

The Blueprint & Dyeline Plan Copying Process
Extract from

MODERN PLAN COPYING
PROCESSES AND EQUIPMENT

FOR THE ENGINEER, THE ARCHITECT, THE
DRAUGHTSMAN AND PHOTO PRINTER

BEING A NEW AND REVISED EDITION OF
"BLUE PRINTING AND MODERN
PLAN COPYING"

BY
B. J. HALL, M.I.MECH.E.
AND
B. FAIRFAX HALL, M.A. (CANTAB.)



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MODERN PLAN COPYING

Blue Prints

In the year 1852, Herschel discovered the change effected by the action of light upon papers treated with ferro-prussiate solutions. The application of this discovery to the art of plan reproduction marks the commencement of the intimate connection which to-day subsists between the drawing office and photo-printing room. As the advantages of the new method became more widely known, ferro-prussiate, by reason of its simplicity and economy, grew in favour, and the blue print acquired and still retains a large measure of popularity, especially amongst engineers. Prints taken from tracings by this process appear in white lines on a deep blue ground. Washing in water causes a slight shrinkage, especially in the thinner classes of papers. This shrinkage is often greater in one direction than the other, and on this account working tracings for blue printing should always be fully dimensioned as they cannot be scaled with accuracy. All defects on the original tracings such as blots, creases and erasures, will appear on the copies, so that tracings prepared for contact copying should never be folded.

Blue prints cannot be written upon legibly in ordinary ink. A specially prepared white fluid is now generally used for this purpose. Some prefer a chemical preparation which acts upon the blue and leaves a white line. An excellent chemical for this purpose is a solution of oxalate of potash in water. In order to render chemical writing permanent and prevent spreading, the writing should be blotted off immediately the lines whiten, otherwise the blue will be restored in process of time and the writing will fade away. Red inks will show up fairly well on the blue ground, but a

little red ink mixed with the chemical solution will yield a bright line very easily visible and permanent.

The paramount advantages of blue prints are ease and rapidity of production at a small cost by operatives possessing a minimum of photographic knowledge and skill. The sensitized paper used is the easiest and cheapest to prepare and is readily obtainable in good quality and varying speeds. By reason of their legibility and the fact that any attempt to tamper with lines and dimensions is readily observed, blue prints are much favoured for workshop use. Care should be taken to shield the prints from splashes of soap, soda or other solvent of prussian blue, and when this is not possible the prints should be protected by a coat of waterproof varnish before being sent into the workshop.

Blue prints are not suitable for colouring in the ordinary way. In special cases cross sections may be filled in dead black on the original tracings and the resulting whites on the blue prints can be appropriately coloured. Another method, more frequently used in America than in England, is to hatch the cross sections in distinctive lines representing the various materials to be used. Blacking in and cross hatching render original tracings unsuitable for the ready reproduction by other processes of black line prints which have to be coloured, and as both kinds of print are frequently required from the same tracing, these systems are not much used in Great Britain.

Blue Prints of Typewritten Matter

It is well known that a typewritten sheet is unsuitable as an original for blue printing owing to lack of density in the typewriting ink. A denser original can be prepared by placing a black carbon sheet at the back of the paper before typing, thus printing on both sides of the paper. Such a sheet will yield legible blue prints. This expedient may be adopted when better means are not available, but in cases where good, legible copies of specifications or instructions are required, it is advisable to purchase a *Blue Print Ribbon*. There is a very good one on the market. It gives a typed impression in rich orange colour and yields good copies when used as an original not only for blue printing but also for line printing by other processes. The resulting photo copies

Dyeline Prints

The first Diazo material to make its appearance as a reliable copying medium was that manufactured by the Ozalid Co., Ltd., under British patents numbered 210,862 and 234,818. The prints are developed and fixed by an atmosphere charged with ammonia vapour. Reliable papers are available for copying in red, mauve, or indigo-black lines on a clear ground which can be written upon or coloured. Exposure is rapid, the time required for development varies in accordance with the intensity of the ammonia vapour and the type of developing apparatus used. There is no washing, and consequently no shrinkage.

Since the first Ozalid material was put on the market, other manufacturers have produced a large variety of sensitized papers in which the formation of an insoluble dye line is effected by damping the surface of the exposed print with a non-poisonous and fumeless developing solution applied by a pad or roller. A simple and inexpensive machine has been devised, by which the copies are damped at speeds of six to ten linear feet a minute. The damping necessary to effect development is so slight that there is no shrinkage to speak of, and the copies can be handled and trimmed as they come from the machine.

In England, the first paper of this class was manufactured by B. J. Hall & Co., Ltd., under the trade-mark "Coralin." The demand for this paper induced other manufacturers to enter the field with the result that at the present time users have a large range of dyeline papers and cloths from which to make a selection. These papers exhibit slight differences in speed, intensity and sharpness of line, colour of ground and other trifling variations. The common characteristic of all good sensitized papers of this class is that after exposure to light beneath a tracing, and subsequent application of an appropriate developer, a clear, well-defined and permanent facsimile reproduction will appear in black or coloured lines on a comparatively white or slightly tinted ground.

The makers of these papers claim that the prints do not need to be washed. This is indeed true in a sense, because the lines will never completely fade, although the ground may become discoloured in the course of time. For the general purposes to which such prints are applied, this slight