:1995, which establishes a limitation of voltage fluctuations and flicker in a low-voltage supply system-rated current.

CHANNEL

A specific, prescribed, or official course or means of communication. Regarding place-based digital signs, this refers to a particular network of venues.

CHROMINANCE

The measurement of the color portion of a video image. Chrominance pairs with luma, the measurement of the achromatic, or black-and-white, portion of a video image.

CHROMATICITY DIAGRAM (CIE)

A U-shaped line connecting the chromaticities of the spectrum of colors.

CIRCULATION

Traffic volume in a market, also called traffic count (a physical count of cars which go by a specific location in a typical hour/day/week/month/year).

CLOUD-BASED

SAAS (Software as a service) which is accessed online through an application or via web browser. Software is typically sourced from a remote server and accessible via a password-protected user account for a specific digital-signage display(s) set on that account.

COLOR

Displays can be monochrome (single color), grayscale (capable of single color (red or amber) shading with either 256 or 4,096 shades, bi-color (two different color LEDs which can blend to offer red, green, or yellow) and RGB or "full-color" displays.

COLOR UNIFORMITY

Color uniformity is described using three terms: 1) Hue, which describes the situation when the appearance of different colors is similar; 2) Lightness, which portrays a range of grayness between black and white; and 3) Chroma, which expresses the degree of departure from gray of the same lightness and increasing color.

COLUMN

Vertical groups of lamps in a lamp bank, or a vertical row of light-emitting diodes in an LED matrix.

COMPONENT

One of the parts or pieces that together make a complete system or design. Reference is often made to the design or electrical components of a sign.

CONTENT

Media, clips, text, video, and audio that is presented by the display and audio devices within a digital-signage system.

CONTRAST RATIO

The ratio of the brightest colors a display can produce in comparison to the darkest colors/full black the display can produce. The ratio is determined between the light and dark source of a display.

CONTROL CONSOLE

In electronic signage, the device that receives information entered on a keyboard by the operator and transfers that information to the sign's message controller.

CONTROLLER

An internal or external control system (ARM or Industrial-based PC/Android/other computer) which runs a display's content-management system and pushes content to the display. Controllers are available in two different formats: embedded and PC-based. Embedded controllers reside on the sign itself and resemble a circuit board. A PC-based controller is separate from the sign and runs on a computer. Software, called a content-management system, is required to operate a controller.

CONTROL POINT

In computer graphics, a connection between two line/arc segments or a selectable handle on a bounding box. Moving a control point changes the shape of an object, altering a line path, shape, or size. Also called **node** (page 89).

CRT (CATHODE-RAY TUBE) SCREEN

Used for television screens and computer monitors. They can be used individually (as seen in airport arrival / departure signs) or adapted for electronic displays by stacking a grid of monitors together and generating computer images. Generally regarded as obsolete within the digital-sign market.

CANADIAN STANDARDS ASSN. (CSA)

The CSA is a nonprofit association serving business, industry, government and consumers in Canada and the global marketplace. Among many other activities, CSA develops standards that enhance public safety. As a nationally recognized testing laboratory, CSA is familiar with U.S. requirements. According to OSHA regulations, the CSA-US mark qualifies as an alternative to the UL mark.

**DAILY EFFECTIVE CIRCULATION (DEC)**

Also referred to as "daily impressions," "traffic count," and/or "circulation." The DEC is the average number of people passing by and potentially exposed to a display for a given period (usually measured in 24-hour intervals).

DECLARATION OF CONFORMITY (DOC)

Related to the CE mark, the DOC is a document a company authority must sign to verify that the device meets the European Commission requirements. The DOC must include a list of any standards used to justify the claim of compliance with the directive.

DEMAND

A desire for a product or service. A buying decision is based on brand identity and the impression based on previous purchases and experience of use.

DEGRADATION

The standard method used to express the lifetime expectation of a display. Lifetime is measured in the time it takes for LEDs to diminish to 50%-60% of its original luminous output. LEDs rarely fail completely; when they've degraded down to less than 60% of initial output, they're considered to have failed.

DIGITAL ADVERTISING NETWORKS

Digital networks integrating targeted entertainment and/or informational program content with advertising narrowcast through digital networks and/or screens in place-based venues, such as big-box and small retail stores, transit stops, malls, grocery, health clubs, medical offices, gas stations, office buildings, hotels, and other out-of-home consumer venues.

DIGITAL BILLBOARDS AND DISPLAYS

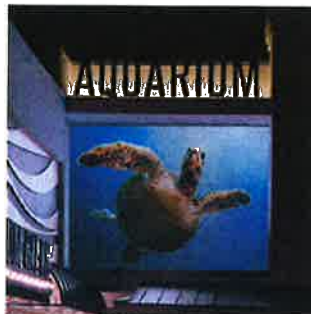
Communicating advertising-only messages through screens equipped with LED (light-emitting diode) or LCD (liquid-crystal display) technology, often changing at predetermined times, or through motion-recognition technology, to showcase multiple brands.

DIGITAL DISPLAY SIGN

LCD, Plasma, TV, or LED screens displaying digital content throughout a digital-signage network.

DIGITAL DYNAMIC SIGNAGE

Digital dynamic signage is a term used to describe the emerging industry where flat-panel devices, such as plasma screens and liquid-crystal displays, are used as moving posters and electronic bulletin boards.



Dynamic digital signs allow the opportunity to display more diversity and robust content, images, promote products and events, or provide public-service announcements. Photo courtesy of ArtFX Signs.

DIGITAL MENU BOARDS

LCD, Plasma, TV, or LED screens that take the place of static menu boards in restaurant venues. Content is delivered to the menu board through a central content manager, and changes are displayed to the menu dynamically based on the requirements of the venue.

DIGITAL OUT-OF-HOME NETWORK

Refers to multiple interconnected displays in public spaces by means of projector, LCD, plasma screens, electronic billboards, isle-talkers, etc. Multimedia content is usually displayed using a computer, also referred to as a digital engine or media player, including for products and services not offered by the business using the display.

DIGITAL SIGN

A singular reference to a screen that is running digital signage content and typically replaces static billboards and posters.



Whether it's a large screen installed within a towering pylon sign, or a display located within a small cabinet, digital signs provide dynamic, engaging content that holds the attention of motorists and pedestrians.

DIGITAL SIGNAGE

A network of digital displays that is centrally managed and addressable for targeted information, entertainment, merchandising and advertising. Synonyms: dynamic signage, digital signs, electronic signage, digital-media advertising, digital signage network, in-store TV network, captive-audience network, narrowcasting network, out-of-home media network, digital-media network, advertising network, etc.

DIGITAL-SIGNAGE PLAYER

The device at customer sites where software accesses and displays digital signage information that it "receives" from the controlling server. Digital-signage players automatically communicate with a primary server and in some cases; roll over to backup servers in the event of an interruption. The player may further assure consistency and uninterrupted signage presentation by preloading pages while others are being displayed. Also called a **controller** (page 80).

DIGITAL-SIGNAGE SOFTWARE

Software that is standalone or Internet-based that drives a digital signage system and digital sign.

DIGITAL-SIGNAGE SOLUTIONS

A complete system with software, hardware, installation, training and sometimes even including content.

DIGITAL SIGNS

Plasma display panels (PDPs), liquid crystal displays (LCDs), light-emitting-diode signs (LEDs), or traditional television (CRTs) being used like signage. That is, instead of tuning in a television station, they are showing specially prepared visual images to make them function like signs. This gives the operator of these signs the ability to update them quickly, and to use engaging content.

DIRECT-VIEW LED (DVLED)

Another term for digital signage that is increasingly used in place of electronic message centers.

DIGITAL VISUAL INTERFACE (DVI)

Developed by the Digital Display Working Group, this digital connector is used to connect a video source, such as a display controller, to a digital sign or other type of display.

DISPLAY DEFINITION

The number of horizontal and vertical LEDs. Definition is the display, while resolution is the number of pixels per square meter (p/m²). Also see **pitch** (page 89) and **resolution** (page 61).

DISPLAY DEVICE

CRT, flat-panel LCD, plasma, aerial imaging, projector, or other electronic devices that are at the endpoint of a digital-signage system that presents the content.

DIGITAL VIDEO INTERFACE (DVI)

A video interface standard designed to provide high visual quality on digital display devices such as flat-panel LCD computer displays and digital projectors. It was developed by the Digital Display Working Group (DDWG). Designed for carrying uncompressed digital video data to a display, it is partially compatible with the high-definition multimedia interface (HDMI) standard in digital mode (DVI-D), and VGA in analog mode (DVI-A).

DWELL TIME

The amount of time that text or animated content is required to stay in place on a digital sign per code regulations. Dwell times can vary from two seconds to 15 minutes; eight seconds is a common standard.

E

ELECTRIC CHANGEABLE- MESSAGE SIGN

A misnomer for an **electronic message center** (page 7).

ELECTRONIC MESSAGE CENTER (EMC)

A typical reference for outdoor LED displays. Also referred to as EDS (electronic display sign), CDS (changeable display system), CMS (changeable message center), LED message center, LED Sign, scrolling marquee, electronic display system, or DS (digital signage, which also refers to LCD/OLED/QLED/plasma displays/ and other high-definition digital-content display systems).



Whether a standalone display or a component of a large pylon or multi-tenant sign, an electronic message center's dynamic capability holds viewers' attention. Photo provided by ArtFX Signs.

ELECTRONIC-MESSAGE SIGNS

Dynamic, changeable signs which may be any of the following: EMD, LED, LCD or CRT signs. See also **video wall** (page 93), **plasma screens** (page 89), **flat screens** (page 85).

ELECTROMAGNETIC DEVICE (EMD)

Magnetically controlled disks that flip on and off to create changeable messages that are controlled with digital technology. See also **electronic message signs** (page 83).

ETHERNET

A local-area network (LAN) architecture uses a bus or star topology and supports data transfer rates of 10 Mbps. A newer version of Ethernet, called 100Base-T (or Fast Ethernet), supports data transfer rates of 100 Mbps. And the newest version, Gigabit Ethernet, supports data rates of 1 gigabit (1,000 Mbps).

ETL

ETL Testing Laboratories, also known as Intertek, has been conducting electrical performance and reliability tests since 1896, and is recognized by OSHA as a nationally recognized testing laboratory. The ETL Listed mark is an alternative to the CSA and UL marks.

EXPECTED LIFETIME

Anticipated length of use for an LED display. The expected lifetime of an LED display is measured at the point when the sign has degraded to 50% or 60% of its original intensity. LEDs have a typical expected lifetime of 50,000 to 100,000 hours (depending on the design of the overall system, type of substrate materials, LED grade, drive current, and manufacturing technology used by the display manufacturer).

EYES-ON

A new measurement for traditional outdoor advertising, which reflects the probability that a person notices a billboard, and therefore, the advertising on it.

F

FACE

The surface area on an outdoor LED display where copy is displayed. A display may have more than one face.

FEDERAL COMMUNICATIONS COMMISSION (FCC)

The FCC is an independent government agency responsible for regulating the radio, TV, and phone industries. The FCC regulates all interstate communications, such as wire, satellite and cable, and international communications originating or terminating in the United States. FCC certification marks are required on all electronic-display systems to act as immediate visual confirmation the electronic display system is certified as a "safe emitter", and falls within the guidelines set forth by the FCC after having been verified through independent third-party testing.

FIBEROPTIC CABLES

High-bandwidth cables used for digital signs that display live content or require bandwidth that exceeds Cat5 or Cat6 capabilities.

FLASHER

A mechanical device designed to interrupt the electrical current in a sign at regular intervals, turning the source of light on and off to create a flashing image.

FLAT-PANEL DISPLAY

A computer or television monitor that uses LCD or plasma technology. This allows the monitor to have a thin profile, light weight, small footprint, and a flat screen.



A flat-panel display can provide branded content, product data, entertainment and other types of information helpful to customers and visitors. Photo provided by Cima Network.

FLAT SCREEN

Usually an LCD screen used in electronic sign displays.

FLIPPER

A device used in some electronic changeable-copy signs, installed in a disk, door, cube, or sphere. It opens and closes electromagnetically, displaying a colored or black surface. Flipper signs are often used as an alternative to incandescent-bulb displays.

FLUX

The sum of all lumens (lm) emitted by a source.

FOOTING

The projecting base of a freestanding digital sign, including the portion that is buried in the ground. The footing bears all the weight of the sign, keeping it straight and true while anchoring it against wind load and other environmental factors. Footings are normally engineered to withstand wind gusts of 90 miles per hour or more depending on geographic region. Also called foundation.

FRAME RATE

Depending on the video standard, the times an actual image is changed per second. Most LED systems use pulse-width modulation (PWM) or PDM (pulse-duration modulation) to generate the color levels; if the images were only "refreshed" once for every change, there would be a noticeable flicker on the display. A frame rate of equal to or greater than 60 times per second will minimize the flicker.

FREQUENCY DISTRIBUTION

The percentage of respondents reached at each level of exposure to an advertising schedule.

**GAMMA CORRECTION**

A process used with video images to correct brightness and internal micro-contrast within the image.

GROSS IMPRESSIONS

Refers to the sum of exposures to a schedule of digital place-based network announcements.

**HALF-INTENSITY ANGLE**

Half intensity refers to the viewing-angle rating as specified by the LED manufacturer, such as Sander or Nichia. This simply states that at X degrees the LED intensity will be half as intense as it would be at 0 degrees. Also see **viewing angle** (page 93).

HDMI

Acronym for high-definition multimedia interface, a digital connector interface that combines uncompressed high-definition video, multichannel audio, and intelligent format and command data in a single cable; with a bandwidth of up to 5 gigabytes, it supports all HDTV standards.

HDTV

Acronym for high-definition television, a display format for digital TV transmissions that boasts twice the number of scanning lines per frame (60 fps) than conventional standard-definition TV (SDTV), as well as offering a much higher number of pixels and a wider aspect ratio.

HIGH-SECURITY RADIO

An advanced, encrypted system of RWF point-to-point radio that provides sufficient security for military, healthcare and other environments that house sensitive information.

INCOTERMS

A set of predefined commercial terms published by the International Chamber of Commerce (ICC), widely used in international commercial transactions. For more information, see <http://en.wikipedia.org/wiki/Incoterms>.

INTENSITY

Often referred to as brightness. The LED industry measures display intensity in nits (candelas per square meter).

IP (INGRESS PROTECTION) RATING

Also referred to as "international protection" rating. Consists of the letters IP followed by two digits (or one digit and one letter) and an optional letter. As defined by the international standard IEC 60529, the IP code classifies and rates the degrees of protection provided against the intrusion of solid objects (including dust, accidental contact, and water) in mechanical and/or electrical enclosures. The higher the rating, the better the "seal." Refer to http://en.wikipedia.org/wiki/IP_Code for more information.

INTERACTIVE

Relating to a two-way electronic or communications system in which response is direct and continual. Interactive displays incorporate a touchscreen, buttons, switches, or a keyboard to generate a signal that activates an information display.

INTERNET PROTOCOL (IP) ADDRESS

A numerical label assigned to each device within a computer network and used for communication between devices and location addressing.

IP MULTICAST

A networking transmission protocol allowing multiple computers to simultaneously receive the same transmission.

IPTV

Digital television service delivered via a broadband IP link using data communications wiring.

JAVA

A programming language invented by Sun Microsystems. It is network-oriented and designed for writing programs that can be downloaded to your computer with small programs called "applets."

JAVASCRIPT

A programming language that enables web pages to be designed with a higher level of interactivity.

K

KHZ

The abbreviation for kilohertz, or thousands of cycles per second.

KIOSK

An electronic device that provides information (via a display), is interactive in nature (a multimedia combination), and allows for input (via an input device such as a touchscreen or a keyboard). The kiosk differs from a standard PC because it is created for a specific user and purpose and is owned, controlled, and operated by the deployer.

L

LAMP BANK

The part of a message center that the public sees; a regular array of small lamps which display messages via on and off patterns.

LIQUID-CRYSTAL DISPLAY (LCD) SIGN

A type of changeable copy sign utilizing liquid crystals that become opaque or clear when exposed to a controlled voltage. Although LCDs are most common in calculators and digital watches, they are also used in some time and temperature displays.

LIGHT-EMITTING DIODE (LED)

An electronic semiconductor light source. The LED is not a lightbulb with a filament and will never burn out. An LED is a solid-state light source which pushes photons across a junction, the "pulse" of light emits so quickly at a high rate that the light is perceived as constant.

LED BRIGHTNESS

The light level of an LED is measured in millicandelas. The materials and process used to manufacture the LED determines the overall brightness of the LEDs.

LED CONTROLLER UNITS

Used primarily for interior DVLED displays, these systems arrange content so that it is displayed according to desired scheduling.

LED SIGN

Consists of a small light source that emits colored light (usually red, but green, amber, blue, and white are also available) from a small amount of electricity and is used for electronic "message" signs. These signs became popular in the 1970s because they were inexpensive and allowed scrolling/changing messages to be used in commercial applications. Advances in LED technology have made them more useful for interior and exterior message displays. See also **electronic message signs** (page 83).

LINE OF SIGHT

The ability to directly view an object between one point and another without physical barriers causing an obstruction.

LISTED MARKS

A listed mark certifying the electrical components/system have been built and tested to a certain standard by a nationally recognized testing laboratory (NRTL). An NRTL is an independent laboratory recognized by the Occupational Safety and Health Administration (OSHA) to test products to the specifications of applicable product safety standards, such as those from ETL (Intertek), Underwriters Laboratories (UL), CSA (Canadian Standards Association) and other standards-writing bodies. An NRTL's function is to provide an independent evaluation, testing, and certification of any electrically operated product. A mark should be on a completed LED display. Some manufacturers hold a UL or ETL listing, but only for "component" systems, not "finished/completed" systems. A component system will require final NRTL approval/listing/certification for the company installing the system.

LUMA

A measurement of the brightness of the black-and-white portion within a video image. Pairs with chrominance, the measurement of brightness of the color portion of an image.

LUMEN

A measurement of light output. One lumen equals the amount of light falling on a one square foot area located one foot away from a single candle.

LUMINANCE

The intensity of a light emitted by a source as measured in a given direction. Luminance is a measure of the amount of visible light only. It is expressed as footlamberts or candelas per square foot or meter, respectively.



A regular array of lighting units in the display area of an electronic changeable-message sign.

MESSAGE CENTER

Any sign that displays changeable copy through electronic or mechanical means.

MESSAGE CONTROLLER

In an electronic sign, the device that stores messages entered by the operator and conveys them to the display area of the sign in the proper order using electrical impulses.

MESSAGE SCHEDULE

A list of sign types programmed for a given facility which provides sign type, location reference, and message.

MONOCHROME (MONO)

Most manufacturers refer to single-color displays (usually red or amber) as monochrome or "mono" displays. True "mono" displays are now few and far between; most displays referred to as "mono" are really grayscale units capable of up to 4,096 shades of a single color.

MULTICHANNEL PLAYER

A player that outputs multiple streams of unique content to multiple display devices.

**NARROW PITCH**

Term used to describe LED display systems which have tighter pitch and higher resolution (10mm, 8mm, 6mm, 5mm, 4mm, 3mm, 1mm, 0.9mm and smaller). Narrow pitch normally applies to interior displays, but these systems are sometimes used for outdoor displays.

NARROWCAST

Program content designed to reach a specific group within a particular demographic.

NETWORK

A group of computers connected with cables and software for constant, on-demand communication. With a network, several computers can use or control software installed on a central computer, or server, dedicated to one or a few functions.

NITS

A luminance unit equal to one candela (one candle) per square meter measured perpendicular to the rays from the source. From the Latin word *nitere*, meaning "to shine", nits measure display intensity, or brightness. Nits, when used in conjunction with contrast ratio and viewing angle, determine image quality in a desired application.

NODE

See **control point** (page 89).



In computer graphics, a distortion of an image using an S-shaped curve as one baseline, giving an image a wavy look.

OUT OF HOME (OOH)

Also referred to as digital OOH (DOOH). All advertising which is specifically intended to reach consumers outside the home. OOH includes (but isn't limited to) outdoor media such as radio, LCD/plasma displays, Digital Prints, and LED displays.

ORGANIC LIGHT-EMITTING DIODES (OLEDs)

OLEDs are thin, solid-state films of organic molecules that illuminate when electricity is applied. Because they emit visible light, no backlighting is required, and OLEDs achieve a higher contrast ratio than LCD signs with a very slim profile.



A device which measures light levels in a given area, often used with LED displays to automatically set display brightness. Also referred to as a light sensor.

PITCH

Also referred to as "center-to-center spacing." The measurement from one central point among a group of LEDs which make up a pixel to the next center point. The tighter the pitch, the closer the pixels and the higher resolution of the display.

PIXEL

The smallest image-forming unit of a display made up of three or more LEDs for color (RGB) or two LEDs for monochrome (red or amber).

PLASMA SCREEN

A type of flatscreen digital-image display screen which is uniformly flat and less than 5 in. deep. Generally considered obsolete in the industry.

PLAYLIST

A schedule defining the order and duration of content to be displayed.

PLAYLOG

Record of information created from the digital signage system reflecting the content played, the system performance and other data.

PROOF OF PERFORMANCE

Documentation certifying content that was created and scheduled to play, actually played when scheduled and did not experience interruptions/delays/down-time or other loss-events which would cause the content to not play at the appropriate times.

**QUEUE**

An electronic holding area, usually in random access memory (RAM) or on a hard drive, where data is pooled and waits before being released sequentially for output.

QDOT

Also referred to as QLED, or quantum-dot LED displays. Photo-emissive or electroluminescent use quantum-dot light-emitting diodes (QD-LED) in LED-backlit LCD (liquid crystal display) systems. A newer high-definition alternative to OLED (see OLED).

QUICK-RESPONSE (QR) CODE

A type of matrix barcode (or two-dimensional code) that has become popular due to its fast readability and comparatively large storage capacity. The code consists of black modules arranged in a square pattern on a white background, and the information encoded can be made up of any kind of data.

**RANDOM-ACCESS MEMORY (RAM)**

Computer memory available to the user for creating, loading, or running programs, and for the temporary storage and manipulation of data, with rapid access.

READABILITY ANGLE

The angle at which the LEDs on a sign can still be seen and/or read. The readability angle, which is dependent on ambient light and site conditions, is much larger than the viewing angle. For example, at night, an LED display's readability angle can increase because the display is the primary source of light. This makes the angle of view appear to be larger because the display is not competing against sunlight and appears brighter/bolder. Readability angle is largely subjective and difficult to measure. See **viewing angle** (page 93).

READ-ONLY MEMORY (ROM)

A type of nonvolatile memory used in computers and other electronic devices. Data stored in ROM cannot be electronically modified after the manufacture of the device. ROM is typically used in 'firmware.'

RECEIVING AND SENDING CARDS

To create synchronous system display (digital displays match controlling computer), the sending and receiving cards connect to the controller and display, respectively, and transmit the data that will enable the content display.

RED-GREEN-BLUE (RGB) DISPLAY

The color-mix term for full-color displays (also used in video displays, web design and computer monitors). Colors are typically defined in terms of combinations of these three colors. Some displays utilize RGBW (Red-Green-Blue-White) or RGBY (Red-Green-Blue-Yellow), though they are rare because the added color has a negligible overall effect on resolution/contrast and color quality.

REFRESH RATE

The number of times per second the display hardware draws the data on the display. This differs from Frame Rate in that the refresh rate includes the repeated drawing of identical frames, while frame rate measures how many times new frames can be displayed per second.

REMOTE CONTROL

A method for changing the message on electronic changeable-copy signs at remote locations, whereby the data is provided to the control console by telephone.

RESOLUTION

A basic measurement of information displayed on a screen, expressed in units of pixels. Resolution is determined by the physical dimensions of the display and the pixel pitch. To calculate resolution, divide the area of the display by the area of an individual pixel. Most high-definition displays have a resolution greater than 10,000 pixels. Generally, the greater the resolution, the better the image will appear. Commonly listed as number of pixels per square meter. Also see **pitch** (page 89).

ROAMING WIRELESS FRAMEWORK (RWF)

A point-to-point, radio-frequency communication system conveying content to a digital sign when connecting to a network isn't possible.

RS (RECOMMENDED STANDARD)-232

A protocol for sending signals between devices. For digital signage, an RS-232 system will send a signal to switch a display off and on and enable remote-control capability.

**S-VIDEO**

Short for separate video, a video-connection interface that carries luminance (Y) and chrominance (C) signaling separately to prevent color crosstalk and improve image reproduction.

SOFTWARE AS A SERVICE (SAAS)

Sometimes referred to as "on-demand software," a software-delivery model in which software and its associated data are hosted centrally (typically online or in the cloud) and are typically accessed by users using a thin client (a lightweight computer optimized for remote connections), normally using a web browser over the Internet. SaaS has become a common delivery model for most business applications, including accounting, collaboration, customer relationship management (CRM), enterprise resource planning (ERP), invoicing, human resource management (HRM), content management (CM) and service-desk management. SaaS has been incorporated into the strategy of all leading enterprise-software companies.

SCANNER

An optical device that senses different levels of light reflection and translates that information into numeric formulas that can be read by a computer and replicated on a screen.

SCREEN-SCRAPING

Software which takes image/video from one source (in this case, a controller PC) and replicates the source elsewhere (on the LED display).

SEQUENCE

A continuous or related series of things following in a certain order or succession. With signage, a sequence may refer to the operation of a flasher or chaser, or to the order and frequency of messages in an electronic changeable-copy sign, or the pattern of an advertiser's billboard campaign.

SERVER

In computer networks, servers act as a hub for storing programs used on workstation computers.

SIGN SCHEDULE/SIGN MESSAGE SCHEDULE

An inventory or list indicating the quantities of signs and messages for each individual sign. Typically used as a contract document for final text and sign wording, keyed to a sign location plan.

SOLID-STATE LIGHTING

Lighting devices that do not contain parts that may break, shatter, leak, or rupture and contaminate the environment.

SURFACE-MOUNT DIODE (SMD)

Also referred to as a "3-in-1" because it contains red, green, and blue components on each diode, a surface-mount diode has metallic ends (as opposed to wires) which solder directly onto a small pad on a circuit board.

STREAMING

Content delivered live over the Internet.

SURFACE-MOUNT TECHNOLOGY (SMT)

A method for constructing electronic circuits in which the components are mounted directly onto the surface of printed circuit boards. An electronic device using SMT is referred to as a surface-mount device. In the industry, this has largely replaced the through-hole technology construction method of fitting components with wire leads into holes in the circuit board.

SYNCHRONIZED MULTIMEDIA INTEGRATION LANGUAGE (SMIL)

An extensible markup language (XML) to describe multimedia presentations. It defines markup for timing, layout, animations, visual transitions, and media embedding, among other things. SMIL allows presenting media items such as text, images, video, audio, links to other SMIL presentations, and files from multiple web servers. SMIL markup is written in XML and has similarities to HTML.

**TEMP PROBE**

A device which measures and records temperature levels. On LED displays, the temp probe is used to display local outdoor temperatures at the sign location.

THERMAL MANAGEMENT

Control of the operating temperature of the display and display components through designs such as heat sinks and improved airflow.

THERMOSTATIC FAN

Temperature-sensitive sensors which turn a fan on or off depending upon the internal sign temperature.

TIME-AND-TEMPERATURE DISPLAYS

Among the first electronic devices to change copy, these popular signs alternate between showing the time and temperature. Some also display simple messages.

TOUCHSCREEN

Computerized LCD screen directory or information station that is activated by touching the screen. See also **interactive** (page 86).

TRIGGERED CONTENT

Media that can override planned content when certain predetermined conditions are realized, such as the proximity of a shopper, removal of an item from display for examination, or the reading of various inputs such as barcode, loyalty card, biometrics, etc.

**UNDERWRITERS LABORATORIES INC. (UL)**

An independent nonprofit organization that tests products for safety and certifies them. UL has developed more than 800 standards for safety, and millions of products and their components are tested to ULs safety standards. Some examples of UL standards are UL 158, a reference standard for electrical wires, cables, and flexible cords, and UL 48, which addresses electric signs.

UNIVERSAL RESOURCE LOCATOR (URL)

A string of text that specifies the location of an object accessible through the hypertext transfer protocol (HTTP), typically a World Wide Web address. An Internet URL begins with "http://" or "https://".

**VIDEO PROCESSOR**

A video processor works similarly to a controller, but has the ability modify content, making such changes as multiplying or cropping an image to be sent to a tiled display pattern.

VIDEO WALL

An array of screens linked to display a single image or variety of images.

VIEWING ANGLE

The angle within which the light output of an LED is perceived at 100%, outside of this angle the brightness is reduced by half.

VIEWING DISTANCE

The distance from a sign at which text can be read and images viewed. Maximum viewing distance for LED displays is gauged by the readability of the entire display. The minimum viewing distance is defined as the closest distance at which the colors from an individual pixel begin to blend with the surrounding pixels. For every 1 ft. of display height, there is a viewing distance of 40 ft. (40:1 ratio).

For example, an 8-ft.-tall display could reasonably be viewed at a distance of 320 ft. Using text, you can determine the maximum viewing distance by taking the smallest recommended text character (a 7-pixel-high font). Displays typically gain 50 ft. of viewing distance per inch of character height. For example, using a font 7 pixels high with an average height of 1.5"/pixel = 10.5" per letter; the viewing distance would be 525 ft. ($10.5 \times 50 = 525$).

VIRTUAL RESOLUTION (VR)

Also referred to as EPR (enhanced pixel resolution) or pixel sharing. LED pixels can share LEDs between them, thus halving the distance from one pixel to another and virtually quadrupling the display's resolution. For example, with a 20mm display with a 48 x 96 matrix, its virtual resolution would be multiplied fourfold at 96 x 192. This results in smoother graphics (less blocking/pixilation) and extremely dynamic and fluid video.



WATT

The unit of electrical power as used by an electrical device during its operation. Light sources with a higher lumen per watt rating are more efficient.



EXTENSIBLE MARKUP LANGUAGE (XML)

XML is a standard data format used for text files and information in computer memory that allows easy data processing and exchange between different applications.

EXTENSIBLE STYLESHEET LANGUAGE TRANSFORMATIONS (XSLT)

XSLT is a standard subset language of XML designed to allow one extensible markup (XM).



YPBPR

A set of video-color spaces used to encode RGB information for progressive-scan-capable component video connections; the analog version of YCbCr connection, contains the luma or brightness (Y) information along with the difference between blue and luma (Pb) and the difference between red and luma (Pr).

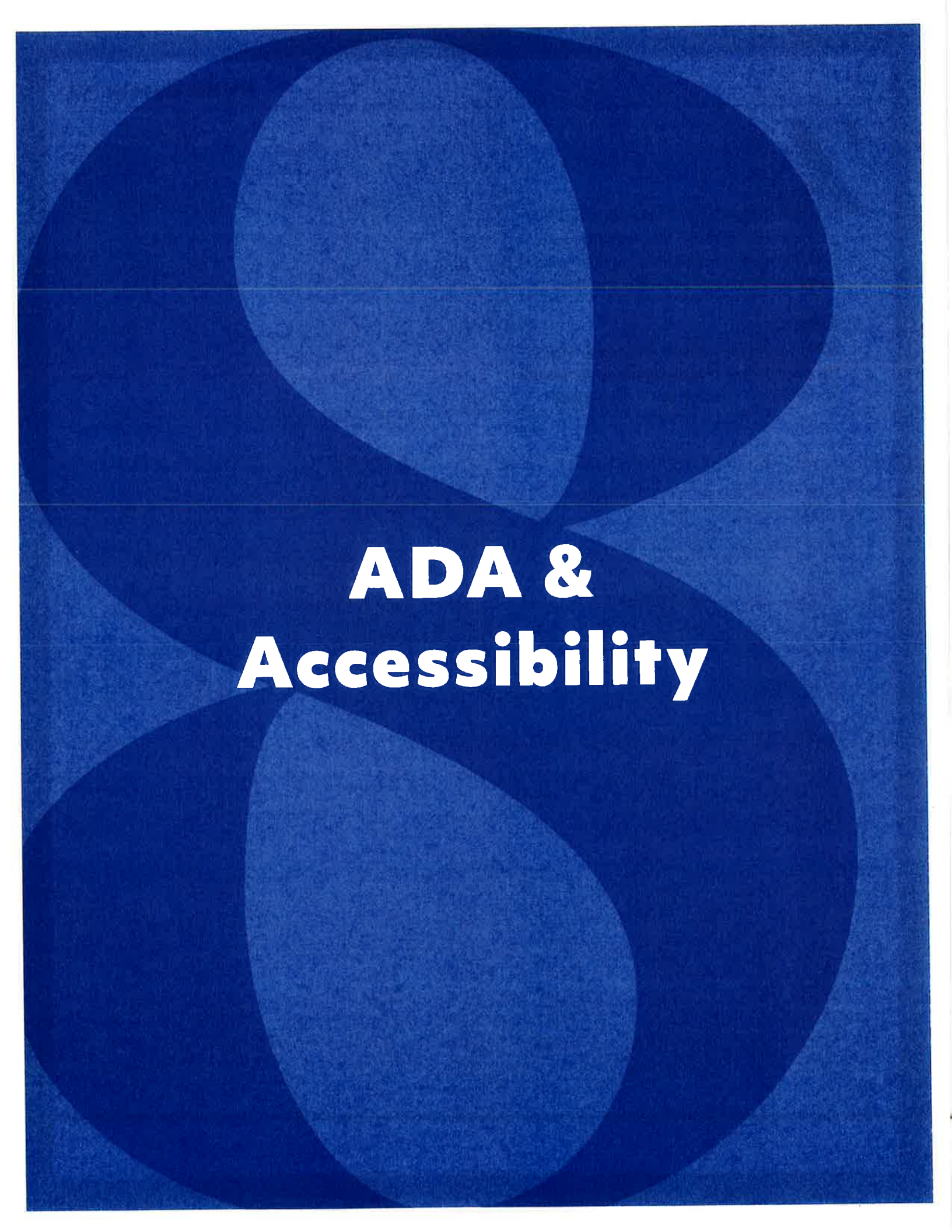


ZIP

A data-compression format that holds multiple compressed files in a directory. This allows for large software files to be sent more quickly and easily over the web.

ZONE

When creating content, the screen areas created or that are provided on templates for different information to be placed.

The background is a solid dark blue color. Overlaid on this are several large, overlapping circles in a lighter shade of blue. These circles are arranged in a way that they create a sense of depth and movement, with some circles appearing to be in front of others. The overall effect is a modern, abstract design.

ADA & Accessibility

ACRYLIC

A common substrate for raised-tactile ADA signs. Braille rastres are inserted and raised 1/32 of an inch above the surface.

AMERICANS WITH DISABILITIES ACT (ADA)

The Americans with Disabilities Act of 1990 is a law that was enacted by the U.S. Congress in 1990. It was signed into law on July 26, 1990, by President George H. W. Bush, and later amended with changes effective January 1, 2009. The ADA is a wide-ranging civil rights law that prohibits, under certain circumstances, discrimination based on disability. It affords similar protections against discrimination to Americans with disabilities as the Civil Rights Act of 1964, which made discrimination based on race, religion, sex, national origin, and other characteristics illegal. Disability is defined by the ADA as "...a physical or mental impairment that substantially limits a major life activity." See **SEGD White Paper on ADA** (page 99) for more information.

ADAAG

Americans with Disabilities Accessibility Guidelines. National standards that were put into place in 1990 to ensure equal access for all persons in America. ADAAG specifies legible letter forms, letter heights, Braille and tactile lettering as well as materials and finishes, among other issues. See **SEGD White Paper on ADA** (page 99) for more information.

ADAPTABILITY

The ability of certain building spaces and elements, such as kitchen counters, sinks, and grab bars, to be added or altered so as to accommodate the needs of individuals with or without disabilities or to accommodate the needs of persons with different types or degrees of disability.

BALLPOINT BRAILLE

Small beads that are inserted into sign faces to accommodate Braille information, as required by the A.D.A. These beads can be clear, plastic or metal depending on the material into which they are inserted. Also called Braille bullets / beads.

BRAILLE

Raised bumps or dots set in established patterns to communicate letters and words to the visually impaired. Grade 2 Braille is required by ADA, due to its more widespread use in the visually impaired community. System created by Louis Braille by modifying the Barbier "point writing" system used for coded army messages.



Updates to the Americans with Disabilities Act provide specific requirements for Braille signs and their size and placement. Photo provided by Advance Corp. (Cottage Grove, MN).

BRUSHED ALUMINUM

A common substrate for ADA-sign fabrication that comprises metals that are polished with sandpaper or another abrasive.

CAPTIONING

The transcription and subsequent text display of the audio portion of a video presentation, broadcast, or other on-screen presentation, including dialog and other auditory information, such as on- and off-screen sound effects, music, and laughter. Captioning enables people with hearing disabilities to have access to the audio portion of the material but also helps others who may have difficulty understanding or following aural material.

CIRCULATION PATH

An exterior or interior way of passage from one place to another for pedestrians, including, but not limited to, walks, hallways, courtyards, stairways, and stair landings.

"DISABLED" ACCESS/PARKING

Commonly used misnomer for identifying facilities for persons with disabilities. These misnomers include "disabled access", "disabled parking", etc. "Accessible parking" is the term used in many areas. Legal requirements vary from state to state.

EGRESS

A continuous and unobstructed way of exit travel from any point in a building or facility to a public way. A means of egress comprises vertical and horizontal travel and may include intervening room spaces, doorways, hallways, corridors, passageways, balconies, ramps, stairs, enclosures, lobbies, horizontal exits, courts and yards. An accessible means of egress is one that complies with these guidelines and does not include stairs, steps, or escalators. Areas of rescue assistance or evacuation elevators may be included as part of accessible means of egress.

FUNDAMENTAL ALTERATION

A change or modification to a program that is so significant that it alters the essential nature of the goods, services, facilities, privileges, advantages, or accommodations provided.

HANDICAPPED

This word is no longer used and is considered offensive. See **disabled access** (page 98).

INTERNATIONAL SYMBOL OF ACCESSIBILITY (ISA)

The international symbol of accessibility is used primarily to communicate wheelchair-accessible routes and entrances.

K

KIOSK

Traditionally a small structure used for posting temporary signs and notices. A freestanding structure onto (and into) which messages and pertinent information can be house and displayed. Many kiosks have interactive elements such as touchscreen monitors. They may be portable or permanent.

M

MAGNESIUM PLATE (MAG PLATE)

A composite metal sign material which can be acid-etched with fine detail for use in interior and exterior signs. Good for exterior-grade ADA signs and more durable than photopolymer. Lighter weight and less expensive alternative to cast bronze or aluminum plaques. Because it is somewhat porous, it should be primed and painted rather than used as raw metal finish.

P

PHOTOPOLYMER

A specialized plastic with photosensitive coating which is masked and photoetched to create tactile graphics. Used primarily for A.D.A. signage requiring tactile copy and Braille.

PICTOGRAM

A pictorial representation or graphic symbol. Pictograms are commonly found in environmental graphics (restrooms and directional) and regulatory (traffic) signs. Pictograms, including the recognizable ISA, are useful to bridge language barriers, as in airports. See also **D.O.T. symbols** (page 7, 106).

R

RASTERS

The small balls that make the Braille bumps. These come in different materials and colors. Clear Acrylic is the most common, but black and white acrylic are common. Metal rasters are used with metal substrates.

S

SCREEN-MAGNIFICATION SOFTWARE

Software that magnifies a displayed page.

SCREEN READER

Software used to echo text on a computer screen to voice output (through a speech synthesizer), often used by people who are blind, with visual impairments, or with learning disabilities. Screen readers read everything that is on the computer screen out loud so a person can hear what has been typed on the screen. Some screen readers can only read web pages; others can read both web pages and text in a document.

SEGD WHITE PAPER ON A.D.A.

A publication of the Society for Environmental Graphic Design, Washington, DC, interpreting the requirements of the A.D.A. in regards to signage and environmental graphics. It can be obtained by contacting the organization via www.segd.org.

STAR OF LIFE

The asterisk symbol, indicating exit level, showing preferred route for gurney, emergency egress, etc., required by A.D.A. next to floor indication on elevator control panels and elevator jambs.

SYMBOL OF ACCESSIBILITY

See **International symbol of accessibility (ISA)** (page 98).

T

TACTILE SIGN

A sign, or an area within a larger sign or area, which conveys its message through raised or engraved artwork, making it accessible to the visually impaired. Required by A.D.A. for all permanently identified rooms.

TEXT-TO-SPEECH SOFTWARE

Software that produces computer-generated speech, through means such as a keyboard or touchscreen pad, for selecting the words or phrases the user would like the computer to vocalize.

TDD

Telecommunications device for the deaf.. This communication system enables visual typographic messages to be transmitted and received over telephone lines. A.D.A. requires use of symbol to show where TDD unit is available.

TEA-21

Transportation Equity Act for the 21st Century. An extension of the ISTEA program passed in 1998.

W

WAYFINDING

The process of using spatial and environmental information to find one's way in the built environment. It can also be defined from the standpoint of the designer or owner and operator seeking to establish or improve the function of a particular environment. Wayfinding is not a separate or different activity from traditional signage design, but rather a broader, more inclusive way of assessing all the environmental issues which affect our ability to find our way. This word has gained popularity with the adoption of the Americans with Disabilities Act (A.D.A.). In its most literal sense, wayfinding is the ability of a person to find his or her way to a given destination.



Directional graphics and room-ID placards are important pieces to helping the visually impaired navigate public spaces. Photo provided by Advance Corp.

The background is a deep blue with a fine, grainy texture. Overlaid on this are several large, semi-transparent circles in varying shades of blue, creating a layered, organic effect. The word "Design" is centered in a bold, white, sans-serif font.

Design



ACHROMATIC COLORS

Neutral colors, such as white, gray, and black, with no apparent hue properties.

ADDENDA

Written or graphic documents, issued before the execution of a contract that modify, clarify, or interpret the bid documents.

ADDITIVE COLORS

When red, green, and blue lights (the three additive colors) come together in equal proportions, the resulting light is white. Also called "additive primaries." See also **primary colors** (page 112).

ADOBE ACROBAT

Software for Portable Document Format (PDF) files that allows the reader to view and print a document as originally designed without having to install the particular program or fonts used to create the file. Software for viewing PDF files is Acrobat Reader, and software for creating or altering published PDF files is Acrobat Distiller, both of which were created by Adobe Systems.

AESTHETICS

A term dealing with form, design, and/or quality of construction of a particular sign, building, site or structure that presents a judgmental statement concerning the level of beauty or artistic value.

AMERICANS WITH DISABILITIES ACT (ADA)

This legislation was enacted by the federal government in 1991 in order to remove barriers in the environment that limit any individual's ability to function in the physical environment. Within the five titles of the ADA is Title III, which pertains to signs.

AIGA

American Institute of Graphic Arts.

ANSI

American National Standards Institute (Washington DC).

AMBIENT LIGHT

The general level of light, or background light, in each environment. The ambient light level is the sum of all light (direct and indirect) in each area emitted by natural and manmade sources at a given time. It can affect the legibility of signs and may require alterations in illumination methods.

ANALOGOUS COLORS

Colors that are adjacent, or near one another, on any hue circle (color wheel) and therefore have strong hue similarity. One set of analogous colors is yellow, yellow-green, green, and blue-green.

ANODIZED FINISH

An electrochemical coating applied to the surface of metal, to harden, protect, and enhance the beauty and durability of metal surface. The type of finish typically applied to aluminum may include tints, colors, or clear coatings. The anodizing process builds an oxide film on the surface by making the aluminum the anode, or electrically positive element, in a suitable electrolyte (chromic or sulfuric acid solution).

APPROVED EQUAL

Material, equipment, or method proposed by the contractor and approved by the architect for incorporation in or use in the work as equivalent in essential attributes to the material, equipment, or method specified in the contract document.

ART

The expression or application of human creative skill and imagination. Within the context of signage, art entails the production of design source materials for built-environment visual communications. This can include handmade sketches or large-format murals or computer-generated design files.

ARTWORK

The produced hand-rendered sketches or computer-generated design files used to fabricate signs. Common file formats include Adobe Illustrator (.ai), Corel Draw (.cdr), Tagged Image File Format (.tiff) and Encapsulated Postscript (.eps).

AS-BUILT DRAWINGS

Drawings prepared after construction, that describe the actual construction of a project.

ASCENDER

On a given typeface, the portions of the lowercase b, d, f, h, k, and l that extend above the height of the lowercase x. See also **descender** (page 106).

AMERICAN STANDARD CODE FOR INFORMATION INTERCHANGE (ASCII)

The international standard codes that are used by most computers to symbolize letters, numbers, punctuation, and certain special commands.

BANDING

In a color gradation, visibly distinct differences, or sequential patterns between color levels, instead of a smooth transition of colors or other effects. Banding can take place in continuous-tone images on a display using less than 24-bit information, or when printing gradients without sufficient color information. Can also apply to an imperfect airbrushed or painted gradation.

BAS-RELIEF

A low or mostly flat, routed, or carved sculpture created on a surface, or an applique applied to a substrate.

BILATERAL SYMMETRY

A form of design in which elements repeat themselves as perfect mirror images along a vertical (or horizontal) axis or bisector.

BITMAPPED

Describing when arranged pixels comprising a graphic or an image become visible/detectible by the human eye. When incompatible image file formats are imported, often the graphic will appear bitmapped with squared-off pixels resulting in jagged-edge effects on the perimeter of line art or loss of resolution on images.

BLEED

In screenprinting, bleed refers to the portion of an image that extends beyond the area of the finished print. When the print is cut or die-cut, the bleed is cut away. Bleed also describes the area where one color overprints or traps another for purposes of registration.



A bleed on a graphic provides edge-to-edge color that maximizes graphic impact. Photo provided by Screaming Images.

BLOCK SHADOW

See **shadow** (page 113).

BOND

A written obligation by which a bonding agency agrees to pay a specified amount, or complete specified work, in the event a contract is not completed.

BRaille

Raised bumps or dots set in established patterns to communicate letters and words to the visually impaired. Grade 2 Braille is required by A.D.A., due to its more widespread use in the visually impaired community. The system was created by Louis Braille, who modified the Barbier "point writing" system used for coded army messages.

BRAND EQUITY (BRANDING)

The intangible, but real, value of words, graphics or symbols that are associated with the products or services offered by a business. Developing branding of a site includes the presentation of signage and architecture to create a unique awareness and memory by the potential customer of the products or services offered at that site. Brand equity for a business is similar to the goodwill of an enterprise.

BUILDING CODES

Regulations, ordinances or statutory requirements of a government unit relating to building construction and occupancy, generally adopted and administered for the protection of public health, safety, and welfare.



CAMERA-READY ART

Artwork that has been prepared for production via photographic process. It's been replaced with scanned and digital imagery, also called electronic art, digital data, and artwork files.

CAP HEIGHT

The height of a capital letter above the baseline for a particular typeface, specifically the height of capital letters that are flat, such as h or i, as opposed to round letters, such as o, or pointed letters like a.

CAST SHADOW

See **shadow** (page 113).

CHANGE ORDER

An amendment to the construction contract signed by the owner, architect, and contractor that authorizes a change in the work or an adjustment in the contract sum, or the contract time, or both.

CHARRETTE

A meeting convened to solve a specific design problem.

COLOR

The aspect of any object described by the hue, lightness, and saturation of electromagnetic waves within the wavelength spectrum visible to the human eye.

COLOR CONTRAST

The differential between foreground lettering a sign and the background panel.

COLOR TEMPERATURE

The sensation of "warmth" or "coolness" associated with colors. There are two types: physical color temperature, which is measurable in degrees Kelvin; and relative color temperature, which requires the presence of two or more colors (hues) for direct comparison. Though reds, oranges, and yellows are said to be "warm," and blues and greens are called "cool," there are cool and warm reds, cool and warm blues.

COLOR WHEEL

Diagrammatic arrangement of the visible spectrum of electromagnetic radiation (color) in a circular fashion so that the primary colors (red, yellow, blue) are located 180 degrees from the secondary colors that complement them (green, violet, orange, respectively).

COMPLEMENTARY COLORS

Hues that are directly opposite one another on any hue circle (color wheel) and represent the strongest hue contrast, such as red and green, blue, and orange, and yellow and purple.

COMPUTER-AIDED DESIGN SOFTWARE (CAD)

Computer-aided design software that aids designer productivity, aesthetic quality, and communication and documentation. Examples include AutoCAD, FlexiSign, CorelDRAW and SolidWorks.

COMPUTER-AIDED SIGNMAKING (CAS)

This process includes the computerized software and hardware, such as CNC routers and digital printers, that facilitate sign fabrication.

CONDENSED

A font, the proportion of which has been altered by reducing the width of the letters, numbers, and symbols to bring them closer together, therefore shortening the line.

CONSPICUITY

The characteristics of the sign that enables an observer to differentiate the sign from its surrounding environment.

CONTRACT DOCUMENTS

Documents that define the roles, responsibilities, deadlines, and scope and type of work within a construction contract. To increase the potential for consistent interpretation, they should be complete and unambiguous, and should not include any extraneous papers that rightfully should not be considered part of the contract documents.

CONTRAST

In design, the use of dissimilar or opposing elements, such as light and dark areas, warm and cool colors, or script and block typefaces.

COPY

Most commonly, the words or message to be displayed on a sign. May be expanded to include all graphics on a sign face. See also **art** (page 103) and **artwork** (page 103).

COUNTER

In each typeface, the enclosed areas within letterforms or symbols, such as those found in the letters a, b, d, e, g, and o.

**DEBOSS**

The process of producing depressed letters in a surface, particularly those produced by engraving dies or plates.

DESCENDER

The portion of a letter that extends below the baseline of a font, in letters such as g, j, p, q, and y. See also **ascender** (page 103).

DESIGN

At its simplest, a synonym for layout. Also, the process involved in creating a sign including conceptualizing the idea, choosing the colors, typefaces, and graphics, and arranging to be most effective for the given situation.

DESIGN/BUILD

A method of project delivery where the owner contracts directly with a single entity that is responsible for both design and construction services for a construction project.

DESIGN DEVELOPMENT

The preparation of more detailed drawings and final design plans, showing correct sizes and shapes for rooms. Also included is an outline of the construction specifications, listing the major materials to be used.

DESIGN INTENT DRAWINGS

Renderings that demonstrate the size and type of parts in a sign to be constructed, but without specifics on material or construction. They are commonly presented when a company bids on a project. Typically, these drawings show only the size, profile, and basic relationship of parts, but no specific details of material or construction. Usually, these drawings are provided as bid documents from which the selected fabricator develops shop drawings and/or prototypes to define and confirm specific details.

DOCUMENTATION

The process of recording design-intent information and reviewing the process of design development through drafting contract documents.

DOT SYMBOLS

The US Department of Transportation has issued international symbols for transportation graphics that have become a standard in vehicular and pedestrian signing in the United States.

DROP SHADOW

See **shadow** (page 113).

DWG FILE

A proprietary binary file format used for storing two- and three-dimensional design data and metadata. It is the native format for several CAD packages, such as DraftSight, AutoCAD, BricsCAD and IntelliCAD, among others.

DXF FILE

AutoCAD DXF is a CAD data-file format developed by Autodesk for enabling data exchange between AutoCAD and other programs.

E

ELECTRONIC ART

Digital data and artwork files (formerly called "camera-ready art") used in production of signs and graphic elements. Shapes and text are converted to paths (outlines) and used in defining path of knife, laser, router, waterjet, etc.

ELEVATION

A horizontal view of a building, or object, from one side.

ELLIPSIS

A mark or series of marks (...) used in writing or printing to indicate an omission, especially of letters or words. It can also indicate continuing thought.

EMBOSSED

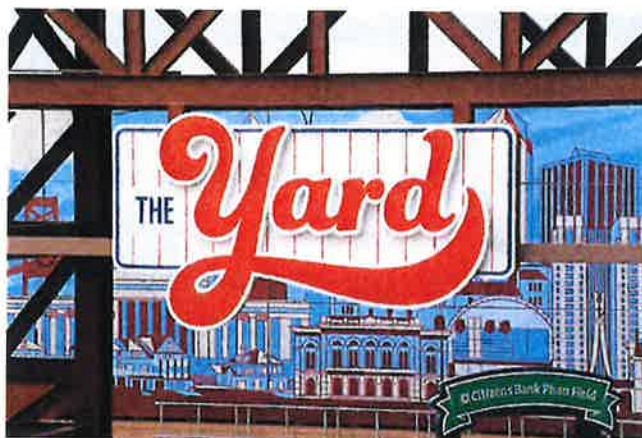
A carved, routed, molded, printed, or stamped design that stands out in relief.

ENCAPSULATED POSTSCRIPT (EPS) FILE

EPS is a PostScript image file format that is compatible with PostScript printers and is often used for transferring files between various graphics applications.

ENVIRONMENTAL GRAPHICS

Design embraces many design disciplines including graphic, architectural, interior, landscape, and industrial design, all concerned with the visual aspects of wayfinding, communicating identity and information, and shaping the idea of creating experiences that connect people to place.



Signage, wayfinding, and other forms of visual communication reinforce the brand and atmosphere of the business or organization they identify. Photo courtesy of Cima Network.

EXTENDED FONTS

A font in which the proportion of the letters, numbers, and symbols, has been altered by increasing their width.



FILE COMPRESSION

With digital files, the process of taking several digital files, reducing their size, and placing them within a single folder. ZIP files are the most common type of compression file; others include ARC, ARJ, RAR and CAB. Compression occurs through a lossy or lossless process, lossy compression removes small, nonessential portions of a file, whereas lossless retains a file verbatim by removing redundant data.

FINAL COMPLETION

The point at which all work is complete, and all other contract requirements have been satisfied.

FINISH SCHEDULE

A list of the project components and their finishes, usually shown in a tabular form.

FLUSH

To set lines of copy so that they are aligned perpendicular at a right (flush right) or left margin (flush left). When the copy is flushed both right and left (full flush), it's called **justified** (page 109).

FOCAL POINT

The area in a design or layout that first catches the eyes. In effective design, the main message the sign seeks to convey will often be located at the focal point.

FONT

A specific style and group of letterforms consisting of one complete set of letters, numerals, symbols, and punctuation used for composing written communications in each typeface. Typically provided in digital form (formerly available in hot metal and photographic composed typography). Fonts come in various weights (i.e., light, regular, bold, and black weights). Many fonts also are provided in italic formats. Fonts can be condensed (made to look narrower) or extended (wider).

FORMAT

The workable space within which the art and copy must fit; the shape and area of a sign face. Also, format may describe the general makeup of a sign, such as: the format is a sandblasted wood sign with a push-through logo.

FREEHAND

To draw by hand without the use of measurements or instruments.



GRADATION/GRADIENT

Steps of transition between two colors or between black and white, created by mixing percentages of a dominant and secondary color.

GRADE 2 BRAILLE

Grade 2 Braille is similar to Grade 1 Braille, but it includes additional characters and character combinations of certain words and word components such as "the" and "ation." Grade 2 Braille requires a translation program, and it must be proofread by a Braille proofreader to approve all final artwork.

H
HIERARCHY

A clearly defined relationship between elements that establishes differing levels of dominance, emphasis, or influence, with each level subordinate to the one above it. A body of elements arranged according to rank, authority or capacity; a body of entities arranged in a graded series.

HISTOGRAM

A graphic display that represents the distribution of tones within an image.

HUE

A variety of a color, such as a tint or shade. One of the components of color that can be specified by particular wavelengths.

I
INTERPRETIVE SIGN OR KIOSK

A sign that provides permanent cultural or historic information in addition to building or site identification.

J
JOINT PHOTOGRAPHIC EXPORTS GROUP (JPEG)

A common file format for color digital images and bitmap files. The JPEG standard utilizes a 'lossy' data compression method, meaning that, to reduce the overall size of the file, a small amount of sharpness from the original image is sacrificed. The format's mathematical technique creates files that are smaller than those created using other file formats, while maintaining a readable image.

JUSTIFIED

Copy that is set with even margins on the left and right (achieved by irregular word and letter spacing). See also **flush** (page 108).

K
KERNING

The process of moving pairs of letters farther apart or closer together to make them appear more evenly spaced. Most layout software offers an automatic kerning feature which greatly reduces the need for manual kerning. See also **letter spacing** (page 110), **tracking** (page 115), and **justified** (page 109).

L
LANDSCAPE ARCHITECT

A licensed design professional that deals primarily, but not exclusively, with site work, such as plant selection, irrigation systems, site furniture, etc.

LAYOUT

The total arrangement of a sign's graphics. A layout shows the plan for how the art copy will be arranged on the face.

LEADING

Typographic term from the long-gone days of cold-lead typesetting, where thin lines of lead were placed between lines for to provide spacing within a paragraph. In contemporary nomenclature, leading refers to spacing between lines of text.

LEGIBILITY

The characteristics of letters, numbers, graphics, or symbols which make it possible to differentiate one from the other. See **conspicuity** (page 105) and **readability** (page 13, 112).

LETTER SPACING

A typographic term for the space between letters and words. See also **tracking** (page 115).

LETTER STYLES

Serif, sans serif, slab serif, italic, light, roman, medium, demi-bold, bold, extra bold. See also **font** (page 108).

LETTER VISIBILITY CHART

An established set of numbers representing approximate visibility of letters over a range of distances. The chart ranges from a 3-in. letter, which has a maximum impact readable distance of 30 ft., and a maximum readable distance of to a 60-in. letter, which has a maximum-impact readable distance of 600 ft. and a maximum readable distance of 2,500 ft. Readable distances vary with various color combinations and typefaces, as well as with surrounding visual busyness, and whether the observer is still or in motion.



Charts such as this help outline to clients the visibility that signs of differing sizes can achieve. Chart courtesy of Gelberg Signs (Washington, D.C.).

LIGHT REFLECTANCE VALUE (LRV)

An indication of the relative amount of light reflected by a given color. For example, yellow has a higher LRV than blue.

LINE SPACING

Typographic term used to describe distance from letter baseline to letter baseline in blocks of text. Also called **leading** (page 109).

LOGO, LOGOGRAM, OR LOGOTYPE

An emblem, letter, character, pictograph, trademark, or symbol used to represent any firm, organization, entity, or product. The use of a company's logo can be regulated by the federal government once it is registered. See also **trademark** (page 74, 115).



MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)

Available from the US Dept. of Transportation, the MUTCD defines highway sign standards and traffic-control graphics.

MAQUETTE

French word for "mock-up" or "model."

MESSAGE SCHEDULE

A database of all the messages for a specific signage program. Typically, this is keyed into a sign location plan associated with a sign number, provides sign type, location reference, and message.

MOCK-UP

Typically, a full-size model used to test scale, color, appearance, legibility and/or aesthetic aspects that's usually made of materials that simulate final construction materials and finishes. Also called **maquette** (page 110).

MODEL

Typically, a smaller-scale, proportionally reduced version of a larger architectural element.

MONOCHROMATIC

Consisting of one color. Possessing only one hue, though possibly varying in luminance and purity; consisting of only one wavelength of light. In addition to a single hue, monochromatic color schemes commonly include white, gray, and black.

**NEGATIVE SPACE**

The area around and within the art and copy. With regards to signs, the background of a sign. Also called **white space** (page 116). See also **positive space** (page 112).

**OPAQUE**

A surface that's not clear or translucent; and doesn't allow light to penetrate.

ORTHO

Zero degrees horizontal; a command included in several sign-design software programs to create images at only right angles. See also **polar tracking** (page 112).

OUTLINE/INLINE

In computer graphics, a closed-loop path that copies an original's shape but is offset by the positive measurement outside the original (outline), or a negative measurement inside the original (inline).

**PANTONE MATCHING SYSTEM® (PMS)**

Standardized series of thousands of colors, each with specific color formulations as the identification number. PMS colors are duplicated in swatch books and in computer-graphics programs to allow exact duplication of colors in color printing and other signmaking painting processes.

PHOTO-CUT

A method of vectoring an image in a parallel-line pattern to give a rough, but recognizable, rendering of sharp outlines from a high- or medium-contrast image.

PHOTOGRAPHIC EMULSION

A substance used in screenprinting to apply a logo to signs or promotional products. The emulsion is a gel-like material that contains silver-halide crystals and can be applied to fabric, plastic, paper, or glass. The emulsion gel is spread over the screen, and the image is printed onto the substrate with clear acetate or special UV-blocking ink.

PHOTO SIMULATION

Typically, a digital photo illustration or digital rendering showing a proposed concept. It is used to show new graphic elements in context. Two- or three-dimensional drawn objects are placed into a photoshop document of the existing situation. See also **rendering** (page 113).

PHOTO STENCIL

A stencil prepared using photographic methods, rather than mechanical devices or cutting by hand.

PICTOGRAM

A pictorial representation or graphic symbol. Pictograms are commonly found in environmental graphics (restrooms and directionals) and regulatory (traffic) signs. Pictograms, including the recognizable ISA, are useful to bridge language barriers, as in airports. See also **DOT symbols** (page 7, 106).

POLAR TRACKING

A command in sign-design programs that enables the creation of geometric shapes through various angle increments. See also **ortho** (page 111).

PORTABLE DOCUMENT FORMAT (PDF) FILE

PDF is a file format that has captured all the elements of a printed document as an electronic image that you can view, navigate, print, or forward to someone else.

POSITIVE SPACE

The subject of an image, or the copy and art on a signface. The opposite of negative space.

POSTER

1. A series of paper sheets printed for use on a billboard. Other substrates used for poster include plastic and cloth.
2. A sign typically printed on paper and intended for indoor use. Other substrates used for poster include plastic and cloth.

PRIMARY COLORS

The three colors from which all other colors can be created. In paint pigments, the primary colors are yellow, red, and blue. In four-color-process printing, all colors are mixed from yellow, magenta (red), cyan (blue) and black. In light, the primary colors are red, green, and blue. See also **additive colors** (page 54, 102).

PROTOTYPE

Usually a full-sized sample that uses final materials, methods of construction, fasteners, and finishes to test assembly, design, construction, and appearance issues. Also used to approve the "first sample" in a long production run.

PUNCH LIST

A list of errors or omissions in the sign fabricator's work requiring corrections.

**RASTER GRAPHICS**

A bitmap (.bmp) computerized image that comprises a grid of small squares. Each square, or pixel, is coded in a specific hue or shade. Raster graphics are resolution-dependent, which means an increase in resolution equates to a decrease in image quality. See also **vector graphics** (page 115).

READABILITY

The quality of a sign's overall design that allows the viewer to correctly interpret the information presented on it. Also, the optimum time and distance in which this can be done. Letter size and style, legibility of typeface, color contrast between letters and background, and a sign's layout all contribute to readability.

RELIEF

The projection of art from a flat surface. The shortened form of bas-relief.

RENDERING

An artistic sketch or representation of a design concept.

REVEAL

An indented detail on a sign.

**SANS SERIF**

Any typeface that lacks extending features called serifs, or "feet." In most sans-serif fonts, there is little differentiation between the width of strokes within the letter. Helvetica and Futura are familiar sans-serif fonts.

SCALE DRAWING

A drawing that shows a real object with accurate sizes reduced or enlarged by a certain amount, called the scale.

SCHEMATIC DESIGN/SCHEMATICS

A conceptual design developed at the beginning of a project which demonstrates a design approach or strategy.

SECONDARY COLORS

Hues mixed by combining any pair of primary colors; the three hues - orange, purple, and green - that are each the result of mixing two primaries.

SERIF

A small line or embellishment, sometimes described as a foot, finishing off the strokes of letters in some fonts. Well-known serif fonts include Souvenir, Times Roman, and Garamond.

SHADE

A color made darker than the original by adding black to it.

SHADOW

Duplication of an image that is slightly offset. Drop shadow is a simple copy and offset; block shadow joins the outlines of the original and duplicate to create a 3D-relief effect; and cast shadow alters the shape and size of the duplicate to imitate shadows cast from varied placement of light, as the sun does on a sundial.

SHOP DRAWINGS

Traditionally, drawings prepared by specific trades to describe the quantity, shape, size, and materials and other details to be manufactured, built, or constructed. In signage, it now refers to drawings prepared by fabricators describing their intended methods of construction and sequence of assembly to be reviewed by designer and owner for approval prior to construction and fabrication. Shop drawings ensure the original design concept is accurately carried out in the construction process. See also **template** (page 115), **contract documents** (page 67, 105).

SHORT LIST

After a preliminary elimination of candidates, the final list of candidates from whom a design or fabricator provider is selected.

SIGNCENTRIC DESIGN

Architectural design that makes signage a building or structure's prominent visual feature.

SIGN LOCATION PLAN

A site plan or floor map that outlines sign locations.

SOCIETY OF EXPERIENTIAL GRAPHIC DESIGN (SEGD)

SEGD comprises an association of people who create content-rich, emotionally compelling, experiential spaces for a wide range of environments, from hospitals and transit hubs to museums and educational campuses. The association's members' work creates a sense of place, helps people find their way, communicates important information and fuels a dialogue between users and the spaces they inhabit. They develop static and digital wayfinding systems, signage, environmental graphics, exhibition content, multimedia installations, public art, user interfaces and branded/corporate environments.

SPECIFICATIONS/CSI

A part of the construction documents contained in the project manual consisting of written requirements for materials, equipment, construction systems, standards, and workmanship, usually prepared in a standard 16-part CSI format.

SPECTRUM

The distribution of hues in natural order according to their wavelengths. Also, the colored image formed when light is spread out after passing through a prism. Spectral sequence or chromatic sequence describes hues in prismatic order.

STENCIL

A thin sheet of material into which a design is cut. When a stencil is placed on another substrate and paint or ink is applied, the image represented by the cut-out portion of the stencil is printed on the substrate below it. Stencils range from metal to card stock to photographic emulsions.

STIPPLING

A method for taking out brush marks and creating a transparent look on windows. Paint is mixed with linseed oil to slow the drying process, then brushed on the surface to be stippled. A stipple finish is created by wrapping a piece of cheesecloth or other lint-free cotton rag around a wad of cotton, which is then either held firmly in the hand or securely attached to a short stick, taking care that the work surface of the stippler is wrinkle-free. Stippling is done by daubing the stippler over the wet, painted surface.

STROKE

1. A single movement of the hand or arm, or of a marking tool. Stroke refers to a pass of the squeegee in screenprinting, and a pass of the brush in painting.
2. A line forming part of a written or printed character.

STROKE WIDTH

The width of the major lines comprising a letterform. A wider stroke width is used to make a bolder letter, a narrower stroke width is used to make a lighter letter.



Stroke width refers to the distance between two edges of a stroke, as measured perpendicularly in relation to a stroke's center line. Photo courtesy of Screaming Images.

SYMMETRY

The balance of design elements in which one side equals or mirrors the other.

**TAGGED IMAGE FILE FORMAT (TIFF)**

Standard graphics-file format used for scanned bitmapped images.

TEMPLATE

A full-sized pattern, layout, or computerized output, showing exact size and letter placement, that's used for installing dimensional letters, signs, or architectural elements.

THUMBNAIL

1. A type of rough sketch of a design made prior to developing more finalized presentations.
2. A small picture of an image or page layout.

TINT

A color made lighter than the original by adding white.

TRACKING

The ability of a computer, at the operator's instruction, to add or subtract minute increments of space between letters. See also **letter spacing** (page 110).

TRADEMARK

Used by a business to distinguish itself and its products from the competition. A trademark may include a name, symbol, word, or combination of those. Protected by the federal government and considered to have financial value. The circled "R" or "Reg. TM" printed with the mark indicates that it is a registered trademark. For reference, read the United States Trademark Act 15 U.S.C. Section 1127 (1988).

TYPEFACE

The design of a given set of letters, numbers, symbols, and punctuation, without reference to its size or width. See also **font** (page 108).

TYPOGRAPHIC TERMS

Terminology associated with typesetting, as utilized in the sign industry: ascender, condensed, counter, descender, extended, flush, font, kerning, leading, letterspacing, line spacing, sans serif, serif, stroke width, tracking, typeface, word spacing.

**VECTOR**

In computerized signmaking, a line segment between two coordinates, on which a knife or toolpath can be created for plotting or routing.

VECTOR GRAPHICS

Computerized images that are defined in terms of points on a Cartesian plane, which are connected by lines and curves to form shapes. Vector graphics have points, lines, and curves that may be scaled up or down to any resolution. The points determine the direction of the vector path; each path may have various properties for stroke color, shape, curve, thickness, and fill.

VECTORIZATION

A function of the process of tracing around a raster image to create an outline comprised of line segments, or vectors.

VISIBILITY

The quality of a letter, number, graphic, or symbol, which enables the observer to distinguish it from its surrounds or background.

VISUAL WEIGHT

The potential of any element or area of a drawing to attract the eye. The degree of attention or sustained interest that any single figure-object (or mass) commands related to all other elements in any visual field.

**WHITE SPACE**

The portion of a sign, digital print or architectural graphic that's unmarked by text, images or other design elements or objects.

**X-HEIGHT**

In typography, the x-height is the distance between the baseline and the mean line of lower-case letters in a typeface. Typically, this is the height of the letter x in the font.

Associations & Resources

INTERNATIONAL SIGN ASSOCIATION (ISA)

Founded in 1944, formerly known as the National Electric Sign Association, is devoted to supporting, promoting, and improving the sign, graphics and visual-communications industry through government advocacy, education and training programs, technical resources, stakeholder outreach and industry networking events. Our members are manufacturers, users, and suppliers of on-premise signs and other visual communications systems.



INTERNATIONAL SIGN ASSOCIATION

ISA maintains strategic partnerships with affiliated organizations to offer programs and services to grow their business. They include:

ARIZONA SIGN ASSOCIATION (ASA)

CALIFORNIA SIGN ASSOCIATION (CSA)

COLORADO SIGN ASSOCIATION (COSA)

ILLINOIS SIGN ASSOCIATION (ISA)

MID-SOUTH SIGN ASSOCIATION (MSSA)

Arkansas, Alabama, Louisiana, Mississippi, and Tennessee

MIDWEST SIGN ASSOCIATION (MSA)

States: Indiana, Kentucky, Michigan, Ohio, Western Pennsylvania, and West Virginia

MINNESOTA SIGN ASSOCIATION (MSA)

NEVADA SIGN ASSOCIATION (NSA)

NORTHEAST STATES SIGN ASSOCIATION (NSSA)

States: Connecticut, Delaware, Eastern Pennsylvania, Greater Washington, D.C., Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont

NORTHWEST SIGN COUNCIL (NWSC)

States: Alaska, Idaho, Montana, Oregon, Washington, and Wyoming

SIGN ASSOCIATION OF CANADA (SAC)

SOUTHERN STATES SIGN ASSOCIATION (SSSA)

States: Florida, Georgia, North Carolina, and South Carolina

TEXAS SIGN ASSOCIATION (TSA)

TRI-STATE SIGN ASSOCIATION (TSSA)

States: Kansas, Missouri, and Oklahoma

UTAH SIGN ASSOCIATION (USA)

VIRGINIA SIGN ASSOCIATION (VASA)

WISCONSIN SIGN ASSOCIATION (WSA)

OTHER INDUSTRY ASSOCIATIONS:

D DIGITAL SIGNAGE FEDERATION

The Digital Signage Federation, based in Warrenton, Virginia, is an American non-profit organization dedicated to the advancement of the digital-signage industry. It was founded in 2010 by industry professionals to develop a trade association focused on education, networking, and standards development.

E EUROPEAN SIGN FEDERATION (ESF)

Founded in 1966, the ESF works to advance the sign industry across Europe by protecting its legal and economic interests, facilitating international trade, and establishing national sign-industry organizations where they don't currently exist.

F FABRIC GRAPHICS ASSOCIATION

A division of IFAI, The Fabric Graphics Association (FGA) represents fabric graphics and printing companies. FGA provides educational resources for fabric graphics members, hosts workshops to demonstrate best practices hands-on, analyzes and shares industry trends with its membership, and brings member companies together to build business. The Fabric Graphics Association provides a network to exchange information, solve common problems and develop mutually beneficial relationships.

FESPA

FESPA is a global federation of 37 national associations that serves the screen printing, digital printing and textile-printing communities through tradeshow, publications, and networking opportunities.

I INDUSTRIAL FABRICS ASSOCIATION INTERNATIONAL (IFAI)

The Industrial Fabrics Association International (IFAI) is a not-for-profit trade association comprised of member companies representing the international specialty fabrics marketplace. Member companies range in size from one-person shops to multinational corporations. Members' products cover the broad spectrum of specialty fabrics and include fibers, fabrics, end products, equipment, and hardware. The organization provides tradeshow, publications, technical services, and legislative updates, among other services.

INTERNATIONAL SIGN ASSOCIATION - UNITED KINGDOM (ISA-UK)

A joint venture of the International Sign Association and the British Sign & Graphics Association, ISA-UK allows the organizations to work together on issues common across the sign, graphics, and visual communications industry, including codes and regulations, research, workforce education and events.

NATIONAL ASSOCIATION OF SIGN SUPPLY DISTRIBUTORS (NASSD)

Founded over 20 years ago, the National Association of Sign Supply Distributors (NASSD) is a nonprofit trade association for companies and organizations engaged in the full-service wholesale distribution of sign and graphics products, including manufacturers of sign and graphics products who distribute such products through sign and graphics distributors. The mission of NASSD is to strengthen full-service supply distribution in the sign and graphics industry. The organization's goal is educating and informing its membership on issues of importance to both the industry and wholesale distribution, providing a forum for interaction and education between and among sign supply distributors and sign product manufacturers, and increasing the level of communication and professionalism of its members and the industry.

OUTDOOR ADVERTISING ASSOCIATION OF AMERICA

Based in Washington, D.C., the Outdoor Advertising Association of America (OAAA) is the national trade association for the \$7.8 billion US out of home advertising (OOH) industry, which includes digital out of home (DOOH), and is comprised of billboards, street furniture, transit advertising, and place-based media.

PRINTING UNITED ALLIANCE

On May 1, 2020, the Specialty Graphics Imaging Association and the Printing Industries of America merged into the Printing United Alliance, the organization serves professionals in the industrial, graphic, garment, textile, electronics, packaging, and commercial printing communities looking to grow their business into new market segments through the incorporation of the latest printing technologies, all of which are moving rapidly towards digital adoption.

SOCIETY FOR EXPERIENTIAL GRAPHIC DESIGN (SEGD)

SEGD comprises an association of people who create content-rich, emotionally compelling, experiential spaces for a wide range of environments, from hospitals and transit hubs to museums and educational campuses. The association's members' work creates a sense of place, helps people find their way, communicates important information and fuels a dialogue between users and the spaces they inhabit. They develop static and digital wayfinding systems, signage, environmental graphics, exhibition content, multimedia installations, public art, user interfaces and branded/corporate environments.

UNITED STATES SIGN COUNCIL FOUNDATION

A research organization that has funded more than 20 studies dealing with on-premise signs. Recent projects have included an up-to-date model sign code, national guideline sign lighting standards, standardized sign illumination research, and national guideline sign-size standards.

WESTERN STATES SIGN COUNCIL (WSSC)

Comprised of representatives from six affiliate associations, the WSSC endeavors to support, promote, and improve the sign, graphics, and visual communications industry. The Board meets several times each year to conduct regular business of the organization and to plan fundraising activities in support of important sign industry activities.

Funding received from various activities is dispersed to the state associations of the WSSC for their use in educational programs, membership development, advocacy efforts with local and state governments, as well as other activities directly benefiting members of the industry.

States: Alaska, Arizona, California, Colorado, Idaho, Montana, Nevada, Oregon, Utah, Washington, and Wyoming.

WORLD SIGN ASSOCIATES

WSA is an invitation-only assembly that provides a community to exchange ideas, educate members, support the highest business standards, and create strong business leaders within the sign industry. WSA offers a forum for fellowship, support, and the exchange of ideas. WSA members adhere to the highest ethical business standards and bring the utmost value to their customers.

**INDUSTRY TRADE
ASSOCIATIONS:****AMERICAN INSTITUTE OF
ARCHITECTS (AIA)**

The AIA advocates for the value of architecture through education, advocacy to government, and developing and conveying best practices, and gives architects the resources they need to do their best work. Its work drives positive change through the power of design.

**AIGA: THE PROFESSIONAL
ASSOCIATION FOR DESIGN**

As the profession's oldest and largest professional membership organization for design, with more than 70 chapters and more than 18,000 members, the organization advances design as a professional craft, strategic advantage, and vital cultural force. From content that defines the global practice to events that connect and catalyze, AIGA enhances the value and deepens the impact of design across all disciplines on business, society, and design's collective future.

**AMERICAN PLANNING ASSOCIATION
(APA)**

The APA has more than 40,000 members in 90 countries, including 47 chapters in the U.S. The organization provides leadership in the development of vital communities for all by advocating excellence in planning, promoting education and resident empowerment, and providing our members with the tools and support necessary to ethically meet the challenges of growth and change. Its members commonly work in municipal planning offices, and often play a key role in developing and administering sign codes.

**AMERICAN SOCIETY OF LANDSCAPE
ARCHITECTS (ASLA)**

ASLA's mission is to advance landscape architecture through advocacy, communication, education, and fellowship. Sustainability has been part of ASLA's mission since its founding and is an overarching value that informs all of the Society's programs and operations.

**AMERICAN SUBCONTRACTORS
ASSOCIATION (ASA)**

ASA promotes the rights and interests of subcontractors, suppliers, and specialty contractors by building strength in the community through education, advocacy, networking, and professional growth. Its services include government relations, a legal-defense fund for subcontractors and supplemental documents that manage the risks and responsibilities of financial disclosure, surety bonding and other issues relevant to subcontractors.

ASSOCIATED BUILDERS AND CONTRACTORS (ABC)

ABC is a national construction association that represents more than 21,000 members companies that work in the building trade. The organization focuses on best practices for safety, professional development and employee training.

BUILDING OWNERS AND MANAGERS ASSOCIATION (BOMA)

Founded in 1907 as a trade association for commercial real-estate professionals, BOMA is comprised of local associations and global affiliates that represent owners, managers, service providers and property-development and enhancement professionals that serve all commerce building types, such as healthcare, corporate, medical, and industrial spaces. The organization's mission entails furthering the commercial real-estate market through advocacy, influence, and knowledge.

CHAMBER OF COMMERCE

The U.S. Chamber of Commerce is a national organization that represents more than three million businesses by supporting the business community's interests through advocacy, education and providing information about economic-development best practices to its members. The organization is generally supported of broad sign codes that facilitate broad usage of signage and visual communication to play a key role in fostering economic development.

CONSTRUCTION SPECIFICATIONS INSTITUTE (CSI)

The CSI is a national organization that represents more than 8,000 construction-industry professionals who are experts in building construction and the usage of related materials. The organization is dedicated to improving the communication of construction information through a diversified membership base involved in the creation and management of the built environment, continuous development and transformation of standards and formats, education, and certification of professionals to improve project-delivery processes, and creation of tools to assist users throughout the facility life cycle. The work of CSI is currently focused in three areas: standards and publications, professional certifications, and continuing education for construction professionals.

I **INTERNATIONAL COUNCIL OF SHOPPING CENTERS (ICSC)**

Founded in 1957, the ICSC is a 57,000-member organization that serves as the global trade association for the shopping-center and retail-real-estate markets. The organization serves as an advocate for the industry to government, provides educational resources about development and best practices of retail properties, and provides news and updates that relate to trends and developments that commercial real-estate and retail development.

INTERNATIONAL DOWNTOWN ASSOCIATION (IDA)

The IDA connects diverse practitioners who transform cities into healthy and vibrant urban places, and champions vital, livable urban centers. Through its global network of diverse practitioners, broad knowledge, and unique capacity to nurture community-building partnerships, IDA provides tools, intelligence, and strategies for creating healthy and dynamic centers that anchor the well-being of towns, cities, and regions.

N **NATIONAL ASSOCIATION OF CONVENIENCE STORES (NACS)**

Established in 1961, NACS serves more than 3,000 members in approximately 50 countries. NACS provides the resources, education and training necessary to help global convenience and fuel retailers prepare for the future.

In the United States, NACS communicates the convenience and fuel retailing industry's voice before Congress and federal government agencies on issues that range from motor fuels to data security to taxes. NACS also tells the industry's story to reporters and journalists across the country and develops [videos](#) showcasing retail innovation.

NATIONAL ASSOCIATION OF MANUFACTURERS (NAM)

With 14,000 member companies, NAM supports the more than 12.8 million men and women who make things in America. The organization espouses free enterprise, competitiveness, individual liberty, and equal opportunity. It supports manufacturing with lawmakers in Washington, D.C., educates the next generation of manufacturing talent, and provides news and intelligence about the industry. NAM collaborates with ISA to stage Sign Manufacturing Education Day, which presents the sign industry as a potential career option to high-school, vocational-school, and college students.

NATIONAL COUNCIL OF ARCHITECTURAL REVIEW BOARDS (NCARB)

The National Council of Architectural Registration Boards is a nonprofit corporation comprising the legally constituted architectural registration boards of the 50 states, the District of Columbia, Guam, the Northern Mariana Islands, Puerto Rico, and the U.S. Virgin Islands as its members. NCARB develops and administers national programs for candidates pursuing architectural licensure and helps architects expand their professional reach through the NCARB Certificate. Its programs and services enable the pursuit, achievement, and ongoing maintenance and mobility of architectural licensure. NCARB's proactive engagement with licensing boards and industry organizations advances the understanding and effectiveness of architectural regulation, and its programs and services further the progress of our licensing boards and customers.

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA delivers information and knowledge through more than 300 consensus codes and standards, research, training, education, outreach, and advocacy; and by partnering with others who share an interest in furthering our mission. Our mission is to help save lives and reduce loss. The organization provides information and knowledge, and its 300 codes and standards are designed to minimize the risk and effects of fire by establishing criteria for building, processing, design, service, and installation around the world. The NFPA also publishes the National Electric Code, an electrical safety code that's adopted by many (but not all) states, counties, and cities throughout the U.S.



SHOP ENVIRONMENTS ASSOCIATION

Formed by a merger of Point of Purchase Advertising International and the Association for Retail Environments, the Shop Environments Association (Shop!) is a global trade association Based in Hollywood, Fla. that provides research, education, and networking to more than 1,400 member companies and affiliates globally.

A Legal and Technical Exploration of On-Premise Sign Regulation **An Evidence Based Model Sign Code**



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U R B A N D E S I G N A S S O C I A T E S

Model Sign Code Executive Summary

The on-premise commercial sign¹ is one of the primary means by which a business conveys its message of commerce. These signs identify businesses by name, address, and product sold. In some cases, these signs can be used to put forth non-commercial messages that inform the community. It is to the benefit of businesses that these signs be well-designed and erected in contexts that do not diminish the messages they seek to communicate.

This objective may be accomplished through municipal regulation. Unlike most modern sign codes which attempt to regulate on-premises signs on the basis of police powers, Urban Design Associates has drafted this municipal sign code which is based on the best available transportation planning and engineering research. This evidence-based approach to regulation seeks to ensure that signs, as commercial speech, are afforded some guaranteed constitutional protections.

This report begins with a discussion of the legal issues fundamental to the regulation of on-premise commercial signs. Next, the report describes the technical research related to issues of the legibility of on-premise signs. The third section of this report features an evidence-based model sign code, crafted to reflect the identified legal and technical issues.



Multi-tenant sign

¹ This model sign code deals only with on-premise signs, not those signs that are off-premise, otherwise known as billboards.

Fundamental Legal Issues in the Regulation of On-Premise Signs

Legal Report



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Fundamental Legal Issues In the Regulation Of On-Premise Signs

An Introduction

The visual environment is a highly contested space. In particular, local governments and business owners often find themselves in conflict with respect to the regulation of on-premise commercial signs. Municipalities have widely begun to impose some level of regulation on this form of communication on grounds that certain types of signs interfere with public values relating to both aesthetics and traffic safety. These regulations sometimes fail to recognize the true value of signs to the businesses they advertise, as well as to the economic vitality of communities as a whole. More importantly, many of these sign codes fail to meet constitutional muster because they do not embrace the First Amendment protections to which on-premise commercial signs are entitled. This report seeks to review the legal underpinnings critical to the regulation of signage in an effort to develop a model sign code which is performance-based and which (1) embraces the value of signs in support of the local business economy; (2) recognizes that signs are speech with inherent First Amendment protection; and (3) backs all efforts to regulate this type of speech with scientific evidence justifying the need for such provisions.

Local Government Efforts to Regulate Signage

Local governments have attempted to regulate signage for more than a century. Early efforts by municipalities to regulate signage were struck down by state courts. In *City of Passaic v. Patterson Bill Posting, Adv. & Sign Painting*, 62 A. 267 (N.J. Err. & App. 1905), a New Jersey court invalidated an ordinance which sought to regulate sign height and setbacks

on the basis of improving community aesthetics. According to the court:

Aesthetic considerations are a matter of luxury and indulgence rather than of necessity, and it is necessity alone which justifies the expertise of the police power to take private property without compensation. *Id* at 268.

At the time, the police powers of local governments in all realms of city planning were interpreted narrowly.

Zoning powers were expanded by the Supreme Court's 1926 decision in *Village of Euclid v. Ambler Realty Co.*, 272 U.S. 356, which permitted cities to engage in the regulation of those zoning activities which were to the benefit of the public's general health, safety, and welfare so long as there was a rational basis for such regulations. Pursuant to the rational basis standard of judicial scrutiny, a municipal regulation will be upheld as long as it is not arbitrary or capricious. This standard places an almost insurmountable burden of proof on the complainant to prove that there is no rational basis to support the government's regulation. Rational basis continues to be the standard of scrutiny applied to most zoning and land use regulations.

In 1954, the high court extended the reach of these objectives to issues of aesthetics. In *Berman v. Parker*, 348 U.S. 26, the Court stated, in dicta:

The concept of public welfare is broad and inclusive. The values it represents are spiritual as well as physical, aesthetic as well as monetary. It is within the power of the legislature to determine that the community should be beautiful as well as healthy, spacious as well as clean, well balanced as well as carefully patrolled (348 U.S. at 33).

While many continue to embrace the ruling in *Berman* as grounds for aesthetics-based regulation, including the regulation of signage, it is important to note that this case focused on aesthetic issues associated with urban renewal, not forms of communication protected by the First Amendment. This distinction is at the heart of a public policy divide which separates the business community from those government officials who regulate signage, and will be discussed in detail in the sections which follow.

The Problem with Street Graphics & the Law

The aforementioned distinction has long been unrecognized in planning practice and scholarship. Rather, the planning community has historically treated signage as a land use to be regulated by the traditional tools associated with zoning activities. In *Street Graphics* (1971), William Ewald and Daniel Mandelker proposed a scheme for regulating signage that has served as the primary resource used by communities seeking to impose signage regulation. They proposed a regulatory scheme that:

[W]ill allow individuals and institutions the freedom to express their personalities and purposes—but within the framework of official guidelines that will insure that these expressions are compatible with the areas around them, appropriate to the activities to which they pertain, and clearly readable under the circumstances in which they are seen (Ewald et al., 1971, p. forward).

In this work, Ewald and Mandelker suggest: “The primary function of on-premise street graphics is to index the environment: that is signs should tell people where they can find what.”

In a 2004 issue of *Signline*, however, Dr. James Claus explains how limited this perspective is, suggesting that an on-premise sign is equal in value to that of a handshake exchanged between business owner and customer. Dr. Claus contends that signs serve a number of critical functions beyond identification, as proposed by Ewald and Mandelker, including: memory building, induction of impulses to stop at a business, enhancement of the shopping experience, as

well as informational and educational purposes. According to Dr. Claus, Ewald and Mandelker’s model sign code sets forth a series of guidelines which fail to take into account the full nature and significance of signage for commercial enterprise. Indeed, the primary purpose of on-premise signs is to propose commercial transactions to viewers of their content, the sign. This is what makes this form of communication speech, rather than a land use to be regulated. The largest shortcoming of *Street Graphics* is that the work fails to embrace the long line of Supreme Court precedent which affords First Amendment protections to the commercial speech embodied in on-premise signs.

While several key stakeholders have sought to notify the planning community with respect to the problems inherent in *Street Graphics* and the sign codes it has inspired, additional efforts, such as this Model Sign Code, are necessary in order to further the momentum of this effort. UDA seeks to use the traditional form of the sign code as a template for creating a performance-based model sign code that embraces this new way of thinking about signs, i.e. as speech and not land use activities. Exploration of federal case law pertaining to the regulation of on-premise signs emanating from U.S. Constitutional law will serve as the legal basis for the proposed code.

Origins: First Amendment Protections Afforded to Commercial Speech

It was not until the relatively recent past that the U.S. Supreme Court recognized the application of First Amendment protections to commercial speech, including on-premise signage. In 1975, the nation’s high court ruled that First Amendment protections attach to commercial advertisements. *Bigelow v. Virginia*, 421 U.S. 809 (1975). In *Bigelow*, the Supreme Court invalidated a State law which sought to prevent a newspaper from publishing an advertisement informing women where they might find a clinic willing to perform an abortion. The court rejected the State’s primary argument that the regulation was a valid exercise of its regulatory powers due to the fact that the speech involved was commercial in nature. The high court disagreed with this proposition. Citing *Ginzburg v. U.S.*, 383

U.S. 463 (1966), the court held: that the existence of “commercial activity, in itself, is no justification for narrowing the protection of expression secured by the First Amendment.” The most important aspect of *Bigelow* was that the decision altered the Court’s previous ruling in *Railway Express*, the last case that adjudicated speech under a rational basis standard. *Bigelow* paved the way for a long line of court precedent that recognizes the free speech rights which attach to commercial speech.

A year later, the Court considered a similar issue in *Virginia Pharmacy Board v. Virginia Consumer Council*, 425 U.S. 748 (1976). There, the VCC challenged a State law which deemed it unprofessional conduct for a licensed pharmacist to advertise the price of prescription drugs. In this case, the Court recognized a reciprocal right for businesses to advertise and consumers to receive such information. The Court reiterated its previous holdings on the issue, stressing that commercial speech was entitled to no less First Amendment protection merely because of the economic nature of the communication. The Court went so far as to say that the free flow of commercial speech should be considered ...an instrument to enlighten public decision making in a democracy.” *Id.* at 766. In dicta, the Court held that some commercial speech regulations may be appropriate provided that: (1) they are justified without regard to content; (2) serve a significant governmental interest; and (3) leave open ample alternative channels for communication. *Id.*

The following year, the high court struck down a local regulation which sought to prohibit the display of “for sale” signs in an effort to promote “stable, racially integrated housing” in *Linmark Associates, Inc. v. Willingboro*, 431 U.S. 85 (1977). The Court’s opinion contained a significant discussion of evidence, finding that there was insufficient evidence to show that the restriction could, in fact, accomplish the intended purpose. Holding fast to precedent, the Court was quick to rule that this type of communication was guaranteed First Amendment protection. In this case, the Court ruled that the law was invalid because it took away the best alternative for communicating the sale of residential real estate. With respect to the significance of the governmental interest involved, the Court agreed with the municipality’s assertion that the objective was important but stated that the governmental entity had failed to show the link between the ordinance and the stated objective. *Id.* Such restrictions, if

not checked by the courts, are likely to have a chilling effect on protected speech.

Relying on the broad powers vested in them by State enabling legislation, cities are often quick to regulate on-premise signage like other land uses. This decision flies in the face of important jurisprudence which must be revisited. Due to their intended purposes, signs, including those displaying commercial messages, must be viewed as speech. This does not mean that this form of communication cannot be regulated by local government. What it does mean, however, is that great care must be taken by local governments to ensure that sign codes do not infringe upon the Constitutional protections afforded by the First Amendment.

Sign Regulation and the Evolution of the Central Hudson Test

In 1980, the Supreme Court rendered an opinion that had a deep impact on the regulation of commercial signage. In *Central Hudson Gas & Electric Company v. Public Service Commission*, 447 U.S. 557 (1980), the Court ruled that a New York statute which prohibited electric companies from advertising to promote the use of electricity was unconstitutional. *Id.* The Court laid out what is now referred to as the Central Hudson test:

In commercial speech cases, then, a four-part analysis has developed. At the outset, we must determine whether the expression is protected by the First Amendment. For commercial speech to come within that provision, it at least must concern lawful activity and not be misleading. Next, we ask whether the asserted governmental interest is substantial. If both inquiries yield positive answers, we must determine whether the regulation directly advances the governmental interest asserted, and whether it is not more extensive than is necessary to serve that interest.

Id. at 566. Based on the fourth prong of the test, the high court held that regulation was broader than necessary to achieve its intended purpose. *Id.*

The following year, the high court had the opportunity to apply the test developed in *Central Hudson* in another matter. The final opinion rendered in *Metromedia*, however, failed to offer a clear application of the test. *Metromedia, Inc.*

v. San Diego, 453 U.S. 490 (1981). Instead, the holding in the case has been the source of great confusion with respect to the regulation of signage. Interestingly, while the Court had the opportunity to apply the intermediate scrutiny standard of review set forth in *Central Hudson*, their analysis, as further detailed in Justice Brennan's concurring opinion, reveals that they opted to apply rational basis analysis in evaluating the constitutionality of the ordinance. *Id.*

The controversy centered on a San Diego ordinance which sought to ban off-premise billboards while exempting on-premise signs. Five separate opinions were issued by the Court in this case. The Court's final opinion was limited to the authority of cities to regulate billboards, a form of off-premise signs. The Court recognized that other methods of communicating ideas would require "a law unto itself" and that law must reflect the "differing natures, values, abuses and dangers" of each method. *Id.* It is critical that the planning community understand the limited nature of this opinion. *Metromedia* represents the law of billboards, little else.

In spite of this limitation, this decision is often heralded as the basis for an expansion of power which enables municipalities to regulate signage on the basis of traffic safety concerns. While that may be the law with respect to the regulation of billboards, the opinion does not offer any binding legal authority which connects the proposition to on-premise signs. The City of San Diego seemed to recognize this distinction in its ordinance, by choosing to exempt on-premise signs from the proposed ban.

With respect to *Metromedia*, it is also important to note that the decision has not led to the kind of clarity with which some courts try to ascribe to it. A federal district court in Florida eloquently discussed the limitations of this ruling.

It is truly a Herculean task to wade through the mire of First Amendment opinions to ascertain the state of the law relating to sign regulations, beginning with the Supreme Court's leading decision on billboard regulations in *Metromedia, Inc. v. City of San Diego*, 45 U.S. 490, 570, 69 L. Ed. 2d 800, 101 S. Ct. 2882, (1981) (plurality) (Rehnquist, J., dissenting, who referred to the plurality decision as a "virtual Tower of Babel, from which no definitive principles can be clearly drawn").... There is

much variety and diversity of opinions in this area (in addition to sign ordinances, courts have reviewed First Amendment challenges to adult entertainment clubs, tobacco advertising and the noise volume of music concerts), suggesting that constitutional law on this subject is far from clear.

The ruling in *Edenfield v. Fane* represented the high court's next meaningful application of the *Central Hudson* test. *Edenfield v. Fane*, 507 U.S. 761 (1992). In *Edenfield*, the Court was asked to adjudicate the validity of a Florida law prohibiting CPAs from engaging in the personal solicitation of new clients. The Court ruled that the personal solicitation was commercial expression, entitled to First Amendment protections. The Court held that regulation of such expression is appropriate so long as is "tailored in a reasonable manner to serve a substantial state interest." *Id.* at 767. The Court, in applying the *Central Hudson* test to its evaluation of Florida's law, redirected the burden of proof to the regulator. Specifically, the Court ruled: "In this analysis, the Government bears the burden of identifying a substantial interest and justifying the challenged restriction." *Id.* at 770. Here, the Court ruled that the State had not met its burden of proof under *Central Hudson*.

The planning community must recognize that this decision represents a significant departure from broad level of deference afforded by the courts to decisions made by local government officials. Because of the holding in *Edenfield*, local governments must prove that any harm they seek to address with an ordinance is materially advanced by the proposed regulations. This ruling compels governments to do more than allege traffic safety or aesthetics concerns as they basis for signage regulations. As a result of *Edenfield*, courts will compel local governments to produce evidence that the ordinance directly accomplishes their stated goals, such as traffic safety or aesthetics. Local governments must be able to prove that on-premise commercial signs have an impact on traffic safety and the ordinance factually accomplishes an improvement in traffic safety. In the absence of such quantifiable proof, the constitutional legitimacy of sign codes stand on shaky ground.

The legacy of *Central Hudson* was again reinforced by the Court in *City of Cincinnati v. Discovery Network, Inc.*, 507

U.S. 410 (1993). Applying the four prong test, the U.S. Supreme Court overturned a city regulation which sought to prohibit the location of some commercial newsracks on city streets on the basis of aesthetics and safety concerns. In reviewing the case, the Court held that the city had failed to establish a reasonable fit between its legitimate interests in safety and aesthetics and the means chosen to serve those interests. *Id.* In the Court's view, the aesthetics and safety justification was not substantial enough to justify discrimination between permitted and unpermitted newsracks, both of which the high court deemed "equally unattractive." *Id.* at 425. In this opinion, the Court rejected two previously imposed jurisprudential requirements (1) that the regulation had to be the "least restrictive means" of achieving said goal and (2) that a rational basis was a sufficient justification for such regulations. *Id.* at 417. The Court also discounted arguments that the regulation should be allowed to stand as a content neutral time, place and manner restriction. *Id.* Here, the Court held that the ban was clearly content-based, seeking to eliminate only those newsracks that held commercial publications. *Id.*

Relying on the same line of precedents, the high court struck down a Rhode Island regulation which disallowed alcohol distributors from advertising the sale process of liquor in *44 Liquormart, Inc. v. Rhode Island*, 517 U.S. 484 (1996). The alleged substantial state interest in the case was the promotion of temperance. Despite the fact that the State produced some evidence of the relationship between the advertisement of alcohol products and the problem it sought to solve, the Court held that the State failed to show that it had employed all other means of furthering temperance. The Court stated that a regulation of speech could not be allowed to stand if it regulated more speech than necessary to achieve its intended purpose. A complete ban of alcohol-related advertising was determined to be overly restrictive because the State could not produce direct evidence that a ban on this type of speech would produce a measurable improvement in the goal of promoting temperance. This case is also important because the opinion rejected past decisions where the Court had deferred to the government even when it had failed to prove compliance with *Central Hudson*. This is another key issue to be considered by regulators who seek to place restrictions on on-premise signage. Sign ordinances that do not provide evidence of compliance with *Central*

Hudson can potentially be invalidated.

In 2001, the tobacco industry sued the State of Massachusetts for regulations which limited the industry's ability to advertise its products within 1,000 feet of schools and playgrounds and required all indoor advertising of such advertisements at least five feet off the floor. *Lorillard Tobacco Co. v. Reilly*, 533 U.S. 525 (2001). While the Supreme Court agreed with the State's Attorney General that the interest advanced by the regulation was legitimate at least in the case of the restrictions barring advertising near schools and playgrounds, it ruled that the regulations failed to satisfy the fourth prong of the *Central Hudson* test. *Id.* Specifically, the Court held that the burden imposed on the speech was disproportionate to any benefit that might be received from implementing the regulation. *Id.* This decision is particularly important as it denotes a possible future shift in the level of scrutiny applied to on-premise sign ordinances, as was projected by the Court in *44 Liquormart*, shifting the applicable standard of review from intermediate to strict scrutiny in cases where signage regulations are content-specific. It is important to note that most sign codes are not limited to commercial signs, and thus they must comply with the noncommercial speech standards as well.

Time, Place and Manner Regulations

Unfamiliar with the *Central Hudson* test, the planning community often seeks to regulate signage with the same approach allowable for the regulation of other constitutionally protected land uses, like adult entertainment. Familiar with *Renton v. Playtime Theatres*, 475 U.S. 41(1986), cities seek to regulate signage using the "time, place, and manner" (TPM) test. This test is relevant to the regulation of signage. The TPM test is appropriately applied to ordinances which seek to regulate all types of signage in content and viewpoint-neutral fashion. In *United States v. O'Brien*, 391 U.S. 367 (1968), the Supreme Court held that content-neutral regulations on commercial communication are subject to intermediate level scrutiny which requires such a regulation to be narrowly tailored to further an "important governmental interest unrelated to the suppression of free speech and does not burden substantially more speech than necessary to further those interests." *Turner Broadcasting Corp. v. FCC*, 520 U.S. 180 (1997). The Supreme Court relied on this test

in its analysis of a sound amplification ordinance imposed by Rock Against Racism for a performance at an outdoor venue when it found that said ordinance sought to protect the community from a harm, i.e. noise pollution, “in a direct way.” *Ward v. Rock Against Racism*, 491 U.S. 781, 798 (1989). In *Turner*, the Court considered the evidence before it to determine if the regulation directly and materially advances the stated purpose, abandoning the generalized deference often associated with land use policies. This, coupled with the fact that most commercial signage regulations are also reviewed for compliance with the *Central Hudson* test in the case of as-applied challenges to sign regulations, places a new burden on localities to ground their sign codes in more than mere conjecture about traffic safety or aesthetics. In the future, the production of quantifiable evidence regarding these issues may be the only way that sign codes will survive such legal challenges.

Sign Regulation and the Public Forum Doctrine

The land use designation of the property where a sign is posted is relevant to the discussion regarding the regulation of signage. Property may be public or private. Public property includes those lands held and used primarily for some governmental purposes. The government has the authority to allow, regulate or even ban the placement of signage on public property. In 1984, the Court reviewed the constitutionality of a Los Angeles Municipal Code provision which prohibited the posting of signs on public property in *City Council v. Taxpayers for Vincent*, 466 U.S. 789 (1984). The Court held that the regulation was a content-neutral and even-handed approach that accomplished the goal of improving the city’s aesthetic interest. *Id.* In this case, the Court found that sufficient channels of communication had been left open by allowing the posting of such signs on private property. *Id.*

A different set of principles governs the regulation of signage displayed in private forums as was demonstrated by the high court’s ruling in *City of Ladue v. Gilleo*, 512 U.S. 43 (1994). Privately owned properties such as residences and businesses make up private forums. *Ladue* involved the challenge of a city sign ordinance which effectively barred private residential property owners from displaying all signs on their properties.

The City of Ladue provided the same basis of justification for this ordinance as was offered in *Vincent* — an interest in reducing visual clutter. This ordinance was enforced against Gilleo for displaying a sign with an anti-war message in her window at her private residence. Here, the Court applied the time, place, and manner as this was a non-commercial speech case. The Court held that the ordinance went too far, finding that such interests could have been served by more temperate measures. *Id.*

The legal distinction between public and non-public forums must be fully understood by those who seek to regulate signage. Local governments may regulate the display of signs in public forums so long as they adhere to First Amendment jurisprudence. However, when it comes to non-public forums, the rational basis standard applies so long as viewpoint discrimination does not occur. See *Perry Education Assoc. v. Perry Local Educators’ Assoc.* 460 U.S. 37(1983). As such, sign codes which attempt to regulate on-premise commercial signs, as well as other sign types, on private property must meet the heightened level of scrutiny established by *Central Hudson* and the cases that followed it.

Content v. Viewpoint Regulation

Local government officials can be confused by a distinction made by the Court between content and viewpoint-based regulations. Content-based regulations typically seek to limit all types of communication on an issue based on subject matter regardless of view-point. With respect to signs, content-based regulations include, for example, regulations which allow the display of electronic message centers but limit the moving copy to the inclusion of date, time, and temperature. Another example of a content-based sign regulation is a requirement that dictates the placement and removal of election signs within a certain time frame surrounding an election. The U.S. Supreme Court has not been called upon to consider these the constitutionality of these arguably content-based restrictions. As a general rule, content-based regulations may be permitted if they are adopted to control secondary effects of speech, not to suppress it. Little clarity exists on this issue beyond this general principle. While this issue is unresolved by the courts, localities may be well advised to revisit any provisions of their ordinances which restrict the content of certain sign types.

A regulation which seeks to ban all signs which incite violence against any member of a particular community is viewpoint-based because it does not seek to ban other signs which do not seek to incite said violence. A regulation, such as the one drafted by the City of St. Paul in *R.A.V. v. City of State Paul*, 505 U.S. 377 (1992), will be deemed viewpoint based and will only survive judicial review if it complies with the standards applicable to the highest level of scrutiny. In *R.A.V.*, the City drafted a Bias Motivated Crime Ordinance which sought to prohibit the display of symbols known to arouse “anger, alarm or resentment in others on the basis of race, color, creed, religion or gender.” *Id.* at 377. The Court judged the ordinance to be facially-unconstitutional because it sought to prohibit speakers from expressing unpopular viewpoints. *Id.* The interest in this case, i.e. sending a message that the city does not condone hate speech or hate groups, was not deemed sufficient to justify the selective silencing of speech. While the Court agreed with the city on the principle that the ordinance served a compelling state interest, they suggested that “an ordinance not limited to the favored topics, for example, would have precisely the same beneficial effect” *Id.* at 396. Cities must tread lightly when seeking to regulate either the content or viewpoint displayed on signs.

Signage Regulation and the Law of Amortization

Whenever the government seeks to require the removal of an on-premise sign, takings challenges come into play. Regulations which compel the removal of nonconforming signs often rise to the level of a compensable taking. Several recent state court rulings indicate that such takings can be expensive propositions (Claus, 2002). In *Caddy v. Hamilton County* (lower court case; no Westlaw cite), the jury awarded \$1.8 million to a business owner for the loss of on-premise signage when his property, including grandfathered signs, was taken via eminent domain proceedings (Claus, 2006). The jury awarded an additional \$1.3 million dollars in just compensation for the value of the condemned real property and building (Claus, 2006). According to Dr. Claus (2002, p. 74):

Thus the combined award gave the owner sufficient money to not only replace land and building, but also

protect the former income stream with funds, which, if prudently invested, would annually cover replacement advertising expenses without adversely affecting land sales.

To avoid having to compensate sign owners for takings, some municipalities have developed amortization strategies which permit the continued use of nonconforming signs for a period deemed long enough to allow the owner to fully depreciate the investment. This strategy has been deemed appropriate if the term of amortization is reasonable. Reasonableness determinations involve consideration of the following factors, including initial capital investment, life expectancy, salvage value, and extent of depreciation, among others. *Georgia Outdoor Advertising Inc. v. City of Waynesville*, 900 F.2d 783, 786 (4th Cir. 1990); *Major Media of the Southeast, Inc. v. City of Raleigh*, 792 F.2d 1269, 1274 (4th Cir. 1986). Such reasonableness determinations are becoming more difficult to prove due to the fact that these criteria fail to adequately reflect the true value of signs.

In *The Value of Signs*, Dr. Claus proposes an appraisal scheme, which he has employed with great success, to assist communities in understanding the real economic impacts of “taking” or amortizing signage (Claus, 2002). The Ohio Court of Appeals validated this approach in *City of Norwood v. Burton*, 164 Ohio App.3d 136 (2005), where Dr. Claus testified that the owner of a property next to a shopping mall was entitled to compensation for the loss of a sign in the amount of \$500,000 to replace the value of the sign based on mere visibility (the City of Norwood had offered approximately \$200,000). Damages awarded in such cases may exceed the value ascribed to visibility as some courts have also made cities pay damages to and the attorney’s fees of affected property owners on the grounds that their civil rights have been violated. See *Ballen v. City of Redmond*, 463 F.3d 1020 (WA 2006); *Outdoor Systems Inc. v. City of Mesa*, 997 F.2d 604 (AZ 1993); *Dimmitt v. City of Clearwater*, 782 F. Supp. 586 (M.D. FL 1991); *XXL of Ohio, Inc. v. City of Broadview Heights*, 341 F. Supp.2d 825 (N.D. OH 2004).

Because amortization is a costly proposition to both businesses that display signs and the communities which seek to remove them, the planning community should consider new ways to solve the problems they typically ascribe to nonconforming signage. One effective method for bringing out of date or

unsafe signage into compliance with new performance standards is for municipalities to adopt standards dealing with the abandonment of signs. Arguably, when a business closes and is not reopened by its original owner or a new enterprise for a substantial period of time, a sign has been abandoned. However, this approach is not foolproof. On-premise signs function primarily as speech. However, they are also an accessory land use tied to their physical location. Dr. Claus' appraisal approach could readily conclude that a temporarily unused sign located on a legally zoned commercial property adds value to that property and cannot be removed without compensation.

Egregious failure to maintain a sign to the point at which the sign becomes hazardous may also be viewed as abandonment. In such cases, it may be appropriate to require the replacement of out of date signage with new signs that comply with modern performance standards. In order to avoid takings challenges, communities must provide a clear definition of abandonment to ensure that this sort of provision is not employed in an arbitrary fashion.

In some instances the issue of non-conformity is solely due to communities having adopted highly restrictive ordinances that infringe on free speech rights pertaining to both commercial and non-commercial communications. In order to correct this problem, planners should modify sign ordinances to ensure that they are no more restrictive than necessary to serve the community's goals while enabling effective commercial speech. If localities do not change their approach to dealing with nonconforming signage, businesses may seek to retain and maintain non-conforming signs because the alternative, new code compliant signage, is too small and restricted to fulfill the primary purpose, commercial speech.

Signage Regulation and Prior Restraint

Most cities require those who seek to display on-premise signs to obtain a license to do so prior to construction or display. Requiring such review prior to the installation of a sign is a form of "prior restraint." The prior restraint occurs as a result of the fact that the speaker is restrained from communicating his or her message until the regulator approves the speech. Despite this limitation on speech, prior restraints are legal

in certain circumstances so long as they comply with the safeguards established by the Supreme Court in *Freedman v. Maryland*, 380 U.S. 51 (1965).

In order to survive a prior restraint challenge, a sign code must employ the safeguards outlined by the Supreme Court in *Freedman v. Maryland*, 380 U.S. 51 (1965). These include:

1. The municipality must bear the burden of taking the denial to a judicial proceeding;
2. Bear the burden of persuasion at the judicial proceeding;
3. Limit any restraint prior to the judicial determination to a specified brief period of time; and
4. Guarantee a prompt judicial determination.

Id. at 62. The Supreme Court has relied on the prior restraint doctrine to invalidate sign ordinances which failed to include adequate procedural safeguards set forth in *Freedman*.

Grayned v. City of Rockford, 408 U.S. 104 (1972); *Kolender v. Lawson*, 461 U.S. 352 (1983).

Vagueness and unbridled discretion are two related issues of concern in the context of sign regulation. A sign code will be considered vague if it fails establish clear requirements, or to set forth a clear process for obtaining permits to construct signs, a reasonable time period for decision making by the local zoning officer, and an adequate appeals procedure in the case a denial is issued. Generally, to survive a vagueness challenge "a statute must be sufficiently clear so as to allow persons of 'ordinary intelligence' a reasonable opportunity to know what is prohibited..." *Hoffman Estates v. The Flipside*, 455 U.S. 489, 498 (1982). The standard of review is heightened when the statute in question regulates speech which is protected by the First Amendment. In such cases, "an even greater degree of specificity and clarity of the law is required." *KEV, Inc. v. Kitsap County*, 793 F.2d 1053 (9th Cir. 1986).

A sign code may also fail to meet legal muster if it gives unbridled discretion to local decision makers. For example, a review process will be deemed unfair when the decision maker may pass on permits for signage or censor the content of the commercial communication due to the absence of objective standards for issuance of the permit or, in the alternative, the presence of standards that are not clear to



Electronic Message Center Sign

“ordinary people,” per the high court’s ruling in *Hoffman Estates*. *Hoffman Estates*, 455 U.S. at 498. Returning to the issue of specificity, modern sign codes must outline objective standards upon which the approval or denial of permits and variances will be issued to provide guidance to both applicant and decision maker.

Federal Trademark Law

A short mention of federal trademark law is important to the discussion of sign regulation. The Federal Lanham Trademark Act, 15 U.S.C. §1051, et seq., was adopted by Congress in an effort to preserve and protect the integrity of federally registered names, marks, emblems, slogans, and colors. The Act specifically prohibits any unit of State or local government from requiring the alteration of such marks for display purposes. 15 U.S.C. §1121(b). This Act has prevented local governments from requiring businesses to

change their names. *Sambo’s of Ohio v. City Council of Toledo*, 466 F. Supp. 177 (N.D. Ohio 1979). The issue of color is a little less settled. While the 9th Circuit struck down an ordinance which attempted to require Blockbuster to use a color scheme that did not match its federally registered trademark in *Blockbuster Video Inc. & Video Update v. City of Tempe*, 141 F.3d 1295 (9th Cir. 1998), the 2nd Circuit issued a contrary opinion in *Lisa’s Party City, Inc. v. Town of Henrietta*, 185 F.3d 12 (2d Cir. 1999). This split in jurisprudence reflects a more important and unresolved matter that the Supreme Court could one day be called upon to resolve: Does the Lanham Act protect colors in trademarks used in signs? Whether regulating colors on signs is a content-based regulation or a time, place and manner regulation, is a First Amendment issue, which, to the best of the author’s knowledge has not been tested.

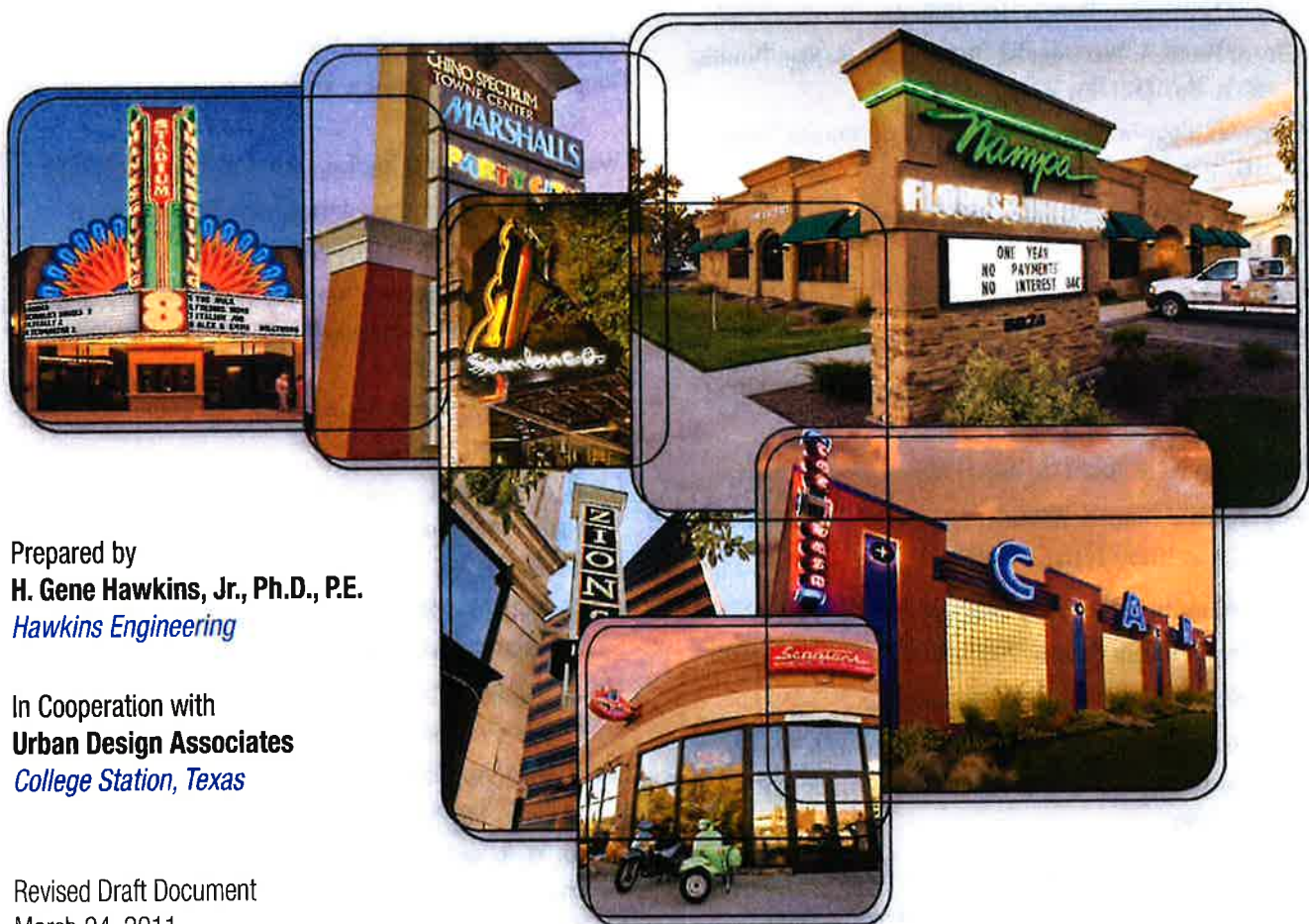
Guiding Principles for the Development of a Model Sign Code

The need for well-built and attractive on-premise commercial signage is clear. Businesses that do not have adequate signage, or that the public considers run-down or unattractive, will fail to compete in the local marketplace, potentially contributing to the destabilization of the local economy. Localities, as such, have an important role in drafting sign codes which guide businesses to craft signage. In preparing such codes, localities must tread carefully so that such regulations do not impede on the constitutional protections guaranteed to commercial speech. Localities must not treat signs, commercial or non-commercial, like traditional land uses because signs are, in fact, speech and entitled to an evolving set of protections defined by the courts. Sign code drafters must move beyond efforts to draft codes on the basis of general notions of safety and aesthetics which have little or no scientific backing. The scientific community is accumulating a significant amount of signage and its relationship to public and traffic safety. The inclusion of empirical research in signage regulation will provide the necessary basis for regulations which might otherwise be deemed to abrogate the rights afforded to this medium of communication by the Constitution.

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Sign Legibility Considerations for On-Premise Signs **Technical Report**



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Technical and Scientific Issues Associated with the Regulation of On-Premise Signs

Signs are a communication device. They are intended to communicate particular information to the reader of a sign. This document is concerned with how on-premise signs communicate information about a business to the customers or potential customers of a business. The effectiveness of that communication can have a significant impact on the success, or lack thereof, of the business. Certainly, the communication of information through an on-premise sign has legal, economic, business, and social perspectives. But at the basic level, the ability of a sign to communicate information, apart from all of the issues related to content, aesthetics, and economics, is essentially a technical issue of visibility and readability. For a sign to communicate the content to a user in an effective manner, a sign must be readable in the viewing conditions. This means that it must also be visible. Readability and visibility can be, and have been to some extent, defined in scientific terms. This technical report describes the technical issues associated with the readability and visibility of on-premise signs and, where that information is not specific to on-premise signs, the readability and visibility of other types of signs. These technical issues are associated with specific physical sign characteristics such as sign size, content size, sign location, user/reader characteristics, viewing environment, and many other factors described in this technical report.

Background Information

The need to address regulations for on-premise signs has grown as planners and local jurisdictions have increased the restrictiveness of sign ordinances. Many of the existing sign ordinances in place around the country are based primarily on preferences and opinions, as there is little in the way of quantitative and scientific research that fully addresses the various issues associated with these types of signs. However,

there is a great deal of research that addresses traffic signs, some of which can be transferred to business sign applications.

Comparison Documents

Many different agencies have developed sign ordinances. As described in the legal report, some of these sign ordinances have been challenged in court and overturned. Others have proven to be acceptable. From a technical perspective, a document which provides substantial value is the *Manual on Uniform Traffic Control Devices* (MUTCD, 2003 and 2009), which is maintained by the Federal Highway Administration (FHWA). The current MUTCD is the 2009 edition, which includes an entire part on signs (MUTCD 2009). With respect to signs, the MUTCD addresses application/selection, design, installation, operation, and maintenance. Where it is appropriate, this report will reference information in the MUTCD that may relate to the technical issues to be included in a model sign ordinance. However, there are many differences between traffic signs and business signs. The most significant of these differences is the lack of consistency in the design elements of business signs. Business signs use a wide range of shapes, typefaces, layouts, colors, lighting, and sizes to communicate the desired information while traffic signs are limited to specific type faces, shapes, sizes, and colors. It is this level of restriction on traffic signs that provide the ability to define with great precision the application, design, and installation of traffic signs. It is also what makes it sometimes challenging to transfer research findings from the traffic sign environment to the business sign environment.

Section 1A.02 of the MUTCD identifies five basic principles of traffic control devices. The critical content of this section is presented in Figure 1. Each of these basic principles — fulfill

a need, command attention, convey a clear, simple meaning, command respect from road users, and give adequate time for proper response — lead to specific measurable criteria for a sign that affect its design and placement. Some of the critical design criteria associated with traffic signs that may help to define on-premise sign criteria are listed in Figure 2.

Section 1A.02

Principles of Traffic Control Devices

Support:

This Manual contains the basic principles that govern the design and use of traffic control devices for all streets and highways open to public travel regardless of type or class or the public agency having jurisdiction. This Manual's text specifies the restriction on the use of a device if it is intended for limited application or for a specific system. It is important that these principles be given primary consideration in the selection and application of each device.

Guidance:

To be effective, a traffic control device should meet five basic requirements:

- A. Fulfill a need;
- B. Command attention;
- C. Convey a clear, simple meaning;
- D. Command respect from road users; and
- E. Give adequate time for proper response.

Design, placement, operation, maintenance, and uniformity are aspects that should be carefully considered in order to maximize the ability of a traffic control device to meet the five requirements listed in the previous paragraph. Vehicle speed should be carefully considered as an element that governs the design, operation, placement, and location of various traffic control devices.

Figure 1. Traffic Control Devices Principles from the MUTCD

Purpose and Objectives of On-Premise Signs

On-premise signs are intended to inform customers and potential customers of a business of a myriad of information about that business. An on-premise sign may identify the business and its location. It may give information about the business such as hours, special sales/events, and directions. It almost always serves as a branding tool for the business, regardless of whether the reader is currently considering a transaction or is just subconsciously noticing the business. To be effective,

a sign ordinance should focus on the physical and measurable aspects of the sign and its environment. Defining the minimum physical characteristics of these features for the model ordinance means that the purposes and objectives of an on-premise sign must be defined as a function of factors such as the viewers (users) of the sign, the environment it is viewed from (road/sidewalk, speed, lighting), and the intended action associated with the sign (stop, turn, other maneuver).

- **Letter size:** For ground mounted guide signs, letters shall be at least 6 inches for capital or upper-case letters and at least 4.5 inches for lower-case letters. On roads with speeds of 25 mph or less, the minimum letter size can be reduced from 6 to 4 inches. (Section 2D.06) On multi-lane roads with speeds of 40 mph and higher, the upper-case letter height should be at least 8 inches. (Section 2D.43)
- **Sign size:** Sign sizes are prescribed based on the roadway classification and type of sign.
- **Typeface:** All lettering shall be in capital letters except street name signs and destinations on guide signs are required (for new signs) to be a combination of initial upper-case letters and lower-case letters. (Section 2A.13)
- **Height:** At least 5 ft to the bottom of the sign in rural districts, 7 ft where parking or pedestrian movements occur (urban districts). (Section 2A.18)
- **Offset from road:** At least 12 ft from the edge of the traveled way and at least 6 ft from the edge of the shoulder. All sign supports should be located as far as practical from the edge of the shoulder. (Section 2A.19)
- **Orientation:** Signs should be vertically mounted at right angles to the direction of traffic. (Section 2A.20)
- **Sign spacing:** Signs requiring different decisions by road users shall be spaced sufficiently far apart for the required decision to be made safely. Overloading road users with too much information is not desirable. (Section 2A.16)
- **Legibility Index:** Lettering should be large enough to provide the necessary legibility distance. A legibility index of 30 ft/in should be used. (Section 2A.13).
- **Luminance:** All signs shall be retroreflective. There are minimum retroreflectivity levels for maintaining traffic signs (Section 2A.08).
- **Sign message:** Wording shall be as provided in the MUTCD. Only symbols shown in the MUTCD shall be used. (Section 2A.06)

Figure 2. Selected Traffic Sign Design Criteria from the 2009 MUTCD

Sign Ordinance Regulation

In order to develop the technical criteria that can be used to define the measurable characteristics of an on-premise sign, it is necessary to first develop a list of what the possible characteristics are. Table 1 presents a partial list of characteristics that affect sign effectiveness and that might be serve as design criteria in a sign ordinance or might be used in a sign ordinance to establish the design criteria.

Sign Characteristics

- Type/style of sign
- Overall size
- Shape of sign
- Size of content
- Style of content
- Color of content
- Material composition
- Lighting/illumination

Location Characteristics

- Offset from viewing location
- Distance from viewing location
- Height from viewing location
- Orientation relative to viewing location

Environment Characteristics

- Characteristics of viewing background
- Characteristics of reader/user
- Travel speed of reader/user
- Time of day
- Information processing demands
- Competition for attention

Note: characteristics are not in any particular order.

Table 1. Characteristics Related to On-Premise Sign Effectiveness

Technical Issues of Sign Visibility

To be visible, an object must provide minimum performance with respect to four characteristics. It must be of adequate size, of adequate luminance, of adequate contrast, and properly located. If minimum threshold conditions are not met for

any one of these factors, then an object is not likely to be visible to the viewer. These factors are also interactive, meaning that the minimum characteristic for any one factor is dependent upon the existing performance level for the other three. Critical aspects for each of these factors are addressed in the following sections along with findings of selected previous research that gives some insight into the threshold conditions associated with each factor.

Size

The focal point of a sign is the message within the sign. For the message to be visible, it must encompass a visual arc large enough to be discernible by the eye. As applied to reading text at a distance, the human arc can distinguish a stroke width (SW) of 1 minute and a letter height (Ht) of 5 minutes for someone with 20/20 vision. For 20/40 vision, the respective values are 2 minutes and 10 minutes. Figure 3 illustrates the concept of the visual arc. Equation 1 provides the formula that defines the relationship between these elements.

$$\tan(\theta) = \frac{\text{Height}}{\text{Distance}}$$

Equation 1. Sign Visibility

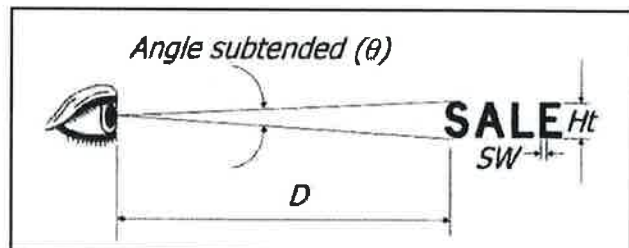


Figure 3. Concept of Visual Arc

By combining Equation 1 with the threshold criteria for visual angle, it is possible to establish a legibility index for observers of various visual acuities. For 20/20 vision (5 minute arc for letter height), the corresponding legibility index is 57.3 feet per inch of letter height (ft/in). For 20/40 vision, the legibility index is 28.6 ft/in. Table 2 indicates the legibility index associated with various Snellen visual acuities using Equation 1. These values are consistent with traditional rules of thumb for the legibility of traffic signs.

Snellen Visual Acuity	Visual Angle of Letter (minutes)	Legibility Index (ft/in)
20/10	2.5	114.6
20/20	5.0	57.3
20/30	7.5	38.2
20/40	10.0	28.6
20/50	12.5	22.9
20/60	15.0	19.1

Table 2. Legibility Indices for Visual Acuity

In 1939, Forbes et al. conducted the pioneering research on traffic sign legibility and established a legibility index of 50 ft/in (Forbes 1939). This served as the rule of thumb for traffic engineering until the late 1980s, when concerns about the visual abilities of older drivers become more prevalent. One of the first significant research publications addressing older drivers suggested that a legibility index of 25 or 30 ft/in was more appropriate for older drivers (Special Report 218). The MUTCD states that signs should be designed using a legibility index of 30 ft/in (MUTCD 2009).

It is worth noting that these legibility indexes are associated with a sans serif letter style with a height to stroke width ratio of about 5:1, which is consistent with that of the common letter style used in traffic signs. The 50 ft/in legibility index that Forbes established for traffic signs applied to the Series D font (see typeface in the secondary issues section). A letter style with a larger height to stroke width ratio (skinnier letter) will be less visible. This technical report addresses the impact of letter style on legibility in a later section.

Another critical element associate with the legibility index is whether the stimulus is a known or unknown stimulus. Someone looking for a specific message in a sign will be able to identify the message at a further distance than if they were trying to read a sign message that is unknown to them. Other research by Forbes compared the legibility of known and unknown messages (Forbes 1951). In his experiment, Forbes found that the legibility index for words that the subject was looking for was 10-13 percent further than that for words that the subject had no prior knowledge of. Researchers at the Texas Transportation Institute also evaluated legibility for known versus unknown sign messages and found that, in

daytime conditions, the known message could be read at about 75 percent of the distance of the unknown message (Hawkins et al. 1999). The issue of a known versus unknown message is closely related to the issue of the time required to process the information and complete an appropriate response. Reading time issues are addressed later in this document.

In most states, a minimum visual acuity of 20/40 is typically required to obtain or renew a driver license. This equates to a legibility index of about 29 ft/in. In comparison, the MUTCD recommends a legibility index of 40 ft/in. Given that on-premise signs use a range of design characteristics that may reduce legibility to a level less than that used with traffic signs, a legibility index of 30 ft/in would be appropriate for use in a model sign ordinance and would address a wide range of users, sign characteristics, and viewing conditions.

Of all the factors affecting legibility, size has the greatest impact. The sign message must have adequate size first. Legibility of a sign message of inadequate size cannot be significantly improved by increasing the luminance or contrast. From a relative standpoint, an increase of a given percentage in message height will result in a greater legibility improvement than an equal percentage increase in luminance or contrast.

Luminance

In addition to size, a sign must also be bright enough to be seen. Luminance is the technical term used to define the brightness of a sign. Sign luminance for a static sign is provided through one of the following: ambient lighting (sun or other lighting not related to the sign), external sign lighting (lighting located on the outside of the sign intended specifically to make a sign visible at night), internal sign lighting (lighting within the sign interior that makes it visible at night), or retroreflectivity (the ability to reflect light from a source back toward the source). Sign luminance is largely a night-time issue as the ambient lighting associated with daytime viewing conditions is such that signs do not need to provide additional luminance through internal/external lighting or retroreflectivity. There is a wide range of research and guidance on the luminance levels that should be provided in signs, but most of the actual research has been associated with traffic signs. With respect to on-premise signs, the Signage Sourcebook presents a good summary of guidelines for luminance.

There are three issues related to the quantity of luminance produced by a sign. The first is that a sign must have sufficient luminance to be visible/legible to the intended users. This generally implies a minimum luminance that must be provided. At the other end of the luminance spectrum is a maximum level of luminance that would limit factors such as sky glow, light trespass on adjacent property, or glare, which are collectively referred to as light pollution. Each of these is addressed separately, along with issues related to luminance measurement.

The term “Illuminance” is also a frequently used lighting measurement. It is “a term that quantifies light striking a surface or plane at a point. Illuminance is generally used as the measurement associated with light pollution.

Luminance Measurement

Currently there is no guideline specifying a standardized measurement method for luminance or illuminance of business signs (Garvey 2004). To isolate an individual sign in the open field, Garvey (2004) suggested that luminance be measured at a distance of 550 ft (using a 20-min of arc aperture luminance meter) with the meter placed toward the sign face, and be converted into illuminance at a distance of 16.4ft from the on-premise sign.

Minimum Luminance for Legibility

The luminance (or brightness) of a message also has an impact on the visibility of the message. The brighter the message, the easier it is to read. Furthermore, there is a relationship between luminance and size. Carlson and Hawkins found the results shown in Figure 4 (Carlson and Hawkins). The overhead sign results are based on a Series E(Modified) legend with 16 inch upper case letters and 12 inch lower case letters. The street name sign results are based on a Series C 6 inch upper case letter. As can be seen from these plots, a sign legend that has a higher luminance can be read by a higher percentage of drivers. Another interesting aspect of these plots is that, although they are based on signs with different letter heights and designs, the results are almost identical when compared on the basis of the legibility index.

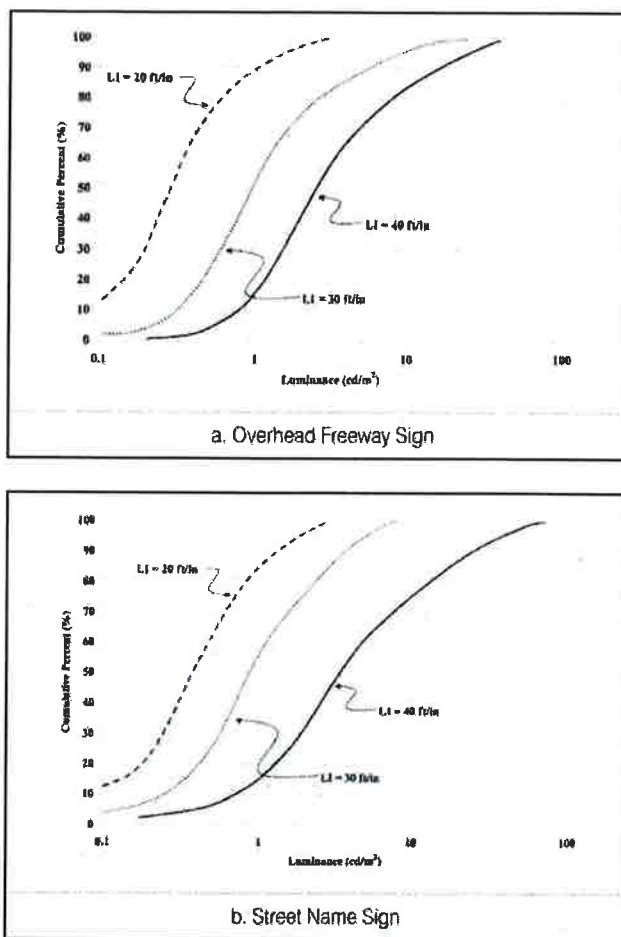


Figure 4. Impact of Luminance on Legibility Index (Carlson and Hawkins)

A recent study (Garvey, Pietrucha and Cruzado 2008) compared the daytime and nighttime visibility of internally illuminated on-premise signs with seven different levels of lighting. A lighting level defined as the “industry standard,” a value which represent 99 percent of all internally illuminated, on-premise signs installed across the U.S., represented the middle lighting condition. There were three levels higher and three levels lower than the base condition so as to examine the recognition and legibility distances under different sign luminance levels for nighttime signs. The signs also represented a range of colors, contrast orientation (positive/negative), and contrast levels. Major findings from this study are listed below:

- Different combinations of colors yield different visibility. Signs with black letters on a white background have the best visibility and signs with yellow letters on a green background have the worst visibility.

- At the worst nighttime lighting condition (40 percent of the base brightness level), daytime signs were 43 percent more legible and 40 percent more recognizable than nighttime signs; at the best lighting conditions, daytime signs were 13 percent more legible (at industrial standard nighttime brightness level) and 20 percent more recognizable (at 1.75 times of the base brightness level) than nighttime signs.
- There is a peak in both legibility distance and recognition distance as function of sign brightness. In the study, the maximum legibility distance was reached at the base level and the maximum recognition distance was reached at 1.75 times brighter than the base level.
- The researchers did not recommend a specific level of luminance (minimum or maximum) for internally illuminated signs, but the optimal performance (associated with the base lighting level) had a luminance level of 660 cd/m² for the white portion of the experimental signs (lower luminance levels for other colors).

Insofar as their study was concerned, the optimal luminance level of internally illuminated on-premise sign was suggested at the base level. However, the nighttime ambient lighting environment and driver characteristics in the test site of this study might not represent all nighttime conditions in which on-premise signs are installed, thus the visibility obtained in this study at certain luminance level will not necessarily be the same in different cases.

For externally illuminated signs, there is very limited scientific information regarding on-premise signs and external lighting design and maintenance, such as the location of the luminaire, illuminance level, or the retroreflectivity requirement of the sign face. In one study concerning the lighting design of this type of signs, a set of two 150-watt flood lamps were mounted 7 ft in front of and 7 ft behind the center of the signs (Garvey, Ramaswamy, Ghebrial, De la Riva, Pietrucha, 2004). They found that internally illuminated signs provided superior legibility distances compared to externally illuminated signs with lighting designed to match that of the internally illuminated signs. However, their research did not give luminance levels associated with the signs.

In spite of the factors affecting the visibility of internally and externally illuminated on-premise signs, there are studies concerning the relative performance of internally and externally illuminated signs under controlled test environment (Garvey, Ramaswamy, Ghebrial, De la Riva, Pietrucha, 2004)

and real open road (Garvey, Pietrucha, Damin, and Deptuch, 2009). The most relevant findings from both studies to on-premise sign ordinance are summarized in the following list:

- Gender and age do not have significant effect on the visibility distance of both types of on-premise signs. Visibility of daytime signs is better than nighttime signs for both internal and external illumination conditions.
- The degradation of the external lighting facility exacerbates the difference between the performances of the two types of signs. The degree of nighttime visibility improvement by internal illumination compared to external illumination is associated with the increased luminance level.

There are many factors that impact the optimal luminance level for an on-premise sign, more than can be conveniently addressed in a model sign ordinance. There are both minimum and maximum limits on sign luminance that should be followed for a sign to be legible. Even if luminance levels were to be selected as a measure-of-effectiveness, the resulting ranges of luminance outputs as a function of color of on-premise signs would be wide: 550~760 cd/m² for white/black signs, 30~187 cd/m² for green color and for 150~520 cd/m² for yellow color, 80~130 cd/m² for gold color etc. (Garvey, Pietrucha and Cruzado 2008, Garvey, Pietrucha, Damin, and Deptuch, 2009).

As there is little research addressing the minimum luminance levels of on-premise signs, this document presents information related to luminance levels for traffic signs for possible application into on-premise signs. A 1984 review of nighttime visibility research for overhead freeway signs found the points listed below (Gordon 1984). It is worth noting that these findings relate to overhead freeway traffic signs, where the luminance was provided through retroreflectivity.

- A white legend of 3.4 cd/m² should be taken as the lower limit of permitted sign luminance. Below this level, legibility rapidly decreases.
- While 3.4 cd/m² should be considered a minimum, 340 cd/m² should be the upper limit. Optimal legend luminance under most highway conditions is between 34 and 102 cd/m². A dark surround permits the use of lower legend luminance.
- Under high surround illumination conditions, legend-background luminance ratios as low as 4:1 will provide satisfactory visibility. Under low ambient illuminations conditions, where the sign background is almost black, the specific legend luminance is more meaningful than one of contrast.

The third bullet point illustrates a key aspect of establishing luminance levels. The optimal luminance level is closely related to the environment in which a sign is viewed. A sign in a dark rural environment can be read with lower luminance than one in a brightly lit urban environment. Furthermore, since most on-premise signs are illuminated internally, it is possible to provide much higher luminance levels than can be achieved with traffic signs.

In 1986, Mace et al. provided an excellent literature summary based on the determination of minimum brightness standards for sign legibility (Mace et al. 1986). The findings related to minimum luminance requirements for legibility (MLRL) for overhead signs were:

- MLRL increase as the ratio of letter stroke width to letter height decreases.
- MLRL increase as the level of internal contrast decreases.
- The published data are inconsistent on the effect of sign luminance and surround luminance.
- MLRL are not influenced by glare, unless the glare source is very bright and immediately adjacent to the sign.
- MLRL increase with observer age.

In an effort documented in 1985, Schmidt-Clausen reported on minimum luminance levels needed for sufficient and optimal performance (Transportation Research Circular 297). The investigation was carried out on a scale model and compared to those values found in real-world situations. The study showed that a legend luminance of 3.5 to 10 cd/m^2 is sufficient. Luminance values between 10 and 35 cd/m^2 are optimal. The maximum luminance was determined to be about 60 cd/m^2 .

The actual value of the minimum and maximum luminance depends upon the level of critical detail in a sign, the contrast ratios, the level of ambient lighting, and the visual complexity of the viewing background. As indicated in the technical report, there is general agreement that 3.4 cd/m^2 is the absolute minimum luminance for a white sign legend. Luminance levels between 34 and 1 cd/m^2 are optimal, and the maximum luminance is 340 cd/m^2 . These luminance levels are for a white legend on a traffic sign, which uses positive contrast (light legend on a darker background). In comparison, on-premise signs often use a wider range of colors for the sign legend and background. In addition, many on-premise signs are internally illuminated, which is not a common practice for traffic signs.

The ability to transfer research findings from traffic sign research is somewhat limited due to the wider range of letter

forms, colors, sign layouts, and illumination technologies and levels associated with on-premise signs. However, the information for traffic signs provides a valuable comparison for sign legibility performance.

This report does not recommend that illuminance be a major criterion in regulating sign lighting design. Illuminance level varies with distance from the lighting source and depends on the type of and power output of the lighting facility. Furthermore, there are no standardized methods or equipment for measuring illuminance of on-premise signs that will exclude the impact of ambient lighting (Garvey 2004). Furthermore, this report recommends that luminance levels for static signs be based on legibility needs. There is currently insufficient scientific evidence to establish maximum luminance levels for on-premise static signs.

Contrast

In addition to size and luminance, a message must also possess sufficient contrast with the background to be visible. According to Olson, contrast is defined as characteristics of a scene that cause an object to appear distinct from its background. At higher levels of illumination, contrast can be provided by such things as differences in color, pattern, shading, texture, and brightness. At night, generally only brightness contrast is available (Olson 1996).

The concept of contrast is best illustrated in Figure 5. In this figure, the color of the word “contrast” is the same shade of gray for the entire word. However, the shade of the background changes from a light gray to near black. As a result, the letter “R” is not visible due to a lack of contrast between the word and the background. Furthermore, the visibility of the first and last parts of the word has different characteristics. In the first part of the word, the object is darker than the background; this is referred to as negative contrast. In the last part of the word, the object is brighter than the background; this is referred to as positive contrast. The minimum design criteria for sign visibility can depend upon whether the sign message is presented with positive or negative contrast.



Figure 5. Example of Contrast

There are multiple contrast issues that affect sign visibility. The ability to see a sign (conspicuity) depends upon the external contrast between the sign and the background (viewing environment). The ability to read the sign depends upon the internal contrast between the sign copy and sign background. Generally, contrast is expressed as a ratio of the internal and external luminance as shown in Equation 2.

$$\text{Contrast Ratio} = \frac{\text{Luminance}_{\text{high}}}{\text{Luminance}_{\text{low}}}$$

Equation 2. Contrast Ratio Equation

For fully reflectorized signs with almost no background complexity (i.e., values up to 0.4 cd/m²), Sivak and Olson recommend a contrast ratio of 12:1 for optimal performance (Sivak and Olson 1985). For background complexity greater than 0.4 cd/m², the retroreflectivity needs and corresponding contrast ratio become dependent on the amount of background complexity. The values reported in their literature review range from 3:1 to 45:1. Other reported minimum contrast ratios for white on green signs have ranged from 3.3 to 7:1 (Mace et al. 1986). The Australian research recommends a value of 3:1 (Jenkins 1991). However, their guidelines call for a minimum of 7:1 but prefer 10:1 (Guide to Traffic Engineering Practices 1988).

A 1988 report examining fully retroreflective signs suggested a contrast ratio range from 4:1 to 15:1 as appropriate for most conditions (Special Report 218). For example, if the luminance of the green background is 5 cd/m², the luminance of the legend should be at least 20 cd/m². Lower contrast ratios reduce legibility and may not be acceptable, and contrast ratios as high as 50:1 may reduce legibility but could be quite adequate under certain conditions. The Signage Sourcebook indicates that a contrast range of 4:1 to 15:1 is appropriate for most conditions (Signage Sourcebook 2003).

The current draft of the model ordinance indicates that the contrast ratio shall be between 4:1 and 15:1. This is an acceptable typical range for most conditions. As indicated in the technical report, there is research to suggest that contrast ratios as high as 50:1 may be adequate, but only under certain situations. With respect to the model sign ordinance, it would probably be appropriate to provide a mechanism where a variance can be obtained for signs that have contrast ratios greater than 15:1.

Location

Finally, a sign with adequate size, luminance, and contrast serves no purpose and cannot be read if it is located where it is not visible to the viewer. There are many aspects to on-premise sign location. Unlike traffic signs, on-premise signs are not typically located close to the edge of the road. They must be placed on private property behind the right-of-way line. In addition to the offset from the road, they may be placed at a range of heights above the road. Finally, the orientation of the sign with respect to the viewing direction may affect its visibility.

A person's sharpest vision occurs when they are looking directly ahead. As a stimulus moves away from the visual axis, it is more difficult for the observer to detect and read the stimulus. This ability to see and read a sign is illustrated in Figure 6, which shows that the clearest vision occurs within a 3 degree cone centered on the visual axis (Texas Highway Operations Manual 1992). Clear vision occurs within a 10 degree cone, satisfactory vision within a 20 degree cone. For reading purposes, the visual field is 10 degrees or less. A driver's ability to observe and react to a sign outside the cone of vision drops rapidly outside this limit.

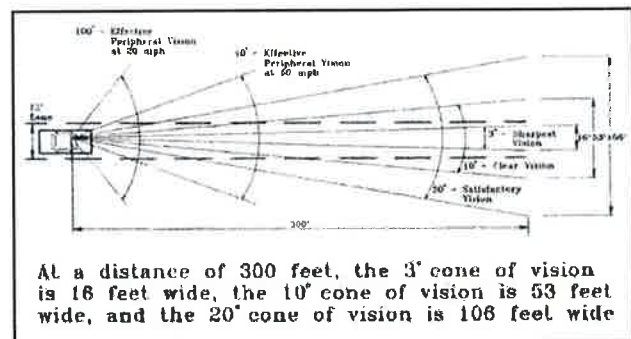


Figure 6. Visual Field

However, objects outside the cone of vision can be detected in peripheral vision. When stationary, peripheral vision is almost 180 degrees. As speed increases, the driver's ability to detect objects at the limits of peripheral vision decreases as indicated in Figure 6. The ability to detect a sign is related to the sign luminance and any motion in the sign. Figure 7 illustrates the visual acuity associated with an object in the periphery and the luminance level (Olson 1996). In this figure, 20/20 acuity is represented by 1.0 and 20/40 acuity is represented by 0.5.

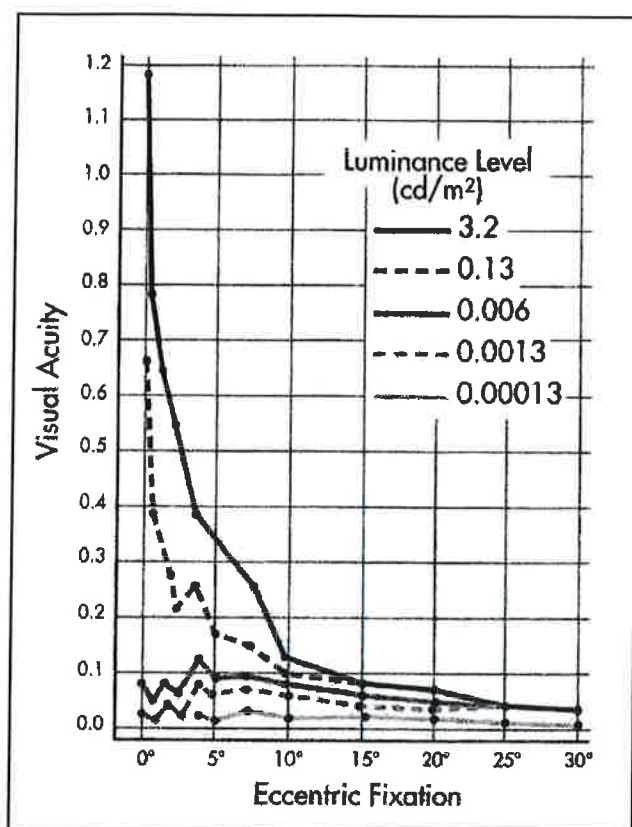


Figure 7. Relation between Eccentric Fixation and Acuity

Sign Viewing Angle (Parallel Sign Placement)

Research by (Griffin and Bailey 2002) produced the relationship shown in Figure 8. This figure indicates that the relationship between the viewing angle and the legibility efficiency is not significantly affected until the angle to the traffic flow is

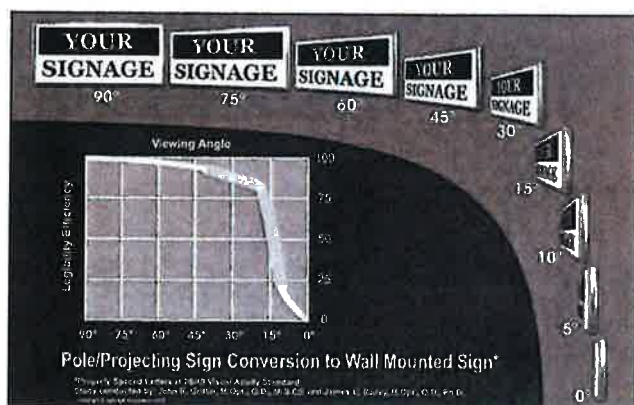


Figure 8. Legibility Efficiency and Viewing Angle

approximately 20 degrees. At an angle of about 10 degrees, the legibility efficiency is about 20 percent. These relationships indicate that the letter height does not need to be adjusted as long as the sign is oriented at an angle of 20 degrees or greater to the direction of traffic flow. However, this study also found that at the same observation angle of 30°, doubling letter height along with larger letter spacing, the amount of correctly read sign letters increased to 85 percent from 25 percent when letter height was small and letter spacing was tight. This implies that parallel sign legibility could be improved by increasing letter height and letter spacing between words/letters. At the same viewing distance and using 75 percent correct criterion, the viewing angle of a sign with crowded letters was suggested to be increased by 15 degrees over that of the sign with uncrowded letters.

Research (Garvey, Zineddin, Porter, and Pietrucha, 2002) found that increasing the size of a parallel sign did not significantly increase the probability of it being detected. In that study, researchers measured the detectability and legibility of perpendicular and parallel signs. The parallel signs were two and three times the size of the perpendicular signs. The percentage of parallel signs that were not detected was significantly greater than for the perpendicular signs, even though the parallel signs were much bigger. This implies that increasing the size of the parallel signs cannot overcome the deficiency associated with orientation to the direction of traffic flow. Accordingly, the team believes that it is not appropriate to only adjust the letter height for parallel signs at this time. Instead, business owners and governing officials need to recognize the penalties associated with orienting a sign parallel to the direction of traffic flow.

More recent research (Garvey 2006) on parallel signage issue develop a mathematical model for determining letter heights on parallel sign taking account of optimal observation angle and sign reading speed. In his model, the optimal observation angle was assumed to be 30°, resulting in a 30-60-90° triangle that the lateral sign offset from the line of sight is half the maximum legible distance. To optimize sign reading speed to minimize driver distraction, the critical letter height proving the optimal reading speed was assumed to be three times of minimum legible letter height of perpendicular sign. That is, if 30 ft/in legible index is the size threshold for perpendicular sing, 10-ft/in legible index is used for parallel sign. Two equa-

tions were provided to calculate the letter height for parallel sign, and a lookup table is also available from this study.

Equation #1: $LH = (LN * 10 + LO) / 5$

Equation #2: $LH = (LN * 10 + LO) / (LI/6)$

where:

LH is letter height in inches.

LN is the number of lanes of traffic.

LO is the lateral offset from curb in feet.

LI is the legibility index from Table 4.

Illumination	Letter Style	Letter Color	Backgrd Color	Legibility Index	
				Mixed Case	All Caps
External	Helvetica	Black	White	29	25
		Yellow	Green	26	22
		White	Black	26	22
	Clarendon	Black	White	28	24
		Yellow	Green	31	26
		White	Black	24	20
Internal Translucent	Helvetica	Black	White	29	25
		Yellow	Green	37	31
	Clarendon	Black	White	31	26
		Yellow	Green	37	31
Internal Opaque	Helvetica	White	Black	34	29
		Yellow	Green	37	31
	Clarendon	White	Black	26	30
		Yellow	Green	37	28
Neon	Helvetica	Red	Black	29	25
		White	Black	38	32

Table 4. Parallel Sign Letter Index Selection Table

A more efficient way of improving parallel sign conspicuity might be providing optimal intercharacter spacing or an optimal combination of spacing and letter height. But such quantitative requirement on letter spacing or combination of spacing and letter height needs to be identified through further research.

Technical Implications Associated with a Model Sign Ordinance

It is not possible to succinctly describe all of the previous visibility research and related technical issues that might be used in the development of a model sign ordinance. In part, this is due to the fact that there are a multitude of approaches to the structure of a model sign ordinance, depending upon the desired framework of the ordinance. The following points define a starting point for the technical structure of the model ordinance.

Physical sign characteristics that should be addressed in a model ordinance include:

- **Minimum content size.** The minimum size of the text and/or symbol in the sign as a function of road speed and the position of the sign relative to the target viewing location. The minimum size may be defined in terms of critical detail, minimum stroke width, minimum letter height, or minimum size of viewing arc. It may be appropriate to have adjustments to the minimum size if the message characteristics are below some threshold condition (such as a script font).
- **Amount of information.** In order to establish controls on the size of signs, it may also be appropriate to define the amount of information that can be presented in a sign. The amount of information defines the length of time required to read the sign. The more information presented, the further away the sign must be read, increasing the minimum size of the sign.
- **Minimum luminance.** This would apply only to signs that are internally or externally illuminated. Internal or external illumination should be required only for those signs that are intended for viewing at night.
- **Minimum contrast.** This would establish a minimum contrast level that is based on the luminance differences within a sign.
- **Orientation to roadway.** The orientation of a sign to the viewing direction affects its legibility. As the orientation angle increases, the size of sign features also need to increase to maintain the same degree of legibility.

Environmental factors that should be addressed in the model ordinance include:

- **Intended viewer.** To define sign characteristics, it is necessary to first establish the intended viewing conditions for the sign. This primarily is a decision on whether the critical observer is a driver or a pedestrian.

- **Road characteristics.** For signs intended to be viewed from a moving vehicle, the road speed and number of lanes affect the reading time, viewing distance, and required maneuver.

Other on-premise sign elements which could be in a model sign ordinance could include:

- **Sign type.** There are many types of signs including monument, pole, wall, projecting, roof, etc.
- **Maximum sign size and maximum content size.** From a technical perspective, the larger a sign or the content is, the more visible it becomes. The authors recognize that a local jurisdiction may want to establish a maximum size for signs and/or sign content. However, doing so is a policy issue and beyond the scope of a technical review.
- **Relation to other signs.** The amount of information present in the visual field has an impact on the search and identify abilities of drivers. In an environment with a large number of brightly lit signs, a driver will have more difficulty identifying a particular sign. However, establishing limits on the number of signs that can be placed in an area presents legal issues that are beyond the technical issues of conspicuity and legibility.
- **Typeface issues.** It is not possible to restrict typefaces to only those that are approved by a jurisdiction. Furthermore, the purpose of the ordinance should not be to define sign design to the level of detail that determines whether a sign is effective. The business owner and sign fabricator have a responsibility to design a sign that is as effective as possible with the general constraints established by the sign ordinance. In addition to the typeface, the model ordinance will not address letter spacing or the amount of white space that a sign is required to have.

Determining Letter Height and Sign Size for On Premise Signs

The minimum sign size charts are based on several research studies and findings conducted by the Pennsylvania State University. The PSU recommendations are contained in a document entitled “On Premise Signs: United States Sign Council Best Practices Standards. A Research Based Approach to Sign Size, Sign Legibility, Sign Height” (Bertucci, et. al 2003). This document contains guidelines for calculating the following on-premise sign factors:

- Letter height as a function of Viewer Reaction Distance (VRD) and Legibility Index (LI).
- Sign size as a function of copy area.
- Sign height as a function of blocked sight distance.

The USSC document does not distinguish between different types of signs, such as wall signs, ground signs, roof signs, or projecting signs. Nor does the best practices document present the information in tables that would be simple to apply to a variety of conditions. The USSC best practice document indicates that the sign recommendations are based on a series of USSC research reports prepared by the Pennsylvania Transportation Institute. In defining the best practices, the document does not indicate the specific research results that the recommendations are based upon.

Using a combination of the recommendations contained in the Urban Design Associates technical report and the USSC best practices guide, the team recommends the following guidelines for developing minimum dimensions for letter height and overall sign size.

BASIS FOR CALCULATING LETTER HEIGHT

The minimum letter height required for sign legibility is a function of the distance at which the sign must be read. In turn, this distance is a function of the amount of content in the sign, the speed of the vehicle as the driver reads the sign, and the legibility index of the sign copy. Equation 3 presents the basic formula for calculating letter height. Figure 9 illustrates the application of the formula to a road situation.

$$LH = \frac{\sqrt{(LN \times 12 - 6 + LO)^2 + (1.47 \times SL \times VRT)^2}}{LI}$$

LH = Letter height for signs oriented perpendicular to traffic flow, inches.

LN = Total number of lanes on the roadway, including the median or two-way left turn lane if present. If the two-way left turn lane or median is wider than 12 ft, then the distance should be increased to account for the wider median.

LO = Lateral offset to the center of the sign from the edge of the roadway, feet.

SL = Roadway speed limit, mph.

VRT = Viewer Reaction Time, seconds

LI = Legibility index, ft/in. The recommended legibility index is 30 ft/in.

Equation 3

In Figure 9, the line from the vehicle to the sign represents the hypotenuse of a triangle. One leg of the triangle is the distance from the vehicle to the sign perpendicular to the roadway ($LN = 12 \times 6 + LO$ in the formula) and the other leg of the triangle is the distance parallel to the traffic flow direction (1.47 SL VRT in the formula). Squaring each leg and taking the square root of the sum gives the direct line-of-sight between the vehicle and the sign.

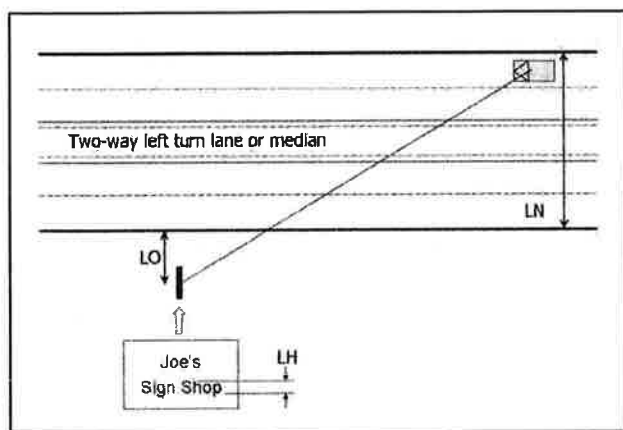


Figure 9. Road Layout

The other factors that are needed to calculate letter height are the speed limit of the roadway, the Viewer Reaction Time, and the Legibility Index of the sign. The roadway speed limit is established by the local jurisdiction. The VRT is determined from Table 5 and is a function of the amount of information in the sign and the complexity of the environment in which the sign is located. One of the weaknesses of this VRT procedure is that the message scan time is based on a per word or per symbol quantity. This is not consistent with reading research. The body of knowledge on information processing typically addresses processing time as a function of units or bits of information in the message, not the individual elements of a message. However, this procedure provides a good substitute that is easily incorporated into the model sign code. An average legibility index of 30 ft/in is appropriate for use with most sign conditions. The legibility index should be multiplied by the factors in Table 6 when the conditions match those shown in the table.

Task	Viewer Reaction Time (sec) for Driving Environment		
	Simple	Complex ^a	Multilane
Detection	0.5	1.0	1.0
Message Scan	0.1 / letter 0.5 / symbol	0.1 / letter 0.5 / symbol	0.1 / letter 0.5 / symbol
Re-Orientation Scan	0.02 / letter 0.2 / symbol	0.04 / letter 0.2 / symbol	0.04 / letter 0.2 / symbol
Maneuver	4	5	6
Total	4.5 + 0.12 × # letters + 0.6 × # symbols	6.0 + 0.14 × # letters + 0.7 × # symbols	7.0 + 0.14 × # letters + 0.7 × # symbols

NOTES:
^a A developed town or city commercial area. Single or multilane travel under 35 mph.
^g A developed urban/suburban commercial area. Multilane travel over 35 mph.
Source: Reference (Bertucci, et.al 2003)

Table 5. Viewer Reaction Time

Adjustment Factor	Adj. Legibility Index (ft/in)	Conditions
1.00	30	For uncongested conditions.
0.83	25	For moderately congested strip, in-town, or in-city zones, usually characterized by some of the following environmental conditions: • Moderate pedestrian and/or vehicular activity • Traffic signal or traffic sign control at major intersections • Intermittent "stop and go" traffic patterns • On street parking • Posted speeds below 40 MPH • Tightly spaced retail locations
0.67	20	For highly congested strip, in-town, or in-city zones usually characterized by some of the following environmental conditions: • High pedestrian and/or vehicular activity • Traffic signal or traffic sign control at most intersections • Intermittent "stop and go" traffic patterns • On street parking • Posted speeds below 30 MPH • Tightly spaced retail locations

Source: Reference (Bertucci, et. al 2003):

Table 6. Adjustments to Legibility Index

BASIS FOR CALCULATING SIGN SIZE

The USSC best practice for determining minimum sign size is based on using the number of letters in the sign to define the total copy area and then using a multiplier to get the total sign size (Bertucci, et. al 2003). The procedure is listed below and is recommended by the team for the model sign code.

1. Establish the letter height using Equation 3.
2. Determine the Single Letter Area. This can be done by squaring the letter height in inches to obtain the area occupied by single letter and its adjoining letterspace. This total is divided by 144 to obtain the Single Letter Area in square feet.
3. Determine Copy Area (Single Letter Area in square feet total number of letters plus area of any symbols in square feet).
4. Determine Total Sign Area by multiplying the Copy Area by 2.5 (Sign Area = 2.5).

This procedure is based on the following assumptions which may not be accurate representations of actual sign science:

- Area of individual letters (including inter-letter spacing) is the same as the letter height.
- The total sign area should be designed so that it is 40 percent copy area and 60 percent blank space (negative area).

SUMMARY TABLES FOR LETTER HEIGHT AND SIGN SIZE

Table 7 presents a summary for letter height and sign size based on some basic assumptions. The assumptions are listed below. The minimum letter heights and sign sizes that result from these assumptions are not sensitive to the number of lanes or the lateral offset. The results shown in Table 7 would be the same for 2, 4, or 6 lanes and for lateral sign offset of 15 to 30 ft.

- A legibility index of 30 ft/in is used for all road speeds and sign applications.
- The number of letters in a sign is 25 for speeds of 30, 45, and 65 mph. The sign is all text with no symbols or graphics.
- The sign is oriented perpendicular to the direction of traffic.
- The center of the sign is located 20 ft from the edge of the road.

- The road has 4 lanes and no median.
- Sign height is rounded to the nearest whole inch and sign area is rounded to the nearest whole square foot (up or down as appropriate).

Road Speed (mph)	Environment	Letter Height (in)	Sign Area (ft ²)
30	Simple	11	53
	Complex	15	98
45	Complex	22	210
	Multilane	25	271
60	Complex	32	444
	Multilane	36	563

Table 7. Minimum Sign Size and Letter Height Based on Assumptions

SIGN HEIGHT

The authors were able to identify two criteria for defining a maximum sign height as indicated below.

The Manual on Uniform Traffic Control Devices (2003) includes guidance for defining the maximum height of traffic signals at an intersection so that they are not out of view of a driver stopped at an intersection. This criterion is based on an angle of 20° from the driver's eye height. The angle is defined by the point at which a signal would be lost in the upper portion of the windshield where the line-of-sight could be blocked by the vehicle roof, a visor, or the darker tinting on a windshield.

The USSC Best Practices Standards indicates that an angle of 5-8° has been found in previous research. The best practices document indicates an angle of 5° should be used. This angle is based on locating the sign within the cone of vision.

Equation 4 is used to calculate the maximum sign height using the vertical angle, letter height, and legibility index as inputs. This formula is based on the assumption that the letter height is properly determined for the viewing distance. The maximum sign height is the distance to the top of the sign to ensure that the entire sign is located within the driver's visual field.

$$HT_{max} = \tan\theta \times LH \times LI + HT_{driver}$$

HT_{max} = Maximum sign height to the top of the sign, ft
 θ = Vertical viewing angle, degrees
 LH = Letter height, inches
 LI = Legibility index, ft / in
 HT_{driver} = Eye height of the driver, typically assumed to be 3.5 ft

Equation 4.

For a vertical viewing angle of 5° and a driver eye height of 3.5 ft, Equation 4 can be shorted to that shown in Equation 5. Table 8 summarizes the results of applying this table to a range of letter heights based on a legibility index of 30 ft/in.

$$HT_{max} = \tan 5^\circ \times LH \times LI + HT_{driver} = 0.087 \times LH \times LI + 3.5$$

Equation 5.

Letter Height, inches	5	10	15	20	25	30
Maximum Sign Height, ft	16.6	29.7	42.9	56.0	69.1	82.2

Table 8. Maximum Sign Height Guidelines

EXAMPLES FOR USING THE FORMULAS AND TABLES

The following presents an example of how to use the information in this document to determine the appropriate minimum letter height, minimum sign size, and maximum sign height given inputs that represent the viewing environment.

Given:

- An arterial roadway with three lanes in each direction and a 16 ft raised median.
- The speed limit on the road is 45 mph.
- The center of the sign is assumed to be located 30 ft from the edge of the road.
- The sign is in an area with little competition for the driver's visual attention.
- There are 10 letters and no graphics in the sign.

Solution:

The distance from the center of the sign to the center of the far lane is:

- $6 \times 12 + 16 = 82$ ft.

The distance from the sign to the point at which the driver needs to be able to read the sign (Visual Reaction Distance) is:

- $1.47 \times 45 \times (7 + 0.14 \times 10) = 555.66$ ft

The line of sight from the vehicle to the sign is:

- $\sqrt{82^2 + 555.66^2} = 561.68$ ft

Using a legibility index of 30 ft/in, the minimum letter height is:

- $561.68 / 30 = 18.7$ inches, use 19 inches.

The minimum sign size area is:

- $19^2 / 144 \times 10 \times 2.5 = 62.7$ ft², use 63 ft²

Maximum sign height, based on a 5° vertical angle, is:

- $0.087 \times 19 \times 30 + 3.5 = 53.1$ ft, use 53 ft

Technical Information Related to Electronic Message Displays

Electronic Message Displays (EMDs), which are also referred to as electronic message centers or electronic changeable copy signs, are a type of private sector sign that may require special treatment in the development of a model sign ordinance. These signs have unique capabilities to provide a variety of messages in a range of formats. At the low end of the technology scale, these signs use a matrix arrangement to present text and simple graphics. The message or messages may be displayed in a static mode or may scroll or flash. At the high end of the technology scale, these signs are capable of providing television quality types of images.

The use of large EMDs is more common for off-premise signing, typically in billboard-type applications. On-premise use of EMDs is more commonly limited to static, scrolling, or alternating messages. The technology for EMDs is far ahead of the research on their impacts and guidelines for use. A 2005 report by the United States Sign Council (Garvey and Pietrucha 2005) indicated that "there has been little research conducted specifically on commercial EMCs." As such, this Technical Report and model sign code contains relatively little information regarding these types of signs.

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Model Sign Code



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Model Sign Code

Section 1. Purpose of Model Sign Code

The primary purpose and intent of this model sign code is to assist municipal and regulatory agencies to regulate on-premise signs in a legal and reasonable manner that promotes economic vitality, public safety and ensures compliance with constitutionally protected First Amendment rights. The code seeks to reduce subjectivity often encountered in the regulation of signage that is either based on aesthetics or lacking in substantiation by providing a set of quantitative and researched-based criteria to support restriction on signage that take into account minimum scientific requirements for providing signage that meets generally accepted safety standards for visibility, legibility and conspicuity.

Authors' Note: Urban Design Associates' primary purpose is twofold: First, the Model Sign Code is an effort to recognize a long line of case law, often forgotten by code drafters, which treats on-premise signs as constitutionally protected commercial speech. In addition, the Model Sign Code seeks to promote public safety by providing guidelines for the construction of on-premise signage which ensure visibility to passersby. See Chapter 1 for a further discussion of the evolution of the standard of review which applies to commercial signs. The regulations contained within are based on the best available research regarding the effective and safe display of on-premise commercial signs and current case law.

Section 2. Application

The model sign code applies to the construction and use of all on-premise signs, as more fully defined in Section 3 below, and those of an ancillary nature.

Author's Note: In drafting this code, UDA focused its efforts on developing a sign ordinance that specifically regulates those outdoor signs that might appear on a commercial property, or in the windows of a commercial establishment which are otherwise known as on-premise commercial signs. While most of these signs will seek to advertise the business or product sold on the site, the provisions of this code do not regulate on the basis of content or the message and, therefore, apply equally to non-commercial messages which might appear on such signs.

Section 3. Prohibited and Exempt Signs

- a. The following signs shall not be allowed pursuant to the terms of this Model Sign Code:
 - i. Abandoned signs;
 - ii. Snipe signs or signs attached to trees, telephone poles, public benches, streetlights, or placed on any public property or public right-of-way; and
 - iii. Signs placed on vehicles or trailers which are parked or located for the primary purpose of displaying that sign.
- b. The following signs shall be exempt from the provisions of this Model Sign Code and construction will be permitted without a permit:
 - i. Holiday or special events signs;
 - ii. Nameplates of two square feet or less;
 - iii. Political signs; and
 - iv. Public signs or notices.
 - v. Sign face charges of legally conforming signs

Section 4. Definitions

Abandoned Sign: A sign whose message describes the availability of goods or services at a location where such goods and services are no longer available and have ceased to be available for a period of at least 60 days or, in the alternative, a sign which is non-commercial in nature and the content of the sign pertains to a time, event or purpose which has elapsed or expired in the preceding 60 days. Such abandonment should include intentional conduct, such as failure to pay taxes or permit fees, or to maintain the sign, or a negligent failure to do so.

Animated Sign: A sign depicting action, motion, light, or color changes through electrical or mechanical means. Although technologically similar to flashing signs, the animated sign emphasizes graphics and artistic display.

Awning Sign: A building mounted sign that provides additional functionality as shelter.

Banner: A sign made of fabric or other non-rigid material with no enclosing framework.

Changeable-Copy Sign: A sign or portion thereof on which the copy or symbols change either automatically through electrical or electronic means (for example, time and temperature units), or manually through placement of letters or symbols on a panel mounted in or on a track system.

Channel Letter: A fabricated or formed three-dimensional letter that may accommodate a light source.

Cone of Vision: The area that is clearly visible to a driver, generally described as a “fan-shaped envelope” preceding the driver which allows the driver to safely see and observe moving objects and persons in front of and to the immediate left and right of the driver.

Complying Sign: A sign that is legally installed in accordance with federal, state, and local permit requirements and laws.

Conspicuity: The capacity of a sign to stand out or be distinguishable from its surroundings and thus be readily discovered by the eye. It is the noticeable contrast between a sign and its background, attributed to an exogenous (unplanned) or endogenous (planned) mindset, with the display having features that attract attention to the sign.

Contrast: The difference or degree of difference in the appearance of adjacent surfaces, such as light and dark areas, different colors, or typefaces, and graphics appearing on various backgrounds.

Copy: The words and/or message displayed on a sign.

Copy Area: That area which displays the actual copy on a sign.

Development Sign: A temporary construction sign denoting the architect, engineer, contractor, subcontractor, financier or sponsor of a residential or commercial development which may also designate the future occupant or use of the development.

Directional Sign: Signs designed to provide direction to pedestrian and vehicular traffic.

Dissolve/Appear: A mode of message transition on an Electronic Message Center accomplished by varying the light intensity or pattern, where the first message gradually appears to dissipate and lose legibility simultaneously with the gradual appearance and legibility of the second message.

Electronic Message Display: A sign capable of displaying words, symbols, figures or images that can be electronically or mechanically changed by remote or automatic means.

Event Sign: A temporary sign, other than a commercial sign, posted to advertise an event sponsored by a public agency, school, church or religious institution, civic-fraternal or other organization.

Fade/Appear: A mode of message transition on an Electronic Message Center accomplished by varying the light intensity, where the first message gradually reduces intensity to the point of not being legible and the subsequent message gradually increases intensity to the point of legibility.

Fascia Sign: A building mounted sign.

Freestanding Sign: A sign that is not attached to a building.

Ground Sign: A freestanding sign with a visible support structure.

Inflatable Device: A sign that is a cold air inflated object, which may be of various shapes, made of flexible fabric, resting on the ground or structure and equipped with a portable blower motor that provides a constant flow of

air into the device. Inflatable devices are restrained, attached, or held in place by a cord, rope, cable or similar method.

Internally illuminated Sign: A sign that has the light source enclosed within it so the source is not visible to the eye.

Illuminated Sign: A sign with electrical equipment installed for illumination, either internally illuminated through its sign face by a light source contained inside the sign or externally illuminated by reflection of a light source aimed at its surface.

Legibility: The physical attributes of a sign that allow for differentiation of its letters, words, numbers, or graphics, which directly relate to an observer's visual acuity.

Luminance: An objective measurement of the brightness of illumination, including illumination emitted by an electronic sign, measured in candles per square foot (cd/ft²).

Marquee Sign: A sign mounted on a permanent canopy.

Multi-Tenant Sign: A freestanding sign used to advertise businesses that occupy a shopping center or complex with multiple tenants.

Municipality: The body of officers, taken collectively, belonging to a city, town or village, who are appointed to manage its affairs and defend its interests.

Noncomplying Sign: A sign that was legally erected and maintained but does not currently comply with sign restrictions because such restrictions were enacted after the sign was originally permitted and installed.

Off-Premise Sign: An outdoor sign whose message directs attention to a specific business, product, service, entertainment event or activity, or other commercial or non-commercial activity, or non-commercial message about something that is not sold, produced, manufactured, furnished, or conducted at the property upon which the sign is located. Also known as a third party sign, billboard, or outdoor advertising.

On-Premise Sign: A sign whose message and design relates to an individual business, profession, product, service, event, point of view, or other commercial or non-commercial activity sold, offered, or conducted on the same property where the sign is located.

Organization: An entity, including a natural person, which owns or operates the premises where an on-premise sign is displayed.

Pennant: a triangular or irregular piece of fabric or other material, commonly attached in strings or strands, or supported on small poles intended to flap in the wind.

Permanent Sign: A sign attached to a building or structure, or to the ground in a manner that enables the sign to resist environmental loads, such as wind, and that precludes ready removal or movement of the sign and whose intended use appears to be indefinite.

Pole Sign: A freestanding sign with visible support structure.

Primary Copy: The words or message on a sign meant to be read by passersby travelling at the posted speed limit.

Projecting Sign: A building mounted sign with the faces of the sign projecting 12 inches or more from and generally perpendicular to the building fascia, excepting signs located on a canopy, awning, or marquee.

Pylon Sign: A freestanding sign with a visible support structure, which may or may not be enclosed by a pole cover.

Readability: That which enables the observer to correctly perceive that information content of letters, numbers or symbols grouped together in words, sentences, or other meaningful relationships on the sign. Readability is the character of a sign which leads to the observer's comprehension of its intended message, and depends on legibility and other considerations of contents and time restraints.

Real Estate Sign: A temporary sign advertising the real property upon which the sign is located for rent, for lease, or for sale and providing the name and location of the owner or his agent.

Roof Sign: A building-mounted sign erected upon, against, or over the roof of the building.

Rotating Sign: Sign faces or portions of a sign face which mechanically revolves around a central axis as opposed to revolving around an imaginary axis created by a pattern of alternating lights which convey an appearance of rotation.

Scroll: A mode of message transition on an Electronic Message Center where the message appears to move vertically across the display surface.

Secondary Copy: The words or messages on a sign which are meant to be read by automobiles that are idling or parked along a road way.

Sign: Any device, structure, fixture, painting, or visual image using words, graphics, symbols, numbers, or letters designed and uses for the purpose of communicating a message or attracting attention.

Signage: A community's inventory of signs used to communicate information or attract attention, including signature building, product displays, and dispensers, as well as traditional projecting, wall, roof, and freestanding signs. (See signature building.)

Signature Building: A building architecturally designed and/or painted or decorated to reinforce individual recognition of a traditional sign's message, the identify of its speaker or sponsor of a display; it also reinforces major media advertising programs.

Snipe Sign: A temporary or permanent sign tacked, nailed, posted, pasted, glued, or otherwise attached to trees, poles, stakes, fences, or other objects.

Temporary Sign: Any sign intended to remain in use for a short period of time which is not permanently installed.

Transition: A visual effect used on an Electronic Message Center to allow one message to disappear while it is simultaneously being replaced by another.

Visibility: The physical attributes of a sign and its contents that allow for detection at a given distance, although legibility may be uncertain.

Wall Sign: A building-mounted sign which is either attached to, displayed, or painted on an exterior wall in a manner parallel with the wall surface, and not projecting more than 16 inches from such surface (See fascia sign).

Window Sign: A sign that is painted on, attached to, or suspended directly behind or in front of a window or the glass portion of a door.

Author's Note: Most of the definitions provided in this section were prepared by the Signage Foundation for Communication Excellence in an October 2003 publication entitled, The Signage Sourcebook. Where necessary, some terms have been replaced or modified.

Section 5. Permitting

- a. Applicants who wish to erect new on-premise Permanent, or Temporary, signs or those seeking to significantly modify (i.e., a modification that costs 50% or more than the replacement cost of the original sign) existing signs must obtain permission from the Municipality prior to installation/modification of the signs.¹ Review of applications for sign permits shall be concurrent in the instance that multiple departments must approve applications.
- b. In order to apply for a sign permit, the applicant must provide the following information, in writing, to the Municipality:
 - i. Name of organization and location.
 - ii. Contact person.
 - iii. Address and phone number for contact person.
 - iv. Description of the activities occurring on the site where the sign will be installed.
 - v. Description of any existing signage that will remain on the site.
 - vi. Identification of the type of sign/signs to be erected by the applicant.
 - vii. Site plan depicting the locations of proposed signage and existing remaining signage.
 - viii. Scale drawings of the proposed signage.
 - ix. Written description explaining the drawing of the proposed signage, including a detailed description of materials, colors, and letter height, type and style.
- c. Upon submission of the written application, the Municipality shall have 10 business days to review the application for a sign permit.²

¹ The term Municipality is used throughout this ordinance to represent the entity that will serve as the permitting official for the ordinance. Users of this ordinance should identify and modify this model code to designate the official charged with this task. Given the complexity of some municipal review processes, it may be necessary to designate multiple reviewing entities.

² The model code should be modified to define an application review period that reflects the complexity of the municipality's review process and the number of departments involved in the review of applications for sign permits.

- d. A permit shall be issued on or before the end of the 10 business day review period if the application for a new sign or renewal complies with the regulations contained in this Model Sign Code.
- e. If the Municipality does not issue a determination within the 10 business day period, the sign permit is deemed approved.
- f. An application for a sign permit may be denied by the Municipality within the 10 business day review period if the application fails to comply with the standards contained in this ordinance. The Municipality shall inform the applicant of the reasons for denying the application for sign permit by certified mail.
- g. Upon denial of an application for a sign permit, the applicant has 15 business days to revise and resubmit the application for review by the Municipality. In the alternative, the applicant may also appeal the decision of the Municipality to the City Council within the 15 business day time period. The City Council, at its next regularly scheduled meeting, shall review the Municipality's denial of said application.
- h. The City Council shall review the application on its face with no deference to the final determination made by the Municipality and it will make independent findings in assessing the adherence of the application to the provisions of the ordinance. If the City Council finds the application meets the requirements of this Code, it will direct the Municipality to promptly issue the permit.
- i. Upon a final determination by the City Council, unsuccessful applicants may seek to appeal to the courts.
- j. The application fee for each sign permit sought is \$ ____.³ The fee for appeal of a sign permit denial is \$ ____.
- k. These permits shall not expire providing that such signs are not abandoned or destroyed. In the instance that substantial repair or replacement becomes necessary (i.e., repairs that cost more than 50% of the replacement cost of the damaged sign), the organization must apply for a new sign permit, the fee for which is \$ ____.

Author's Note: The application process for sign permits can be both confusing and cumbersome. Sign ordinances often leave too much room for administrative discretion, resulting in a variety of due process violations, including prior restraint and unbridled discretion, as more fully described in Chapter 1. In addition, decision-making processes can result in added delay and expense. This section of the Model Sign Code attempts to clarify and expedite the administrative process, leaving only a small window for administrative discretion with regard to specially permitted signs.

Section 6. Permanent Sign Regulations

- a. **Permanent signs** include, but are not limited to the following types of signs: wall signs, roof signs, projecting signs, ground and pole signs, multi-tenant signs, awning signs, electronic message centers, and monument signs.
 - i. **Number of Signs:** Each business is entitled to display at least two permanent signs.
 - ii. **Sign size** shall be determined as follows:
 - a) **Establish the letter height:** Determinations as to the appropriateness of letter height shall be made on the basis of the formula established below:

Letter Height Equation

$$LH = \frac{\sqrt{(LN \times 12 - 6 + LO)^2 + (1.47 \times SL \times VRT)^2}}{LI}$$

LH = Letter height for signs oriented perpendicular to traffic flow, inches.

LN = Total number of lanes on the roadway, including the median or two-way left turn lane if present. If the two-way left turn lane or median is wider than 12 ft, then the distance should be increased to account for the wider median.

LO = Lateral offset to the center of the sign from the edge of the roadway, feet.

SL = Roadway speed limit, mph.

VRT = Viewer Reaction Time, seconds.
(See Table 3 in the technical report.)

LI = Legibility index, ft/in. The recommended legibility index is 30 ft/in. (See Table 4 in the technical report for adjustments to the recommended value.)

³ The permit fee shall reflect the true costs associated with the review of the application and not constitute a general revenue-raising measure for the Municipality.

- b) Single Letter Area: Determine the Single Letter Area by squaring the letter height in inches to obtain the area occupied by single letter and its adjoining letterspace. This total is divided by 144 to obtain the Single Letter Area in square feet.
 - c) Copy Area: Determine Copy Area by multiplying the Single Letter Area in square feet with the total number of letters plus area of any symbols in square feet.
 - d) Total Sign Area: Determine Total Sign Area by multiplying the Copy Area by 2.5 (Sign Area $\times$ 2.5).
 - e) The sign size standards in this code are designed for static, traditional signs.
Variations from this standard will be permitted by variance upon the applicant's production of evidence showing that circumstances require deviation from this standard to enhance the visibility, conspicuity, and legibility of the sign.
- iii. Sign Angle: The visibility and legibility of signs is improved when the sign is situated at an angle 20 degrees or greater to the traffic flow because scientific research indicates that attempts to improve the efficiency of the sign by varying these requirements are unlikely to make up for efficiency losses caused by reducing the angle below 20 degrees. A sign that is perpendicular to the direction of traffic has an angle of 90 degrees. Applicants seeking to erect a sign with an angle less than 20 degrees must seek a variance. Wall signs are excluded from the sign angle requirement.
- iv. Minimum sign size shall be a function of speed (mph) and viewer reaction time (sec), as more fully detailed in the table below. This table is based on the following assumptions:

- A legibility index of 30 ft/in is used for all road speeds and sign applications.
- The number of letters in a sign is 25 for speeds of 30, 45, and 65 mph. The sign is all text with no symbols or graphics.
- The sign is oriented perpendicular to the direction of traffic.

- The center of the sign is located 20 ft from the edge of the road.
- The road has 4 lanes and no median.
- Sign height is rounded to the nearest whole inch and sign area is rounded to the nearest whole square foot (up or down as appropriate).

Minimum Sign Size and Letter Height Based on Assumptions

Road Speed (mph)	Environment	Letter Height (in)	Sign Area (ft ²)
30	Simple	11	53
	Complex	15	98
45	Complex	22	210
	Multilane	25	271
60	Complex	32	444
	Multilane	36	563

This table establishes minimum sign size and letter height for all primary copy on Permanent and Temporary signs.

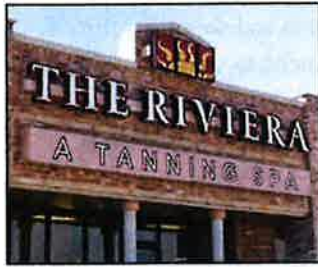
- vi. Sign Height: The maximum sign height is the distance to the top of the sign to ensure that the entire sign is located within the driver's visual field. Maximum sign height is a function of the vertical angle, letter height, and legibility index of a sign. The table below determines maximum sign height based on a legibility index of 30 ft/in.

Maximum Sign Height Guidelines

Letter Height, inches	5	10	15	20	25	30
Maximum Sign Height, ft	16.6	29.7	42.9	56.0	69.1	82.2

- vii. Secondary Copy: Secondary copy may be included on signs provided that it covers less than fifty percent of the copy area available for primary copy and that the letter height is no less than one-half the size permitted for primary copy.

b. Wall signs



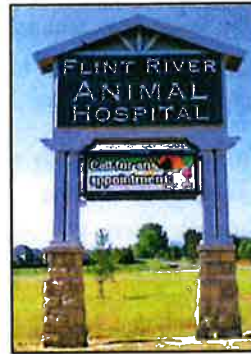
- i. A permit may be obtained to erect multiple wall signs on each wall facing a street or public right-of-way, excluding those walls abutting single or multifamily residential land uses. Such wall signs shall meet the letter height and sign size requirements defined in subsection 6a based on the speed of the facing roadway. The total area of all wall signs on such a wall shall occupy no more than 50 percent of the total wall area.
- ii. Wall signs may be internally or externally illuminated.

c. Projecting signs



- i. One projecting sign shall be permitted for each structure with accessible street frontage in lieu of a ground or roof sign.
- ii. Projecting signs may be illuminated. Those projecting over a parkway must be internally illuminated.
- iii. Projecting signs may revolve.
- iv. Projecting signs must have a minimum clearance of 8 feet from the bottom of the sign to the grade below.
- v. Projecting signs may be located no closer than 10 feet to each other.

d. Ground (Pole or Pylon) signs



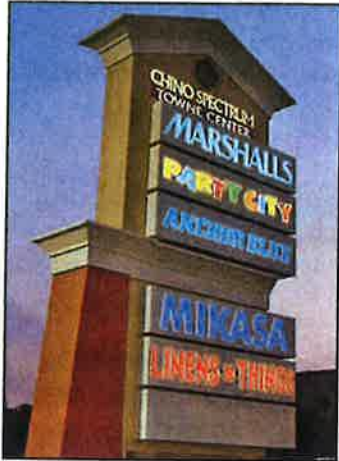
- i. One ground (pole or pylon) sign is permitted for each structure with accessible street frontage.
- ii. Ground (pole or pylon) signs are permitted in lieu of roof and projecting signs.
- iii. Ground (pole or pylon) signs may be internally or externally illuminated.
- iv. Ground signs may revolve.

e. Roof signs



- i. An organization which inhabits a structure with accessible street frontage shall be permitted to erect one roof sign as a permanent sign.
- ii. Roof signs may not be displayed on properties displaying ground or projecting signs.
- iii. Roof signs may be internally or externally illuminated.
- iv. Roof signs shall be setback a minimum of three feet from the edge of the exterior wall on which the sign is located.

f. Multi-tenant Signs



- i. One multi-tenant commercial sign shall be permitted per business complex.
- ii. A minimum separation of fifty (50) feet shall be maintained between all other pole signs, multitenant commercial signs and off premise signs.
- iii. Multi-tenant commercial signs shall be located within the business complex for which they advertise and only tenants of that business complex may advertise on the sign. Any business advertising on a multi-tenant commercial sign may not have a pole sign on its property located within the associated business complex.
- iv. Signs for individual tenants in a multi-tenant sign shall meet the minimum letter height and minimum sign size requirements in subsection 6a. The maximum area expressed in square feet for a sign shall be calculated by multiplying the frontage by 2.
- v. Organizations advertizing on a multi-tenant sign may erect a second sign on the premises with the exception of a pole sign.

g. Electronic Message Centers (EMCs)⁴



- i. Such displays may include messages that are static, messages that appear or disappear from the display through dissolve, fade, travel or scroll modes, or similar transitions and frame effects that have text, animated graphics or images that appear to move or change in size, or be revealed sequentially rather than all at once.
- ii. Zoning: Only static electronic message centers may be erected in residential areas. All types of electronic message centers shall be permitted in areas designated for commercial and industrial activities.
- iii. All electronic message centers shall be equipped with automatic dimming capabilities.

h. Awning signs



- i. An organization which inhabits a structure with accessible street frontage shall be permitted to erect one awning sign.
- ii. Awning signs may be illuminated.
- iii. The size of the awning shall be determined by applicable zoning regulations.
- iv. The size of the text on the awning sign shall be based on the requirements set forth in Section 6a of this Model Sign Code.

⁴ Due to the lack of scientific evidence available regarding how specific EMC message time intervals affect human reading and comprehension abilities, this model sign code does not offer any recommended time intervals for commercial EMCs.

i. Monument Signs



- i. Signs located outside the cone of vision are only permitted by the application for and grant of a variance.⁵

Authors Note: Given modern complex nature of messages conveyed by on premise signs, the model sign code distinguishes between primary and secondary copy. It is important to note, however, that this distinction is not scientific. Rather, it reflects a public policy modification. The secondary copy requirements are not designed to produce copy that may be read by automobiles passing at the posted speed limit. Rather, such copy will likely only be readable to pedestrians, and idling or parked cars. Given the limited value of secondary copy, Municipalities should encourage sign owners to use it sparingly.

Authors Note: The scientific standards upon which these guidelines are sophisticated. They require a Municipality to develop specialized knowledge in their operation. It is the complexity of these formula, we believe, that will allow such standards to survive judicial scrutiny by replacing blanket, baseless requirements with those that are specific to the conditions of the site where a given sign is to be erected.

Authors Note: The guidelines contained in this ordinance do not seek to create any sort of overlay zoning that would allow Municipalities to create districts with specialized signage requirements that would create a specified aesthetic. Such regulations are not necessarily based on the scientific standards on which this code is based. If Municipalities wish to pursue this end, they should be careful to craft regulations which do not overly restrict the right to advertise nor do they create new safety concerns.

Authors Note: Electronic message centers are a relatively new sign type that has not fully been explored by the scientific community. Given the rising popularity of this sign type as well as efforts by some Municipalities to block their installation, the aforementioned EMC requirements have been drafted to permit the use of the sign

⁵ Due to the nature of their construction, monument signs sit very low to the ground, lower than the eight foot height requirement contained in this Model Sign Code. Their visibility can be limited by passing traffic, parked cars, and other types of screening. Similarly, high-rise signs outside the scope of the Sign Height calculations listed in Section 6 (vi) of this model sign code also fall outside the cone of vision. Those wishing to advertise their business should consider erecting other forms of signage with better visibility.

type while seeking to lessen the potential impacts or perceived impacts they cause. The choice to allow the construction of static EMCs in residential areas only is a public policy decision. Communities must explore their own needs in making decisions regarding the appropriate location and type of EMCs which will be permitted.

Section 7. Temporary Sign Regulations

- a. A permit must be obtained for the display of temporary signs.
- b. Temporary signs are signs not intended for permanent installation which are to be used for a limited amount of time. Types of temporary signs include, but are not limited to: real estate signs, construction site signs, banners, pennants, flags, and streamers, inflatable displays, special event signs, advertising vehicles and development signs.
- c. Temporary signs shall be setback at least three feet from the public right-of-way and comply with all of the applicable regulations pertaining to size set forth in Section 6.
- d. The number of Temporary signs shall not exceed three at any given period of time.
- e. A temporary sign may only be displayed for thirty calendar days. Applicants may renew permits for the display of temporary signs for two additional thirty day periods.

Section 8. Variances

A variance may be sought for the construction of a sign, Permanent or Temporary, which does not comply with the requirements established in Sections 5 and 6 of this Model Sign Code. A variance will be granted if the applicant can demonstrate the following criteria:

- a. The application of the Model Sign Code would substantially limit the applicant's ability to put the property to its highest and best use;
- b. Neighboring property owners would not be detrimentally harmed by the grant of the variance; and
- c. The hardship suffered is unique to the property and was not created by the applicant for the variance.

The Municipality may impose conditions on the variance, as necessary, to further the purpose of the Model Sign Code and other applicable Municipal ordinances.

Section 9. Sign Maintenance

All signs, including noncomplying and abandoned signs, must be maintained in a condition which is safe and appears as originally permitted. The Municipality shall issue a notice of violation for all signs violating the provisions of the ordinance. The organization shall have 10 business days to correct the violation. Organizations may seek an extension of time from the Municipality to correct the violation. Such extensions will be granted if there is evidence that the organization is working to correct the violation. If the organization fails to correct the violation within the 10 day period or to obtain an extension, the Municipality may, upon inspection, issue a notice compelling the removal of those signs which continue to be in violation of this provision of the Model Sign Code. The owner or agent may challenge the notice compelling the removal of the sign by (1) filing an engineer's report stating the condition of the sign with the Municipality within 30 business days of receipt of the written notice of the violation, or (2) appealing to the City Council in the manner described in Section 5. Upon review of a favorable report by the engineer, the Municipality shall work with the organization to repair its sign. In the case where the engineer's report confirms the Municipality's inspection report, the building inspector shall serve a second written notice compelling removal of the sign at owner's expense within 30 business days receipt of said notice. Failure to remove the sign in a timely fashion shall result in a fine of \$_____ per day for each and every day the sign remains. Upon the issuance of a third citation, the Municipality may revoke the organization's permit to maintain the sign. Once a permit has been revoked, the organization must apply for a permit to reinstate the use of its signs or to install a complying replacement signs in the case of noncomplying signs.

Section 10. Noncomplying Signs

Any sign that is not in compliance with the provisions of the Model Sign Code upon its enactment shall be deemed a noncomplying sign. All noncomplying signs shall be allowed to continue until such time that the organization owning the property where the sign is located no longer owns or operates the noncomplying signs. All signs, including noncomplying signs, must be maintained in accordance with all state and local ordinances. If structural alteration or replacement is

deemed necessary by the organization, the organization shall be required to obtain a permit to perform any type of maintenance, excluding normal replacement of sign faces, lamps, ballasts, and timers. Noncomplying sign faces shall be changed as needed so long as size and configuration remain as originally permitted. Sign structures may be repainted as needed. Permits will be required for all maintenance work with the exception of normal replacement of lamps, ballasts, timers and damaged sign faces. Any structure being structurally modified at a cost exceeding 50% of the replacement cost of the sign as to size, additions or configuration must be immediately brought into compliance with local ordinances.

Author's Note: In an effort to encourage municipalities to regard signs as speech rather than land uses, UDA has replaced the common term, nonconforming use, with the term, noncomplying sign. A non-complying sign is one that does not conform to sign regulations at the time such regulations are enacted. Noncomplying signs, similar to nonconforming uses, shall be allowed to continue operation until such time that the sign is no longer owned or operated by the organization controlling the sign at the time it became noncomplying. Substantial modifications to size or sign configuration will trigger the need to bring the noncomplying sign into conformity with existing regulations.

Section 11: Sign Contractor's License and Insurance

A sign may not be erected, altered, relocated, constructed, or maintained without a valid contractor's license and all required state and federal licenses. Those holding contractor's licenses must have a current certificate of insurance on file which indemnifies the Municipality for any form of liability.

All electric signs should be constructed according to the technical standards of a certified testing laboratory.

Section 12: Indemnification

The Municipality, its officers, agents, and employees shall be held harmless against any and all claims resulting from the erection, alternation, relocation, construction, or maintenance of on-premise commercial signs legally allowed as a result of this Model Sign Code.

Section 13. Violations

The placement of any Permanent or Specially Permitted sign without a sign permit shall be unlawful. Violations of this ordinance shall be treated as strict liability offences regardless of intent. Violators will be fined \$_____ per day per sign displayed in violation of this ordinance.

Section 14. Severability

If any section or subsection of this Model Sign Code is found to be invalid by a court of competent jurisdiction, all remaining provision shall be deemed valid.

Comments James Carpenter

- (f) To minimize the adverse effect of signs on nearby public and private property;
- (g) To ensure compliance with the Scenic Vistas Act and the Growth Management Act; and
- (h) To enable the fair and consistent enforcement of these sign regulations.

This chapter is adopted under the zoning authority of the County in furtherance of the more general purposes set forth in this title.

(2) It is the intent of this chapter that signs may be erected, placed, established, painted, created or maintained in the County only in conformance with the standards, procedures, exemptions and other requirements of this chapter. The intent of this chapter, as more specifically set forth herein, is:

- (a) To permit a variety of types of signs in commercial and industrial zones and a limited variety of signs in other zones, subject to the standards of this chapter;
- (b) To permit certain signs which are small, unobtrusive, and incidental to the principal use of the lots on which they are located; provided, that these types of signs are not portable signs which often cause safety problems due to blockage of vehicle/pedestrian sight lines and are further subject to the substantive requirements of this chapter;
- (c) To bring existing, nonconforming signs which exceed an area/height/number cap set in this chapter into compliance with these standards after a set period of time in order to further the goals and intent set forth in this chapter;
- (d) To prohibit signs not expressly permitted by this chapter; and
- (e) To provide for monitoring and compliance with the provisions of this chapter. This chapter distinguishes between signs by their structural type and duration of use but to the maximum extent possible does not distinguish between signs by their content. Certain types of signs are classified as temporary if they are only up for a short and specified period of time. Signs required by law, public signs required for safety, and public signage, the purpose of which is to inform the traveling public of public roadside facilities, are exempt from the ordinance requirements.



Summary of Comments on Chapter 33.57 CCC, Signs

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Author: jcarpentier Subject: Sticky Note Date: 7/15/2022 12:54:57 PM

Sign codes should include severability and substitution clauses. A severability clause is common to most zoning and land development codes and simply provides that if any part of the code is invalidated in court, the rest of the code remains valid. A substitution clause simply allows a sign to substitute a noncommercial message on any sign that permits a commercial or another noncommercial message.

33.57.020 Definitions.

Except where specifically defined herein, all words used in this chapter shall carry their customary meanings. Words used in the present tense include the future, and the plural includes the singular. The word "shall" is mandatory; the word "may" denotes a use of administrative discretion in making a decision. The words "used" or "occupied" shall be considered as though followed by the words "or intended, maintained, arranged or designated to be used or occupied."

- (1) "Abandoned sign" means a sign that, for a period of more than six (6) months, no longer correctly identifies, exhorts, or advertises any person, business, lessor, lessee owner, product or activity conducted or available on or off the premises on which the sign is located. Signage on a property which is continuously listed for sale or lease shall not be considered abandoned for a period of six (6) months after which it shall be considered abandoned and subject to conformance with this chapter.
- (2) "Administrator" means the Director of the Clallam County Department of Community Development or his/her designee.
- (3) "Advertising" means to announce publicly by emphasizing a printed notice or to call public attention to desirable qualities so as to arouse a desire to buy or patronize. This also includes logos, borders, backgrounds and accents.
- (4) "Building frontage" means the linear frontage of a building facing an abutting public or private street. When a building fronts on multiple streets, the building frontage shall be the one building front that would result in the greatest linear frontage.
- (5) "Community event sign" means a temporary informational sign that pertains exclusively to a specific upcoming event sponsored by a nonprofit organization or by a governmental entity and is removed soon after the event.
- (6) "Construction sign" means a temporary informational sign that identifies the architect, engineers, contractors, suppliers or grant agencies involved in construction project or announces the character of the building and is removed soon after completion of construction.
- (7) "Election sign" means any sign which serves to influence, is intended to influence, or appears to be of the type which is commonly erected to influence, an election or ballot proposition.

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Author: jcarpentier Subject: Sticky Note Date: 7/15/2022 12:55:02 PM

Author: jcarpentier Subject: Sticky Note Date: 7/18/2022 1:14:00 PM
Temporary signs should be regulated by type such as post or yard sign rather than the content or category such as community event sign, grand opening sign or construction sign. As stated in the attached document, The State of Sign codes after Reed, "remove from the sign code all references to the content of the sign other than the few examples directly related to public safety." Also, see the attached resource Best Practices Regulating Temporary Signs.

access for each business which shares a common lot, access and/or parking facility operating under separate State tax numbers.

(16) "Multiple-business complex sign" means a sign that is designated to identify a multiple business complex including directory signs for businesses within the complex.

(17) "Mural" means an outdoor wall painting on a building which consists exclusively of paint applied to the wall or to framework attached within nine (9) inches of the wall and which contains no advertising.

(18) "Noise" means any intended or unintended sound created by the sign or its installed equipment which exceeds forty (40) decibels as measured from the nearest point adjacent to the property or place of business, whichever is closer.

(19) "Nonconforming sign" means any sign in existence within the County on the date of adoption of the ordinance codified in this chapter which does not conform with the provisions of this chapter, but which did conform to all applicable laws in effect on the date the sign was originally erected.

(20) "Portable sign" means any moveable sign which is not permanently affixed to the ground or a structure or building. This definition includes movable reader boards, outdoor soft drink dispensers located farther than nine (9) inches from a building and sandwich boards that are placed so as to be seen from public right-of-ways.

(21) "Primary roofline" means the roofline under which a majority of the square footage of the business is located.

(22) "Real estate sign" means a temporary sign advertising real estate for sale, rent or lease.

(23) "Sign" means any object, device, fixture, placard, banner, structure or portion thereof, including any letters, figures, design, symbol, trademark or device that uses any color, form, graphic, illumination, symbol or writing intended to advertise, announce the purpose of, or identify the purpose of a person or entity, or to attract attention to any message, activity, service, place, subject, person, firm, corporation, public performance, article, machine or merchandise or to communicate information of any kind to the public, and which is visible from any right-of-way open to the public. Lighting that highlights an architectural feature of a building and does not consist of lettering, symbols or graphics shall not be considered a sign.

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Author: jcarpentier Subject: Sticky Note Date: 7/15/2022 1:22:32 PM

Artwork (including murals) is expressive conduct protected by the First Amendment. Several cases have ruled that sign codes that either exempt (*Central Radio v. City of Norfolk* (4th Cir. 2016)) or regulate (*Kersten v. City of Mandan*, 389 F.Supp.3d 640 (D. N.D. 2019)) works of art or murals that did not display commercial messages are content-based. Before *Reed*, courts applied intermediate scrutiny to the regulation of commercial speech based on whether the message conveyed is tied solely to economic benefit of the business and serves no purpose beyond the commercial motive. In *Kersten*, the court ruled that design guidelines that prohibit murals with commercial messages but allow other murals that are not commercial is content-based and subject to strict scrutiny. See also *Complete Angler, LLC v. City of Clearwater* (M.D. Fla. 2009) (bait and tackle shop displaying aquatic mural was non-commercial speech, and exemptions for noncommercial works of art and holiday decorations were content-based). In *Morris v. City of New Orleans* (E.D. La. 2019), the city defined murals separately from signs and prohibited commercial advertising on them. Applying intermediate scrutiny, the court invalidated the mural regulations, finding that "there is nothing in the record to suggest that commercial messages in artwork are more unsightly than non-commercial messages in artwork."

(24) "Sign area" means the entire face of the sign, including advertising surface, backlit surface, and any framing, trim or molding but does not include the supporting structure. Sign area is measured by multiplying the maximum horizontal width by the maximum vertical width. The surface area of a sign painted on a wall, awning or roof shall be measured by multiplying the maximum width of the copy by the maximum length of the copy. Sign areas may also be calculated by measuring the smallest square, circle, rectangle, triangle or combination thereof that will encompass the extreme limits of the advertising copy, together with any material or color forming an integral part of the background of the display or used to differentiate the sign from the backdrop or structure against which it is placed, including an awning. Supportive framework which contains no written copy or other advertising and is clearly incidental to the display itself shall not be included in sign area calculations; provided, that the sign support structure shall be the minimum necessary to support the sign. For the purpose of this chapter the total sign area of any two (2) faced sign with parallel faces or V-type sign having an interior angle of forty-five (45) degrees or less shall be calculated as the area of the larger of the two (2) faces or one face if equal in size. All other multiple-faced or paneled signs shall be the total area of all faces or panels combined.

(25) "Sign surface" means any surface of a sign upon which there is lettering or other advertising.

(26) "Sign height" means the vertical distance from grade to the highest point of a sign or any projection thereof.

(27) "Sign structure" means any structure that supports or is capable of supporting any sign as defined in this chapter. A sign structure may be a pole or poles, or may be an integral part of a building. Structures that perform a separate use, such as a telephone booth, bus shelter, recycling or used goods container, etc., shall not be considered a sign structure. Sign structures shall be the minimum necessary to support the sign and shall not depict any product being advertised.

(28) "Street" means a public or private way open to the general public for the purpose of vehicular traffic, including all classes of roadways and easements.

(29) "Temporary sign" means a nonpermanent sign intended for use for a short period of time, which includes election signs, construction signs, real estate signs, grand opening signs, community event signs and residential yard sale signs.

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Author: jcarpentier Subject: Sticky Note Date: 7/15/2022 1:50:20 PM

The definition for temporary signs needs to be content neutral. Consider the following definition from the Sign Research Foundation's Sign Glossary:
A sign that is not permanently anchored to the ground, affixed to a structure, or mounted on a chassis, and is intended for a limited period of display. Examples of these signs include, but are not limited to, banners, feather signs, airactivated graphics, or temporary yard signs

(1) The total area of signage attached to any face of the building(s) in one or more facade signs shall not exceed the square footage limit for a facade signage of one square foot of sign area for each linear foot of building frontage facing a single public or private road. No facade sign may extend above the primary roofline or project more than eight (8) feet from the roofline edge of the building. For multiple-business complexes each business within a plaza may have one facade sign attached to the commercial structure that is limited to one square foot of sign area per linear foot of each businesses building frontage.

(2) A freestanding sign or monument sign within a commercial or industrial zone shall be limited to one sign for each area of land under common ownership that is not the site of a multiple-business complex. This one sign (either freestanding or monument) shall not exceed thirty-two (32) square feet of sign area and shall not exceed ten (10) feet in height above grade. For multiple-business complexes, one freestanding sign or one monument sign may be used to advertise the plaza or complex name and the businesses within the complex. This sign shall be limited to one sign not exceeding the signage area limit of 100 square feet and whose height shall not exceed ten (10) feet in height above grade.

(3) Vehicular signage visible from a State scenic and recreational highway shall be limited to thirty-two (32) square feet and vehicular signage shall be set back from the lot line or right of public use line that fronts on the State scenic and recreational highway a minimum of fifty (50) feet. Firm identification signage and other signage at the minimum sizes required by State or federal law on commercial/industrial vehicles shall not be calculated as part of the thirty-two (32) square foot signage limitation. Work vehicles making a delivery or making a service call away from the home base of the business are not subject to this provision, as the purpose of this provision is to prevent vehicular signs from being used as a form of long-term freestanding sign. Likewise, local franchise holders for national moving van companies are not subject to the square footage limitation of this provision, as the local franchise holder has no control over the size of signage on the vehicles.

(4) When the conditions for a temporary sign are met, one temporary sign may also be allowed on a commercial/industrial property. Conditions present to qualify for a temporary sign would include the sale of property/business, a grand opening, construction of a business, and when advertising a community event. Such signage is limited to one until thirty-two (32) square foot sign that shall not exceed five (5) feet in height above grade.

Author: jcarpentier Subject: Sticky Note Date: 7/15/2022 1:53:17 PM

Author: jcarpentier Subject: Sticky Note Date: 7/18/2022 1:16:08 PM
Temporary signs should be regulated by the sign type such as banner with reasonable time, place and manner restrictions without reference to type of event.

- (5) The flag of a government or noncommercial institution such as a school;
- (6) Traffic or pedestrian control signs or signals, or signs indicating scenic or historic points of interest which are erected by, or on the order of, a public officer in the performance of his/her public duty;
- (7) Exterior signs or displays not visible from streets or ways open to the public;
- (8) "No trespassing," "no dumping," "no parking," "private," and other informational warning signs which shall not exceed four (4) square feet in surface area and eight (8) feet maximum height above grade;
- (9) Commercial or residential address signs with lettering not exceeding twelve (12) inches in height and newspaper boxes located within ten (10) feet of an existing commercial/industrial building; and
- (10) Election signs no greater than thirty-two (32) square feet in area and five (5) feet in height above grade.

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Author: jcarpentier Subject: Sticky Note Date: 7/18/2022 1:19:26 PM

We recommend that flags be regulated with time, place and manner restrictions. Content based exceptions for noncommercial institutions and schools should be avoided.

Author: jcarpentier Subject: Sticky Note Date: 7/18/2022 1:20:40 PM

Election signs need to comply with Washington State Law and the Collier v. Tacoma Washington State Supreme Court decision. We recommend that these signs not be exempt from the code but rather exempt from permits and subject to State Law and the Collier v. Tacoma State Supreme Court decision.

33.57.070 Prohibited signs.

The following signs or displays are prohibited, except as otherwise specifically allowed within this chapter. Prohibited signs are subject to removal by the County at the owner's or user's expense.

- (1) Signs which, by reason of their size, location, movement, content, coloring or manner of illumination may be confused with or construed as a traffic control sign, signal, or device, or the light of an emergency or radio equipment vehicle; or which obstruct the visibility of any street sign or signal device;
- (2) Signs identifying activities, products, businesses or services which have been discontinued for more than six (6) months on the premises upon which the signs are located;
- (3) Private signs on public utility poles;
- (4) Portable signs, due to fact that they are often placed where they block safety sight lines of motorists pulling into or out from a business or within safety sight triangles on corner lots;

33.57.010 Goals and Intent.

(1) The goals of these sign regulations are:

- (a) To encourage the effective use of signs as a means of communication in the County;
- (b) To maintain and enhance the visual environment and the County's ability to provide an attractive area, streets, and economic development and growth;
- (c) To minimize excessive lighting in rural Clallam County along designated scenic highways;
- (d) To maintain and enhance scenic views along the County's scenic highways;
- (e) To improve traffic and pedestrian safety and to eliminate distractions to vehicle drivers;
- (f) To minimize the adverse effect of signs on nearby public and private property;
- (g) To prevent damage and personal injury from signs improperly constructed;
- (h) To ensure compliance with the Scenic Views Act and the Growth Management Act; and
- (i) To enable the fair and consistent enforcement of these sign regulations.

This chapter is adopted under the zoning authority of the County in furtherance of the more general purposes set forth in this title.

(2) It is the intent of this chapter that signs may be erected, placed, established, painted, created or maintained in the County only in conformance with the standards, procedures, exemptions and other requirements of this chapter. The intent of this chapter, as more specifically set forth herein, is:

- (a) To permit a variety of types of signs in commercial and industrial zones and a limited variety of signs in other zones, subject to the standards of this chapter;
- (b) To permit certain temporary signs which are small, unobtrusive, and incidental to the principal use of the lots on which they are located subject to requirements of this chapter; provided, that these types of signs are not portable signs which often cause safety problems due to blockage of vehicle/pedestrian sight lines, and are further subject to the substantive requirements of this chapter;
- (c) To prohibit signs not expressly permitted by this chapter; and

(d) To provide for monitoring and compliance with the provisions of this chapter. This chapter distinguishes between signs by their structural type and duration of use but to the maximum extent possible does not distinguish between signs by their content. Certain types of signs are classified as temporary if they are only up for a short and specified period of time. Signs required by law, public signs required for safety, and public signage, the purpose of which is to inform the traveling public of public roadside facilities, are exempt from the ordinance requirements.

Summary of Comments on NWSC Comments Draft for 8.16.22 Planning Commission.pdf

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Author: karpernter Subject: Sticky Note Date: 8/10/2022 5:25:22 PM
To comply with the principles announced in Reed, a sign code should establish three (3) broad sign categories based on their physical characteristics. These typically include:

Freestanding signs - i.e. signs that are not attached to any other structure. Examples include pole signs and monument signs.
Attached signs - i.e. signs that are attached to a building or structure. Examples include wall signs and murals.
Incidental signs - i.e. smaller signs that are physically subordinate to the principal freestanding or attached signs on the site. The incidental sign category could include temporary signs, or the sign code can break temporary signs into a separate category.

33.57.020 Definitions.

Except where specifically defined herein, all words used in this chapter shall carry their customary meanings. Words used in the present tense include the future, and the plural includes the singular. The word "shall" is mandatory, the word "may" denotes a use of administrative discretion in making a decision. The words "used" or "occupied" shall be considered as though followed by the words "or intended, maintained, arranged or designated to be used or occupied."

- (1) "Abandoned sign" means a sign that, for a period of more than six (6) months, no longer correctly identifies, exhibits, or advertises any person, business, lessor, lessee owner, product or activity conducted or available on or off the premises on which the sign is located. Signage on a property which is continuously listed for sale or lease shall not be considered abandoned for a period of six (6) months after which it shall be considered abandoned and subject to conformance with this chapter.
- (2) "Administrator" means the Director of the Callan County Department of Community Development or his/her designee.
- (3) "Advertising" means to announce publicly by emphasizing a printed notice or to call public attention to desirable qualities so as to arouse a desire to buy or patronize. This also includes logos, borders, backgrounds and accents.
- (4) "A-frame" or "Sandwich Board" means two usually hinged boards not permanently attached to the ground and generally oriented to pedestrians.
- (4) "Animation" means the manipulation of electronic images in order to create moving images
- (5) "Banner" means a flexible substance on which copy or graphics are displayed. (Do we want a permit for these or do we want a time limit for these?)
- (6) "Billboard" means a large outdoor board for displaying advertisements.
- (7) "Building Frontage" means the linear frontage of a building facing an abutting public or private street. When a building fronts on multiple streets, the building frontage shall be the one building front that would result in the greatest linear frontage.
- (8)(5) "Community event sign" means a temporary informational sign that pertains exclusively to a specific upcoming event sponsored by a nonprofit organization or by a governmental entity and is removed soon after the event.
- (9)(6) "Construction sign" means a temporary informational sign that identifies the architect, engineers, contractors, suppliers or grant agencies involved in construction project or announces the character of the building and is removed soon after completion of construction.

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Author: Jcarpentier Subject: Sticky Note Date: 8/10/2022 5:26:36 PM
We recommend that you consider the attached definition for animated in the Sign Research Foundation's Sign Glossary

Author: Jcarpentier Subject: Sticky Note Date: 8/10/2022 5:27:26 PM
To ensure that a sign code is content neutral, we suggest that you remove all references to the content of sign types, or sign messages that trigger permitting or related sign regulations. This applies to any regulations that refer to content of the sign such as construction and real estate.

*(107) "Election sign" means any sign which serves to influence, is intended to influence, or appears to be of the type which is commonly erected to influence, an election or ballot proposition.

(11) "Digital or Electronic Sign" means changeable copy sign that uses illumination (LED-light emitting diodes, LCD- liquid crystal display, plasma display, individual light bulbs) to display or project copy.

(128) "Facade sign" means a sign which is attached parallel to and within nine (9) inches of the wall of a building, or vertical face of an awning or parapet which is supported by and confined within the limits of such wall, awning or parapet and which displays only one sign surface.

"Facade sign" also include signs affixed to (within nine (9) inches at one point) or painted on an awning, canopy or roof so long as they do not extend above the primary roofline or more than eight (8) feet from the outside edge of the building. Soft drink dispensing machines will be considered a facade sign if located within nine (9) inches of the building.

(13) "Fade" means a mode of message transition on a digital sign accomplished by varying light intensity or color, where the first message gradually grows faint and disappears.

(14) "Feather or flutter sign" means a freestanding portable sign that contains a harpoon-style pole or shaft driven into the ground for support that resembles a still made of fabric of nylon.

(914) "Flashing sign" means a sign or a portion thereof which changes light intensity or switches on and off in a repetitive pattern at less than one-minute intervals, or uses electrical energy to provide motion or the optical illusion of motion.

(15-16) "Freestanding sign" means a sign which is supported by permanent uprights, pole or braces to the ground and which is not connected to a building.

(16-1) "Grade" means the average elevation of the natural ground surface immediately below the sign before construction, exclusive of any filling, berming, mounding or excavating solely for the purpose of locating the sign; and provided, that when the elevation of the natural ground surface of a freestanding/monument sign is below the grade of the edge of the adjacent roadway, then the height of a freestanding or monument sign shall be measured from the grade at the outer edge of the roadway nearest the proposed sign location.

*(127) "Grand opening sign" means a temporary sign of no more than thirty (30) days' duration announcing the new opening of a store or a complete change in ownership or product line sold.

(18) "Height" (should we move "sign height" to here and just be height?)

(123) "Illuminated sign" means any sign illuminated in any manner by an on-site artificial light source.

(20) "Legal Nonconforming sign" means any sign in existence within the County on the date of adoption of the ordinance 694 codified in 2000 which did conform to all applicable laws in effect on the date the sign was originally erected.

identify the purpose of a person or entity, or to attract attention to any message, activity, service, place, subject, person, firm, corporation, public performance, article, machine or merchandise or to communicate information of any kind to the public, and which is visible from any right-of-way open to the public. Lighting that highlights an architectural feature of a building and does not consist of lettering, symbols or graphics shall not be considered a sign.

(24) "Sign area" means the entire face of the sign, including advertising surface, backlit surface, and any framing, trim or molding but does not include the supporting structure. Sign area is measured by multiplying the maximum horizontal width by the maximum vertical width. The surface area of a sign painted on a wall, awning or roof shall be measured by multiplying the maximum width of the copy by the maximum length of the copy. Sign areas may also be calculated by measuring the smallest square, circle, rectangle, triangle or combination thereof that will encompass the extreme limits of the advertising copy, together with any material or color forming an integral part of the background of the display or used to differentiate the sign from the backdrop or structure against which it is placed, including an awning. Supportive framework which contains no written copy or other advertising and is clearly incidental to the display itself shall not be included in sign area calculations; provided, that the sign support structure shall be the minimum necessary to support the sign. For the purpose of this chapter the total sign area of any two (2) faced sign with parallel faces or V-type sign having an interior angle of forty-five (45) degrees or less shall be calculated as the area of the larger of the two (2) faces or one face if equal in size. All other multiple-faced or paneled signs shall be the total area of all faces or panels combined.

(25) "Sign surface" means any surface of a sign upon which there is lettering or other advertising. Does this include a logo? Artwork?

(26) "Sign height" means the vertical distance from grade to the highest point of a sign or any projection thereof.

(27) "Sign structure" means any structure that supports or is capable of supporting any sign as defined in this chapter. A sign structure may be a pole or poles, or may be an integral part of a building. Structures that perform a separate use, such as a telephone booth, bus shelter, recycling or used goods container, etc., shall not be considered a sign structure. Sign structures shall be the minimum necessary to support the sign and shall not depict any product being advertised.

(28) "Street" means a public or private way open to the general public for the purpose of vehicular traffic, including all classes of roadways and easements.

(29) "Temporary sign" means a nonpermanent sign intended for use for a short period of time, which includes election signs, construction signs, real estate signs, grand opening signs, community event signs and residential yard sale signs.

(30) "Under common ownership" describes a situation where one person, corporation, legal entity or related legal entities owns contiguous properties occupied by closely related businesses in which case these businesses will be considered to be one business, operating on one property for the purpose of applying this chapter (i.e., a car dealership may cover multiple contiguous

Author: jcarpentier Subject: Sticky Note Date: 8/10/2022 5:29:20 PM
See attached SRF Sign Glossary for a definition of sign face, which is the preferred term.

An exterior display surface of a sign including non-structural trim exclusive of the supporting structure. Typically refers to the most prominent message area of a sign, but may refer generically to the surface area on a sign where advertising copy is displayed.

Author: jcarpentier Subject: Sticky Note Date: 8/10/2022 5:30:04 PM
See attached SRF glossary for a definition for this sign type.

A sign that is not permanently anchored to the ground, affixed to a structure, or mounted on a chassis, and is intended for a limited period of display. Examples of these signs include, but are not limited to, banners, feather signs, air-activated graphics, or temporary yard signs.

Remove restrictions that exempt or target artwork, along with limits on commercial advertising. The regulations could consider a restriction on text, if the message is not restricted (for example, limiting the text to the artists' signature). Consider mural subcategories based on their physical characteristics, such as a "wall sign" or "painted wall sign." An issue with this approach is that murals often occupy entire building walls, which exceed typical wall sign limits.

Consider a review process for murals, such as an arts commission review, that examines the artistic quality of the mural. This approach should involve clear standards, time limits, and an express prohibition on considering the mural's content.

parcels and have several related businesses on these parcels but shall be considered to be "under common ownership" for the purpose of interpreting the provisions of this chapter).

- (31) "Vehicle signs" are signs affixed or painted on work vehicles, tractor-trailers, buses, vans or other vehicles.

33.57.060 Exempt signs.

The following types of signs shall be exempt from the standards established within this code and from the certificate-of-compliance requirements of this chapter, provided that the any standards in this section are met:

- (1) Official notices authorized by a court, public body or public safety official, provided they are removed within seven (7) days after conclusion of the subject of notification;
- (2) Directional, warning or information signs authorized by federal, State or municipal governments or signs required by law not exceeding 200 square feet of sign area and twenty (20) feet in height. Directional signs located within State or County right-of-way shall be administered by State standards for directional signs and, if within Clallam County right-of-way, shall be administered by the Moorist Informational Sign Ordinance, Chapter 9.21(CCC);
- (3) Memorial plaques, building identification signs and building cornerstones which are cut or carved into a masonry surface or when made of noncombustible material and made an integral part of the building or structure. Plaques, tablets, or inscriptions indicating the name of a building, its date of erection, or other commemorative information, which are an integral part of the building structure or are attached flat to the face of the building, and which are not illuminated, except incidentally from light sources used for other purposes;
- (4) Sculptures, murals, landscape features, fountains, mosaics, religious symbols, and design features which do not incorporate advertising or identification;
- (5) The flag of a government or noncommercial institution such as a school;
- (6) Traffic or pedestrian control signs or signals, or signs indicating scenic or historic points of interest which are erected by, or on the order of, a public officer in the performance of his/her public duty;
- (7) Exterior signs or displays not visible from streets or ways open to the public;
- (8) "No trespassing," "no dumping," "no parking," "private," and other informational warning signs which shall not exceed four (4) square feet in surface area and eight (8) feet maximum height above grade;
- (9) Commercial or residential address signs with lettering not exceeding twelve (12) inches in height and newspaper boxes located within ten (10) feet of an existing commercial/industrial building; and





(10) Signs erected during election season for the purpose of advertising a candidate or proposal Election signs no greater than thirty-two (32) square feet in area and five (5) feet in height above grade.

(11) Replacement of permitted or legal non-conforming signs if not changed in height, shape, size, lighting/illumination.

(12) Informational sign at a construction site that may identify the architect, engineers, contractors, suppliers or grant agencies involved in the construction project or announces the character of the building. This type of sign shall be removed soon after completion of construction.

(13) Signs advertising real estate for sale, rent or lease and removed after the real estate transaction is complete.

(14) Grand opening displays, such as temporary banners, flags, or balloons are permitted for a period of fourteen days to announce the opening of a completely new business or new management. All materials that have not been permitted shall be removed immediately after fourteen days.

(15) Businesses located within commercial zones may use banner signs...number of times per year? How many? Size? Temporarily as a monument sign? Would use of a banner sign need to be permitted?

(15) One feather/flutter sign may be placed per 200 feet of frontage (for no more than duration of time???) and shall remain in good condition with no rips, tears, frayed edges or be sun-faded.

33.57.070 Prohibited signs.

The following signs or displays are prohibited, except as otherwise specifically allowed within this chapter. Prohibited signs are subject to removal by the County at the owner's or user's expense or penalty???

(1) Signs which, by reason of their size, location, movement, content, coloring or manner of illumination may be confused with or construed as a traffic control sign, signal, or device, or the light of an emergency or radio equipment vehicle, or which obstruct the visibility of any street sign or signal device;

(2) Signs erected, constructed, altered or relocated without a permit issued by the County or any other governmental agency that requires a permit under law;

(2) Signs identifying activities, products, businesses or services which have been discontinued for more than six (6) months on the premises upon which the signs are located;

(3) Private signs on public utility poles;

(4) Any sign that interferes with safe sight distances at an intersection or illuminates an intersection....



Author: jcarpentier Subject: Sticky Note Date: 8/10/2022 5:32:40 PM

Temporary signs are difficult to codify as they are traditionally identified by their message or function. For example, real estate signs relate to the sale of property, and political signs relate to an election. However, a community can regulate the time, place and manner of temporary signs if they are not called out by their message. For example, a sign code can regulate signs based on temporary materials (such as cloth, canvas, vinyl, cardboard, wallboard, or other temporary materials), or temporary types such as feather signs. In addition, the sign code can fold temporary signs into an overall allocation of incidental signs for a site, remaining agnostic about how those signs are used.

Author: jcarpentier Subject: Sticky Note Date: 8/10/2022 5:33:36 PM

Specific standards need to be established for the vision triangle.

(4). Portable signs, due to fact that they are often placed where they block safety sight lines of motorists pulling into or out from a business or within safety sight triangles on corner lots;

(5). Signs erected, altered or relocated without a permit issued by the County or any other governmental agency that requires a permit under laws

(6). Signs that rotate or have a part or parts that move or revolve shall not be permitted in any zone except for the face of a clock less than six (6) square feet in size;

(7) Television type video???

(7). Signs or advertising displays consisting of clusters of posters, banners not affixed to a building wall or fence, pennants, ribbons, streamers, strings of lights other than holiday lights used exclusively for decorative purposes, spinners, twirlers or propellers, flashing signs, rotating or blinking lights, chasing or oscillating lights, light projections on other natural or manmade surfaces, television-type video-flares, balloons, inflatable signs, bubble machines and similar devices of carnival nature, or containing elements creating sound greater than 40 decibels as measured from the nearest adjacent property or business boundary shall not be permitted in any zones;

(8). Signs within the public right-of-way unless erected by Clallam County or the State of Washington. These signs are subject to removal by the Clallam County Road Department.

33.57.030 Permitting

No sign may be erected, relocated, constructed, or altered within the areas of the County under Clallam County jurisdiction without a permit obtained from the Clallam County Department of Community Development, unless specifically exempt under this code (CCC 33.57.080). Painting, cleaning, replacing, or replacement of defective parts may be completed without a permit, however replacement of Any changes to the sign structure will require reviewed to be reviewed by the building department to determine if a building permit is required in accordance with the International Building Code. The sign permit is used to ensure all signs erected after passage of this chapter are in conformance with this chapter and compliant with building codes. (is this statement necessary???)

The application for permitting of a sign shall include drawings and details of the proposed sign, associated support structure and method of attachment, drawing of all exterior lighting (if any), a site plan with location of all proposed and existing signs, and dimensions of all existing signs. If the applicant is not the property owner the application must include a statement from the property owner verifying that permission is granted for the submission of the application.

Nonconforming sign maintenance shall be conducted that increases the nonconformance of the sign. A non-conforming sign shall not be altered in height, shape, size, lighting, illumination or affect the base or support without conforming with the provisions of this chapter.

33.57.060 Exempt signs.

Author: Jcarpentier Subject: Sticky Note Date: 8/10/2022 5:35:17 PM
It appears the intent here is animated signs are not allowed.

Author: Jcarpentier Subject: Sticky Note Date: 8/10/2022 5:36:47 PM
A new sign face should not require a permit since this does not require any structural alterations.

(2) A freestanding sign or monument sign within a commercial or industrial zone shall be limited to one sign for each area of land under common ownership that is not the site of a multiple-business complex. This one sign (either freestanding or monument) shall not exceed thirty-two (32) square feet of sign area and shall not exceed ten (10) feet in height above grade. For multiple-business complexes, one freestanding sign or one monument sign may be used to advertise the plaza or complex name and the businesses within the complex. This sign shall be limited to one sign not exceeding the signage area limit of 100 square feet and whose height shall not exceed ten (10) feet in height above grade.

(3) Vehicular signage visible from a State scenic and recreational highway shall be limited to thirty-two (32) square feet and vehicular signage shall be set back from the lot line or right of public use line that fronts on the State scenic and recreational highway a minimum of fifty (50) feet. Firm identification signage and other signage at the minimum sizes required by State or federal law on commercial/industrial vehicles shall not be calculated as part of the thirty-two (32) square foot signage limitation. Work vehicles making a delivery or making a service call away from the home base of the business are not subject to this provision, as the purpose of this provision is to prevent vehicular signs from being used as a form of long-term freestanding sign. Likewise, local franchise holders for national moving van companies are not subject to the square footage limitation of this provision, as the local franchise holder has no control over the size of signage on the vehicles.

(4) When the conditions for a temporary sign are met, one temporary sign may also be allowed on a commercial/industrial property. Conditions present to qualify for a temporary sign would include the sale of property/business, a grand opening, construction of a business, and when advertising a community event. Such signage is limited to one unit thirty-two (32) square foot sign that shall not exceed five (5) feet in height above grade.

(5) Externally illuminated signs shall not exceed background area average illumination levels when measured five (5) feet beyond any vertical surface of the sign; lighting fixtures shall be carefully located, aimed and shielded so that light is only directed on to the sign surface with a light source that is not directly visible from the adjacent roadway. Internally illuminated signs using 800 milliamp ballasts shall not have lamps spaced closer than twelve (12) inches apart or if using 425 milliamp ballast shall not be closer than six (6) inches apart.

(6) Commercial/Industrial zoning includes the following zoning districts

33.57.050 Residential/Resource zoning district sign standards.

There are only four (4) basic types of signs that are used in residential/resource zones. Those four (4) types include signs that are attached to the building (facade), signs that are set apart from the building (freestanding/monument), vehicular signs and temporary signs that are needed when certain conditions are met. Any sign that cannot be configured to qualify as one of these four (4) sign types and is not an exempt sign is prohibited in all zones. The time, place, number and manner regulations of these four types of signs is as follows:

(1) Freestanding, monument and facade signage in Residential/Resource zoning districts, regardless of use, is limited to one unit sign of one type with a maximum of six (6) square feet

Author: jcarpentier Subject: Sticky Note Date: 8/10/2022 5:43:19 PM

We recommend that the minimum area for signs be increased due to the speed limits on most of the County roads. A minimum of at least 75 sq. ft. (not on State Scenic Hwys) is recommended and an increase in height to 15', to ensure a safe and effective legibility. See attached Evidence Based Model code page 28 for more information.

Author: jcarpentier Subject: Sticky Note Date: 8/10/2022 5:46:13 PM

This language is outdated since florescent illumination is not used and has been replace by LEDs.

of signage; and provided, that within a Commercial Forest zoning district (CF) the maximum sign size is twenty (20) square feet of signage.

(2) If the one sign allowed is a freestanding sign or monument sign, it shall not exceed five (5) feet in height above grade and shall be unlit.

(3) Vehicular signage visible from a County road or State scenic and recreational highway shall be limited to a total of thirty-two (32) square feet and vehicular signage shall be set back from the lot line or public right of use line that fronts on the State scenic and recreational highway a minimum of 100 feet. On parcels that predate the effective date of this chapter that cannot meet the 100-foot vehicular sign setback due to lack of lot depth, vehicular signs can be parked within twenty (20) feet of the lot line farthest from the scenic and recreational highway. Firm identification signage and other signage at the minimum sizes required by State or federal law on commercial/industrial vehicles shall not be calculated as part of the thirty-two (32) square foot signage limitation. Work vehicles making a delivery or making a service call away from the home base of the business are not subject to this provision, as the purpose of this provision is to prevent vehicular signs from being used as a form of long-term freestanding signs.

(4) When the conditions for a temporary sign are met, one temporary sign may also be allowed on a Residential/Resource property. Conditions present to qualify for a temporary sign would include property/home sale and when advertising a community event. Such signage is limited to one unit six (6) square foot sign for a property/home sale, construction sign and community event and shall not exceed five (5) feet in height above grade.

33.57.080 Nonconforming signs.

It is the intent of this section to ensure that nonconforming signs of exceptional size and height are reduced in size and height in accord with this section, ~~and to ensure that nonconforming signs are retrofitted into conforming signs as expeditiously and fairly as possible while avoiding any unreasonable invasion of established property rights.~~ The following standards apply to nonconforming signs:

(1) No nonconforming sign maintenance shall be conducted that increases the noncompliance of the sign.

(2) A non-conforming sign shall not be altered in height, shape, size, lighting/illumination, or affect the base or support without conforming with the provisions of this chapter.

~~(6)(2)~~ Properties with nonconforming signage shall only be allowed to erect new or replacement signage requiring a ~~certificate of compliance~~ permit after bringing an equivalent number of nonconforming signs on the property into conformance with the standards of this chapter.



(8) Nonconforming signs which have had the entire sign face torn down to the ground as a result of natural disaster or which are removed as a result of loss of lease or are removed as a result of a construction project shall not be re-erected without bringing them into conformance with this chapter. No work on an undamaged, existing nonconforming sign that brings such sign into greater conformance with this code shall be considered to be a sign removal requiring conformance with the standards for new signs.

33.57.090 Signage visible from a scenic highway.

A permit or other written approval is required from the Washington State Department of Transportation prior to review of certain types of sign permits by Clallam County for those areas within 600 feet of a designated scenic and recreational highway to show conformance with the Scenic Vistas Act and the Highway Advertising Control Act (Chapter 468-66 WAC).

33.57.100 Variances.



Applications for a variance from the standards established by this code shall be processed as Type III permits as set forth in Chapter 26.10 CCC and the review criteria outlined in Chapter 33.30 CCC. Variances shall not be permitted for modification to the number of signs and sign types specified in this chapter. Sign size variances shall not exceed 10 percent of the standard required unless it can be demonstrated that the sign qualifies as a community landmark sign and must show that the increase is required to allow the sign owner to purchase a standardized sign required by a national manufacturer who does not offer signs in a conforming size. A sign size (area) variance of less than 10 percent in area that meets the preceding criteria shall be processed as a Type II administrative variance as set forth in Chapter 26.10 CCC. Sign height variances over the 10 percent limit are available to those business owners that can demonstrate that their nonconforming sign qualifies as a community landmark sign. A community landmark sign must predate the effective date of this code by at least 20 years, have advertised the same business under the same name for all of that time, have become an important cultural landmark to County residents and would be difficult to retrofit to the nonconforming sign standard without destroying the unique character of the sign.

33.57.110 Review of Administrator's action (appeals).

Any person aggrieved by the granting, denying or rescinding of a decision of the Administrator made under this chapter may seek review from the Hearing Examiner in accordance with Chapters 53.33 and 26.10 CCC. The request must be in writing setting forth the basis of the appeal and must be accompanied by the appropriate fees outlined in Chapter 5.100 CCC.

33.57.120 Severability.

County Code ← Title 33, Zoning →

Chapter 33.59
ENFORCEMENT



Sections:

33.59.010 Enforcement.

33.59.020 – 33.59.090 Repealed.

SOURCE:	ADOPTED:
<u>Ord. 581</u>	12/19/95
AMENDED	ADOPTED:
SOURCE:	
<u>Ord. 601</u>	07/23/96
<u>Ord. 817</u>	04/03/07

33.59.010
Enforcement.



- (1) A violation of the provisions of this title is any action or omission that violates a provision of this title or a condition of any permit or approval issued pursuant to this title.
- (2) A violation of the provisions of this title shall constitute a civil violation subject to a monetary penalty as well as prosecution as a misdemeanor. Conviction of a violation or payment of a penalty does not relieve a violator from compliance with this title.
- (3) A violation of the provisions of this title is hereby determined to be detrimental to the public health, safety, and environment and is hereby declared to be a public nuisance, subject to prevention, removal, or abatement at the expense of the person(s) creating, causing, or committing such violation, and subject to the recording of a lien for such expenses against the property where the public nuisance is located, with such a lien to be of equal rank with State, County, and municipal taxes.
- (4) The provisions of this title are subject to the enforcement and penalty provisions contained in CCC Title 20, Code Compliance, except to the extent preempted by State or federal law, and except to the extent preempted by any contrary enforcement and penalty provisions contained in this title.
- (5) Any person who violates this title or the provisions of a permit or approval issued pursuant to this title shall be liable for all damage to public or private property arising from such violation, including the cost of restoring the affected area to its condition prior to such violation.
- (6) Clallam County shall not issue any permit, license or other development approval on a development proposal site subject to an enforcement order under this chapter; provided, that Clallam County may issue such permits to rectify or correct enforcement orders.

33.59.020 – 33.59.090



Repealed by Ord. 817, 2007.



CLALLAM COUNTY
DEPARTMENT OF COMMUNITY DEVELOPMENT
COUNTY COURTHOUSE
223 E. 4TH ST., SUITE 5
PORT ANGELES, WA 98362-3015

September 22, 2022

RE: Sign Ordinance Workshop

The Clallam County Planning Commission is currently reviewing and updating the County's Sign Ordinance, CCC 33.57. We hope to hear from the community interested in signage before a final draft is presented for a public hearing and therefore invite you to join the discussion at the October 19th or November 2nd Planning Commission meeting. The meeting begins at 6pm. A draft ordinance is available online at clallam.net in the current issues section, or at the Department of Community Development.

If you have any questions or comments regarding the process or need a copy of the ordinance, please feel free to contact Donella Clark, by phone (360) 417-2594 or via email donella.clark@clallamcountywa.gov.

Sincerely,

Steve Gale
Planning Commission Chair