The effect of grading of fine aggregate on some properties of concrete

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Abstract:
In concrete construction, sands of good grading used in preparing concrete mixes is considered as one of the important problems in Iraq. The reason is that the quantities of sand conforming to the Iraqi specifications in grading are beginning to decrease. There are, however, large quantities of sand which can not be used in preparing concrete mixes because they are not conforming to the Iraqi specifications. During this research, many trials have been made to increase the range of grading of fine aggregate. 576 concrete cubes were cast using different concrete mixes designed according to the (ACI 211.1 1991). Two types of cement are used with variable water cement ratios and different grading of fine aggregate. Most of these grading were out of Iraqi specifications. Slump test was made for all concrete mixes and compressive strength was made for all concrete cubes at ages of (7,28,56 and 90) days. The results obtained show the possibility of using different grading of fine aggregate with fineness modulus ranges from (1.4 to 3.7) which is much wider than the range of fineness modulus in (ACI 211.1 1991), noticing that these different grading of fine aggregate did not adversely affect the slump or compressive strength.