COMPRESSIVE STRENGTH OF CYLINDRICAL CONCRETE SPECIMENS AASHTO T 22 (ASTM C1231)

APPARATUS

[ ] Testing machine has a verification of calibration within the last 13 months
[ ] Protective Cage

SPECIMENS

[ ] Neither end of the cylinder shall depart from perpendicularity to the axis by more than 0.5 degrees, approximately equivalent to 3 mm (0.12 in) in 300 mm for a 6-by-12-in cylinder.
[ ] The cylinder ends sawed if not plane within 0.050 mm (0.002 in) for capped cylinders or 5mm (0.20 in) for neoprene caps.
[ ] Diameter of test specimen determined to nearest 0.01 in. by averaging two diameters measured at right angles to each other at mid-height of specimen. Shall not differ by more than 6 mm (0.12 in) which is = to 2%.
[ ] Length of test specimen determined to nearest 0.05 x diameter when length to diameter ratio is less than 1.8 or more than 2.2

PROCEDURE

[ ] Test specimens kept moist during the period between removal from moist storage and testing
[ ] Pad dimension shall be 13 ±2 mm (1/2 ± 1/16 in.) thick with a diameter of not more than 2 mm (1/16 in.) smaller than the inside diameter of the retaining ring (**neo pad**)
[ ] Each neoprene (Shore A) cap/pad used to test no more than 100 cylinders with compressive strength ranges between 1,500 – 7,000 psi, for ranges between 7,000 to 12,000 psi, only 50 reuses are permitted per ASTM C 1231, Table 1 (**neo pad**)
[ ] Extrusion controllers, containing neoprene caps, placed on the top and bottom surfaces of test specimen (**neo pad**) 
[ ] Faces of both bearing blocks, test specimen or neoprene caps and extrusion controllers wiped clean, and test specimen placed on the lower bearing block
[ ] Axis of test specimen aligned with center of upper bearing block
[ ] Load indicator set to zero. If indicator is not properly set to zero, indicator is adjusted.
[ ] As spherically-seated block is brought to bear on the specimen, movable portion of block is rotated gently by hand so that uniform seating is obtained.
[ ] Load applied continuously and without shock
PROCEDURE Cont.

[ ] For screw-type testing machines, the moving head rate of movement is adjusted to achieve a stress rate of 35 ±7 psi/s

[ ] For hydraulically-operated testing machines, load applied at a rate of movement corresponding to a stress rate on the specimen of 35 ±7 psi/s

[ ] Rate of movement maintained at least during the latter half of anticipated loading phase of testing cycle

[ ] No adjustment in rate of movement of platen made at any time while specimen is yielding rapidly immediately before failure

[ ] Load applied until test specimen fails

[ ] Maximum load carried by test specimen during test recorded. Type of failure and appearance of concrete noted.

[ ] Capp thickness measured and does not exceed limits

[ ] Compressive strength of test specimen determined to nearest 10 psi as follows:

\[
\text{Compressive Strength} = \frac{\text{Maximum Load}}{\text{Average Cross - Sectional Area}}
\]

[ ] Compressive strength corrected when specimen length-to-diameter ratio is equal to or less than 1.75 by multiplying by a correction factor as follows:

<table>
<thead>
<tr>
<th>L/D:</th>
<th>1.75</th>
<th>1.50</th>
<th>1.25</th>
<th>1.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor:</td>
<td>0.98</td>
<td>0.96</td>
<td>0.93</td>
<td>0.87</td>
</tr>
</tbody>
</table>

(Values not given in table are determined by interpolation)

NOTE-Neoprene caps not to be used for acceptance testing of concrete with compressive strength below 10 MPa (1500 psi) or above 80 MPa (12,000 psi). ASTM C1231 (1.2)

NA - Not Applicable
X - Requires Corrective Action
√ - Satisfactory

__________________________________________________________________________

Acceptance Technician

__________________________________________________________________________

INDOT \  Date

Comments _________________________________________________________________