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QUALITY OF STEEL USED FOR REINFORCED CONCRETE CONSTRUCTION IN SRI LANKA

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Until the late seventies Ceylon Steel Corporation was the sole supplier of reinforcing steel in Sri Lanka. In the recent times many other manufacturers and importers have come into the market and today there are many different varieties of steel available. As the quality of the reinforced concrete structures depend critically on the quality of the steel used for reinforcement attention has to be paid to the question whether the designers' specifications are in fact met by the steel used in construction. This study attempted to address this need.

At present in Sri Lanka design of reinforced concrete structures is generally done according to the guidelines provided by the British Standard 8110;1985. This standard superceded previous British codes of practice that were used in Sri Lanka too. In each new version of the code/standard the specifications for the characteristic strength of high strength steel has increased from 410 MPa to 425 MPa to the current value of 460 MPa. But still some designers seem to be using earlier values. In addition, there is no uniform way in which compliance of steel with the design specifications are ensured. In order to get reliable data regarding these and other design practices a questionnaire was sent to a large group of structural engineers and their responses were analyzed.

Large construction projects generally have rigorous quality control procedures for steel. But in medium scale and particularly in small scale projects often there are no such procedures. Steel is just purchased 'over the counter'. If there are any deficiencies in the quality of steel available in the market it is such projects that will be affected most. To investigate this possibility samples of steel were purchased from many different suppliers in Kandy and its satellite towns. The properties of these steels were measured in the laboratory to compare with the designers' specifications. (Similar testing programmes are in progress regarding large and medium scale projects).

Based on the results the following conclusions were drawn:

- (a) Design practices regarding the characteristic strength of steel and ensuring its compliance vary considerably. Some designers use lower strengths because they are unable to ensure that steel of acceptable quality is used.
- (b) The quality of some steels available in the market which are used in most small scale construction projects may not satisfy the specifications of the designers. In particular the dimensional tolerances seem to be exceeded very often.
- (c) There is an urgent need to get the structural engineers to develop uniform practices regarding steel and to get the steel suppliers to ensure that the steel available in the market comply with the specifications.