



October 21, 2005

05CA38506

An affiliate of Underwriters Laboratories Inc.

Mr. Victor Amend
President, C.E.O.
AMVIC Building System
501 McNicoll Avenue
Toronto, ON
M2H 2E2

Subject: 15 Minute Stay-in-Place Fire Test

Dear Mr. Amend:

On October 20, 2005, ULC conducted a 15 minute stay-in-place fire test on the AMVIC insulated concrete wall system. Testing was conducted in accordance with CAN/ULC-S101-04 and ASTM E119-00a, "Standard Test Methods for Fire Tests of Building Construction and Materials".

CONSTRUCTION DETAILS

The AMVIC Insulated Concrete Forms 406 mm high by 1219 mm long and with a 150 mm thick cavity were assembled to form a 3050 by 3050 mm wall concrete form. The wall forms comprised 63 mm thick EPS boards with webs spaced 152 mm OC horizontally. The vertical ends were capped and concrete with a 28 day compressive strength of 20 Mpa and a slump of 150 mm was poured into the form.

After six weeks of curing, the exposed surface of the wall system was protected with ½ in. (12.7 mm) thick, 1220 by 2440 mm sheets of Firecode C Type X gypsum wallboard manufactured by CGC. Wallboard was fixed to the 38 mm wide flange of the high density polypropylene webs using 76 mm long, No. 8 drywall screws installed 300 mm OC horizontally and 200 mm OC vertically. The web flange is ½ in. (12.7 mm) below the surface of the EPS insulation. The joints between the wallboards and the screw heads were filled with two applications of quick drying joint compound. The wallboard fully covered the vertical surface of the EPS insulation.

FIRE TEST

The furnace was fired in accordance with the standard time/temperature curve contained in the standard Methods of Fire Endurance Tests of Building Construction and Materials, CAN/ULC-S101-04 and ASTM E119-00a, using a vertical panel furnace and other test equipment prescribed by the Standards. The fire in the panel furnace was luminous and well distributed. The temperatures in the furnace were monitored by twelve equally spaced thermocouples. Temperature readings were recorded every 15 seconds for the first 10 minutes of the test and every minute thereafter. See figure 1 for details. The test was continued for 15 minutes.

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OBSERVATIONS (EXPOSED SIDE)

TIME (min.)	EXPOSED SIDE
0:00	Start test
1:00	Ignition and charring of paper on gypsum board
5:00	Drywall compound beginning to fall off screw heads
7:30	Larger pieces of compound falling off screw heads
8:30	More compound falling off screw heads and joints
11:30	Slight bulging of wallboard at top/centre of wall
15:00	Gas off

There were no changes to the surface of the wall not exposed to the fire throughout the 15 minutes of the test.

RESULTS

Following the 15 minute fire exposure, the gas was turned off and the test frame removed from the furnace. The gypsum board remained in place and there were no through openings in the gypsum board panels themselves. The majority of the joint compound had fallen off and joints between adjacent panels had separated by approximately 6 mm. See Figures 2 and 3 representing exposed surface of test sample before and after the test respectively.

The issuance of this Report in no way implies Listing, Classification or Recognition by ULC and does not authorize the use of ULC Listing, Classification or Recognition Marks or any other reference to ULC on or in connection with the product or system.

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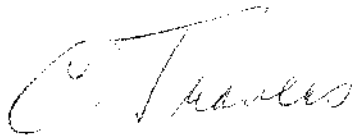
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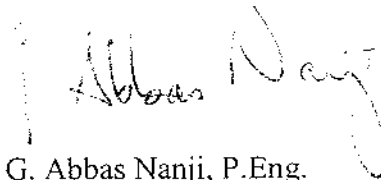
Information conveyed by this Report applies only to the specimens actually involved in this test. A representative of ULC did not witness the manufacture of the materials used in the test. ULC has not established a factory follow-up service program to determine the conformance of subsequently produced material, nor has any provision been established to apply any registered mark of ULC to such material.

Report by:



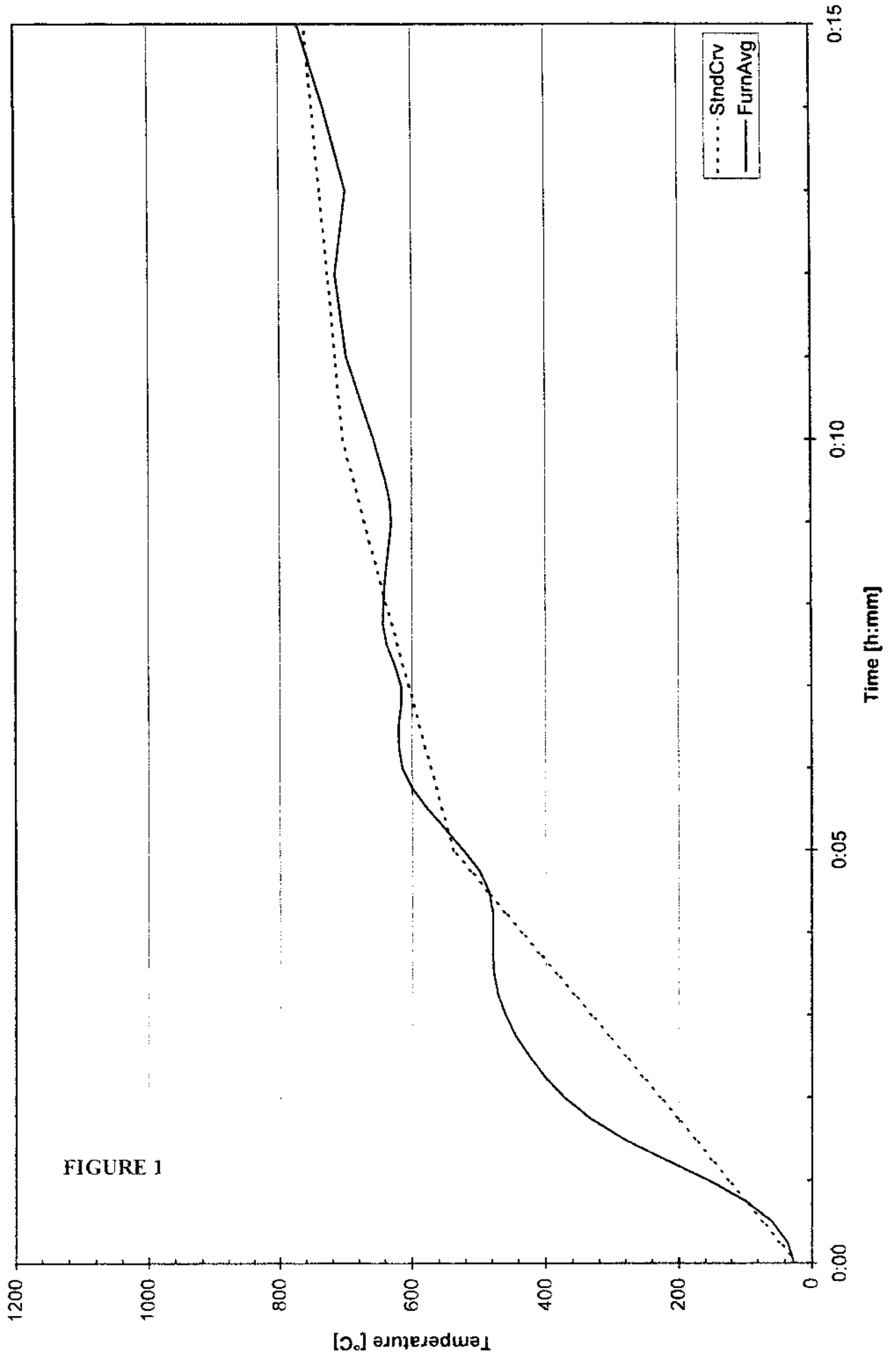
Claude Travers, P.Eng.
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Reviewed by:



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Engineering Group Leader
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AMVIC
Furnace Time-Temperature Curve



AMVIC
FURNACE TIME-TEMPERATURE DATA

t (h:mm:ss)	StdCrv	FurnAvg	%Area	Furn01	Furn02	Furn03	Furn04	Furn05	Furn06	Furn07	Furn08	Furn09
0:00:00	20	26	0.0	26	25	25	27	26	34	26	25	27
0:00:15	46	35	-18.2	43	38	33	35	36	41	36	29	32
0:00:30	72	58	-28.8	85	71	53	60	69	66	65	41	47
0:00:45	98	98	-18.5	161	130	84	104	125	105	112	65	71
0:01:00	124	155	-2.6	255	217	128	164	209	153	171	108	106
0:01:15	150	220	14.2	340	313	179	232	302	208	233	173	147
0:01:30	175	283	29.0	408	404	232	297	386	262	289	244	189
0:01:45	201	334	40.2	459	478	282	351	447	309	334	302	231
0:02:00	227	372	47.5	493	521	327	392	479	347	367	343	267
0:02:15	253	401	51.5	525	543	368	424	496	379	392	371	298
0:02:30	279	424	53.0	570	555	403	453	506	396	413	393	321
0:02:45	305	444	52.9	631	556	421	493	508	399	446	406	333
0:03:00	331	459	51.6	686	553	429	535	509	396	481	416	339
0:03:15	357	471	49.5	724	551	431	568	513	389	508	424	342
0:03:30	383	477	46.8	730	553	431	582	518	382	517	434	342
0:03:45	409	479	43.6	722	557	431	581	525	375	515	446	343
0:04:00	434	479	40.1	681	561	431	573	534	369	509	459	343
0:04:15	460	479	36.3	660	567	431	565	543	365	503	472	344
0:04:30	486	484	32.6	650	580	432	559	560	360	498	487	345
0:04:45	512	499	29.1	645	614	434	562	603	367	502	517	354
0:05:00	538	523	26.0	641	647	439	571	646	399	513	554	379
0:05:15	546	549	23.5	635	676	447	580	684	448	525	592	418
0:05:30	555	576	21.7	630	699	456	591	717	502	540	627	460
0:05:45	563	599	20.4	626	722	466	601	743	550	554	657	501
0:06:00	571	614	19.4	621	736	475	607	750	584	565	674	533
0:06:15	580	619	18.6	615	738	482	608	741	604	567	676	552
0:06:30	588	620	17.8	609	739	488	606	732	619	566	674	564
0:06:45	596	616	16.9	602	695	494	602	724	631	563	671	572
0:07:00	604	616	16.1	595	672	502	599	723	642	560	670	581
0:07:15	613	625	15.3	593	669	513	600	736	663	561	681	599
0:07:30	621	637	14.5	592	673	526	606	750	683	568	696	620
0:07:45	629	643	13.9	590	672	537	610	750	696	573	701	634
0:08:00	638	642	13.3	586	667	544	609	741	700	574	697	639
0:08:15	646	640	12.6	582	662	550	609	730	703	574	690	641
0:08:30	654	637	11.9	580	658	553	608	720	704	573	682	642
0:08:45	663	633	11.2	577	656	556	607	711	703	572	674	642
0:09:00	671	630	10.5	574	652	556	605	704	705	571	667	642
0:09:15	679	632	9.7	572	653	558	606	707	712	572	666	648
0:09:30	687	639	9.0	572	656	562	611	715	724	579	672	659
0:09:45	696	648	8.4	572	660	578	617	724	737	591	681	666
0:10:00	704	657	7.8	571	665	602	623	733	749	605	690	669
0:11:00	715	698	6.0	583	691	691	661	771	776	675	733	683
0:12:00	726	715	5.0	621	697	722	682	773	783	708	746	687
0:13:00	738	699	4.1	635	677	710	671	751	758	684	731	670
0:14:00	749	732	3.3	693	705	740	687	804	789	701	771	694
0:15:00	760	770	2.9	743	742	767	723	849	816	736	816	728

All temperatures in °C and pressures in inches of water
Blank entries denote thermocouple malfunction

File SV8867 Project 05CA38506
Test Date: October 20, 2005

AMVIC
FURNACE TIME-TEMPERATURE DATA

t (h:mm:ss)	StdCrv	FurnAvg	%Area	Furn10	Furn11	Furn12	FurnP1	FurnP2	FurnP3
0:00:00	20	26	0.0	26	26	26	-0.076	-0.034	-0.011
0:00:15	46	35	-18.2	33	30	31	-0.144	-0.102	-0.074
0:00:30	72	58	-28.8	53	40	44	-0.025	0.032	0.058
0:00:45	98	98	-18.5	90	63	69	-0.031	0.025	0.054
0:01:00	124	155	-2.6	142	98	114	-0.051	-0.001	0.029
0:01:15	150	220	14.2	202	144	172	-0.047	0.010	0.034
0:01:30	175	283	29.0	260	194	226	-0.047	0.010	0.033
0:01:45	201	334	40.2	307	241	270	-0.057	-0.013	0.018
0:02:00	227	372	47.5	343	279	304	-0.049	0.004	0.029
0:02:15	253	401	51.5	371	311	330	-0.056	-0.011	0.017
0:02:30	279	424	53.0	396	335	350	-0.055	-0.018	0.007
0:02:45	305	444	52.9	421	349	363	-0.054	-0.007	0.019
0:03:00	331	459	51.6	442	357	372	-0.058	-0.017	0.005
0:03:15	357	471	49.5	461	361	380	-0.043	-0.014	0.020
0:03:30	383	477	46.8	478	364	390	-0.057	-0.020	0.020
0:03:45	409	479	43.6	488	368	402	-0.041	0.004	0.025
0:04:00	434	479	40.1	495	372	415	-0.050	-0.005	0.027
0:04:15	460	479	36.3	500	377	428	-0.050	-0.008	0.020
0:04:30	486	484	32.6	508	383	443	-0.031	0.015	0.040
0:04:45	512	499	29.1	528	397	469	-0.063	-0.020	0.015
0:05:00	538	523	26.0	554	426	504	-0.038	0.022	0.039
0:05:15	546	549	23.5	580	464	540	-0.045	0.005	0.033
0:05:30	555	576	21.7	605	505	575	-0.059	-0.015	0.016
0:05:45	563	599	20.4	627	544	604	-0.055	-0.012	0.023
0:06:00	571	614	19.4	640	570	620	-0.060	-0.015	0.011
0:06:15	580	619	18.6	642	581	623	-0.064	-0.016	0.019
0:06:30	588	620	17.8	639	586	622	-0.045	0.002	0.031
0:06:45	596	616	16.9	635	588	620	-0.039	0.003	0.031
0:07:00	604	616	16.1	633	592	622	-0.030	0.022	0.051
0:07:15	613	625	15.3	642	607	636	-0.033	0.022	0.047
0:07:30	621	637	14.5	654	627	652	-0.035	0.009	0.034
0:07:45	629	643	13.9	658	638	657	-0.049	-0.004	0.021
0:08:00	638	642	13.3	657	640	654	-0.038	0.005	0.034
0:08:15	646	640	12.6	654	635	647	-0.049	-0.003	0.027
0:08:30	654	637	11.9	650	630	639	-0.052	-0.006	0.025
0:08:45	663	633	11.2	647	623	631	-0.041	0.011	0.044
0:09:00	671	630	10.5	644	618	626	-0.041	0.004	0.035
0:09:15	679	632	9.7	649	619	627	-0.044	0.005	0.034
0:09:30	687	639	9.0	658	626	633	-0.040	0.003	0.034
0:09:45	696	648	8.4	669	634	642	-0.042	0.003	0.031
0:10:00	704	657	7.8	682	642	652	-0.043	0.006	0.029
0:11:00	715	698	6.0	743	677	699	-0.051	0.000	0.028
0:12:00	726	715	5.0	757	686	713	-0.060	-0.013	0.017
0:13:00	738	699	4.1	732	671	694	-0.055	-0.008	0.021
0:14:00	749	732	3.3	768	699	732	-0.054	0.001	0.028
0:15:00	760	770	2.9	806	737	773	-0.057	0.000	0.029

All temperatures in °C and pressures in inches of water
Blank entries denote thermocouple malfunction

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FIGURE 2

EXPOSED SURFACE BEFORE FIRE TEST



FIGURE 3

EXPOSED SURFACE AFTER FIRE TEST