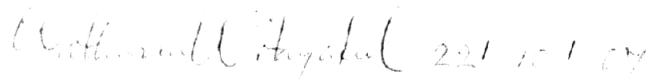Thumrong Panyakaew 2007: The Relationship between Ultimate Strength and Modulus of Rupture for Concrete Pavement. Master of Engineering (Civil Engineering), Major Field: Civil Engineering, Department of Civil Engineering. Thesis Advisor: Associate Professor Watcharin Witayakul, M.Eng. 73 pages.

The objective of this study was to determine modulus of rupture of concrete pavement by using relationship between ultimate strength and modulus of rupture which was obtained from laboratory. The test for determining ultimate strength of concrete was specified in ACI method for mixing design. The materials used in this study were reached criteria of The Highway Department of Thailand. Portland cement type I, the Ping river sand. As fine aggregate, crushed limestone and round river gravel as coarse aggregate were mixed and tested, by using ¼ inch of coarse aggregate. The specimens were performed as 45 beam samples (size 15 cm x 15 cm x 76 cm) and 45 cube samples (size 15 cm x 15 cm x15 cm). The cube samples were tested for ultimate strength and beam samples were tested for modulus of rupture by third-point loading at 1, 3, 7, 14 and 28 days of curing time. From regression analysis, the results showed well correlation between ultimate. Strength and modulus of rupture $y = 0.7653x0.6987$; ($R2 = 0.9514$) for crushed limestone and $y = 27.339 \ln(x) - 115.51$; ($R2 = 0.9505$) for ¾ inch of round river gravel when x is ultimate strength in range of 150-450 ksc., and y is modulus of rupture, ksc. Therefore, the modulus of rupture could be calculated from the obtained equation by testing ultimate strength of cubic specimens.

Student's signature	Thesis Advisor's signature