

PORTLAND CEMENT CONCRETE MIX DESIGN¹ (Continued)
DATA FOR COMPUTING THE COEFFICIENT OF VARIATION OF BATCHES

Batch No.	Date Batched	7-Day Compressive Strengths (MPa)				28-Day Compressive Strengths (MPa)			
		Cyl. 1	Cyl. 2	Cyl. 3	Average (\bar{x})	Cyl. 1	Cyl. 2	Cyl. 3	Average (\bar{x})
1	10/1/96	16.34	15.86	16.58	16.26	24.40	26.92	25.11	25.48
2	10/1/96	15.03	13.78	15.86	14.89	23.34	24.52	26.35	24.74
3	10/1/96	15.62	15.82	16.13	15.86	21.42	25.99	23.62	23.69
4	10/2/96	19.21	19.99	19.34	19.51	23.37	21.26	24.08	22.91
5	10/2/96	18.28	18.65	17.86	18.26	25.31	22.76	26.75	24.95
6	10/2/96	19.17	18.27	19.31	18.92	22.71	20.72	25.57	23.01
7	10/2/96	17.44	18.62	19.93	18.66	26.42	26.06	22.17	24.89
8	10/2/96	15.17	19.31	19.44	17.97	23.62	26.95	22.49	24.36
9	10/3/96	18.13	17.58	20.03	18.58	20.05	21.71	24.98	22.25
10	10/3/96	15.48	17.97	16.60	16.48	22.37	23.34	25.88	23.87
11	10/3/96	19.03	16.75	17.71	17.83	21.15	24.00	25.46	23.54
12	10/4/96	19.62	18.93	17.10	18.55	21.73	25.84	23.06	23.55
13	10/4/96	17.58	18.27	19.37	18.41	22.79	28.30	27.31	26.14
14	10/4/96	19.03	15.41	17.90	17.45	21.47	25.96	22.81	23.42
15	10/4/96	20.34	15.86	16.89	17.70	20.84	23.50	25.00	23.12
16	10/4/96	19.36	20.03	17.48	18.96	22.17	24.68	25.94	24.27
17	10/5/96	18.27	15.10	18.82	17.40	23.41	24.88	24.02	24.11
18	10/5/96	16.20	19.48	17.60	17.76	21.99	26.95	23.66	24.21
19	10/5/96	18.67	18.28	20.06	19.00	24.70	25.73	27.05	25.83
20	10/5/96	20.01	18.27	19.55	19.28	26.59	24.78	25.64	25.68

¹ For normal mass portland cement concrete (2300 - 2500 kg/m³).

$$\bar{\bar{x}} = \frac{\sum \bar{x}}{N} = \frac{484.02}{20} = 24.20 \text{ (MPa)}$$

$$s = \sqrt{\frac{N \sum (\bar{x}^2) - (\sum \bar{x})^2}{N(N-1)}} = 1.0638$$

Where:

- \bar{x} = The 28-day batch average of at least 2 cylinders (3 preferred).
- $\bar{\bar{x}}$ = The mean of the averages of 28-day compressive results.
- s = The sample standard deviation of the 28-day batch averages.
- N = The number of batches sampled.

$$\sqrt{\frac{20 \times 11735.27 - (484.02)^2}{20(20-1)}}$$

Form FHWA 1608 (Rev 10-96)

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