

Using NCS for
Colour Choice
and Specification
in Design and
Architecture

UNIVERSAL COLOUR
COMMUNICATION IN

DESIGN & ARCHITECTURE

NCS Natural Color System®©

– The international language of colour communication for architects and designers

THE NCS COLOUR SYSTEM

The Six Elementary Colours

The six pure colours: White, Black, Yellow, Red, Blue and Green, correspond with the perception of colour in our brain.



NCS colour notations are based on how much a given colour seems to resemble these six elementary colours.

S 1050-G30Y

In the NCS notation 1050-G30Y, for example, 1050 describes the *nuance*, i.e. the degree of resemblance to black, which is 10% and to the maximum chromaticness, which is 50%.

The hue G30Y describes the degree of resemblance between Green and Yellow (G and Y). G30Y describes Green with 30% yellowness and 70% greenness.

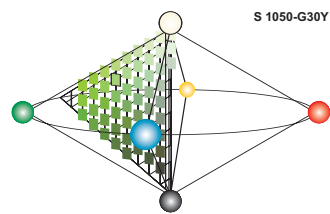
Pure grey colours have no hue and are given nuance notations followed by -N to describe Neutral. There is a scale from 0300-N, which is White, to 9000-N, which is Black.

The letter S, which precedes the NCS notation, means that this is a standardized sample from NCS Edition 2. The colour standards for this edition were created with non-toxic pigments.

When the NCS system is familiar, it is possible to judge the attributes of a colour by its notation. For example: how much blackness, how much chromaticness, and what hue? That helps to communicate and check specifications and to identify colours that are not notated to NCS.

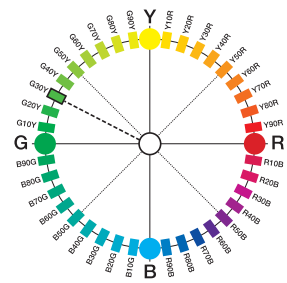
The NCS Colour Space

Within this three-dimensional model, all imaginable surface colours can be plotted and given an NCS notation.



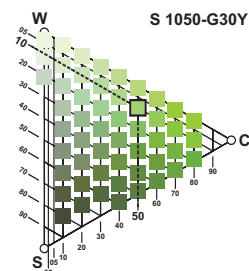
The NCS Colour Circle

By taking a horizontal section through the centre of the model, we see this circle where the four chromatic colours are placed like the points of the compass with the space between divided into 100 equal steps. The 10% steps here represent the pages of the NCS Atlas and show the colour hues.



The NCS Colour Triangle

The NCS Triangle is a vertical section through the NCS model at one of the 10% steps. Here it is G30Y. This section shows all the colours on the NCS Atlas page for the hue G30Y, between White (W), Black (S) and the full chromatic colour (C). S 1050-G30Y has been highlighted.



WHY USE THE NCS COLOUR SYSTEM?

Why Use a Colour System?

Colour is a vital element in architecture and design. Colour informs and excites us, it defines where we walk or sit; it allows us to express our emotions and our individuality, its contrast helps the visually impaired to find their way; it has cultural contexts as well as practical and commercial ones. Colour sells.

Anyone with normal colour vision can see about 10 million colours, and without a system to define them, communication is impossible. Ideally, a system is required which can be used from concept, through visualization, specification and production to realization.

Preferably, this system should be based on how we see colour, since we all see colour in the same way – and be independent of language, so that it can be used internationally.

Natural Color System®©

- a Precise Language of Colour

The Natural Color System is a user-friendly colour language. It is the only colour system that describes colour exactly as we see it, which is why it is easy to understand, logical and simple to use. Any colour can be defined within the NCS system and given a precise notation.

Cross Reference for Any Product

There is no need to use different colour cards for different materials, as NCS can be used as a cross reference between many different products, e.g.

paint, powder coatings, decorative laminates, plastics, leather, blinds, vinyl and linoleum floorings, ceramic, cladding, tiles, wallpaper, textiles, ceilings etc.

An International Colour Standard

NCS improves communication between design and production industries and helps to ensure that the customers receive exactly what they want, saving time on complaints and time-consuming discussions.

Important NCS User Groups

Hundreds of thousands of architects and designers within design and colour specification.

The paint industry for production, quality control and marketing.

The building products and interiors markets for colour specification and quality control.

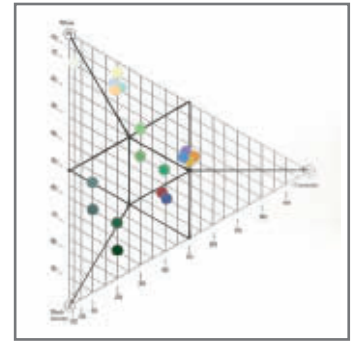
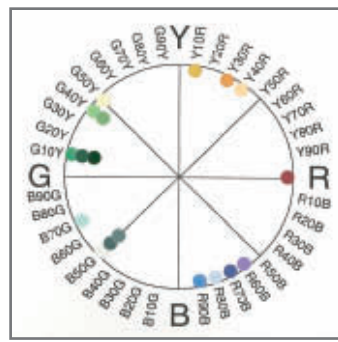
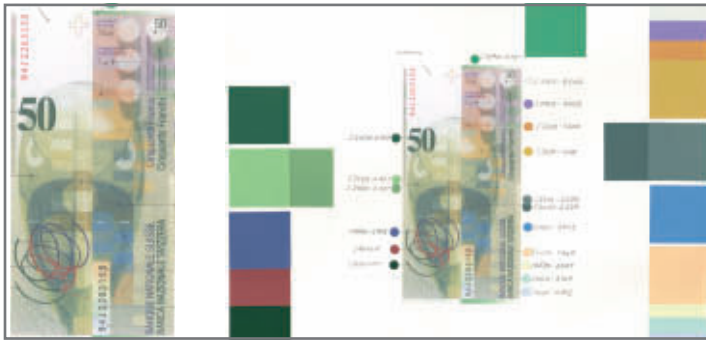
Corporate and product colour management.

More than 250 licensed NCS users with about 1000 companies in 52 countries.

NCS Quality Centre

To ensure a high quality and problem-free colour communication process, the Scandinavian Colour Institute in Stockholm, Sweden (Head Office for NCS) set up the NCS Quality Centre, which guarantees and documents its work in order to provide accurate colour products to meet different professional needs.

NCS Quality Management offers world leading quality and insures that the NCS samples are produced with EU-approved pigments and according to the master standard.



THE NCS HISTORY

The Development of NCS

NCS builds on decades of scientific research and development by psychologists, physicists, architects and designers. It is based on the use of colour in the environment and how the human being sees colour, and is the work of the Scandinavian Colour Institute AB.

Scientifically Based and Documented

NCS is integrated into recognized colorimetric systems such as CIE and is widely used for education, science and colour research, especially in the field of architecture.

How NCS Evolved

By 1611 the scientist A S Forsius had published the embryo of the NCS in his book 'Physica', in which he stated:

'among the colours there are two basic colours, white and black...the four intermediate colours are red, blue, green, yellow - and grey from white to black - and these increase in intensity by degrees...changing from white by paling or to black by darkening...'

In the 1930s the research physicist Tryggve Johansson became interested in the theories of Ewald Hering, the late 19th century physiologist, regarding colour and colour perception. Johansson's development of Hering's theories was subsequently added to by other research scientists.

The Hesselgren Colour Atlas

Among these was Sven Hesselgren, Professor of Architecture, who, together with other leading Swedish architects and designers of that time, devoted his work to colour and form as a visual phenomenon.

His work resulted in the Hesselgren Colour Atlas, a forerunner of NCS.

By now the requirement for a permanent and generally applicable colour system was acknowledged by architects, designers, artists, educators and manufacturers of coloured products, as well as by scientific institutions.

The Swedish Colour Centre

In the early 1960s the Swedish Colour Centre Foundation was formed as an independent R&D institution, on the initiative of both the Swedish Academy of Engineering Sciences and the Swedish Society for Industrial Design.

The NCS ATLAS 1950 Original

The results of the research work undertaken at the Swedish Colour Centre encouraged the Swedish Standards Institute to make the NCS into a Swedish Standard.

A prerequisite was that a colour atlas would be published, a project which entailed practical and economic difficulties.

Colour Perception

The primary objective was to create a colour system based on how human beings perceive and experience colours.

The research methods employed required groups of people to look at colours and judge their resemblance to the six elementary colours.

A million test judgements were made in all and for the final Atlas more than 50,000 of these colour judgements were carried out by a test group of 30 persons.

People with Normal Vision

Perceive Colours in the Same Way

The results of this experimental work were subjected to computer analysis and a comparison made between the human 'subjective' judgements and the values registered by 'objective' colour measuring instruments.

Natural Color System[®]

Underlying the Natural Color System (NCS) are almost 20 years of research work, headed by Dr Anders Hård together with Dr Lars Sivik and Dr Gunnar Tonnquist, which has been recognized by the AIC (Association International de la Couleur). Since 1979 NCS is a Swedish Standard, now also a Norwegian, Spanish and South African Standard.

NCS IN PRACTICE

NCS in Design and Architecture

There are thousands of suppliers around the world working with NCS. Shown here, by kind permission, are examples of how NCS has been used in the concept, presentation, specification and realization of projects that include colour mapping, product design, interiors and architecture.





YOUR BENEFITS WITH NCS

The Benefits of Using NCS for Colour Choice and Specification in Architecture and Design:

- NCS 1950 Original Colours, based on Edition 2 Quality Management, distributed logically through the colour space by hue and nuance to provide a comprehensive, practical and well-designed range.
- An internationally available colour system which provides a language of colour and enables problem-free colour communication with colleagues, clients, suppliers and contractors.
- A range of the highest quality colour products to suit different design and specification requirements.
- Outstanding colour quality enables better control over colour accuracy from concept, through presentation and specification to completion.
- A system that is used by many manufacturers worldwide for their own high quality colour management.
- Access to advice and expertise through the Head Office and the network of NCS Colour Centres and retailers in 26 countries.



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New!



NCS ALBUM 1950 Original
Designed for the professional colour studio, each colour page has pockets with 3 x A9 samples of colour, which can be used for edge to edge comparison or attached to presentations and documents - then reordered and replaced.



NCS ATLAS 1950 Original
Recommended for colour selection and reference in the studio and for making client presentations, the NCS Atlas shows the colour circle and 40 colour triangles as well as a page of neutral and tinted greys.



NCS BLOCK 1950 Original
Available in two colour orders: by hue and by nuance. Colours are arranged in small blocks to make selection and specification easier, and can be isolated for edge to edge comparison.



NCS BOX 1950 Original
The ideal colour library for studios where colour judgements need larger samples that are ready to use in presentations, but can be replaced. Contains one A6 sample for all 1950 NCS colours, indexed by hue.



NCS Separate Colour Samples 1950 Original
For presentations, specifications, identification and general colour communication with suppliers and customers. The samples have the NCS notations printed on the reverse and are available in three sizes: A4, A6 and A9 in a low-sheen finish and A6 in high gloss (1750 Edition 2).



NCS INDEX 1950 Original
A compact overview of the full range of 1950 colours which can be kept on the desk or taken to the site. The stripe card layout allows for edge to edge comparison.



NCS Colour Scan New!
An electronic colour card for quick colour identification. It is fast, handy and easy to use. You will quickly and easily find out the NCS colour closest to the colour you are investigating. NCS Colour Scan is your electronic colour card, a perfect complement to the ordinary NCS colour sample.



NCS Palette 2.1
Three different versions containing a digital NCS colour library with all the 1950 NCS colours. Available for Windows and Macintosh. Works with ArchiCAD, AutoCAD (not Mac) and Creative for the latest versions of software: InDesign, Photoshop, Illustrator, CorelDraw, Pagemaker and Freehand.



NCS Brilliant (1750 Edition 2)
A collection of products available in high gloss including an index, a block and A6 samples. Essential for avoiding problems of perceived difference between colours of the same notation but different gloss levels.



NCS Literature
Books, booklets, off-prints, papers, NCS Colour Reports, colour forecast, colour visions etc. Find us on the web site for more info: www.ncscolour.com.



NCS Teacher's Guide New!
A complete binder for teachers. Contains all the 31 NCS exercises and a booklet with instructions and a glossary on a CD. Available in English, French, German and Swedish.



NCS Educational Material
Includes demonstration posters and a set of individual colour exercises. NCS explanation on a CD etc. For more info: www.ncscolour.com.



NCS Courses
The Colour School in Stockholm offers courses covering the whole field of colour from science, decorative painting techniques, colour control, colour measurement, colour and design, and colour in print.



NCS Translation Keys New!
Cross reference tables are available as PDF for BS 5252, RAL, and as paper booklet for Munsell, Euroscale.

NCS Lightness Meter
18 grey samples with details of lightness value v , luminous reflectance factor Y_l and NCS notation.

NCS Lightness Table
The booklet contains the luminous reflectance factor Y_l and lightness value v for all 1950 NCS colours.

NCS Professional Colour Products

The comprehensive range of high-quality professional products including e.g. the NCS Atlas 1950 Original, NCS Index 1950 Original and separate A4, A6 and A9 colour samples are available on a world-wide basis to satisfy the colour requirements of architects, designers, manufacturers and contractors.

Colour accuracy is vital, if the final product or project is to have the right appearance. NCS colour samples are guaranteed, unlike printed samples which will vary and fade and may not match the original product. In normal use, NCS samples have a life of at least ten years.

NCS Quality Management ISO 9001

NCS Quality Management is the platform for our ISO 9001 No.17888 Quality Assurance System.

NCS Copyright

The Natural Color System® and its notations, products and trademark are protected by international copyright and trademark laws and are the property of the Scandinavian Colour Institute, Stockholm, Sweden (Head Office for NCS).

The SCI is responsible for further development and for production and control of NCS colour products.

NCS Permissions

NCS is used worldwide in the fields of architecture, design, marketing, industry, manufacturing, education, research, etc. Any use of NCS requires permission and reference to copyright, e.g. any commercial use, corporate identity manuals or publications.

www.ncscolour.com

Information on the full range of NCS products and services and how to refer to the NCS copyright is available on our web site.



GCM-Global Colour Management®

Do You Experience Unacceptable Variations in Colour?

Many companies experience unacceptable variations in colour between different suppliers, geographical areas, materials or deliveries. This causes colour drifts, increased costs, unsatisfied customers and lost sales.

It's about Accuracy and Image – a Top Management Issue

NCS Global Colour Management® (GCM) is a unique way of securing brand and product image uniformity, no matter what materials are being used or where. It's about consistency in colour across applications and geographies.

More Value for Your Brand

Our aim is to maximize the value of your colour identity to ensure that a consistent colour leads to a competitive advantage. A competitive brand that has a much better chance of succeeding in the marketplace.

World-Leading in Colour

High colour accuracy is essential to achieving a perfect colour appearance in the final product – the colour appearance our customers expect. We have been providing the market with colour communication tools with world-leading colour accuracy and consistency for more than 60 years. Because of this, thousands of quality-conscious manufacturers and coating industries globally use NCS as the base for their colour quality assurance and colour communication.



The identity colours of IKEA developed by NCS and GCM.

NCS is represented in more than 26 countries all over the world through NCS Colour Centres. To find your closest NCS Colour Centre visit: www.ncscolour.com.

NCS Head Office

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