

# Better aid to surveyors' skills

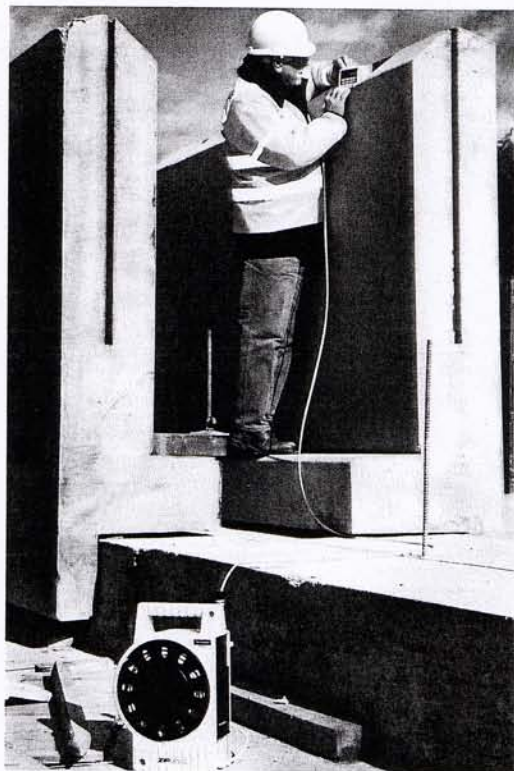
Improved surveying technology offers benefits in building control, says Ivor Matanle

It is only a decade or three since the key instrumentation in building control consisted of little more than a theodolite, an assistant with a measuring pole, a tape measure and two pairs of muddy boots. Although, in skilled hands, the rudimentary surveying equipment did (and still does) the job well, technology has moved on and with it have come increases in accuracy and reductions in the man-hours, and therefore the cost, necessary to achieve it.

Take the measurement of distance and elevation. The electronic theodolite took the error out of reading a normal optical theodolite and made it possible to collect data electronically for downloading to surveying and building control software. Measurement was further improved when Electro-magnetic Distance Measurement (EDM), using a reflected infra-red beam, was introduced, although EDM requires a reflector be positioned at the point to which distance is being measured, and for there to be a clear line of sight. When the electronic theodolite and EDM were combined into a single instrument, it became known as a Total Station, and as technology moved on further to make it unnecessary to use a reflector to achieve the required strength of reflected beam, the reflectorless total station, or REDM, came into being. The great benefit of REDM was that, in most cases, it needed only one person to operate it. So costs were lower and efficiency greater.

For the measurement of comparatively short distances, the laser rangefinder appeared, at first a comparatively bulky affair, and now, in the case of the Leica Disto A3, small enough and light enough to fit into a shirt pocket. Measuring up to 100 metres with accuracy of  $\pm 3\text{mm}$ , a pocket laser rangefinder like the Disto A3 beats hell out of a tape measure, and is again a single-handed device. You can buy one of these, together with a Protimeter electronic moisture meter, for less than £300 plus VAT for the two at [www.survsys.co.uk](http://www.survsys.co.uk).

Now another new technology, particularly useful in building control work, has appeared in the form of the hydrostatic altimeter for measuring the altitude of one point in relation to another. Also available on the world-wide web at a new on-line shop, [www.plan-b.co.uk](http://www.plan-b.co.uk), the ZipLevel consists of an easily carried base unit and a handheld measurement module, which contains the electronics and an LCD screen, linked by a 30-metre dual-bore polymer cable. One bore of the cable contains hydraulic fluid, the other a gas used to pressurize the system. These fluids act on a pressure sensor in the



measurement module, and the differential hydrostatic pressure between one location and another produces a direct readout of elevation.

The user simply puts the base unit on the ground at point A, presses the zero key, then walks to point B and puts the measurement module on the ground there. The screen reads the difference in elevation between A and B, negative or positive. ZipLevel is accurate to within 2mm, measuring over a 60m<sup>2</sup> circle and 12m vertically in a single set-up, and any distance, any height, by doing several set-ups. It can be used (for example) with one unit inside a building and the other outside. Or with one unit in one trench and the other unit in another. No line of sight, or assistant, is needed.

ZipLevel costs £595.95 plus VAT and carriage and is available now at [www.plan-b.co.uk](http://www.plan-b.co.uk). Or phone Plan-B Marketing Ltd on 01892 664499.

Even with these examples of modern surveying technology – and there are of course many more than can be mentioned here – the ever-patient building control officer will still need at least one pair of muddy boots and a tape measure. But it benefits hard-pressed budgets to keep track of time-saving technologies that increase accuracy and reduce the risk of error.

Further information: T 01892 664499