



DEPARTMENT OF CIVIL ENGINEERING

FACULTY OF ENGINEERING, KING MONGKUT 'S INSTITUTE OF TECHNOLOGY

LADKRABANG BANGKOK THAILAND. TEL. 0 - 2326 - 4216

COMPRESSIVE STRENGTH OF MORTAR (ASTM C 109-95)

PROJECT : Test on Properties of "Water Grout HF" Req. No. 52-1045

SAMPLE FROM : Waterstop Product Co.,Ltd. Date of Request 21/10/2009

MIX PROPORTIONS : Water Grout HF , w / (c+x) = 0.16 Date of Test 22/10/2009

Water Grout HF = 6000 g. / Water = 960 cc.

Spec. No.	Compressive Strength of 50-mm.					Remark
	Mortar Cube at different ages (ksc.)					
	1 days	3 days	7 days	14 days	28 days	
1	477.86	555.65	594.77	657.35	688.59	
2	417.20	553.53	582.11	667.76	691.04	
3	443.48	553.26	585.51	688.47	681.93	
Average	446.18	554.15	587.46	671.19	687.19	

Note: 1) CERTIFICATION APPLIES TO TEST SAMPLES ONLY.

2) NO ERASURE OR ALTERATIONS.

TESTED BY:

Mr.Sombat Natesawang



CERTIFIED BY:

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FLOW OF GROUT (JSCE - F531 - 1993)

PROJECT : Test on Properties of "Water Grout HF" **Req. No.** 52-1045

SAMPLE FROM : Waterstop Product Co.,Ltd. **Date of Request** 21/10/200

TEST SPECIMEN : Water Grout HF , w / (c+x) = 0.16 **Date of Test** 22/10/200

Water Grout HF = 6000 g. / Water = 960 cc.

TEST APPARATUS : The Flow of Grout Apparatus : The Flow Cone of size 69.5 mm. in diameter x 385 mm. in height and the discharge tube of size 16 mm. in diameter, Ring Stand and Stop Watch are used for testing

Test No.	W/C Ratio	Observed Time (minutes)	J14-Funnel Flow Time (second)				Remark
			1	2	3	Average	
1	0.16	0	10.12	10.16	10.10	10.13	
2	0.16	10	10.75	10.69	10.79	10.74	
3	0.16	20	11.89	11.92	11.94	11.92	
4	0.16	30	13.50	13.47	13.40	13.46	
5	0.16	40	17.40	17.36	17.34	17.37	

Note: 1) CERTIFICATION APPLIES TO TEST SAMPLES ONLY.

2) NO ERASURE OR ALTERATIONS.



TESTED BY:

Mr.Sombat Natesawang

CERTIFIED BY:



EXPANSION AND BLEEDING OF FRESHLY MIXING GROUTS (ASTM C 940-89)

PROJECT : Test on Properties of "Water Grout HF"

Req. No. 52-1045

SAMPLE FROM : Waterstop Product Co.,Ltd.

Date of Request 21/10/2009

TEST SPECIMEN : Water Grout HF , w / (c+x) = 0.16

Date of Test 22/10/2009

Water Grout HF = 6000 g. / Water = 960 cc.

Date	Observed Time	Elaped Time	Volumn of Sample	Expansion	Bleeding
	(hr:min)	(min)	(ml.)	(%)	(%)
22/10/2009	14:45	0	392.70	0.00	0.00
	15:00	15	392.70	0.00	0.00
	15:15	30	392.70	0.00	0.00
	15:30	45	392.70	0.00	0.00
	15:45	60	392.70	0.00	0.00
	16:00	75	392.70	0.00	0.00
	16:15	90	392.70	0.00	0.00
	16:30	105	392.70	0.00	0.00
	16:45	120	392.70	0.00	0.00
	17:00	135	392.70	0.00	0.00
	17:15	150	392.70	0.00	0.00
	17:30	165	392.70	0.00	0.00
	17:45	180	392.70	0.00	0.00
	18:00	195	392.70	0.00	0.00
	18:15	210	392.70	0.00	0.00
	18:30	225	392.70	0.00	0.00
	18:45	240	392.70	0.00	0.00

Note: 1) CERTIFICATION APPLIES TO TEST SAMPLES ONLY.

2) NO ERASURE OR ALTERATIONS.

TESTED BY:

Mr.Sombaf Natesawang

CERTIFIED BY:





TIME OF SETTING OF CEMENT PLATE BY VICAT NEEDLE (ASTM C 191-99)

PROJECT : Test on Properties of "Water Grout HF" Req. No. 52-1045

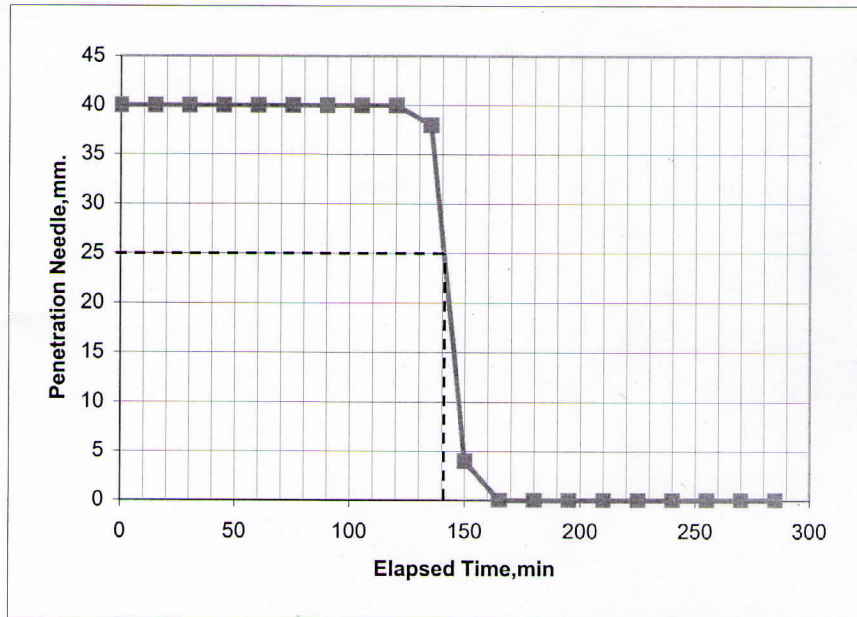
SAMPLE FROM : Waterstop Product Co.,Ltd. Date of Request 21/10/2009

TEST SPECIMEN : Water Grout HF , w / (c+x) = 0.16 Date of Test 19/10/2009

Water Grout HF = 6000 g. / Water = 960 cc.

TEST APPARATUS : Vicat Apparatus

Elapsed Time (min)	Penetration of Needle (mm.)
0	40
15	40
30	40
45	40
60	40
75	40
90	40
105	40
120	40
135	38
150	4
165	0
180	0
195	0
210	0
225	0
240	0
255	0
270	0
285	0



Initial Setting Time = 140 min
 Final Setting Time = 165 min

Note: 1) CERTIFICATION APPLIES TO TEST SAMPLES ONLY.
 2) NO ERASURE OR ALTERATIONS.



Handwritten signature of Mr. Sombat Natesawang

Mr.Sombat Natesawang

Handwritten signature of the certifier

19/10/2009 15:14:00