In-Situ Concrete Floor Slabs - Carpet Roll Reinforcement

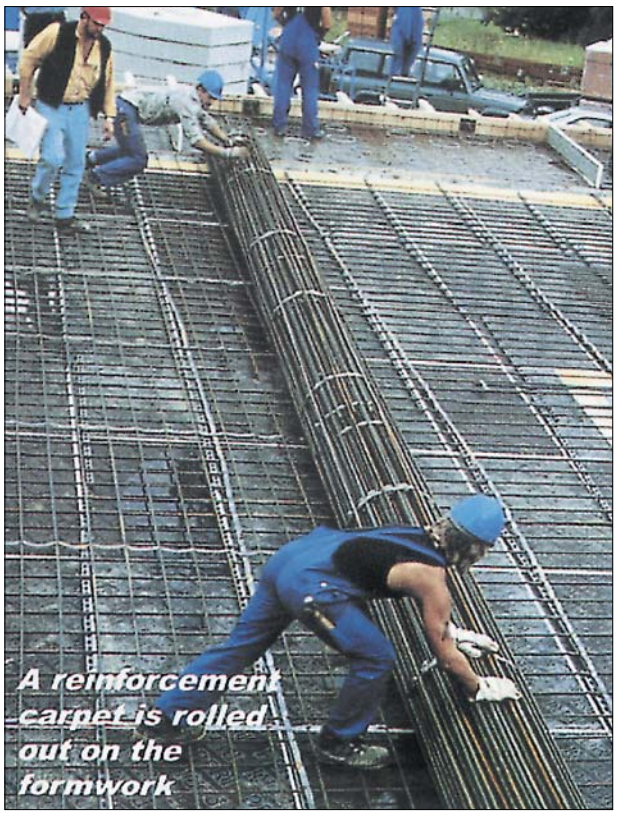
by Brian O Murchú

New Prefabricated Concrete Slab Reinforcement

A new system of placing steel reinforcement in concrete floor slabs has recently been introduced to Ireland by Heitons Steel. Known as Bamtec, the system consists of one directional mats of reinforcement which are prefabricated off site. The 'carpet roll' reinforcement system is particularly efficient for large unobstructed areas of flooring and is perhaps less suitable for smaller floor areas which are obstructed by stair wells, lift shafts etc.

Rolls are laid at right angels to each other in layers - typically Bottom Layer 1, Bottom Layer2 and Top Layer 1, Top Layer 2. Reinforcement bars are factory welded to a thin metal strap at predetermined centres. The metal strap is designed to be strong enough to hold the bars apart, but no so strong so that the strip can loop and compromise the steel cover in the slab. The spot welded strapping technique also does away with the requirement for tying wire on site and because of the dimensional accuracy also reduces the inspection and quality control costs. Bar diameters can be varied as required and different lengths and configurations are achievable within the same roll. Carpet rolls can be delivered to site up to 15 metres long and rolled out at lengths of 25 to 30 m on site.

Machine Fabrication



A reinforcement carpet is rolled out on the formwork

Despite the length and weight of the rolls, no lifting beam is required for lifting and placement. Each roll is delivered to site wrapped in a series of stiff metal collars and with lifting strops already in place. The metal collars are re-usable and their function is to prevent the deflection of the roll during transport. For safety reasons the lifting strops are not re-usable. Rolls are typically lifted to a temporary storage area on site and then lifted into position as and when required.

Smaller rolls can be pushed out by a minimum of two operatives, however, more assistance may be required for larger rolls. The new system is a fast and economical and can substantially cut fixing time, labour and material costs.