LIGHTWIEGHT CONCRETE WITH STYROFOM BEADS

STYROFOM - FILLED LIGHTWEIGHT CONCRETE DIFFERS FROM OTHER FORMS OF LIGHTWEIGHT CONCRETE BECAUSE OF THE SPECIAL PROPERTIES OF THE PRE-EXPANDED **STYROFOM** BEADS. THESE BEADS OCCUPY 60 - 80 % OF THE VOLUME, DEPENDING ON THE DENSITY OF CONCRETE THE **STYROFOM** BEADS FORMING THE AGGREGATE HAVE THE FOLLOWING PROPERTIES.

1- EXTREMELY LOW APPARENT DENSITY.

2- OUTSTANDING LOW THERMAL CONDUCTIVITY.

3- NEGLIGIBLE MOISTURE UPTAKE BECAUSE OF THE CLOSED CELLULAR STRUCTURE.

4- REGULARLY SPHERICAL FORM LEADING TO THE FORMATION OF THE CEMENT MATRIX WITH COMPARATIVELY HIGH COMPRESSIVE STRENGTH. THE LIGHTWEIGHT CONCRETE DENSITY RANGES BETWEEN 300 AND 900 Kg/M^3. THE DENSITY IN THE REGION OF 600 Kg/M^3 IS THE MOST ADEQUATE DENSITY FOR LIGHTWEIGHT CONCRETE. AT THIS DENSITY THERE IS SUFFICIENT CEMENT TO FILL THE INTERSTITIAL SPACES BETWEEN THE **STYROFOM** BEADS, AND ENOUGH STRENGTH IN THE CONCRETE. THE MOST SUITABLE DENSITY OF THE **STYROFOM** BEADS IS ABOUT 13-14 Kg/M^3.

COMPOSITION OF LIGHTWEIGHT CONCRETE MIXES USING STYROFOM BEADS

Density of concrete Kg/M^3	CEMENT Kg	SAND Kg	WATER Kg	Compression Resistance Kgf/CM^2	Flexure Resistance Kgf/CM^2
200	150	---	50	---	---
300	200	---	100	3	2
400	250	25	125	7	4
500	300	50	150	14	6
600	350	100	150	20	7
700	350	175	175	32	8
800	350	250	200	45	10
900	375	325	200	60	12