N.S.PLUS ENGINEERING CO.,LTD.

ULTRASONIC PULSE VELOCITY

General Condition	Pulse Velocity (km/s)
Excellence	> 4.50
Very Good	4.00 – 4.50
Good	3.50 – 4.00
Doubtful	3.00 – 3.50
Poor	2.00 – 3.00
Very Poor	< 2.00

ข้อมูลความเค้นบนชั้นอ้างอิงจาก BRE'1988_2012

ตารางเปรียบเทียบความเร็วกับคุณภาพคอนกรีต

Ultrasonic Pulse Velocity Test (UPV) is the method to investigate uniformity, cavities, cracks, delamination and strength of concrete. The pulses of longitudinal stress waves are generated by an electro-acoustical transducer that is held in contact with one surface of the concrete under test. After traversing through the concrete, the pulses are received and converted into electrical energy by a second transducer located a distance L from the transmitting transducer. The transit time T is measured electronically.

The pulse velocity V is calculated by dividing L by T.

The pulse velocity, V, of longitudinal stress waves in a concrete mass is related to its elastic properties and density according to the following relationship:

$$V = \sqrt{\frac{E\,(1-\mu)}{\rho\,(1+\mu)(1-2\,\mu)}}$$

where:
E = dynamic modulus of elasticity,
μ = dynamic Poisson's ratio, and
ρ = density.

ASTM INTERNATIONAL **Designation: C597 – 09**

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