

Designing Means of Signalization in Road Construction

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Summary

Starting off with the fact that signalization is a fundamental necessity of the nowadays' urban life and a prerequisite for lasting developments, this article is an attempt at depicting the way in which designing means of signalization in road construction can influence or completely change the day-to-day life. Along with the emergence of the automobile, a series of safety and regularization measures had to be taken, for all the partakers in road traffic, whether they be pedestrians or drivers.

The depiction of the signalization systems in the Great Britain both emphasizes and highlights the necessity of implementing a signalization program based on a unitary concept. The designing of such a project should be done by a team of various specialists, engineers, architects, and designers. This project was successful, not only for pedestrians, but for the drivers, also, because it solved many structural as well as aesthetic issues. These issues were translated into a structurally sound project, with a signalization system, modern not only by means of designing a number of ingenious structures and fixing systems for panels, as well as the total redesigning of the graphics pertaining to it.

KEYWORDS: designing, signalization systems, concept, constructive - structure, panels



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1. INTRODUCTION

1.1 Systems of driving signalization

Having particularly great importance in the road construction area, signalization is an integral part of the project behind these investments (panels, signs, traffic lights, and other different road markings).

Most countries in the world use the same type of signalization, to provide all parties involved in traffic with the same information. Due to the fact that the differences in language impeded said parties from understanding and comprehending these signs, the only solution became creating a signalization system (an agreed upon, universal collection of symbols) which would replace the words. This system first appeared in Europe, only to be adjusted for and implemented in all the continents. In 1968 the Treaty of the Vienna Convention on Road Signs and Signals was signed, document which categorized road traffic rules in two parts: international road traffic and safety on public roads. After the ratification of this treaty, each road sign is defined and subsequently placed in its assigned spot.[1]

The defining characteristics of European road signs are shape and colour. A triangular shape with either a white or yellow background is used as a warning. Restrictions are round, with a white background and red border. Signs providing information, directions, and touristic aids do not have a set format, each country using its own system. Mandatory signs are round and blue, each with a white symbol representing their purpose in the centre.

Highway signs are, in most European countries, white symbols on a green background. Exceptions to this rule are Germany, France, the United Kingdom, Spain, the Netherlands, Belgium, Austria, Luxemburg, Poland, and Portugal, where the background on the sign is blue instead of green. In these countries, the signs indicating other types of roads are white on a blue background. In France, the United Kingdom, Finland, Switzerland, and Poland, secondary roads are signaled by white signs with black borders. The same type of signs indicates, in Germany, Italy, Romania, and Sweden, the way to a certain town or neighborhood. For signs containing words, for example the "STOP" signs, it is recommended that the English translation be displayed, next to the version in the local language. If the original language does not use the Latin alphabet, it is advised that at least the name of the cities be spelled with the Latin alphabet also.

All European countries use the metric system (the distances are represented in meters and kilometers), with one exception, the United Kingdom. Here, distances are measured in miles (1 mile = 1 609.344 meters). In countries where circulation is done on the left side of the road (Cyprus, the United Kingdom, the Republic of



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Ireland, and Malta) it has been decided that all road signs must be the mirrored image of the ones used in the countries where cars are driven on the right side. All road signs are symbolic. At the Vienna Convention it was also established that, for appropriate use, all signs must be installed in visible and clean spaces, and to be properly inscribed.

1.2 The STOP sign

The STOP sign originates in Michigan, and has first appeared around the year of 1915. The first version of this sign was significantly smaller than the one today, and it featured black letters on a yellow background (fig. 1). In 1922, an American traffic association decided that this sign must be octagonal, shape that would later be spread in most countries worldwide. Its unique shape allows drivers to identify this particular sign even from behind, making it practically impossible to mistake with another one. The two exceptions from this rule are Japan, where it is represented by an upside down triangle, and Zimbabwe, where it is a circle.



Figure 1. Yellow old-style Stop sign (1924-1954) Red new style Stop sign (1954-present)

2. TRAFFIC SIGNS IN THE GREAT BRITAIN

2.1 The Great Britain history sign system

Until the year 1950, the traffic sign system in the Great Britain was pretty disorderly, from both a functional and aesthetic point of view. Considering that, at the time, the number of the partakers in road traffic was dramatically increasing, the already existing traffic sign system was difficult to comprehend and could put the matter of safety in question, the government decided that it should be modernized. In these circumstances, the team led by Jock Kinneir[2] and Margaret Calvert designs and proposes a new system, comprising and solving all issues regarding font, colour, shape, or symbol. The graphics used for this system acted as an example for the modern road signs nowadays (Figure 2).



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Figure 2. New font of Transport

Kinneir was born in Hampshire in 1917, and attended the engraving program at the Chelsea School of Art from 1935 to 1939. After the second World War he got a job as an exhibit designer at the Central Office of Information, where he works as a researcher on the Designer Research Unit team, fact that opened doors to future projects, in 1956. Simultaneously, he worked part time at the Chelsea School of Art.

Kinneir was part of the creative team that designed the sign system for the Gatwick airport. Part of this team was the Chelsea student Margaret Calvert, but as an assistant. When Sir Colin Anderson, the president of the P&O line shipping and logistics company saw the Gatwick airport project, he commissioned Kinneir to design the sign system for his own company, for the luggage department. In 1957 Anderson was named the president of the governmental committee formed in order to create a new signal system meant for the road traffic in the Great Britain. He asks Kinneir to work on this project. The task was making road signs easily deciphered and comprehended from a certain speed. To accomplish their task, the team, led by Kinneir and Calvert, came up with a new font, derived from the old Aksidenz Grotesk one.

This new font type would be called Transport (Figure 2) and would be first used by Preston By-Pass in 1958. The Minister of Transport, T.G. Usborne, officially responsible for Anderson's committee, formed a new one, presided by Sir Walter Worboys, to come up with and redo all the road signs in Great Britain. Kinneir was, once again, chosen for the job.

Kinneir was named chief of the graphic design department of the Royal College of Art in London. In 1964, alongside Margaret Calvert, Kinneir founds the Kinneir-Calvert association. They create a new code of shaping and colouring in conformity with the rules and regulations agreed upon at the 1949 UN Convention on Road Traffic. The colour and shape of the road signs signify their meaning – they mandate, warn, restrict and provide information. A circle mandates, a triangle warns and a rectangle informs.



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Kinneir and Calvert worked on more really important projects, such as the creation of a new font for the British railway (British Rail) and various other projects for the Military Hospital.

3. CLASSIFICATION

A blue circle mandates (instructions and obligations), a red circle represents a prohibition, a blue rectangle is used for informing, with the exception of highway signs, where this colour is used for providing directions. A green rectangle is used for directions and primary routes (main roads), a white rectangle either for directions or the additional panels for the regulation and warning signs.

Exceptions to this rule are the STOP sign and the PRIORITY sign.

3.1 Font

Having set as an example the old Aksidenz Grotesk font, the team made up of J. Kinneir and M. Calvert comes up with a new font with the name of Transport. This particular new font would solve the issue of clarity by selecting the characters that could be quickly read, but also by creating a standard grid of spacing in-between the letters (Figure 2).

3.2 Shape

The team of designers proposes a series of standard geometric shapes (triangle, circle, and rectangle), in accordance with the European rules and regulations, in which the categories for Warning (triangle), Mandatory (circle), and Information (rectangle) signs were included.

3.3 Colour

For the Information panels, white letters on a blue background were used, while for the main routes, green ones, with white letters and the road number in yellow. The secondary route panels had black font or symbols on a white background.

3.4 Symbols, Pictographs

In order to create a unitary aesthetic vision for the sign system, and also for better comprehension, Margaret Calvert re-conceptualized most symbols and pictographs, drawing inspiration from real life.[3] One example of this is the “Beware Children” sign (Figure 3) in which one of the characters is a stylized version of a picture of her daughter.



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Figure 3. "Beware Children" sign

4. FIXING SYSTEM

4.1 The SIGNIFIX system.

This type of system was conceived and implemented 30 years ago in the Great Britain and revolutionized the installation of road signs,[3] being adopted in other countries, such as the US, Australia, etc. By using this system, signs become more resistant and rigid, and possible deformities are avoided. They're easy to fix and take apart, due to the fact that the panels are made of multiple modules.[4]

4.2 Presentation of the system

The system is designed and made out of multiple aluminium panels (modules) to which cut-outs from the same material are added on the backside, arranged either horizontally or vertically. Due to these cut-outs (Figure 4), joining the modules is very easy, and the fixing system between the panel and the supportive structures are very safe and sturdy. This system is characterized by:

- Interchangeable module pieces;
- Decreasing the setting up and taking apart time (in case of accidental deformation, the respective modules can be replaced);
- Wind resistance;
- The fixing systems are easily adjustable for assembly.

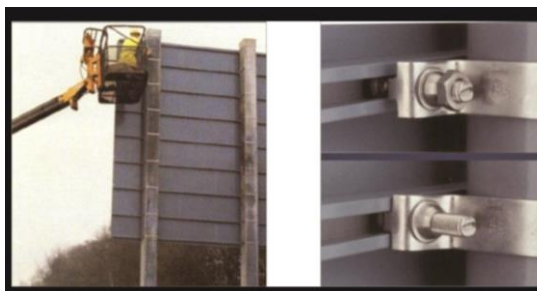


Figure 4. The SIGNIFIX system.

5. CONCLUSIONS

By means of its contents, this article stresses the fact that, nowadays, signalization systems cannot be either conceptualized or designed individually, as simple panels, by specialists. These systems are formed and designed in a much larger context of specialized architects, engineers, and designers. The resulting product of this type of collaboration is materialized in projects appreciated from the perspective of efficiency, and aesthetics, too, starting with the construction ensemble and ending with even the most detailed aspects of them.

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