

covering power; (b) the less likely to blow; (c) fine grinding hastens setting.

From tensile test we have a method of comparing the sample with other good cements and have a method of arriving at the compressive value.

The relation between tensile and compressive strengths of mortar 3 to 1 is 
$$\frac{\text{Comp strength.}}{\text{Tensile strength.}} = 8.64 + 1.8 \log A.$$

A is the age in months.

A high specific gravity shows overburning, whereas if low it shows adulteration. Fresh cement has higher S. G. than old cement.

From the setting test we obtain the times of initial and final set.

#### CANADIAN STANDARD CEMENT TESTS.

##### 1. Fineness.

Not a residue 10% on a 100<sup>2</sup> sieve.

" " 1% on a 50<sup>2</sup> sieve.

##### 2. Specific Gravity.

3.09—3.25 for fresh cement.

##### 3. Setting Test—Gilmore's needles.

$\frac{1}{4}$  lb. 1-12 inch diameter for initial test.

1 lb. 1-24 inch diameter for final test.

##### 4. Hot or Blowing Test.

Pats shall be made covered with a damp cloth and allowed to obtain a final set; they shall then be immersed in vapor of water at temperature of 130° for 6 hours, including the time of setting in air. The pats shall then be immersed in the water for 18 hours. The pats should cling to the plate and there shall be no turning up of edges.

##### 5. Tension tests.

(a) Neat cement with about 22% water.

1 day in air— 2 days in water, 250 lbs.

1 " " 6 " " 400 lbs.

1 " " 27 " " 500 lbs.

(b) Mortar 1 : 3.

1 day in air— 6 days in water, 125 lbs.

1 " " 27 " " 200 lbs.

The method of obtaining the correct proportion of cement to sand and stone has not been dealt with in this paper. It is however very simple, although usually some standard mix as 1 : 2 : 4 or 1 : 2 : 5 is employed.

Altogether it might be said that reinforced concrete is not a mystery and should not be looked at with bated breath as something fearful and wonderful. It is merely the application of common sense and although we would not advise everyone to try the design of reinforced concrete, still it is