



Raise the mold and measure the displacement of the original center of the specimen.

Figure 3.5 Slump test.

TABLE 3.3 RECOMMENDED SLUMPS FOR VARIOUS TYPES OF CONSTRUCTION

Types of construction	Slump (in.)	
	Maximum	Minimum
3		
4		
5		
6		

TABLE 3.4 APPROXIMATE MIXING WATER AND AIR CONTENT FOR TRIAL BATCHES

Range of Slump ^a (in.)	Approximate mixing water (lb/yd ³ of concrete) for nominal maximum size of CA (in.):							
	N	N		1N	2		6	
Non-Air-Entrained Concrete								
1-2	330	335	315	300	275	260	240	210
3-4	385	365	340	325	300	285	265	230
5-7	410	385	360	340	315	300	285	-
Approximate air content (%)	3	2.5	2	1.5	1	0.5	0.3	0.2
Air-Entrained Concrete								
1-2	305	295	280	270	250	240	225	200
3-4	340	325	305	295	275	265	250	220
5-7	365	345	325	310	290	280	270	-
Recommended Air content (%) ^b	4.5-7.5	4.0-7.0	3.5-6.0	3.0-6.0	2.5-5.5	2.0-5.0	1.5-4.5	1.0-4.0

Source: ACI 211.1-91, Table 6.3.3. Reprinted with permission.

^aRefer to Table 3.3.

^bRefer to Table 3.5.

TABLE 3.5 TOTAL AIR CONTENT FOR FROST-RESISTANT CONCRETE

Normal maximum coarse aggregate size (in.)	Air content (%)	
	Severe exposure	Moderate exposure
N	7N	6
N	7	5N
N	6	5
1	6	4N
1N	5N	4N
2	5	4
3	4N	3N

Source: ACI 318-89, Table 4.2.1, revised 1992.
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TABLE 3.6 MAXIMUM PERMISSIBLE WATER/CEMENTITIOUS MATERIALS RATIOS BY WEIGHT FOR TRIAL BATCHES

Specified compressive strength f'_c (psi)	Absolute water/cementitious materials ratio by weight	
	Non-air-entrained concrete	Air entrained concrete
2500	0.67	0.54
3000	0.58	0.46
3500	0.51	0.40
4000	0.44	0.35
4500	0.38	-
-	-	-

Source: ACI 318-89, Table 5.4, revised 1992. Reprinted with permission.

TABLE 3.9 VOLUME OF COARSE AGGREGATE PER UNIT VOLUME OF CONCRETE BASED ON WORKABILITY REQUIREMENTS

Nominal maximum coarse aggregate size (in.)	Volume of dry-rodded coarse aggregate per unit volume of concrete for fineness modulus of sand:			
	2.4	2.6	2.8	3.0
N	0.5	0.48	0.46	0.44
N	0.59	0.57	0.55	0.53
N	0.66	0.64	0.62	0.60
1	0.71	0.69	0.67	0.65
1N	0.75	0.73	0.71	0.69
2	0.78	0.76	0.74	0.72
3	0.82	0.80	0.78	0.76
6	0.87	0.85	0.83	0.81