



**FACULTY OF ENGINEERING
CHULALONGKORN UNIVERSITY
FIRE SAFETY RESEARCH CENTER**



- TYPE OF TEST** : DETERMINATION OF THE FIRE RESISTANCE OF NON-LOADBEARING ELEMENTS OF CONSTRUCTION
- TEST SPECIMEN** : **Fiber Cement Board**
The specimen is a 3 m x 3 m vertical construction consisting of two layers of 10 mm thick Fiber Cement Boards in a sandwich construction with 50 mm thick insulation in the middle. The Fiber Cement Boards were installed to the 3 m x 3 m testing frame using double galvanized C 0.55x75x30 mm with 0.6 m spacing as the vertical struts. The details of the specimen are shown in Appendix C. The specimen was provided and installed by the client.
- CLIENT** : **Mahaphant Fibre-Cement Public Company Limited**
99 Moo 9 Phetkasem Rd., Raikhing Dist, Sampran
Nakornpathom 73210, Thailand
- DATE OF TEST** : November 14, 2008
- TEST MACHINE** : Large-scale vertical furnace (Fire Tester III) at the Fire Safety Research Center, Department of Civil Engineering, Chulalongkorn University (Thailand). The furnace is capable of producing a standard temperature-time relationship according to several fire resistance standards including BS476 Part 20: 1987.
- TEST METHOD** : The testing procedures follow the British Standard BS 476: Fire tests on building materials and structures
BS 476 Part 20: 1987 : Method for determination of the fire resistance of elements of construction (general principles)
BS 476 Part 22: 1987 : Methods for determination of the fire resistance of non-loadbearing elements of construction Section 5: Determination of the fire resistance of partitions.
- TEST RESULTS** : The non-loadbearing element of construction described above has the fire resistance of each criterion for the period stated:
(The test results are good only for the specimen tested.)

Criteria	Fire Resistance (hr:min)	Remarks
Insulation	1:24	The maximum temperature of the unexposed face of the specimen exceeded 180°C above its initial value of 27°C.
Integrity	2:15	The specimen had a passage of flame or gases hot enough to ignite the cotton pad.

Tested by:
(Dr. Jaron Rungamornrat)

.....
(Associate Prof. Dr. Chadchart Sittipunt)

Date: November 28, 2008

.....
(Associate Prof. Dr. Janyawat Pothisiri)

.....
(Assistant Prof. Dr. Chaitan Chintanapakdee)
On Behalf of Head of Civil Engineering Department

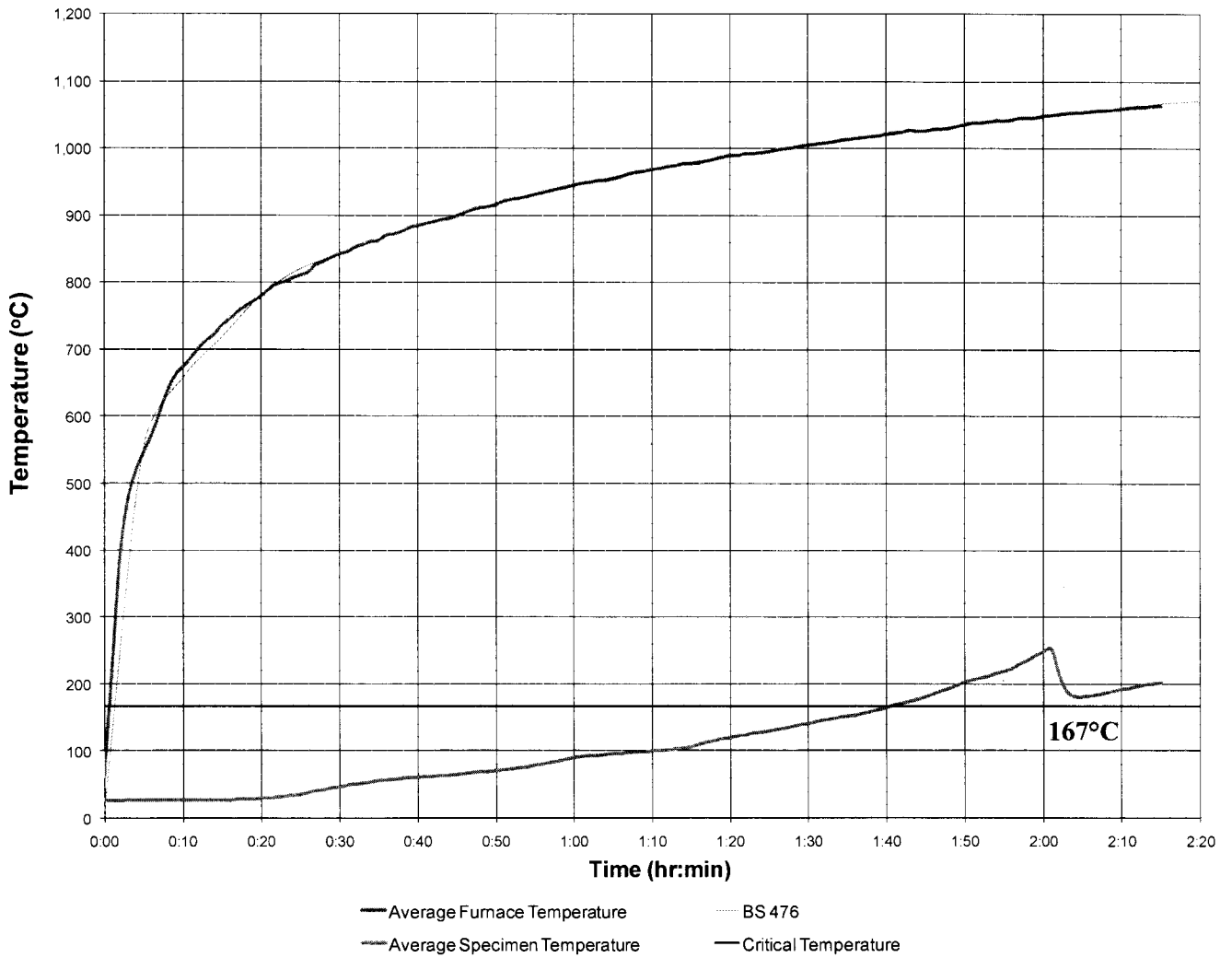




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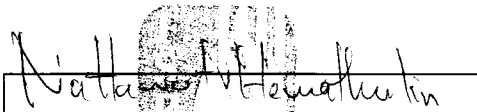
FURNACE TEMPERATURE



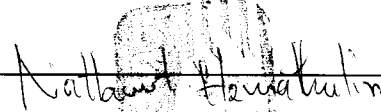
Nattawut Hemathulin
(Mr. Nattawut Hemathulin)
Authorized Testing Officer

APPENDIX A: TEMPERATURE OF THE FURNACE AND THE SPECIMEN

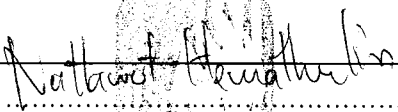
Time (hr:min:sec)	Furnace Temperature(°C)										Time (hr:min:sec)
	P1	P2	P3	P4	P5	P6	P7	P8	P9	Average	
0:00:00	96	52	61	37	56	87	79	56	42	63	0:00:00
0:01:00	402	190	213	73	323	347	244	155	170	235	0:05:00
0:02:00	402	190	213	73	323	347	244	155	170	235	0:10:00
0:03:00	589	491	403	364	579	601	490	383	368	474	0:15:00
0:04:00	589	491	403	364	579	601	490	383	368	474	0:20:00
0:05:00	603	560	466	510	625	630	556	506	460	546	0:25:00
0:06:00	603	560	466	510	625	630	556	506	460	546	0:30:00
0:07:00	695	569	525	588	674	690	606	558	534	604	0:35:00
0:08:00	695	569	525	588	674	690	606	558	534	604	0:40:00
0:09:00	734	649	575	648	740	743	656	614	596	662	0:45:00
0:10:00	740	660	592	668	748	756	674	641	595	675	0:50:00
0:11:00	740	660	592	668	748	756	674	641	595	675	0:55:00
0:12:00	774	710	608	689	777	777	688	660	634	702	1:00:00
0:13:00	774	710	608	689	777	777	688	660	634	702	1:05:00
0:14:00	786	737	629	711	796	794	708	687	659	723	1:10:00
0:15:00	810	750	637	726	810	810	721	702	666	737	1:15:00
0:16:00	806	760	657	736	808	816	733	709	685	745	1:20:00
0:17:00	806	760	657	736	808	816	733	709	685	745	1:25:00
0:18:00	826	779	673	768	828	825	742	733	708	765	1:30:00
0:19:00	824	783	688	778	830	833	754	745	713	772	1:35:00
0:20:00	824	783	688	778	830	833	754	745	713	772	1:40:00
0:21:00	842	799	704	797	843	847	770	763	754	791	1:45:00
0:22:00	842	799	704	797	843	847	770	763	754	791	1:50:00
0:23:00	852	808	715	816	858	854	780	781	747	801	1:55:00
0:24:00	852	808	715	816	858	854	780	781	747	801	2:00:00
0:25:00	851	815	739	826	867	866	794	789	758	812	2:05:00
0:26:00	851	815	739	826	867	866	794	789	758	812	2:10:00
0:27:00	867	834	752	840	887	885	807	808	761	827	2:15:00
0:28:00	865	836	759	848	892	884	811	815	779	832	2:20:00
0:29:00	865	836	759	848	892	884	811	815	779	832	2:25:00
0:30:00	876	843	743	863	902	894	824	826	816	843	2:30:00
0:31:00	876	843	743	863	902	894	824	826	816	843	2:35:00
0:32:00	888	854	785	868	908	900	830	832	819	854	2:40:00
0:33:00	888	854	785	868	908	900	830	832	819	854	2:45:00
0:34:00	895	861	800	875	916	911	836	838	827	862	2:50:00
0:35:00	895	861	800	875	916	911	836	838	827	862	2:55:00
0:36:00	899	870	811	884	923	918	846	844	849	872	3:00:00
0:37:00	905	873	807	888	928	921	848	849	842	873	3:05:00
0:38:00	905	873	807	888	928	921	848	849	842	873	3:10:00
0:39:00	905	880	822	897	932	927	860	858	864	883	3:15:00
0:40:00	905	880	822	897	932	927	860	858	864	883	3:20:00
0:41:00	916	885	824	904	940	932	864	872	857	888	3:25:00
0:42:00	916	885	824	904	940	932	864	872	857	888	3:30:00
0:43:00	917	891	833	908	944	939	874	878	859	894	3:35:00
0:44:00	917	891	833	908	944	939	874	878	859	894	3:40:00
0:45:00	922	897	842	915	948	943	883	880	863	899	3:45:00
0:46:00	932	899	847	920	954	948	886	886	876	905	3:50:00
0:47:00	932	899	847	920	954	948	886	886	876	905	3:55:00
0:48:00	932	908	855	927	957	957	899	889	878	911	4:00:00
0:49:00	932	908	855	927	957	957	899	889	878	911	
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0:54:00	960	926	876	942	974	973	914	912	887	929	
0:55:00	967	924	881	943	973	975	915	915	889	931	
0:56:00	967	924	881	943	973	975	915	915	889	931	
0:57:00	963	932	886	948	978	980	924	918	899	936	
0:58:00	963	932	886	948	978	980	924	918	899	936	
0:59:00	963	941	891	954	985	986	927	927	906	942	


 (Mr. Nattawut Hemathulin)
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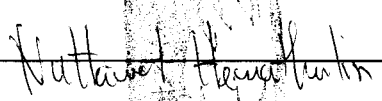
Time (hr:min:sec)	Furnace Temperature(°C)									Average
	P1	P2	P3	P4	P5	P6	P7	P8	P9	
1:00:00	963	941	891	954	985	986	927	927	906	942
1:01:00	981	948	899	959	989	988	934	932	908	949
1:02:00	981	948	899	959	989	988	934	932	908	949
1:03:00	984	949	901	963	991	991	940	937	914	952
1:04:00	986	949	899	964	996	994	937	941	907	953
1:05:00	986	949	899	964	996	994	937	941	907	953
1:06:00	987	952	908	969	999	1002	946	947	909	958
1:07:00	987	952	908	969	999	1002	946	947	909	958
1:08:00	995	963	919	977	1004	1004	948	949	921	964
1:09:00	995	963	919	977	1004	1004	948	949	921	964
1:10:00	999	966	922	981	1007	1010	956	961	924	969
1:11:00	999	966	922	981	1007	1010	956	961	924	969
1:12:00	1004	971	926	985	1008	1008	961	966	929	973
1:13:00	1004	971	928	985	1011	1013	963	969	932	975
1:14:00	1004	971	928	985	1011	1013	963	969	932	975
1:15:00	998	977	935	989	1014	1016	965	966	935	977
1:16:00	998	977	935	989	1014	1016	965	966	935	977
1:17:00	1013	982	937	994	1019	1019	975	966	929	981
1:18:00	1013	982	937	994	1019	1019	975	966	929	981
1:19:00	1005	988	950	1001	1024	1028	984	973	937	988
1:20:00	1005	988	950	1001	1024	1028	984	973	937	988
1:21:00	1013	990	953	1004	1026	1028	985	978	936	990
1:22:00	1011	994	955	1005	1029	1028	986	980	942	992
1:23:00	1011	994	955	1005	1029	1028	986	980	942	992
1:24:00	1017	996	960	1009	1029	1032	990	984	933	994
1:25:00	1017	996	960	1009	1029	1032	990	984	933	994
1:26:00	1022	1001	966	1012	1033	1036	993	988	934	998
1:27:00	1022	1001	966	1012	1033	1036	993	988	934	998
1:28:00	1025	1005	970	1015	1037	1038	996	992	935	1001
1:29:00	1025	1005	970	1015	1037	1038	996	992	935	1001
1:30:00	1026	1011	977	1021	1043	1046	1003	998	926	1006
1:31:00	1030	1013	977	1022	1046	1045	1004	1000	925	1007
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1:33:00	1031	1017	986	1026	1050	1048	1007	1004	920	1010
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1:35:00	1041	1020	987	1030	1052	1052	1008	1011	924	1014
1:36:00	1041	1020	987	1030	1052	1052	1008	1011	924	1014
1:37:00	1038	1024	994	1033	1056	1056	1016	1013	921	1017
1:38:00	1038	1024	994	1033	1056	1056	1016	1013	921	1017
1:39:00	1040	1028	995	1035	1058	1060	1019	1017	921	1019
1:40:00	1050	1030	997	1038	1062	1062	1021	1018	922	1022
1:41:00	1050	1030	997	1038	1062	1062	1021	1018	922	1022
1:42:00	1053	1029	999	1042	1066	1066	1023	1024	931	1026
1:43:00	1053	1029	999	1042	1066	1066	1023	1024	931	1026
1:44:00	1049	1030	1005	1040	1063	1063	1022	1025	934	1026
1:45:00	1049	1030	1005	1040	1063	1063	1022	1025	934	1026
1:46:00	1054	1032	1003	1045	1067	1067	1028	1029	933	1029
1:47:00	1054	1032	1003	1045	1067	1067	1028	1029	933	1029
1:48:00	1056	1033	1010	1049	1068	1070	1030	1035	929	1031
1:49:00	1056	1033	1010	1049	1068	1070	1030	1035	929	1031
1:50:00	1057	1042	1010	1057	1077	1076	1034	1043	927	1036
1:51:00	1064	1043	1013	1058	1077	1078	1038	1045	928	1038
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1:53:00	1067	1043	1021	1061	1078	1079	1040	1048	926	1040
1:54:00	1067	1043	1021	1061	1078	1079	1040	1048	926	1040
1:55:00	1065	1046	1021	1062	1080	1082	1045	1048	927	1042
1:56:00	1065	1046	1021	1062	1080	1082	1045	1048	927	1042
1:57:00	1073	1050	1023	1066	1087	1084	1044	1054	927	1045
1:58:00	1078	1050	1022	1065	1083	1083	1044	1056	929	1045
1:59:00	1078	1050	1022	1065	1083	1083	1044	1056	929	1045


 (Mr. Nattawut Hemathulin)
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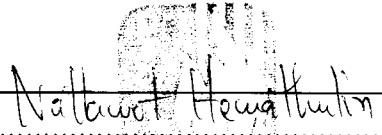
Time (hr:min:sec)	Furnace Temperature(°C)									
	P1	P2	P3	P4	P5	P6	P7	P8	P9	Average
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2:01:00	1073	1050	1023	1065	1089	1082	1041	1057	961	1049
2:02:00	1073	1051	1021	1066	1090	1083	1041	1060	979	1052
2:03:00	1073	1051	1021	1066	1090	1083	1041	1060	979	1052
2:04:00	1074	1052	1023	1067	1089	1085	1044	1062	987	1054
2:05:00	1074	1052	1023	1067	1089	1085	1044	1062	987	1054
2:06:00	1080	1053	1026	1069	1091	1087	1049	1064	988	1056
2:07:00	1078	1053	1029	1068	1090	1089	1050	1065	992	1057
2:08:00	1077	1053	1030	1069	1092	1089	1050	1066	992	1057
2:09:00	1076	1054	1029	1069	1088	1092	1054	1067	996	1058
2:10:00	1082	1055	1035	1071	1089	1092	1055	1067	996	1060
2:11:00	1082	1054	1033	1072	1090	1093	1057	1069	998	1061
2:12:00	1083	1054	1037	1073	1093	1093	1057	1070	1000	1062
2:13:00	1082	1058	1036	1074	1094	1094	1058	1071	1003	1063
2:14:00	1082	1058	1036	1075	1094	1098	1060	1073	1005	1065
2:15:00	1084	1059	1033	1076	1093	1093	1060	1074	1002	1064


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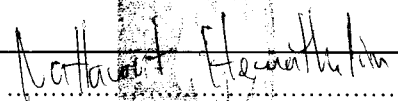
Time (hr:min:sec)	Specimen Temperature(°C)												
	A	B	C	D	E	F	G	H	I	J	K Roving	Max. (A-K)	Average (A-E)
0:00:00	28	27	27	27	27	27	27	27	27	27	-	28	27
0:01:00	27	27	27	27	27	27	27	27	27	27	-	27	27
0:02:00	27	27	27	27	27	27	27	27	27	27	-	27	27
0:03:00	28	27	27	27	27	27	27	27	27	27	-	28	27
0:04:00	28	27	27	27	27	27	27	27	27	27	-	28	27
0:05:00	27	27	27	-	27	27	27	27	27	27	-	27	27
0:06:00	27	27	27	-	27	27	27	27	27	27	-	27	27
0:07:00	28	27	27	-	27	27	27	27	27	27	-	28	27
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0:10:00	27	27	27	-	27	27	27	27	27	27	-	27	27
0:11:00	28	28	27	27	27	28	28	27	27	27	-	28	27
0:12:00	27	28	27	27	27	28	28	28	27	27	-	28	27
0:13:00	28	28	28	27	27	28	29	28	28	28	-	29	28
0:14:00	27	29	28	27	27	28	29	28	28	28	-	29	28
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0:17:00	28	31	29	28	28	30	31	28	28	28	-	31	29
0:18:00	28	32	30	28	28	31	32	29	29	28	-	32	29
0:19:00	27	33	31	28	28	32	33	29	29	28	-	33	29
0:20:00	28	34	32	29	28	33	34	29	29	28	-	34	30
0:21:00	28	35	33	29	28	35	36	29	30	28	-	36	31
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0:23:00	28	38	38	31	29	38	40	30	31	28	-	40	33
0:24:00	28	40	42	32	29	40	42	31	32	29	-	42	34
0:25:00	28	42	45	33	30	43	43	32	33	29	-	45	36
0:26:00	-	44	48	35	31	45	45	33	34	29	-	48	39
0:27:00	-	47	51	36	31	47	47	34	35	29	-	51	41
0:28:00	-	49	54	38	33	49	49	35	37	30	-	54	43
0:29:00	-	50	56	40	35	51	50	37	38	30	-	56	45
0:30:00	-	52	59	42	37	53	52	38	40	31	-	59	47
0:31:00	-	54	61	44	39	55	53	40	42	31	-	61	50
0:32:00	-	55	63	46	41	57	54	41	43	32	-	63	51
0:33:00	-	57	64	49	43	58	56	42	45	33	-	64	53
0:34:00	-	58	66	51	45	60	57	44	46	33	-	66	55
0:35:00	-	59	67	53	47	61	58	45	47	34	-	67	56
0:36:00	-	60	68	54	48	62	59	46	49	34	-	68	58
0:37:00	-	61	69	56	50	63	60	47	50	35	-	69	59
0:38:00	-	62	70	58	51	64	61	48	51	36	-	70	60
0:39:00	-	62	70	59	52	65	62	49	52	36	-	70	61
0:40:00	-	63	71	60	53	65	62	50	53	37	-	71	62
0:41:00	-	63	72	61	53	66	63	51	54	38	-	72	62
0:42:00	-	64	72	62	54	66	64	52	54	39	-	72	63
0:43:00	-	64	73	63	54	67	64	53	55	39	-	73	64
0:44:00	-	64	74	64	55	67	65	53	56	40	-	74	64
0:45:00	-	64	76	65	55	68	65	54	56	41	-	76	65
0:46:00	-	64	79	66	56	68	65	54	56	42	-	79	66
0:47:00	-	65	83	67	57	68	66	54	57	43	-	83	68
0:48:00	-	65	85	69	58	69	66	55	57	43	-	85	69
0:49:00	-	65	87	70	59	69	66	55	58	44	-	87	70
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0:51:00	-	66	89	73	62	71	67	56	58	46	-	89	73
0:52:00	-	66	90	75	65	72	67	56	58	47	-	90	74
0:53:00	-	66	91	76	67	73	67	56	59	48	-	91	75
0:54:00	-	67	92	78	73	74	67	56	59	48	-	92	77
0:55:00	-	68	93	79	77	75	67	56	59	49	-	93	79
0:56:00	-	68	94	82	80	77	67	56	60	49	-	94	81
0:57:00	-	69	97	84	82	80	68	56	60	50	-	97	83
0:58:00	-	71	101	86	83	82	68	56	60	52	-	101	85
0:59:00	-	76	105	88	84	84	68	57	64	56	-	105	88


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Time (hr:min:sec)	Specimen Temperature(°C)												Max. (A-K)	Average (A-E)
	A	B	C	D	E	F	G	H	I	J	K Roving			
1:00:00	-	80	109	89	84	86	68	57	71	61	-	109	90	
1:01:00	-	82	112	89	84	86	69	58	76	64	-	112	92	
1:02:00	-	84	115	90	84	87	69	58	79	66	-	115	93	
1:03:00	-	84	118	90	84	87	69	59	81	68	-	118	94	
1:04:00	-	85	120	91	84	88	73	62	82	69	-	120	95	
1:05:00	-	85	123	91	84	88	79	66	82	69	-	123	96	
1:06:00	-	86	125	91	85	88	82	71	83	69	-	125	97	
1:07:00	-	86	128	92	85	88	85	73	83	69	-	128	97	
1:08:00	-	86	130	92	85	88	86	75	84	69	-	130	98	
1:09:00	-	86	132	93	86	89	87	76	84	70	-	132	99	
1:10:00	-	86	134	93	87	89	87	77	84	69	-	134	100	
1:11:00	-	86	136	94	88	89	88	77	84	69	-	136	101	
1:12:00	-	86	137	95	89	90	88	77	84	69	-	137	102	
1:13:00	-	86	139	95	91	90	88	78	84	70	-	139	103	
1:14:00	-	86	141	96	92	92	88	78	84	70	-	141	104	
1:15:00	-	86	148	98	95	93	88	78	84	70	-	148	106	
1:16:00	-	86	156	99	97	94	88	77	83	69	-	156	109	
1:17:00	-	86	163	101	100	95	88	77	83	68	-	163	113	
1:18:00	-	86	170	104	103	97	88	78	83	70	-	170	116	
1:19:00	-	86	176	106	104	99	88	78	83	70	-	176	118	
1:20:00	-	86	183	108	105	101	88	78	84	70	-	183	120	
1:21:00	-	86	189	109	105	102	88	77	84	69	-	189	122	
1:22:00	-	86	195	111	106	104	88	78	84	71	-	195	124	
1:23:00	-	87	200	112	107	105	88	78	84	71	-	200	126	
1:24:00	-	87	204	114	107	107	88	78	83	71	-	204	128	
1:25:00	-	87	210	116	108	108	88	78	83	70	-	210	130	
1:26:00	-	87	216	117	108	108	88	78	82	69	-	216	132	
1:27:00	-	88	222	119	109	109	88	78	82	70	-	222	134	
1:28:00	-	88	228	120	110	110	88	77	81	70	-	228	137	
1:29:00	-	90	234	121	111	111	88	78	82	71	-	234	139	
1:30:00	-	91	240	122	111	112	87	77	82	72	-	240	141	
1:31:00	-	94	245	123	112	112	88	78	82	72	-	245	144	
1:32:00	-	98	249	124	113	113	87	77	82	73	-	249	146	
1:33:00	-	101	254	125	114	114	87	78	82	75	-	254	148	
1:34:00	-	104	258	125	115	115	88	78	82	78	-	258	150	
1:35:00	-	105	261	126	116	116	88	78	82	81	-	261	152	
1:36:00	-	106	265	127	117	117	88	78	82	85	-	265	154	
1:37:00	-	106	269	128	120	118	88	78	83	90	-	269	156	
1:38:00	-	107	272	132	123	119	88	78	83	92	-	272	158	
1:39:00	-	108	275	138	127	120	87	78	84	94	-	275	162	
1:40:00	-	109	279	143	131	121	87	78	85	95	-	279	165	
1:41:00	-	109	282	147	135	123	87	79	85	95	-	282	168	
1:42:00	-	110	285	152	139	125	87	79	87	94	-	285	171	
1:43:00	-	111	288	156	143	128	88	80	89	94	-	288	175	
1:44:00	-	112	291	161	147	131	88	80	91	93	-	291	177	
1:45:00	-	113	295	166	151	136	88	80	95	94	-	295	181	
1:46:00	-	113	299	171	156	141	89	81	100	95	-	299	185	
1:47:00	-	114	305	176	164	146	89	81	102	95	-	305	190	
1:48:00	-	115	311	181	170	150	89	81	102	96	-	311	194	
1:49:00	-	116	317	186	176	156	90	81	102	96	-	317	198	
1:50:00	-	117	323	191	182	162	90	82	102	95	-	323	203	
1:51:00	-	118	328	197	185	167	91	83	102	96	-	328	207	
1:52:00	-	119	330	202	189	172	92	84	102	96	-	330	210	
1:53:00	-	120	331	207	192	177	92	85	102	95	-	331	213	
1:54:00	-	122	335	213	195	181	94	87	102	95	-	335	216	
1:55:00	-	123	339	219	198	186	95	90	102	95	-	339	220	
1:56:00	-	124	344	225	202	190	97	94	103	95	-	344	224	
1:57:00	-	128	356	230	205	194	100	98	103	95	-	356	230	
1:58:00	-	131	369	236	209	199	102	99	103	94	-	369	236	
1:59:00	-	135	383	241	211	203	104	99	103	95	-	383	242	


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Time (hr:min:sec)	Specimen Temperature(°C)												Max. (A-K)	Average (A-E)
	A	B	C	D	E	F	G	H	I	J	K Roving			
2:00:00	-	139	392	246	215	208	105	99	102	94	-	392	248	
2:01:00	-	143	396	252	218	212	105	100	102	95	-	396	252	
2:02:00	-	148	235	257	221	216	106	100	102	96	-	257	215	
2:03:00	-	153	122	263	223	220	106	100	102	96	-	263	190	
2:04:00	-	158	73	267	227	224	107	100	102	96	-	267	181	
2:05:00	-	162	59	272	230	228	107	100	103	96	-	272	181	
2:06:00	-	165	57	277	232	232	108	100	104	96	-	277	183	
2:07:00	-	167	56	282	234	236	108	100	107	96	-	282	185	
2:08:00	-	171	56	286	237	239	109	100	109	96	-	286	188	
2:09:00	-	173	56	291	239	243	109	100	112	95	-	291	190	
2:10:00	-	176	57	295	241	246	109	100	113	96	-	295	192	
2:11:00	-	178	57	299	244	250	110	100	114	96	-	299	194	
2:12:00	-	181	59	303	246	253	110	100	118	96	-	303	197	
2:13:00	-	183	59	307	248	257	111	100	122	94	-	307	199	
2:14:00	-	185	60	310	250	261	111	100	126	96	-	310	201	
2:15:00	-	187	60	313	251	264	112	100	130	99	-	313	203	



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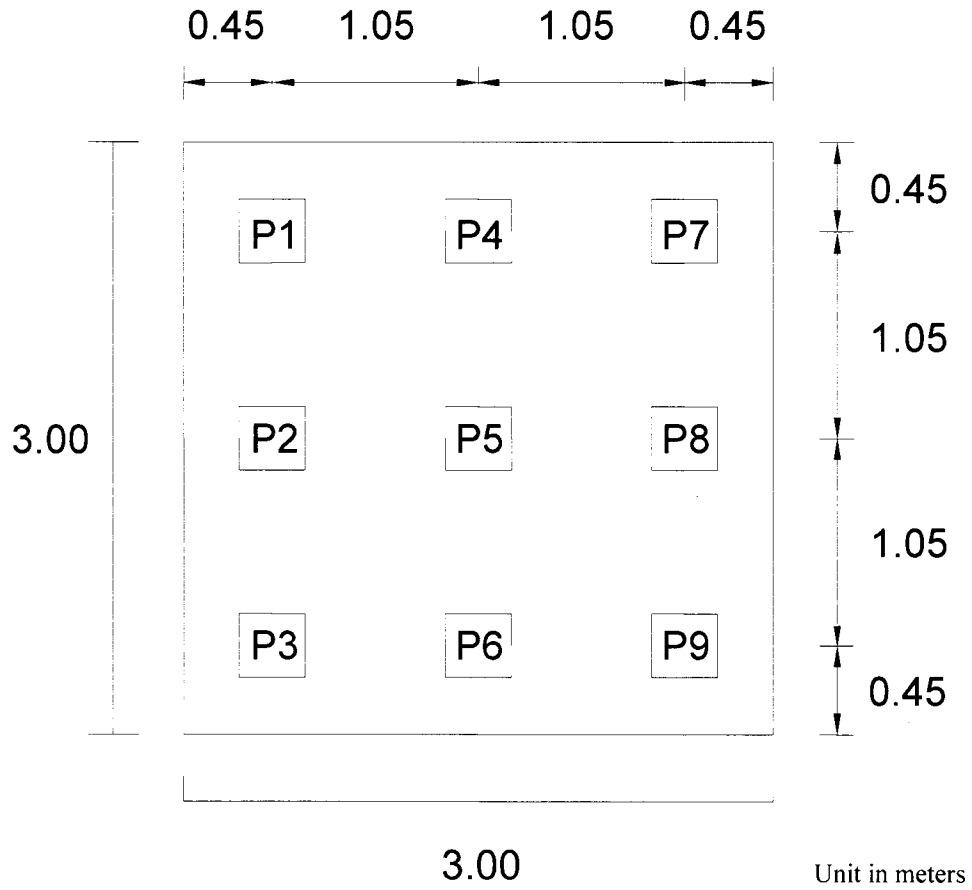


Figure A-1: Details of the furnace

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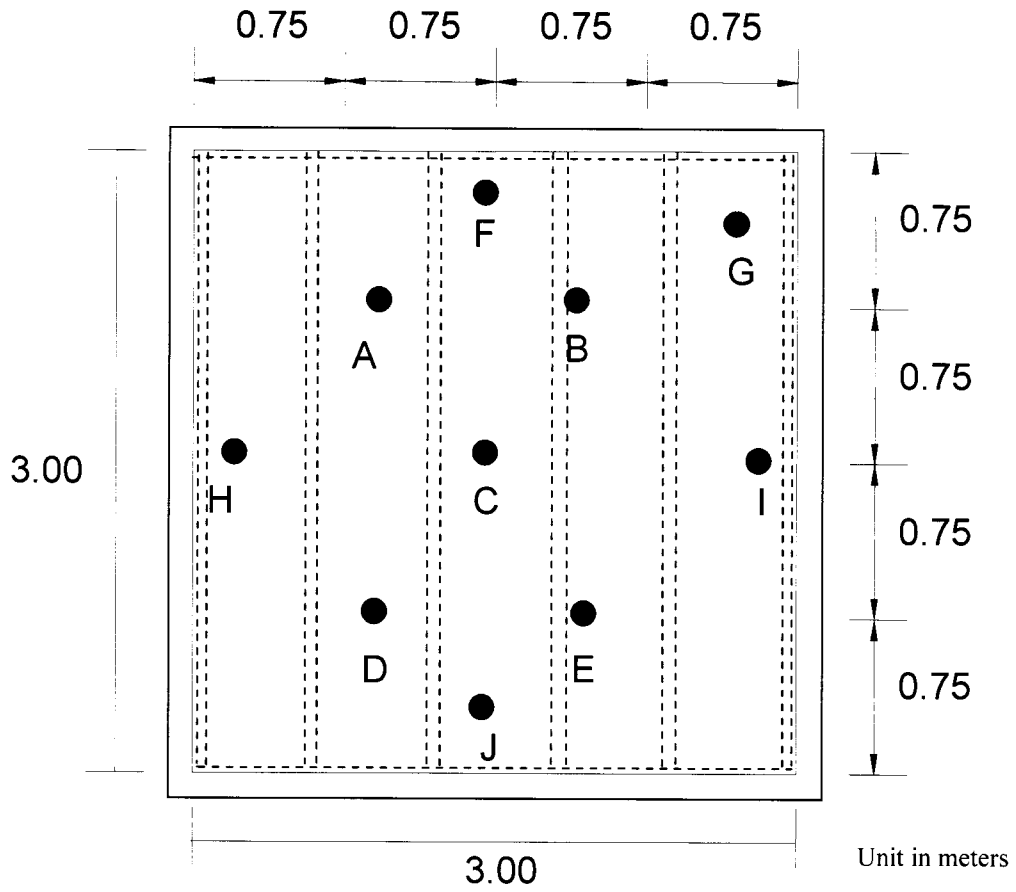
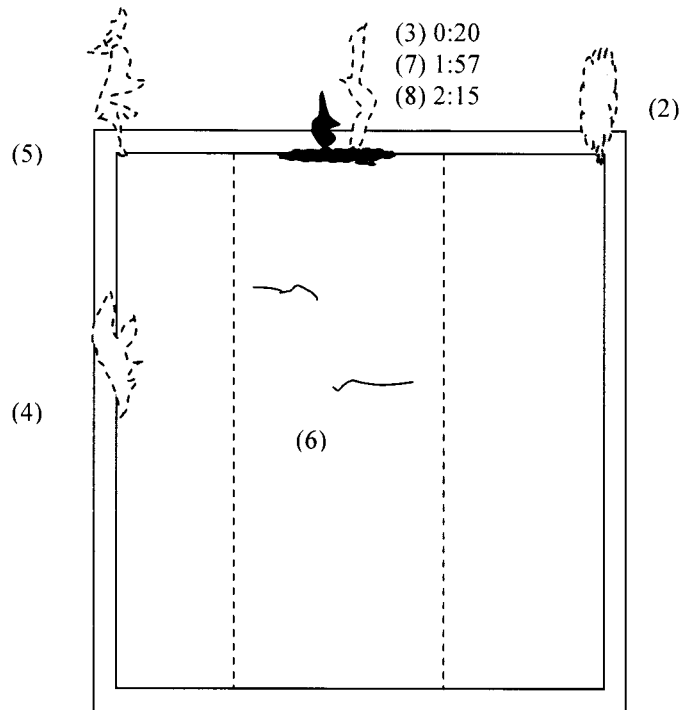


Figure A-2: Location of thermocouples on the specimen

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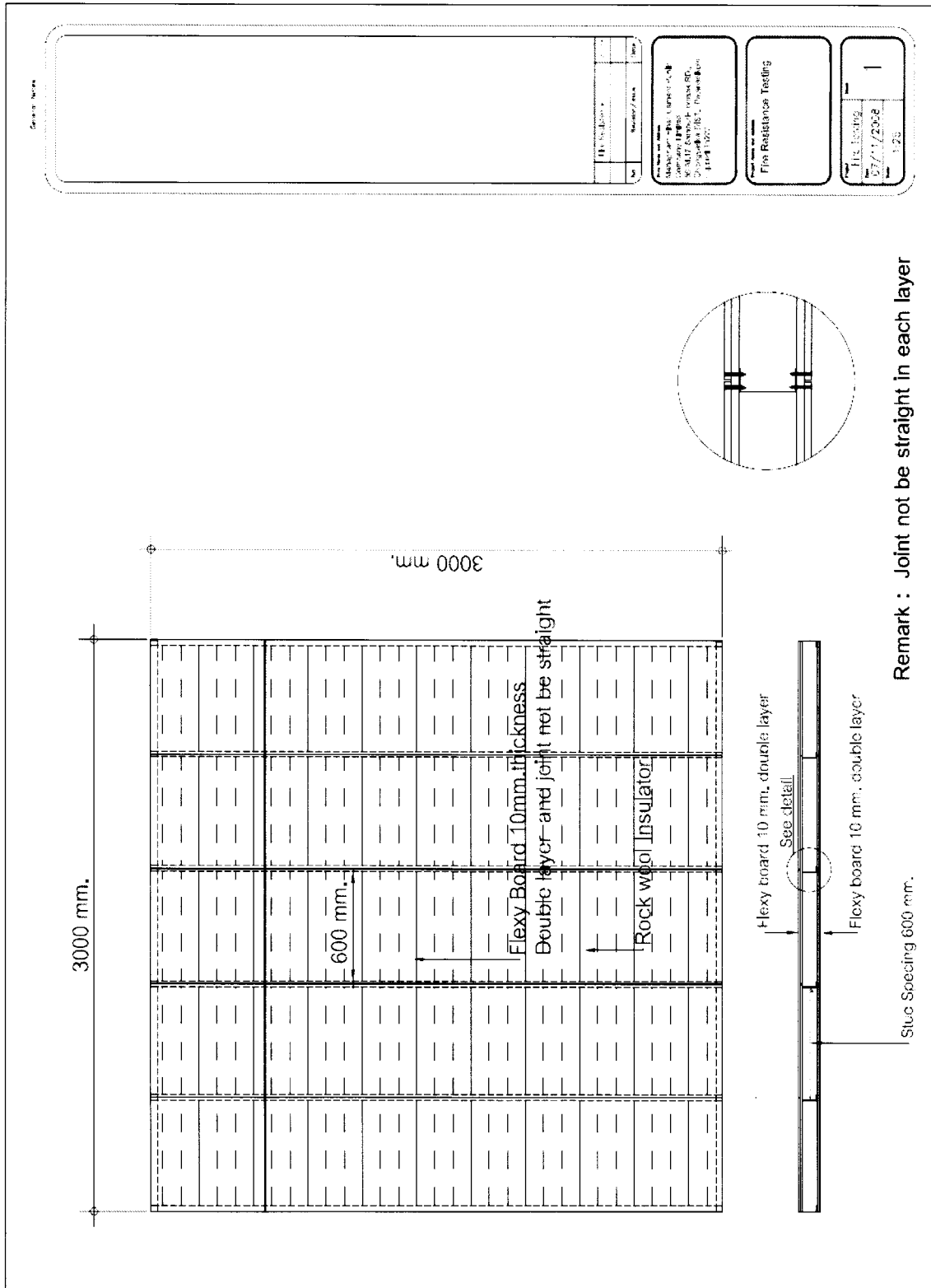
APPENDIX B: OBSERVATIONS

No.	Time (hr:min)	Observations
1	0:05	Sound of cracking from within the furnace
2	0:12	Smoke leaking from the top-right corner of the specimen
3	0:20	Smoke leaking from the top edge of the specimen
4	1:10	Smoke leaking from the left edge of the specimen
5	1:15	Smoke leaking from the top-left corner of the specimen
6	1:32	Gap and dark spots were observed at the middle part of the specimen.
7	1:57	A gap was observed at the top edge of the specimen.
8	2:15	Integrity failed. The specimen had a passage of flame or gases hot enough to ignite the cotton pad.
9	2:16	The test was terminated.



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APPENDIX C: DRAWINGS & DETAILS OF THE SPECIMEN



Remark : Joint not be straight in each layer

Figure C-1: Details of the specimen (as provided by the client)

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APPENDIX D: PHOTOGRAPHS

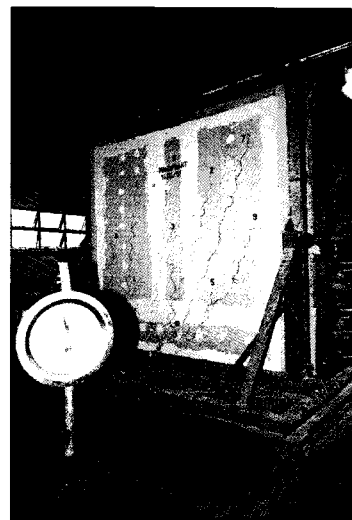
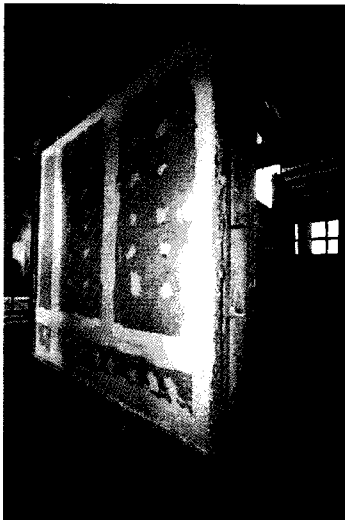
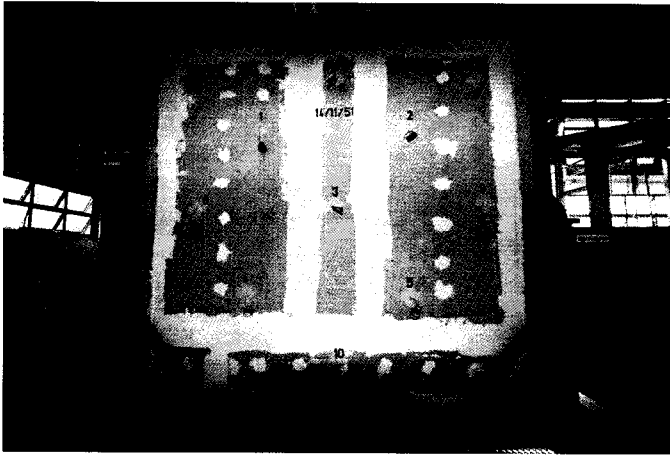
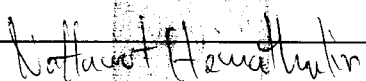
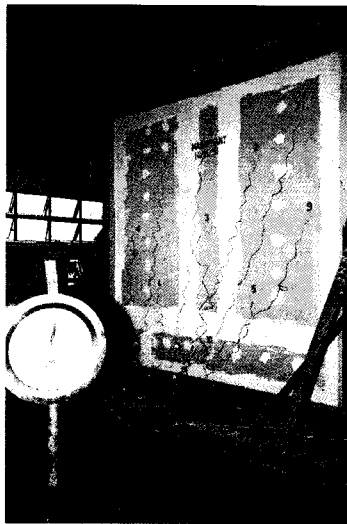
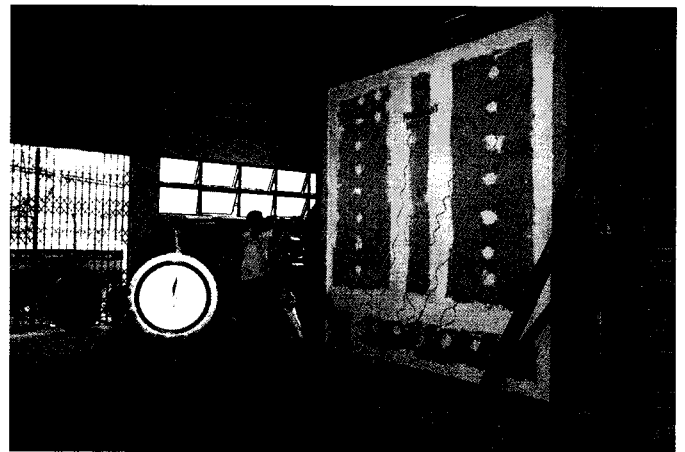


Figure D-1: Specimen preparation prior to testing

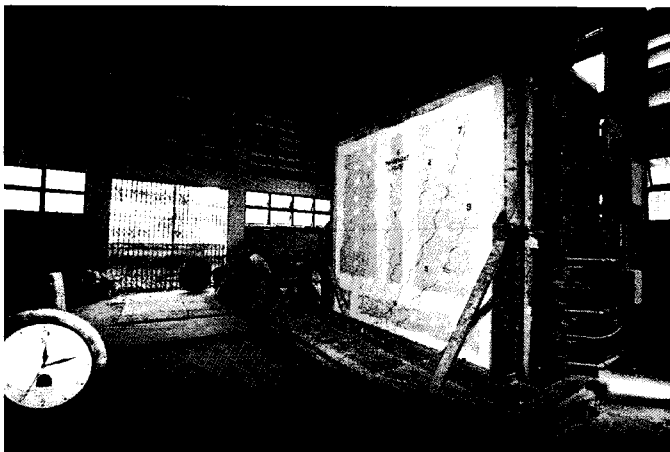

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(a) 0:01 hr



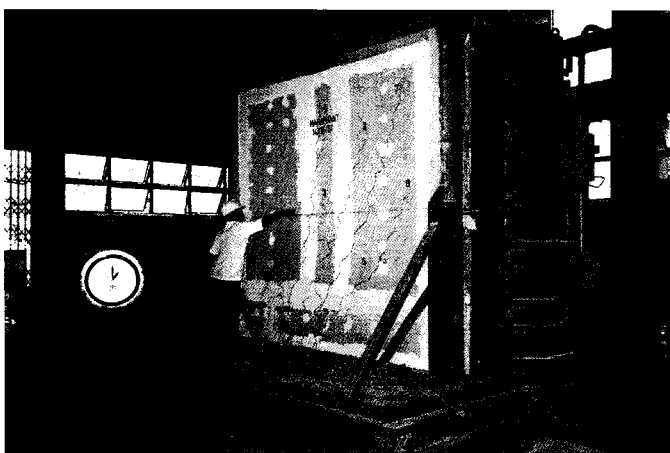
(b) 0:02 hr



(c) 0:12 hr



(d) 0:40 hr



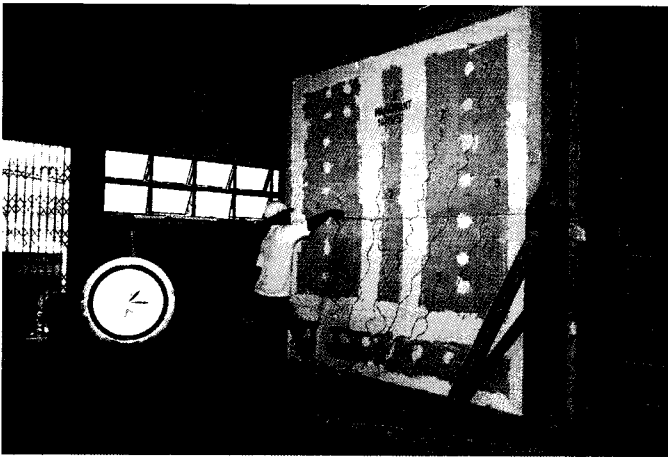
(e) 1:00 hr



(f) 1:12 hrs

Figure D-2: The specimen during testing

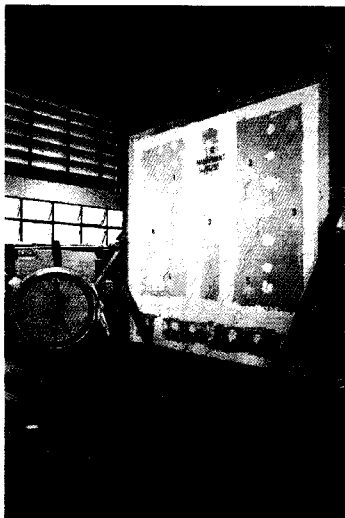
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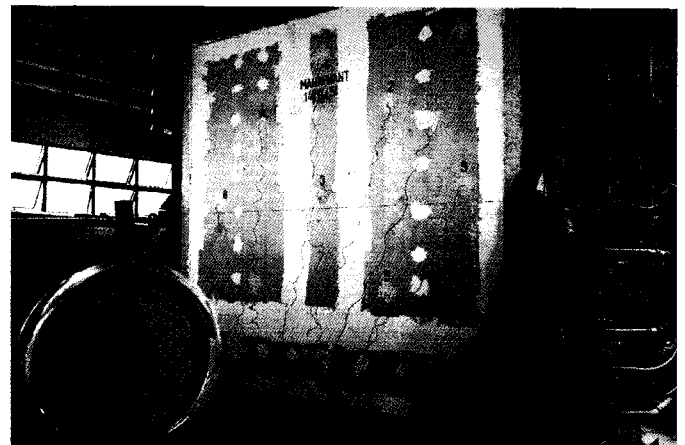
(g) 1:15 hrs



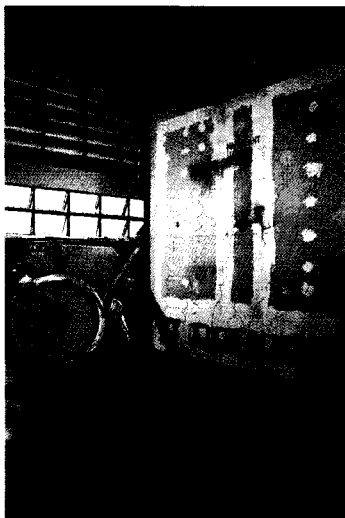
(h) 1:17 hrs



(i) 1:20 hrs



(j) 1:32 hrs



(k) 1:52 hrs



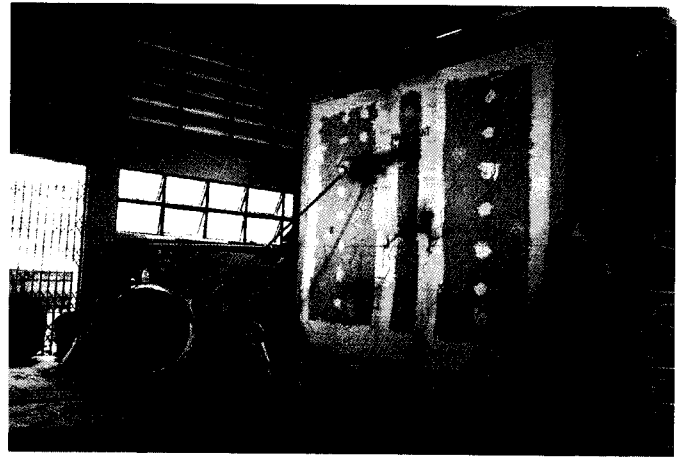
(l) 1:53 hrs

Figure D-2 (continued): The specimen during testing

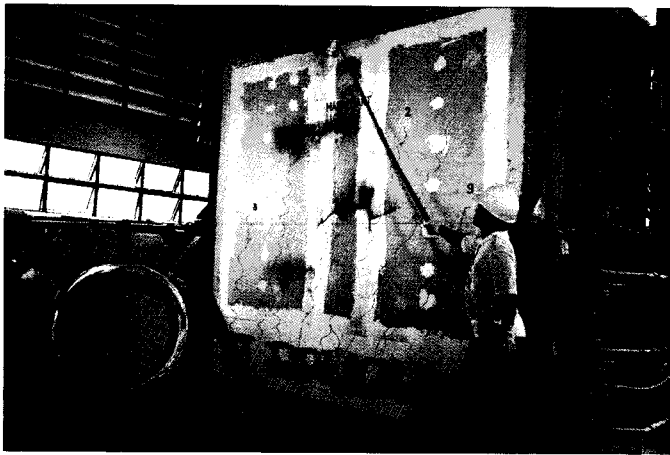
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(m) 1:55 hrs



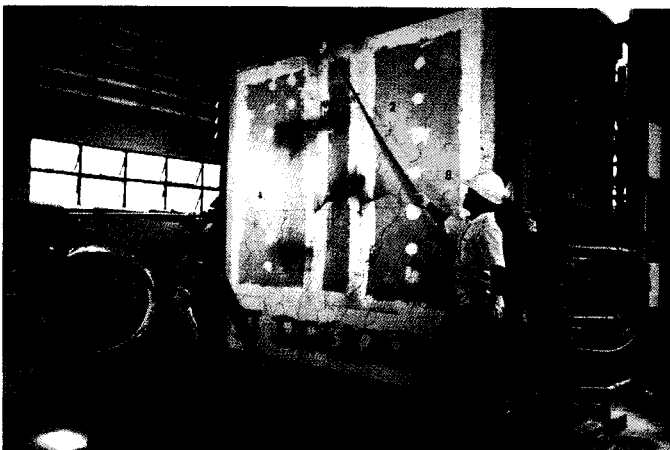
(n) 1:56 hrs



(o) 1:57 hrs



(p) 2:00 hrs



(q) 2:01 hrs



(r) 2:10 hrs

Figure D-2 (continued): The specimen during testing

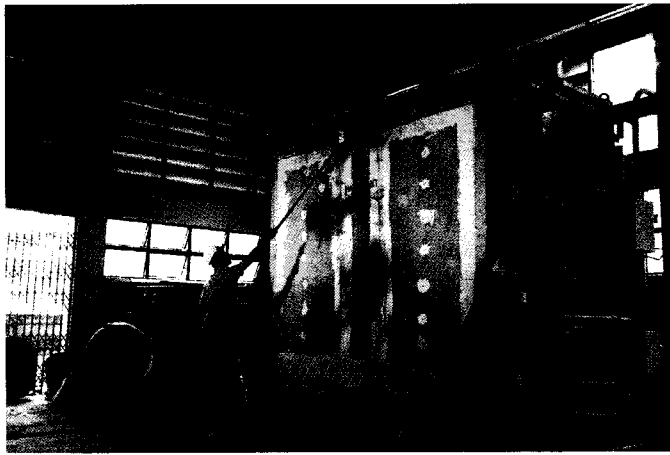
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.....
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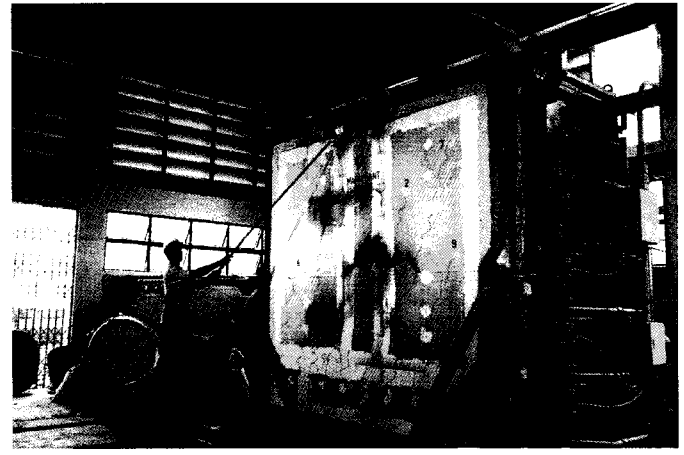
(s) 2:13 hrs



(t) 2:14 hrs

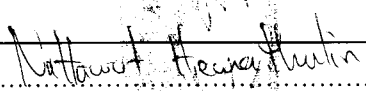


(u) 2:15 hrs



(v) 2:16 hrs

Figure D-2 (continued): The specimen during testing


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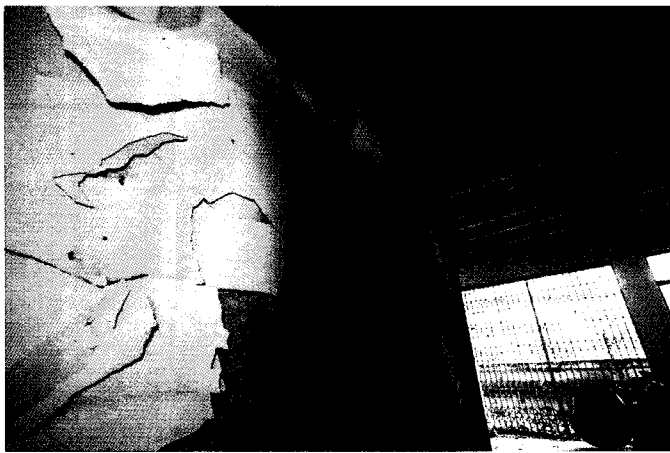
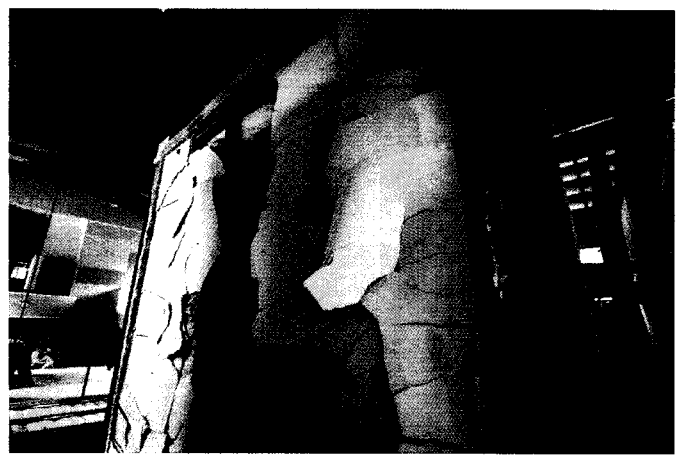
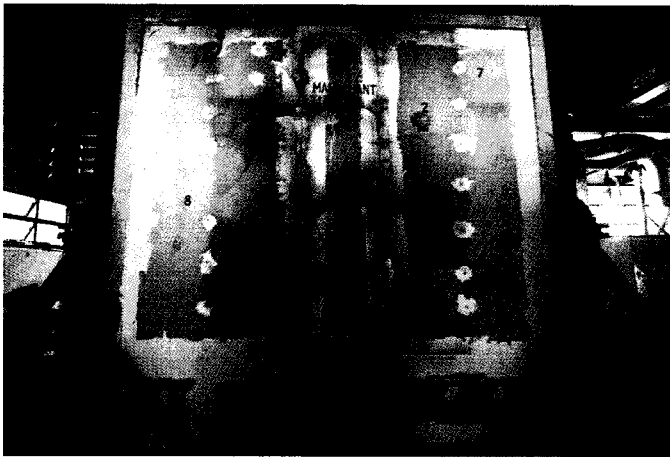


Figure D-3: The specimen after testing

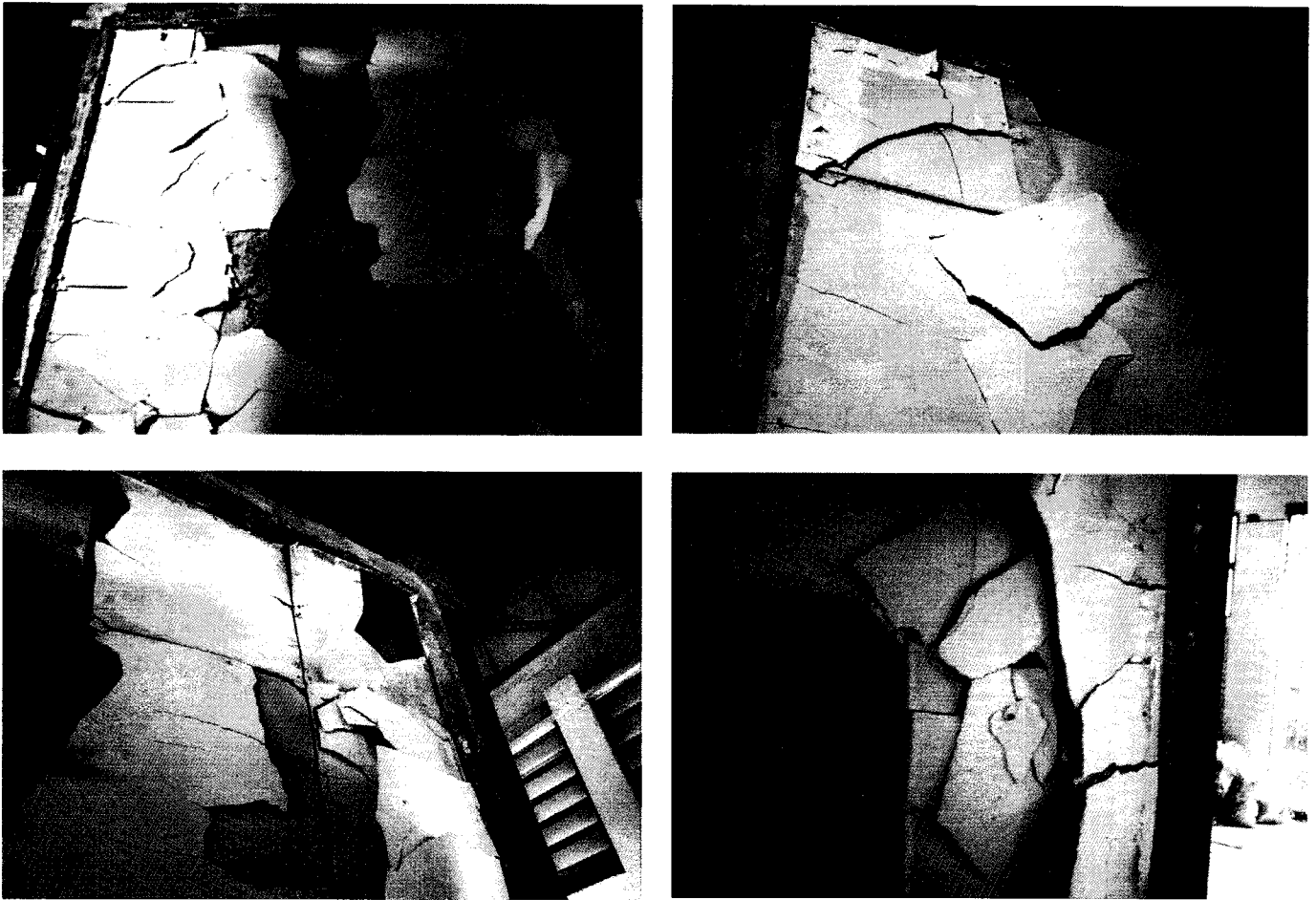


Figure D-3 (continued): The specimen after testing

Nattawat Houngthai / s.
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[Barcode]