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	Nota di contenuto	Table of Contents; 1 Introduction; 1.1 A historical review; 1.2 Requirements for fastenings; 1.3 Nature and direction of actions; 2 Fastening systems; 2.1 General; 2.2 Cast-in-place systems; 2.2.1 Lifting inserts; 2.2.2 Anchor channels; 2.2.3 Headed studs; 2.2.4 Threaded sleeves; 2.3 Drilled-in systems; 2.3.1 Drilling techniques; 2.3.2 Installation configurations; 2.3.3 Drilled-in anchor types; 2.3.3.1 Mechanical expansion anchors; 2.3.3.2 Undercut anchors; 2.3.3.3 Bonded anchors; 2.3.3.4 Screw anchors; 2.3.3.5 Ceiling hangers; 2.3.3.6 Plastic anchors; 2.4 Direct installation; 3 Principles
		3.1 General3.2 Behaviour of concrete in tension; 3.3 Failure mechanisms of fastenings; 3.3.1 Theoretical studies; 3.3.2 Experimental studies; 3.3.3 Conclusions drawn from theoretical and experimental studies; 3.4 Cracked concrete; 3.5 Why anchors may use the tensile strength of concrete; 3.6 Prestressing of anchors; 3.7 Loads on anchors; 3.7.1 Calculation according to elastic theory; 3.7.1.1 Tension load; 3.7.1.2 Shear loads; 3.7.2 Calculation according to non-linear methods; 3.7.3 Calculation of loads on anchors of anchor channels; 3.7.3.1 Tension load; 3.7.3.2 Shear loads
		4 Behaviour of headed studs, undercut anchors and metal expansion

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4.1.2.2 Failure load associated with steel rupture4.1.2.3 Failure load associated with pry-out; 4.1.2.4 Concrete edge failure for a shear load perpendicular to the edge; 4.1.2.5 Concrete edge breakout load associated with shear loads oriented at an angle a< 90° to the edge; 4.1.3 Combined tension and shear (oblique loading); 4.1.3.1 Load-displacement behaviour and modes of failure; 4.1.3.2 Failure load; 4.1.4 Bending of the baseplate; 4.1.5 Sustained loads; 4.1.6 Fatigue loading; 4.2 Cracked concrete; 4.2.1 Tension; 4.2.1.1 Load-displacement behaviour and modes of failure
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4.2.3.1 Load-displacement behaviour and modes of failure

Sommario/riassunto	A comprehensive treatment of current fastening technology using inserts (anchor channels, headed stud), anchors (metal expansion anchor, undercut anchor, bonded anchor, concrete screw and plastic anchor) as well as power actuated fasteners in concrete. It describes in detail the fastening elements as well as their effects and load-bearing capacities in cracked and non-cracked concrete. It further focuses on corrosion behaviour, fire resistance and characteristics with earthquakes and shocks. It finishes off with the design of fastenings according to the European Technical Approval Guideline (E