TEST REPORT

REPORT NUMBER: 3117761SAT-003
ORIGINAL ISSUE DATE: May13, 2008
REVISED DATE: May 15, 2008

EVALUATION CENTER
16015 Shady Falls Road
Elmendorf, TX 78112
(voice) 210-635-8100
(fax) 210-635-8101
www.intertek-etlsemko.com

RENDERED TO

Greenblock Worldwide Corporation
759 S Federal Hwy
Stuart, FL 34994

PRODUCT EVALUATED: Greenblock ICF 6" Fixed-Web Block
EVALUATION PROPERTY: Fire Resistance

Report of Testing Greenblock ICF 6" Fixed-Web Block for compliance with the applicable requirements of the following criteria: ASTM E 119-07a, *Standard Test Method for Fire Tests of Building Construction and Materials*

1 Table of Contents

2 Introduction

Intertek Testing Services NA (Intertek) has conducted testing for Greenblock Worldwide Corp. on Greenblock ICF 6" Fixed-Web Block to evaluate its fire resistance. Testing was conducted in accordance with ASTM E 119-07a, *Standard Test Method for Fire Tests of Building Construction and Materials.* This evaluation took place on May 7, 2008.

3 Test Samples

3.1. SAMPLE SELECTION

Samples were selected on March 30, 2007 by Intertek representative Terry Fackerell at Tegrant Corporation, 1100 Garden of the Gods Road, Colorado Springs, CO 80907. Samples were received at the Evaluation Center in May 2007.

The subject test specimen is a traceable sample selected from the manufacturer's facility. Intertek selected the specimen and has verified the composition, manufacturing techniques and quality assurance procedures.

3.2. SAMPLE AND ASSEMBLY DESCRIPTION

The ICF blocks were production units and were received in good condition, from Lot # 610PO5103 and Lot # 611PO5110.

Greenblock 6" Fixed-Web Block ICF are 48" Length x 11-1/4" Width (6" core) x 12" Height with a measured density of 1.5 pcf. The blocks are made of expanded Polystyrene (EPS) for use in steel reinforced concrete walls.

Representatives of Greenblock Worldwide Crop. constructed a 10-ft x 10-ft wall from the Greenblock 6" Fixed-Web Block with #4 Grade 60 steel rebar placed 24" o.c. both horizontally and vertically. The horizontal bars were centered in the saddles, and the verticals were staggered side to side. The form was then filled with minimum 3,000 psi normal weight concrete and conditioned at elevated temperature to facilitate drying. A small hole was drilled mid-depth into the lower portion of the wall and the relative humidity of the air inside was measured until the wall reached moisture equilibrium. The relative humidity measured 72% at the time of the test. Prior to the test, both the exposed and unexposed surfaces were covered with a single layer of ½" regular gypsum wallboard, oriented vertically and fastened using 1-7/8" drywall screws spaced 12" o.c. vertically and 24" o.c. horizontally.

4 Testing and Evaluation Methods

The Greenblock ICF wall was placed in a frame and attached to a large vertical furnace in the test laboratory; the test was initiated at 10:00 on May 7, 2008 and ran for 241 minutes minutes.

The ambient humidity was 85% and the temperature was 77ºF, establishing the upper limits for thermocouple average and individual temperatures at 327ºF (77+250) and 402ºF (77+325), respectively.

Twelve probes measured the furnace temperature and 10 thermocouples were installed on the unexposed surface to measure the temperature transmission through the test wall. (See Appendix A). A hydraulic pressure equivalent to a live load of 5,000 pounds per lineal foot was then applied to the wall and maintained throughout the fire and hose stream tests.

Immediately following the fire endurance test, the assembly was removed from the furnace, and the exposed surface was subjected to the impact, cooling and erosion effects of the standard hose stream test. The water stream was applied from a distance of 20 feet, at a pressure of 45 psi for 5 minutes, in compliance with the standards for a 4-hour test.

4.1 TEST STANDARD

The Greenblock 6" Fixed-Web Block ICF was tested in compliance with ASTM E 119-07a, *Standard Test Method for Fire Tests of Building Construction and Materials.*

5 Testing and Evaluation Results

5.1 RESULTS AND OBSERVATIONS

The fire endurance test was initiated at 10:00 A.M. on May 7, 2008 and continued for 241 minutes. The observations of events during the test are presented in the following table.

Time	**Observations: Fire Endurance Test**
1:30	Paper on the wallboard turning dark
1:50	Ignition of the paper
2:10	The wallboard paper was consumed
7:20	Some flaking of the joint compound on the exposed surface was noted
13:30	Some light flaming was noted at the joints on the exposed surface
14:20	The center section of drywall on the exposed surface fell from the wall
15:00	The exposed EPS foam ignited causing a spike in the furnace temperature, even with the gas flow at its lowest setting. The furnace was temporarily cooled with water until the standard time/temperature curve met.
18:00	Popping sounds were heard emanating from the sample (spalling)
26:30	A second section of drywall fell from the wall to the floor of the furnace
37:00	Moisture was noted seeping from the bottom of the wall
60:00-240:00	No visible changes occurred for the remainder of the test
241:00	The fire endurance test was terminated
Time	**Observations: Hose Stream Test**
0:00	The test was initiated
5:00	The test was terminated with a successful outcome

The maximum temperature registered by the thermocouples on the unexposed side of the wall ranged from 113 ^{o}F at TC# 9 to 189^{o}F at TC # 5, well below the allowable limit (402 ^{o}F); The average thermocouple temperature reached 140 ^{o}F, also well below the upper limit (327 ^{o}F).

The wall was removed from the furnace and the exposed surface was subjected to a stream of water at a pressure of 45 psi, from a distance of 20 feet, for 5 minutes. The wall remained intact with no projection of water through the surface.

The deflection of the surface was measured during the span of the test; The amount of that deflection is presented in the table below.

Surface Deflection (inches)

Time (min)	Location 1	Location 2	Location 3
0:00 Without load	1 7/8	1 7/8	1 7/8
0:00 With load	1 7/8	1 7/8	1 7/8
39:00	5/8	5/8	5/8
67:00	¾	¾	¾
87:00	¾	¾	¾
122:00	¾	¾	¾
155:00	7/8	7/8	7/8
185:00	7/8	7/8	7/8
209:00	7/8	7/8	7/8
230:00	7/8	7/8	7/8

The wall withstood the load and the heat of the furnace for 241 minutes without passage of flame or gases hot enough to ignite cotton waste. It also withstood the effects of the 5-minute hose stream test without the passage of water through the unexposed surface. The wall achieved a fire resistance rating of 4 hours while maintaining a live load of 5,000 plf.

5.1 EXAMINATION OF RESULTS

In accordance with the E119 test standard, a calculation for any correction to the indicated fire resistance period was done. The correction factor was then mathematically added to the indicated fire resistance period, yielding the fire resistance period achieved by this specimen:

Correction Factor for the Fire Endurance Test

ITEM	DESCRIPTION	TEST VALUE
C	correction factor	0 minutes 0 seconds
I	indicated fire-resistance period	241 minutes
A	area under the curve of indicated average furnace temperature for the first three fourths of the indicated period	296222 (°F•min)
As	area under the standard furnace curve for the same part of the indicated period	269222 (°F•min)

ITEM	DESCRIPTION	TEST VALUE
L	lag correction	3240
	FIRE RESISTANCE PERIOD ACHIEVED BY THIS SPECIMEN ==>	241 minutes

Note: The standard specifies that the fire resistance be determined to the nearest integral minute. Consequently, if the correction factor is less than 30 seconds, and the test specimen met the criteria for the full indicated fire resistance period, no correction is deemed necessary.

6 Conclusion

Intertek Testing Services NA (Intertek) has conducted testing for Greenblock Worldwide Corporation. A loadbearing wall constructed from Greenblock 6" Fixed-Web Block ICF filled with minimum 3,000 psi concrete, produced, assembled and tested as described herein, successfully met the conditions of acceptance as outlined in ASTM Method E119-07a Fire Tests of Building Construction and Materials for a fire resistance rating of 4 hours, while bearing a live load of 5,000 plf.

.

The conclusions of this test report may be used as part of the requirements for Intertek product certification. Authority to Mark must be issued for a product to become certified.

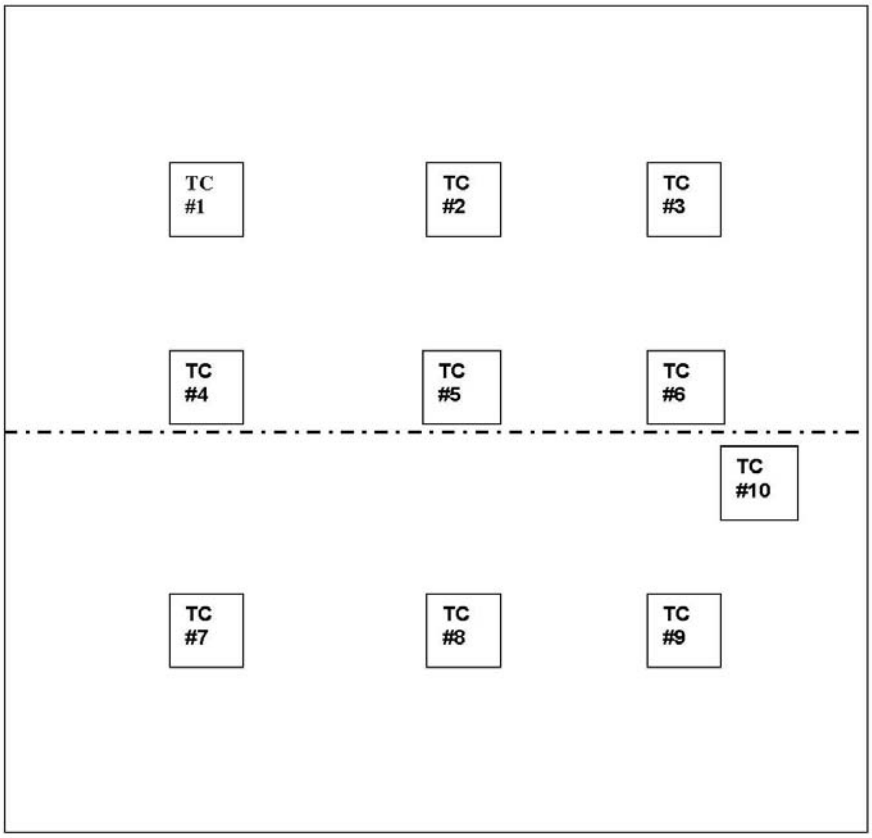
INTERTEK TESTING SERVICES NA

Reported by: _____
Michael A. Brown
Technical Writer

Reviewed by: _____
Mike Dey
Project Manager, Fire Resistance

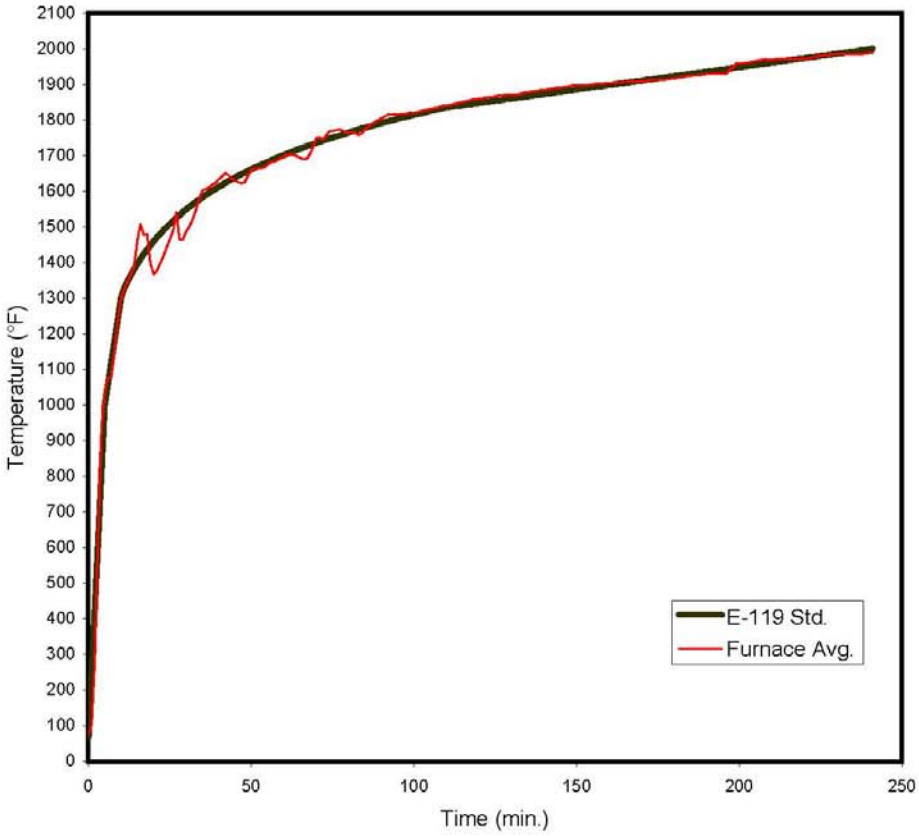
APPENDIX A
Schematics

Wall Assembly:
Layout of Thermocouples and Deflection Measurement Line
On the Unexposed Surface

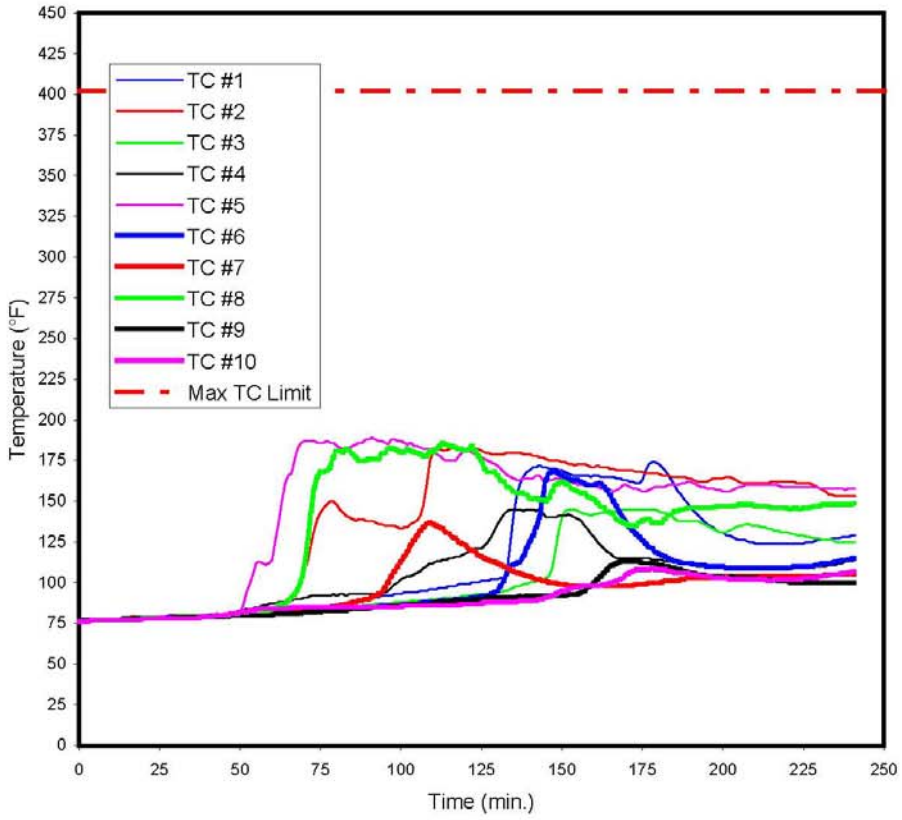


APPENDIX B
Graphs & Data

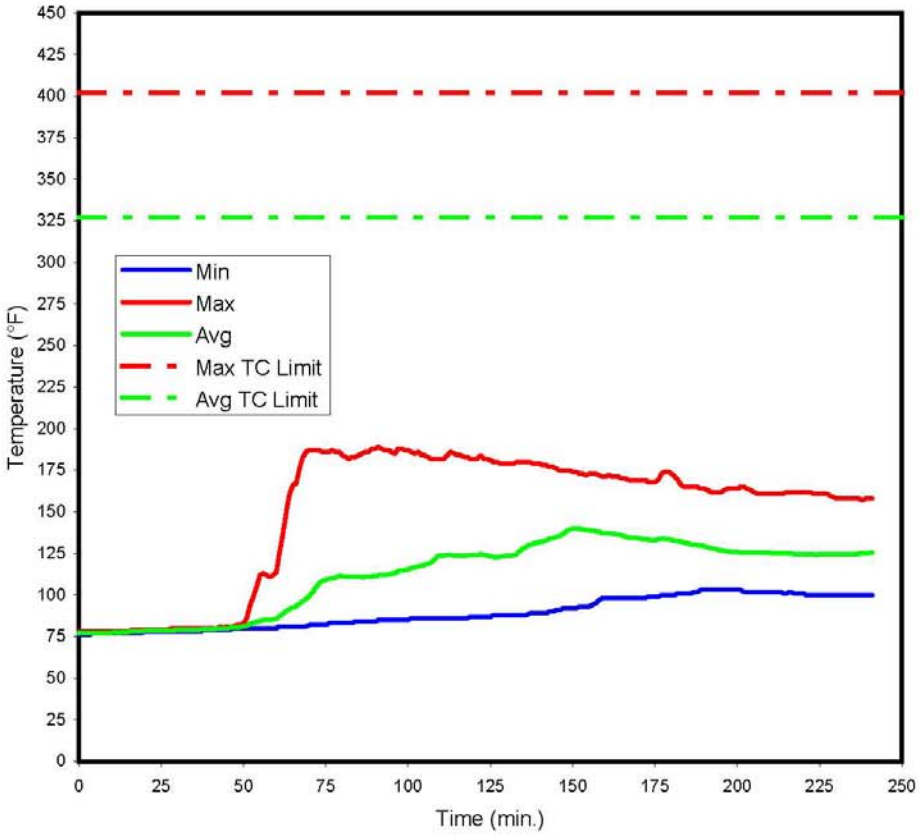
Greenblock Worldwide Corp.
Project No. 3117761-3
7 May 2008
Furnace Interior Temperatures



Greenblock Worldwide Corp.
Project No. 3117761-3
7 May 2008
Individual Cold Side Temperatures



Greenblock Worldwide Corp.
Project No. 3117761-3
7 May 2008
Min, Avg, Max Cold Side Temperatures



Time (min)	E119 Std Average (°F)	Furnace Average (°F)	Integration of Furnace Average (°F•min)	Integration of E119 Std Average (°F•min)	Error (%)	Furnace Probe #1 (°F)	Furnace Probe #2 (°F)	Furnace Probe #3 (°F)	Furnace Probe #4 (°F)	Furnace Probe #5 (°F)
0	68	76	0	0	0.00%	76	77	77	76	76
1	254	105	23	93	-75.86%	89	122	116	115	120
2	441	292	153	373	-58.96%	225	354	314	334	396
3	627	654	558	839	-33.48%	539	700	677	749	803
4	814	936	1285	1491	-13.83%	834	957	960	1007	1037
5	1000	1041	2206	2330	-5.34%	967	1048	1058	1078	1095
6	1060	1077	3197	3292	-2.90%	1018	1078	1090	1102	1106
7	1120	1079	4207	4314	-2.49%	1028	1075	1092	1098	1096
8	1180	1148	5252	5396	-2.67%	1087	1145	1165	1171	1165
9	1240	1237	6377	6538	-2.47%	1173	1236	1255	1264	1248
10	1300	1297	7576	7740	-2.13%	1238	1295	1311	1317	1298
11	1328	1325	8819	8986	-1.86%	1271	1323	1341	1340	1316
12	1347	1346	10086	10255	-1.65%	1294	1344	1358	1358	1334
13	1364	1365	11374	11543	-1.46%	1315	1364	1377	1377	1354
14	1381	1388	12682	12847	-1.29%	1335	1385	1399	1397	1376
15	1396	1460	14038	14167	-0.91%	1397	1459	1458	1475	1482
16	1410	1507	15454	15503	-0.32%	1467	1545	1490	1515	1542
17	1424	1477	16878	16851	0.16%	1432	1504	1473	1473	1471
18	1436	1480	18288	18213	0.41%	1426	1491	1502	1473	1454
19	1448	1399	19660	19587	0.37%	1351	1398	1424	1387	1367
20	1459	1367	20975	20973	0.01%	1317	1361	1408	1354	1329
21	1470	1376	22278	22370	-0.41%	1317	1361	1419	1359	1333
22	1480	1397	23597	23777	-0.76%	1328	1375	1435	1372	1349
23	1490	1417	24936	25194	-1.03%	1340	1389	1450	1386	1367
24	1499	1442	26297	26621	-1.22%	1360	1414	1463	1410	1396
25	1508	1464	27682	28057	-1.34%	1380	1437	1475	1430	1421
26	1517	1489	29091	29502	-1.39%	1407	1466	1492	1458	1452
27	1525	1540	30537	30955	-1.35%	1476	1517	1551	1537	1513
28	1533	1464	31971	32416	-1.37%	1415	1445	1484	1457	1423
29	1541	1464	33367	33886	-1.53%	1398	1449	1478	1445	1428
30	1549	1487	34775	35363	-1.66%	1417	1469	1496	1469	1450
31	1556	1500	36200	36847	-1.76%	1429	1477	1510	1480	1458
32	1563	1521	37643	38338	-1.81%	1450	1494	1531	1501	1476
33	1570	1547	39109	39837	-1.83%	1475	1517	1558	1525	1500
34	1576	1578	40603	41342	-1.79%	1503	1547	1588	1555	1528
35	1583	1602	42125	42853	-1.70%	1525	1570	1613	1577	1553
36	1589	1606	43661	44371	-1.60%	1530	1573	1618	1582	1554
37	1595	1610	45201	45895	-1.51%	1532	1576	1621	1585	1556
38	1601	1617	46747	47424	-1.43%	1537	1582	1626	1590	1562
39	1606	1623	48299	48960	-1.35%	1542	1589	1632	1595	1569
40	1612	1633	49859	50501	-1.27%	1550	1598	1641	1604	1577
41	1617	1641	51428	52048	-1.19%	1558	1606	1648	1612	1585
42	1623	1651	53006	53600	-1.11%	1566	1615	1658	1621	1595
43	1628	1645	54586	55158	-1.04%	1562	1610	1650	1614	1588
44	1633	1635	56158	56720	-0.99%	1554	1601	1640	1604	1579
45	1638	1630	57722	58288	-0.97%	1550	1597	1635	1601	1574

Time (min)	E119 Std Average (°F)	Furnace Average (°F)	Integration of Furnace Average (°F•min)	Integration of E119 Std Average (°F•min)	Error (%)	Furnace Probe #1 (°F)	Furnace Probe #2 (°F)	Furnace Probe #3 (°F)	Furnace Probe #4 (°F)	Furnace Probe #5 (°F)
46	1643	1625	59282	59860	-0.97%	1546	1593	1630	1596	1570
47	1648	1622	60837	61437	-0.98%	1542	1592	1627	1592	1568
48	1652	1624	62392	63019	-1.00%	1544	1593	1629	1593	1571
49	1657	1643	63958	64606	-1.00%	1561	1614	1647	1614	1591
50	1661	1660	65541	66197	-0.99%	1579	1631	1665	1633	1610
51	1666	1663	67135	67792	-0.97%	1582	1634	1667	1636	1611
52	1670	1664	68730	69392	-0.95%	1584	1636	1668	1636	1612
53	1674	1664	70326	70996	-0.94%	1584	1636	1667	1636	1612
54	1678	1667	71924	72604	-0.94%	1586	1640	1670	1639	1616
55	1682	1674	73526	74216	-0.93%	1592	1646	1677	1645	1622
56	1686	1682	75136	75832	-0.92%	1600	1655	1685	1655	1631
57	1690	1683	76751	77452	-0.91%	1603	1657	1687	1658	1632
58	1694	1687	78368	79076	-0.90%	1607	1661	1691	1661	1637
59	1698	1692	79989	80704	-0.89%	1613	1667	1696	1666	1642
60	1701	1697	81616	82336	-0.87%	1618	1672	1700	1670	1646
61	1705	1702	83247	83971	-0.86%	1622	1678	1705	1675	1650
62	1709	1703	84882	85610	-0.85%	1625	1680	1706	1678	1652
63	1712	1702	86516	87252	-0.84%	1625	1680	1706	1678	1652
64	1716	1698	88148	88898	-0.84%	1624	1678	1702	1674	1650
65	1719	1694	89776	90547	-0.85%	1622	1675	1699	1671	1648
66	1722	1690	91400	92200	-0.87%	1614	1673	1687	1661	1646
67	1726	1690	93022	93856	-0.89%	1609	1675	1683	1657	1648
68	1729	1703	94651	95515	-0.91%	1622	1690	1695	1672	1663
69	1732	1723	96296	97178	-0.91%	1639	1712	1714	1691	1684
70	1735	1750	97964	98844	-0.89%	1668	1742	1740	1719	1712
71	1738	1751	99647	100513	-0.86%	1669	1740	1740	1719	1711
72	1742	1745	101327	102185	-0.84%	1663	1733	1736	1713	1706
73	1745	1756	103009	103860	-0.82%	1675	1745	1748	1726	1716
74	1748	1768	104703	105538	-0.79%	1687	1757	1760	1738	1729
75	1751	1769	106404	107219	-0.76%	1688	1758	1762	1739	1730
76	1753	1771	108106	108903	-0.73%	1689	1760	1765	1740	1731
77	1756	1774	109810	110590	-0.71%	1692	1763	1768	1744	1734
78	1759	1771	111515	112280	-0.68%	1690	1760	1766	1740	1730
79	1762	1765	113215	113972	-0.66%	1688	1754	1762	1736	1725
80	1765	1764	114911	115668	-0.65%	1687	1753	1762	1735	1723
81	1768	1764	116607	117366	-0.65%	1688	1754	1762	1736	1724
82	1770	1764	118303	119067	-0.64%	1688	1754	1763	1737	1724
83	1773	1758	119996	120770	-0.64%	1684	1749	1760	1732	1720
84	1776	1762	121688	122476	-0.64%	1691	1754	1763	1736	1725
85	1778	1774	123388	124185	-0.64%	1700	1767	1775	1748	1737
86	1781	1782	125098	125897	-0.63%	1709	1775	1784	1757	1744
87	1783	1789	126816	127611	-0.62%	1714	1781	1791	1764	1751
88	1786	1793	128539	129327	-0.61%	1719	1786	1796	1768	1755
89	1788	1799	130267	131046	-0.59%	1724	1791	1801	1773	1761
90	1791	1804	132000	132768	-0.58%	1729	1797	1807	1778	1766
91	1793	1809	133739	134491	-0.56%	1734	1802	1810	1782	1771

Time (min)	E119 Std Average (°F)	Furnace Average (°F)	Integration of Furnace Average (°F•min)	Integration of E119 Std Average (°F•min)	Error (%)	Furnace Probe #1 (°F)	Furnace Probe #2 (°F)	Furnace Probe #3 (°F)	Furnace Probe #4 (°F)	Furnace Probe #5 (°F)
92	1796	1814	135482	136218	-0.54%	1739	1807	1815	1787	1776
93	1798	1814	137228	137947	-0.52%	1741	1806	1815	1788	1775
94	1800	1816	138975	139678	-0.50%	1741	1808	1818	1789	1778
95	1803	1815	140723	141370	-0.46%	1741	1808	1818	1788	1777
96	1805	1816	142470	143105	-0.44%	1741	1808	1818	1788	1777
97	1807	1817	144219	144843	-0.43%	1742	1810	1820	1790	1778
98	1809	1818	145968	146583	-0.42%	1745	1812	1821	1791	1779
99	1812	1821	147720	148325	-0.41%	1747	1814	1826	1794	1782
100	1814	1818	149471	150069	-0.40%	1746	1812	1821	1792	1781
101	1816	1821	151223	151815	-0.39%	1747	1815	1824	1794	1784
102	1818	1824	152977	153564	-0.38%	1750	1818	1827	1797	1786
103	1820	1827	154735	155315	-0.37%	1753	1820	1831	1800	1789
104	1823	1828	156494	157068	-0.37%	1756	1822	1832	1802	1790
105	1825	1830	158255	158823	-0.36%	1757	1823	1835	1804	1791
106	1827	1832	160018	160580	-0.35%	1760	1825	1836	1806	1794
107	1829	1834	161783	162339	-0.34%	1762	1828	1839	1809	1797
108	1831	1837	163551	164100	-0.33%	1767	1831	1841	1812	1799
109	1833	1840	165321	165863	-0.33%	1768	1834	1844	1813	1802
110	1835	1841	167094	167628	-0.32%	1769	1835	1845	1815	1804
111	1836	1840	168866	169395	-0.31%	1768	1836	1844	1814	1803
112	1838	1844	170640	171164	-0.31%	1770	1839	1848	1816	1806
113	1839	1846	172417	172933	-0.30%	1773	1842	1851	1818	1809
114	1840	1849	174197	174704	-0.29%	1775	1844	1854	1822	1811
115	1841	1851	175979	176477	-0.28%	1778	1845	1855	1824	1813
116	1843	1853	177763	178250	-0.27%	1781	1848	1858	1827	1815
117	1844	1855	179549	180025	-0.26%	1781	1850	1861	1828	1816
118	1845	1857	181337	181801	-0.26%	1783	1852	1863	1831	1819
119	1846	1858	183126	183578	-0.25%	1786	1853	1865	1832	1820
120	1848	1860	184917	185357	-0.24%	1787	1855	1866	1833	1822
121	1849	1861	186710	187136	-0.23%	1788	1856	1868	1834	1823
122	1850	1862	188503	188917	-0.22%	1791	1857	1869	1836	1824
123	1851	1865	190299	190700	-0.21%	1792	1860	1871	1839	1826
124	1853	1865	192096	192483	-0.20%	1793	1861	1872	1839	1827
125	1854	1866	193893	194268	-0.19%	1794	1862	1873	1841	1828
126	1855	1868	195692	196054	-0.18%	1796	1864	1874	1844	1830
127	1856	1869	197493	197841	-0.18%	1797	1864	1876	1843	1831
128	1858	1870	199294	199630	-0.17%	1798	1866	1877	1844	1832
129	1859	1870	201096	201419	-0.16%	1799	1866	1877	1845	1832
130	1860	1870	202898	203210	-0.15%	1800	1865	1877	1845	1832
131	1861	1872	204701	205003	-0.15%	1800	1868	1880	1846	1834
132	1863	1872	206505	206796	-0.14%	1800	1868	1880	1846	1834
133	1864	1874	208310	208591	-0.13%	1803	1870	1882	1849	1837
134	1865	1877	210118	210387	-0.13%	1805	1872	1885	1852	1839
135	1866	1877	211927	212184	-0.12%	1806	1873	1885	1852	1839
136	1868	1879	213737	213983	-0.11%	1808	1875	1888	1854	1841
137	1869	1880	215548	215782	-0.11%	1809	1877	1889	1856	1843

Time (min)	E119 Std Average (°F)	Furnace Average (°F)	Integration of Furnace Average (°F•min)	Integration of E119 Std Average (°F•min)	Error (%)	Furnace Probe #1 (°F)	Furnace Probe #2 (°F)	Furnace Probe #3 (°F)	Furnace Probe #4 (°F)	Furnace Probe #5 (°F)
138	1870	1882	217361	217583	-0.10%	1810	1879	1890	1856	1845
139	1871	1884	219176	219386	-0.10%	1813	1880	1891	1858	1846
140	1873	1885	220993	221189	-0.09%	1816	1881	1893	1862	1848
141	1874	1885	222810	222994	-0.08%	1814	1882	1893	1860	1849
142	1875	1887	224628	224801	-0.08%	1816	1884	1895	1862	1850
143	1877	1889	226448	226608	-0.07%	1817	1886	1898	1864	1852
144	1878	1890	228269	228417	-0.06%	1819	1887	1899	1865	1853
145	1879	1891	230092	230227	-0.06%	1821	1888	1900	1866	1855
146	1880	1892	231915	232038	-0.05%	1821	1889	1901	1867	1854
147	1882	1893	233740	233851	-0.05%	1822	1891	1902	1868	1856
148	1883	1895	235566	235664	-0.04%	1824	1893	1905	1870	1859
149	1884	1897	237394	237479	-0.04%	1825	1894	1905	1871	1860
150	1885	1897	239223	239296	-0.03%	1826	1894	1907	1872	1861
151	1887	1898	241052	241113	-0.03%	1826	1895	1908	1873	1860
152	1888	1898	242882	242932	-0.02%	1827	1895	1907	1873	1861
153	1889	1898	244712	244752	-0.02%	1827	1895	1907	1872	1861
154	1890	1898	246542	246573	-0.01%	1827	1896	1908	1872	1861
155	1892	1900	248373	248396	-0.01%	1828	1897	1909	1874	1863
156	1893	1901	250206	250219	-0.01%	1829	1898	1909	1874	1864
157	1894	1902	252039	252044	0.00%	1831	1899	1911	1876	1865
158	1895	1902	253873	253871	0.00%	1832	1899	1911	1877	1865
159	1897	1903	255708	255698	0.00%	1832	1900	1911	1877	1866
160	1898	1903	257543	257527	0.01%	1832	1901	1912	1877	1866
161	1899	1904	259378	259357	0.01%	1833	1901	1912	1878	1867
162	1900	1904	261214	261188	0.01%	1834	1901	1912	1878	1866
163	1902	1905	263051	263021	0.01%	1835	1902	1913	1878	1868
164	1903	1906	264888	264854	0.01%	1836	1904	1915	1880	1870
165	1904	1907	266727	266689	0.01%	1838	1905	1915	1881	1871
166	1905	1908	268566	268526	0.02%	1839	1906	1917	1882	1872
167	1907	1908	270406	270363	0.02%	1838	1905	1917	1882	1871
168	1908	1908	272246	272202	0.02%	1838	1906	1916	1882	1872
169	1909	1909	274087	274042	0.02%	1838	1906	1917	1882	1873
170	1910	1909	275928	275883	0.02%	1840	1907	1917	1883	1873
171	1912	1908	277768	277726	0.02%	1839	1906	1916	1881	1873
172	1913	1911	279610	279569	0.01%	1841	1908	1918	1884	1875
173	1914	1912	281453	281414	0.01%	1842	1910	1919	1885	1876
174	1915	1912	283297	283261	0.01%	1843	1910	1919	1885	1876
175	1917	1913	285142	285108	0.01%	1844	1911	1920	1886	1878
176	1918	1913	286987	286957	0.01%	1844	1911	1920	1887	1877
177	1919	1913	288832	288807	0.01%	1845	1912	1920	1887	1878
178	1921	1914	290677	290658	0.01%	1845	1912	1921	1887	1879
179	1922	1916	292524	292511	0.00%	1846	1914	1922	1890	1881
180	1923	1917	294373	294365	0.00%	1848	1915	1924	1891	1882
181	1924	1918	296222	296220	0.00%	1849	1916	1924	1891	1883
182	1926	1919	298073	298077	0.00%	1850	1917	1925	1893	1884
183	1927	1921	299925	299934	0.00%	1851	1920	1927	1894	1887

Time (min)	E119 Std Average (°F)	Furnace Average (°F)	Integration of Furnace Average (°F•min)	Integration of E119 Std Average (°F•min)	Error (%)	Furnace Probe #1 (°F)	Furnace Probe #2 (°F)	Furnace Probe #3 (°F)	Furnace Probe #4 (°F)	Furnace Probe #5 (°F)
184	1928	1923	301779	301793	0.00%	1854	1921	1929	1897	1887
185	1929	1924	303634	303654	-0.01%	1855	1922	1931	1898	1889
186	1931	1925	305491	305515	-0.01%	1856	1923	1931	1899	1891
187	1932	1925	307348	307378	-0.01%	1856	1924	1931	1900	1891
188	1933	1926	309205	309242	-0.01%	1858	1925	1932	1901	1893
189	1934	1928	311064	311107	-0.01%	1860	1927	1934	1903	1894
190	1936	1929	312925	312974	-0.02%	1861	1928	1935	1904	1895
191	1937	1930	314786	314841	-0.02%	1861	1929	1936	1904	1896
192	1938	1930	316648	316710	-0.02%	1862	1928	1936	1904	1895
193	1939	1930	318510	318581	-0.02%	1862	1928	1935	1904	1896
194	1941	1929	320372	320452	-0.03%	1861	1928	1934	1903	1896
195	1942	1929	322233	322325	-0.03%	1862	1928	1934	1904	1895
196	1943	1930	324094	324199	-0.03%	1861	1929	1935	1904	1896
197	1944	1938	325960	326074	-0.03%	1870	1937	1944	1913	1905
198	1946	1949	327836	327951	-0.04%	1880	1949	1954	1924	1917
199	1947	1957	329721	329828	-0.03%	1888	1956	1961	1932	1924
200	1948	1958	331610	331707	-0.03%	1888	1957	1962	1932	1925
201	1949	1958	333500	333588	-0.03%	1889	1957	1962	1932	1925
202	1951	1960	335391	335469	-0.02%	1891	1959	1964	1934	1926
203	1952	1961	337284	337352	-0.02%	1892	1960	1965	1935	1927
204	1953	1963	339178	339236	-0.02%	1894	1962	1967	1937	1930
205	1954	1965	341074	341121	-0.01%	1896	1964	1968	1939	1931
206	1956	1967	342972	343008	-0.01%	1898	1966	1970	1942	1934
207	1957	1968	344871	344895	-0.01%	1899	1968	1971	1942	1936
208	1958	1970	346772	346784	0.00%	1900	1969	1972	1944	1938
209	1959	1969	348674	348675	0.00%	1901	1968	1971	1943	1936
210	1961	1969	350575	350566	0.00%	1901	1968	1971	1943	1935
211	1962	1970	352476	352459	0.00%	1901	1969	1971	1944	1938
212	1963	1970	354378	354353	0.01%	1901	1970	1971	1944	1937
213	1964	1970	356280	356248	0.01%	1902	1970	1971	1944	1937
214	1966	1971	358183	358145	0.01%	1903	1971	1972	1945	1939
215	1967	1972	360086	360043	0.01%	1904	1971	1972	1947	1939
216	1968	1972	361990	361942	0.01%	1903	1972	1972	1946	1939
217	1970	1972	363894	363843	0.01%	1904	1972	1973	1947	1940
218	1971	1971	365798	365744	0.01%	1903	1971	1971	1946	1939
219	1972	1971	367701	367647	0.01%	1903	1971	1971	1945	1939
220	1973	1970	369603	369552	0.01%	1904	1971	1970	1945	1940
221	1975	1971	371506	371457	0.01%	1904	1971	1970	1945	1940
222	1976	1973	373410	373364	0.01%	1907	1974	1972	1948	1942
223	1977	1976	375316	375272	0.01%	1909	1976	1975	1950	1943
224	1978	1978	377225	377181	0.01%	1911	1979	1978	1953	1948
225	1980	1980	379136	379092	0.01%	1913	1981	1979	1955	1950
226	1981	1981	381049	381003	0.01%	1913	1982	1979	1956	1951
227	1982	1982	382962	382916	0.01%	1915	1983	1981	1957	1952
228	1983	1983	384877	384831	0.01%	1916	1983	1982	1958	1952
229	1985	1984	386792	386746	0.01%	1917	1984	1982	1959	1953

Time (min)	E119 Std Average (°F)	Furnace Average (°F)	Integration of Furnace Average (°F•min)	Integration of E119 Std Average (°F•min)	Error (%)	Furnace Probe #1 (°F)	Furnace Probe #2 (°F)	Furnace Probe #3 (°F)	Furnace Probe #4 (°F)	Furnace Probe #5 (°F)
230	1986	1984	388708	388663	0.01%	1918	1985	1982	1960	1953
231	1987	1986	390625	390581	0.01%	1919	1986	1983	1961	1955
232	1988	1986	392543	392500	0.01%	1918	1987	1982	1961	1956
233	1990	1983	394460	394421	0.01%	1916	1984	1980	1959	1953
234	1991	1983	396375	396342	0.01%	1916	1984	1980	1959	1953
235	1992	1984	398290	398265	0.01%	1917	1985	1981	1960	1955
236	1993	1984	400206	400190	0.00%	1918	1985	1980	1960	1953
237	1995	1985	402123	402115	0.00%	1919	1987	1982	1962	1956
238	1996	1985	404040	404042	0.00%	1918	1986	1981	1961	1954
239	1997	1986	405957	405970	0.00%	1920	1987	1982	1962	1955
240	1998	1988	407876	407899	-0.01%	1921	1989	1984	1965	1959
241	2000	1989	4095818	4097577	-0.0429	1924	1991	1985	1966	1961

Max Temp
Max Allowed

Time (min)	Furnace Probe #6 (°F)	Furnace Probe #7 (°F)	Furnace Probe #8 (°F)	Furnace Probe #9 (°F)	Furnace Probe #10 (°F)	Furnace Probe #11 (°F)	Furnace Probe c (°F)	TC Min (°F)	TC Avg (°F)	TC Max (°F)	TC #1 (°F)
0	76	76	76	76	77	76	77	76	77	78	77
1	92	124	89	108	93	92	94	76	77	78	77
2	244	397	216	237	251	252	287	76	77	78	77
3	587	806	530	505	572	653	724	76	77	78	77
4	897	1044	847	788	862	971	1028	77	77	78	78
5	1015	1107	999	947	981	1083	1110	77	77	78	78
6	1055	1122	1067	1007	1029	1119	1125	77	77	78	78
7	1058	1112	1089	1025	1041	1119	1111	77	77	78	78
8	1118	1187	1150	1099	1112	1202	1171	77	77	78	78
9	1208	1277	1239	1183	1204	1299	1263	77	77	78	78
10	1272	1330	1308	1244	1269	1359	1325	77	77	78	78
11	1302	1354	1341	1281	1303	1384	1347	77	78	78	78
12	1325	1371	1366	1303	1325	1403	1365	77	77	78	78
13	1345	1387	1389	1325	1343	1421	1385	77	77	78	78
14	1367	1408	1414	1349	1366	1446	1408	77	78	78	78
15	1439	1505	1478	1402	1421	1533	1475	77	78	78	78
16	1525	1525	1556	1435	1425	1528	1528	77	78	79	78
17	1504	1475	1544	1434	1409	1492	1512	77	78	79	78
18	1481	1486	1527	1479	1455	1491	1490	77	78	79	78
19	1378	1393	1452	1440	1405	1412	1380	77	78	79	78
20	1340	1360	1401	1445	1390	1373	1331	78	78	79	79
21	1343	1372	1392	1471	1412	1389	1340	78	78	79	79
22	1361	1392	1404	1499	1449	1426	1372	78	78	79	79
23	1378	1414	1420	1518	1473	1461	1402	78	78	79	79
24	1407	1441	1446	1529	1497	1498	1439	78	78	79	79
25	1434	1462	1472	1541	1513	1529	1470	78	79	79	79
26	1472	1482	1502	1548	1526	1556	1504	78	79	79	79
27	1495	1574	1526	1587	1576	1592	1530	78	79	79	79
28	1424	1475	1471	1527	1502	1484	1458	78	79	80	79
29	1456	1462	1458	1529	1496	1488	1477	78	79	80	79
30	1485	1481	1479	1541	1511	1524	1520	78	79	80	79
31	1492	1498	1493	1553	1527	1547	1539	78	79	80	79
32	1504	1525	1511	1570	1548	1580	1562	78	79	80	79
33	1524	1557	1535	1595	1576	1616	1589	78	79	80	79
34	1549	1590	1562	1626	1608	1656	1618	78	79	80	80
35	1569	1614	1588	1653	1636	1682	1641	78	79	80	80
36	1572	1617	1598	1657	1642	1681	1647	78	79	80	80
37	1574	1620	1606	1664	1648	1687	1651	78	79	80	80
38	1579	1626	1615	1671	1654	1698	1659	79	79	80	80
39	1587	1632	1624	1676	1660	1706	1667	79	80	80	80
40	1593	1641	1633	1688	1671	1720	1677	79	80	80	80
41	1603	1648	1644	1695	1681	1729	1688	79	80	80	80
42	1612	1659	1654	1703	1690	1740	1697	79	80	80	80
43	1609	1648	1654	1695	1684	1731	1693	79	80	81	80
44	1603	1637	1646	1685	1676	1718	1681	79	80	80	80
45	1600	1632	1641	1675	1670	1711	1676	79	80	81	80

Time (min)	Furnace Probe #6 (°F)	Furnace Probe #7 (°F)	Furnace Probe #8 (°F)	Furnace Probe #9 (°F)	Furnace Probe #10 (°F)	Furnace Probe #11 (°F)	Furnace Probe c (°F)	TC Min (°F)	TC Avg (°F)	TC Max (°F)	TC #1 (°F)
46	1595	1626	1636	1667	1663	1704	1673	79	80	81	80
47	1592	1626	1631	1663	1660	1706	1669	80	80	81	80
48	1592	1629	1632	1663	1662	1708	1668	80	81	82	80
49	1609	1650	1649	1676	1677	1734	1688	80	81	82	80
50	1628	1668	1668	1692	1692	1752	1707	80	81	83	81
51	1632	1668	1675	1694	1694	1750	1711	80	82	86	81
52	1635	1667	1677	1694	1696	1748	1712	80	83	94	81
53	1636	1668	1675	1696	1696	1747	1709	80	83	99	81
54	1640	1671	1679	1698	1701	1753	1713	80	84	105	81
55	1644	1679	1684	1708	1708	1762	1719	80	85	112	81
56	1654	1686	1694	1714	1715	1771	1727	80	85	113	81
57	1658	1686	1699	1710	1713	1765	1727	80	85	112	81
58	1661	1691	1702	1715	1716	1774	1730	80	85	111	81
59	1664	1697	1705	1721	1722	1779	1735	80	85	112	81
60	1669	1702	1710	1724	1726	1786	1741	80	86	114	81
61	1673	1708	1714	1731	1730	1792	1746	81	87	126	82
62	1675	1709	1716	1731	1730	1792	1747	81	89	137	82
63	1674	1708	1715	1727	1727	1789	1747	81	90	150	82
64	1672	1702	1714	1718	1719	1784	1743	81	92	161	82
65	1672	1697	1713	1706	1711	1775	1738	81	93	166	82
66	1670	1694	1712	1699	1707	1777	1737	81	93	167	83
67	1671	1697	1711	1698	1713	1780	1736	81	95	176	83
68	1683	1714	1723	1708	1727	1796	1747	81	96	183	83
69	1704	1736	1739	1723	1745	1820	1766	81	98	186	83
70	1732	1764	1766	1747	1769	1850	1796	82	99	187	83
71	1734	1759	1774	1748	1770	1843	1799	82	102	187	84
72	1728	1753	1770	1746	1768	1835	1790	82	105	187	84
73	1739	1767	1776	1757	1778	1849	1798	82	107	187	84
74	1752	1779	1789	1768	1789	1861	1810	82	109	186	85
75	1752	1779	1792	1771	1791	1859	1810	82	109	186	85
76	1752	1781	1792	1774	1794	1860	1810	83	110	186	85
77	1756	1785	1794	1778	1799	1861	1811	83	110	187	85
78	1752	1782	1792	1777	1797	1855	1807	83	111	186	86
79	1748	1776	1787	1772	1792	1846	1799	83	111	186	86
80	1746	1777	1783	1773	1793	1842	1792	83	111	184	86
81	1745	1777	1783	1774	1793	1842	1789	83	111	183	87
82	1745	1778	1781	1775	1794	1839	1787	83	111	182	87
83	1740	1773	1775	1770	1789	1828	1778	83	111	183	87
84	1745	1779	1778	1770	1789	1833	1779	84	111	183	87
85	1756	1791	1787	1782	1801	1848	1791	84	111	184	88
86	1764	1800	1796	1791	1810	1858	1800	84	111	185	88
87	1771	1806	1803	1799	1818	1865	1806	84	111	186	88
88	1775	1812	1807	1804	1822	1866	1811	84	111	186	89
89	1781	1816	1813	1811	1829	1874	1815	84	111	188	89
90	1786	1821	1819	1816	1834	1877	1820	84	112	188	90
91	1792	1826	1825	1819	1836	1885	1827	85	112	189	90

Time (min)	Furnace Probe #6 (°F)	Furnace Probe #7 (°F)	Furnace Probe #8 (°F)	Furnace Probe #9 (°F)	Furnace Probe #10 (°F)	Furnace Probe #11 (°F)	Furnace Probe c (°F)	TC Min (°F)	TC Avg (°F)	TC Max (°F)	TC #1 (°F)
92	1797	1831	1831	1823	1840	1889	1832	85	112	188	91
93	1798	1829	1832	1823	1840	1886	1832	85	112	187	91
94	1797	1833	1832	1826	1845	1887	1832	85	113	187	92
95	1798	1832	1832	1827	1844	1887	1831	85	113	186	92
96	1799	1833	1832	1827	1845	1888	1833	85	113	185	92
97	1799	1834	1833	1830	1848	1890	1833	85	114	188	92
98	1801	1836	1835	1830	1848	1888	1834	85	115	188	93
99	1804	1839	1837	1833	1851	1890	1835	85	115	187	93
100	1803	1833	1836	1827	1844	1886	1834	85	115	187	93
101	1805	1838	1837	1831	1849	1892	1836	86	116	186	94
102	1808	1841	1840	1835	1852	1893	1839	86	117	185	94
103	1809	1845	1842	1838	1856	1896	1840	86	117	186	94
104	1812	1846	1844	1839	1856	1897	1844	86	118	184	94
105	1813	1848	1845	1843	1861	1897	1844	86	118	184	94
106	1816	1849	1848	1842	1860	1901	1847	86	119	183	95
107	1818	1850	1850	1846	1863	1901	1848	86	120	182	95
108	1823	1853	1854	1846	1864	1905	1852	86	121	182	95
109	1824	1857	1856	1850	1868	1909	1854	86	123	182	96
110	1825	1857	1857	1849	1868	1908	1856	86	124	182	96
111	1825	1858	1857	1849	1867	1908	1856	86	124	182	96
112	1828	1861	1860	1854	1871	1913	1858	86	124	184	97
113	1830	1864	1862	1857	1874	1917	1860	86	124	186	97
114	1832	1866	1863	1860	1877	1918	1862	86	124	185	97
115	1834	1868	1866	1861	1878	1920	1864	86	124	184	98
116	1836	1870	1867	1864	1881	1920	1866	86	124	184	98
117	1837	1874	1869	1867	1886	1920	1866	86	124	183	98
118	1840	1876	1871	1869	1886	1925	1869	86	124	183	99
119	1842	1877	1872	1870	1888	1924	1869	87	124	182	99
120	1843	1879	1874	1872	1889	1925	1872	87	124	182	99
121	1843	1880	1874	1873	1891	1926	1871	87	124	182	99
122	1845	1880	1876	1874	1892	1926	1872	87	125	184	100
123	1849	1883	1878	1876	1893	1930	1877	87	124	182	100
124	1849	1884	1879	1876	1895	1929	1877	87	124	182	100
125	1850	1885	1880	1878	1896	1930	1877	87	123	181	101
126	1853	1887	1883	1879	1897	1932	1880	88	123	180	101
127	1853	1886	1884	1880	1898	1932	1880	88	123	180	101
128	1854	1888	1884	1881	1899	1933	1881	88	123	179	102
129	1854	1889	1883	1881	1900	1930	1880	88	123	179	102
130	1855	1888	1885	1880	1899	1931	1880	88	124	179	102
131	1856	1891	1886	1883	1901	1935	1882	88	124	179	103
132	1856	1891	1886	1883	1901	1933	1882	88	124	179	103
133	1858	1893	1887	1884	1903	1936	1885	88	125	180	108
134	1861	1896	1890	1889	1907	1938	1886	88	127	180	125
135	1861	1897	1890	1890	1908	1938	1887	88	128	180	142
136	1862	1899	1891	1892	1910	1938	1887	88	129	180	154
137	1864	1900	1893	1892	1911	1941	1890	89	130	180	161

Time (min)	Furnace Probe #6 (°F)	Furnace Probe #7 (°F)	Furnace Probe #8 (°F)	Furnace Probe #9 (°F)	Furnace Probe #10 (°F)	Furnace Probe #11 (°F)	Furnace Probe c (°F)	TC Min (°F)	TC Avg (°F)	TC Max (°F)	TC #1 (°F)
138	1866	1901	1895	1893	1911	1944	1892	89	131	179	165
139	1869	1902	1897	1893	1911	1947	1895	89	132	179	168
140	1870	1904	1899	1894	1913	1943	1896	89	132	179	169
141	1872	1904	1899	1893	1912	1945	1896	89	132	178	171
142	1874	1907	1901	1895	1915	1947	1899	89	133	178	171
143	1874	1910	1903	1899	1918	1948	1900	90	134	177	172
144	1875	1910	1903	1899	1918	1949	1901	90	134	177	171
145	1877	1911	1905	1899	1917	1951	1903	91	135	176	171
146	1877	1911	1906	1901	1919	1950	1903	91	135	175	170
147	1879	1912	1907	1901	1920	1952	1905	92	137	175	170
148	1881	1915	1909	1905	1924	1954	1906	92	138	175	170
149	1882	1916	1910	1906	1925	1957	1908	92	139	175	169
150	1883	1918	1911	1907	1927	1955	1908	92	140	174	169
151	1883	1917	1910	1909	1928	1955	1907	92	140	174	168
152	1884	1916	1911	1909	1926	1955	1909	93	140	173	167
153	1885	1916	1912	1907	1925	1956	1910	93	140	173	166
154	1885	1917	1912	1909	1927	1955	1909	93	139	172	166
155	1887	1919	1913	1910	1928	1958	1911	93	139	173	166
156	1888	1919	1915	1911	1929	1958	1912	94	139	173	166
157	1889	1920	1915	1912	1931	1958	1913	95	138	173	166
158	1889	1922	1916	1913	1931	1957	1913	97	138	172	166
159	1890	1922	1916	1913	1931	1958	1915	98	137	171	165
160	1891	1923	1918	1914	1933	1957	1915	98	137	171	166
161	1891	1924	1919	1915	1933	1956	1915	98	137	172	166
162	1891	1924	1918	1915	1933	1955	1915	98	137	171	165
163	1892	1925	1919	1916	1934	1959	1917	98	137	171	165
164	1894	1927	1920	1917	1935	1961	1918	98	136	171	165
165	1895	1928	1922	1916	1936	1959	1920	98	136	170	165
166	1896	1930	1923	1919	1938	1959	1920	98	135	170	165
167	1896	1930	1923	1919	1938	1959	1920	98	135	169	164
168	1896	1929	1923	1919	1938	1960	1920	98	134	169	164
169	1895	1930	1922	1921	1940	1961	1920	98	134	169	163
170	1896	1931	1923	1921	1940	1960	1920	98	134	169	163
171	1897	1929	1923	1918	1937	1960	1921	98	134	169	162
172	1899	1932	1925	1920	1939	1962	1923	98	133	169	162
173	1901	1933	1926	1920	1940	1965	1925	99	133	168	161
174	1901	1933	1928	1921	1941	1965	1926	99	133	168	161
175	1901	1934	1928	1922	1942	1963	1926	99	133	168	163
176	1901	1935	1928	1922	1943	1962	1925	99	133	169	169
177	1903	1934	1929	1922	1942	1963	1926	100	134	173	173
178	1904	1936	1929	1922	1942	1966	1927	100	134	174	174
179	1905	1938	1930	1923	1944	1968	1929	100	134	174	174
180	1906	1939	1931	1924	1945	1966	1930	100	133	173	173
181	1907	1939	1932	1925	1947	1968	1931	100	133	171	171
182	1908	1940	1933	1926	1947	1967	1932	101	132	169	169
183	1910	1943	1935	1929	1950	1969	1934	101	132	166	166

Time (min)	Furnace Probe #6 (°F)	Furnace Probe #7 (°F)	Furnace Probe #8 (°F)	Furnace Probe #9 (°F)	Furnace Probe #10 (°F)	Furnace Probe #11 (°F)	Furnace Probe c (°F)	TC Min (°F)	TC Avg (°F)	TC Max (°F)	TC #1 (°F)
184	1911	1945	1936	1931	1953	1971	1935	101	132	165	163
185	1912	1947	1937	1934	1956	1970	1935	101	131	165	160
186	1914	1947	1939	1933	1955	1973	1938	101	130	165	156
187	1915	1949	1940	1934	1955	1972	1938	102	130	165	154
188	1915	1949	1940	1934	1956	1973	1938	102	130	165	151
189	1918	1951	1942	1936	1958	1975	1941	103	130	164	149
190	1919	1952	1944	1938	1960	1975	1941	103	129	164	146
191	1920	1954	1944	1939	1962	1975	1942	103	129	163	144
192	1919	1953	1943	1938	1961	1974	1942	103	128	162	142
193	1920	1953	1944	1937	1960	1976	1943	103	128	162	140
194	1920	1952	1945	1936	1959	1976	1943	103	127	162	138
195	1920	1952	1944	1937	1960	1974	1943	103	127	162	136
196	1920	1953	1944	1938	1961	1974	1942	103	127	163	135
197	1928	1963	1949	1945	1969	1984	1950	103	126	164	134
198	1940	1975	1961	1955	1979	1997	1962	103	126	164	132
199	1948	1982	1970	1964	1988	2004	1971	103	126	164	131
200	1949	1983	1973	1965	1990	2003	1973	103	126	164	131
201	1949	1982	1973	1966	1990	2003	1972	103	126	165	129
202	1950	1984	1974	1968	1993	2004	1973	102	126	165	129
203	1951	1986	1975	1970	1994	2004	1974	102	126	164	128
204	1952	1988	1976	1972	1997	2007	1976	102	126	163	127
205	1955	1991	1979	1973	1999	2009	1979	102	126	162	126
206	1958	1992	1981	1974	1999	2011	1982	102	126	161	126
207	1959	1993	1983	1975	2000	2012	1983	102	126	161	126
208	1960	1994	1984	1977	2002	2013	1984	102	126	161	125
209	1959	1993	1984	1975	2001	2013	1984	102	126	161	125
210	1960	1993	1983	1974	2000	2012	1985	102	125	161	124
211	1961	1994	1984	1975	2001	2013	1986	102	125	161	124
212	1961	1994	1984	1974	2001	2013	1986	102	125	161	124
213	1961	1995	1984	1975	2001	2014	1987	102	125	161	124
214	1963	1995	1985	1976	2003	2013	1987	101	125	161	124
215	1964	1995	1987	1976	2003	2015	1989	101	125	162	124
216	1963	1996	1987	1976	2003	2015	1989	102	125	162	124
217	1963	1997	1987	1977	2005	2013	1988	101	125	162	124
218	1962	1996	1986	1976	2004	2011	1986	101	125	162	124
219	1963	1995	1985	1976	2004	2011	1986	101	125	162	124
220	1962	1994	1985	1974	2002	2012	1986	101	125	162	124
221	1963	1995	1985	1974	2002	2013	1987	100	124	162	124
222	1966	1998	1988	1976	2004	2014	1990	100	125	162	124
223	1968	2000	1990	1980	2007	2016	1992	100	124	161	124
224	1971	2004	1993	1982	2010	2017	1994	100	124	161	124
225	1972	2005	1994	1984	2012	2019	1996	100	125	161	124
226	1973	2005	1995	1984	2011	2021	1997	100	125	161	125
227	1975	2008	1997	1986	2013	2021	1998	100	125	161	125
228	1975	2009	1997	1988	2015	2022	1999	100	124	160	125
229	1976	2009	1998	1988	2015	2021	2000	100	125	159	126

Time (min)	Furnace Probe #6 (°F)	Furnace Probe #7 (°F)	Furnace Probe #8 (°F)	Furnace Probe #9 (°F)	Furnace Probe #10 (°F)	Furnace Probe #11 (°F)	Furnace Probe c (°F)	TC Min (°F)	TC Avg (°F)	TC Max (°F)	TC #1 (°F)
230	1978	2010	2000	1988	2014	2022	2002	100	125	158	126
231	1978	2012	2000	1990	2017	2023	2002	100	125	158	126
232	1979	2011	2001	1988	2015	2026	2004	100	125	158	126
233	1977	2008	1999	1986	2013	2021	2002	100	125	158	126
234	1977	2009	1998	1987	2013	2022	2000	100	125	158	127
235	1978	2010	1999	1987	2013	2022	2002	100	125	158	127
236	1977	2010	1999	1986	2013	2020	2001	100	125	158	127
237	1979	2012	2000	1988	2015	2022	2002	100	125	158	128
238	1979	2010	2000	1988	2014	2022	2003	100	125	157	128
239	1979	2013	2000	1990	2016	2022	2003	100	125	158	128
240	1981	2015	2002	1992	2018	2026	2005	100	125	158	129
241	1983	2016	2003	1993	2019	2026	2006	100	126	158	129
Max Temp									140	189	174
Max Allowec									327	428	427

Time (min)	TC #2 (°F)	TC #3 (°F)	TC #4 (°F)	TC #5 (°F)	TC #6 (°F)	TC #7 (°F)	TC #8 (°F)	TC #9 (°F)	TC #10 (°F)
0	78	78	77	77	77	77	77	77	76
1	78	78	77	77	77	77	77	77	76
2	78	78	77	77	77	77	77	77	76
3	78	78	77	77	77	77	77	77	76
4	78	78	77	77	77	77	77	77	77
5	78	78	77	77	77	77	77	77	77
6	78	78	77	77	77	77	77	77	77
7	78	78	77	77	77	77	77	77	77
8	78	78	77	77	77	77	77	77	77
9	78	78	77	77	77	77	77	77	77
10	78	78	77	77	77	77	77	77	77
11	78	78	78	78	77	77	77	77	77
12	78	78	77	77	77	77	77	77	77
13	78	78	78	77	77	77	77	77	77
14	78	78	78	78	78	77	77	77	77
15	78	78	78	78	78	78	77	78	77
16	79	78	78	78	78	78	78	78	77
17	79	78	78	78	78	78	78	78	77
18	79	79	78	78	78	78	78	78	77
19	79	79	78	78	78	78	78	78	77
20	79	79	78	78	78	78	78	78	78
21	79	79	78	78	78	78	78	78	78
22	79	79	78	78	78	78	78	78	78
23	79	79	78	78	78	78	78	78	78
24	79	79	78	78	78	78	78	78	78
25	79	79	79	79	78	78	78	78	78
26	79	79	79	79	78	78	78	78	78
27	79	79	79	79	78	78	78	78	78
28	80	79	79	79	79	78	78	78	78
29	80	79	79	79	79	78	78	78	78
30	80	80	79	79	79	79	78	79	78
31	80	80	79	79	79	79	79	79	78
32	80	80	79	79	79	79	79	79	78
33	80	80	79	79	79	79	79	79	78
34	80	80	79	79	79	79	79	79	78
35	80	80	79	79	79	79	79	79	78
36	80	80	79	79	79	79	79	79	78
37	80	80	79	79	79	79	79	79	78
38	80	80	79	80	79	79	79	79	79
39	80	80	80	80	79	79	79	79	79
40	80	80	80	80	79	79	79	79	79
41	80	80	80	80	80	79	79	79	79
42	80	80	80	80	80	79	80	79	80
43	81	80	80	80	80	79	80	79	80
44	80	80	80	80	80	79	80	79	80
45	80	80	81	81	80	79	80	79	80

Time (min)	TC #2 (°F)	TC #3 (°F)	TC #4 (°F)	TC #5 (°F)	TC #6 (°F)	TC #7 (°F)	TC #8 (°F)	TC #9 (°F)	TC #10 (°F)
46	81	80	81	81	80	80	80	79	80
47	81	80	81	81	80	80	80	80	81
48	81	81	82	81	80	80	80	80	81
49	81	81	82	81	80	80	80	80	81
50	81	81	83	82	81	80	80	80	82
51	81	81	83	86	81	80	80	80	82
52	82	81	84	94	81	80	81	80	82
53	82	81	84	99	81	80	81	80	83
54	82	81	84	105	81	80	81	80	83
55	82	81	85	112	81	80	81	80	83
56	82	81	85	113	81	80	81	80	84
57	83	81	86	112	82	80	82	80	84
58	83	81	86	111	82	80	82	80	84
59	84	81	87	112	82	80	83	80	84
60	84	82	87	114	82	80	83	80	84
61	84	82	87	126	82	81	84	81	84
62	85	82	88	137	82	81	86	81	84
63	86	82	88	150	83	81	87	81	84
64	87	82	88	161	83	81	87	81	84
65	88	82	89	166	83	81	89	81	84
66	90	82	89	167	83	81	91	81	85
67	92	83	90	176	83	82	93	81	85
68	96	83	90	183	83	82	96	81	85
69	101	83	90	186	83	82	101	81	85
70	107	83	91	187	84	82	110	82	85
71	113	83	91	187	84	83	124	82	85
72	123	83	92	187	84	83	143	82	85
73	132	83	92	187	84	83	158	82	85
74	139	83	92	186	84	84	165	82	85
75	143	84	92	186	84	84	168	82	85
76	146	84	92	186	84	84	168	83	85
77	148	84	92	187	84	84	169	83	85
78	150	84	92	186	84	85	171	83	85
79	150	84	93	186	85	85	177	83	85
80	148	84	92	184	85	86	181	83	85
81	145	84	93	183	85	86	181	83	85
82	143	85	93	182	85	86	180	83	85
83	141	85	92	183	85	87	182	83	85
84	140	85	93	183	85	87	181	84	85
85	139	85	93	184	85	88	179	84	85
86	138	85	93	185	85	88	177	84	85
87	139	85	93	186	85	89	175	84	85
88	139	86	93	186	85	89	175	84	85
89	138	86	93	188	85	90	175	84	85
90	138	86	93	188	85	90	176	84	85
91	138	86	93	189	85	91	176	85	85

Time (min)	TC #2 (°F)	TC #3 (°F)	TC #4 (°F)	TC #5 (°F)	TC #6 (°F)	TC #7 (°F)	TC #8 (°F)	TC #9 (°F)	TC #10 (°F)
92	137	87	93	188	85	92	176	85	85
93	136	87	93	187	85	93	176	85	85
94	136	87	94	187	86	94	179	85	85
95	135	87	94	186	86	97	180	85	85
96	135	87	95	185	86	100	182	85	85
97	135	87	97	188	86	104	183	86	85
98	135	88	99	188	86	107	182	86	85
99	134	88	100	187	86	110	181	86	85
100	133	88	102	187	86	113	180	86	85
101	134	88	103	186	87	116	180	86	86
102	134	88	104	185	87	119	182	86	86
103	136	89	104	186	87	123	181	87	86
104	137	89	105	184	87	126	180	87	86
105	138	89	106	184	87	129	180	87	86
106	141	89	107	183	87	132	179	87	86
107	148	89	109	182	88	134	178	87	86
108	160	89	110	182	88	136	178	87	86
109	175	90	112	182	88	137	181	87	86
110	180	90	112	182	88	136	180	87	86
111	181	90	113	179	88	135	182	88	86
112	182	90	113	178	89	134	184	88	86
113	181	91	114	176	89	133	186	88	86
114	181	91	114	175	89	131	185	88	86
115	182	91	115	175	89	130	184	88	86
116	183	91	115	175	89	128	184	89	86
117	183	91	116	175	90	127	183	89	86
118	183	91	116	178	90	125	182	89	86
119	182	92	117	180	90	124	182	89	87
120	182	92	118	181	90	123	181	89	87
121	182	92	119	181	90	121	182	89	87
122	182	92	120	180	91	120	184	89	87
123	182	93	121	179	91	119	181	90	87
124	182	93	121	178	91	117	178	90	87
125	181	93	121	177	92	116	175	90	87
126	180	93	123	176	92	115	170	90	88
127	180	93	125	175	92	114	168	91	88
128	179	94	128	174	93	113	168	91	88
129	179	94	132	173	94	113	168	91	88
130	179	94	136	172	95	112	166	91	88
131	179	94	139	170	98	111	163	91	88
132	179	95	142	168	101	110	162	91	88
133	180	95	144	166	106	109	159	91	88
134	180	96	145	165	110	108	158	91	88
135	180	97	145	164	111	107	156	91	88
136	180	98	145	163	112	106	155	91	88
137	180	98	145	163	113	106	155	92	89

Time (min)	TC #2 (°F)	TC #3 (°F)	TC #4 (°F)	TC #5 (°F)	TC #6 (°F)	TC #7 (°F)	TC #8 (°F)	TC #9 (°F)	TC #10 (°F)
138	179	99	144	164	116	105	155	91	89
139	179	99	145	164	121	104	154	92	89
140	179	100	145	164	125	104	152	92	89
141	178	100	145	164	129	103	151	92	89
142	178	101	144	166	134	102	152	92	89
143	177	101	145	166	140	102	151	92	90
144	177	102	143	163	152	101	151	92	90
145	176	103	140	162	163	101	150	92	91
146	175	104	140	163	167	100	152	92	91
147	175	109	140	163	168	100	156	92	92
148	175	120	140	164	168	100	160	92	93
149	175	132	141	164	167	99	161	92	94
150	174	140	141	163	166	99	162	92	95
151	174	144	141	163	165	99	161	92	95
152	173	145	142	162	164	98	160	93	96
153	173	145	141	161	163	98	158	93	97
154	172	145	140	161	163	98	157	93	97
155	173	144	139	160	163	98	156	93	97
156	173	143	138	160	162	98	155	94	98
157	173	142	135	160	161	98	155	95	98
158	172	142	133	161	160	98	153	97	98
159	171	141	130	160	160	98	152	98	98
160	171	142	128	160	160	98	151	100	98
161	172	142	125	159	161	98	149	102	98
162	171	143	123	158	161	98	147	104	98
163	171	143	121	158	159	98	146	106	99
164	171	143	119	157	157	98	144	108	99
165	170	144	118	157	154	98	143	110	100
166	170	144	116	156	150	98	142	111	100
167	169	144	115	157	147	98	139	112	101
168	169	144	115	158	143	98	138	113	102
169	169	145	115	160	140	98	137	113	103
170	169	145	115	160	137	98	136	113	105
171	169	145	115	159	134	98	135	113	106
172	169	145	115	158	132	98	135	113	107
173	168	145	115	158	130	99	135	113	108
174	168	145	115	157	128	99	137	113	108
175	168	145	115	156	126	99	138	112	108
176	167	145	115	156	124	99	139	112	108
177	167	145	115	157	122	100	139	112	108
178	167	145	114	158	121	100	137	112	109
179	167	145	114	159	119	100	137	112	108
180	167	144	114	159	118	100	137	111	108
181	166	143	114	159	117	100	137	111	108
182	166	143	113	159	116	101	139	110	108
183	166	142	113	160	115	101	141	110	107

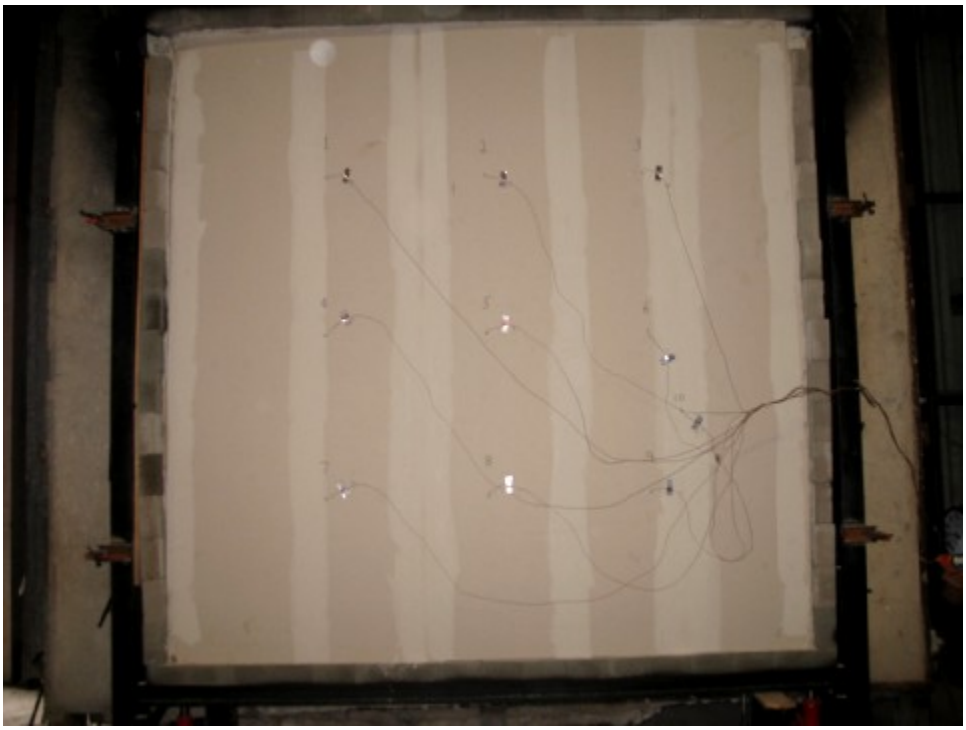
Time (min)	TC #2 (°F)	TC #3 (°F)	TC #4 (°F)	TC #5 (°F)	TC #6 (°F)	TC #7 (°F)	TC #8 (°F)	TC #9 (°F)	TC #10 (°F)
184	165	141	113	160	114	101	142	109	107
185	165	139	113	160	113	101	144	109	106
186	165	138	112	160	113	101	144	108	106
187	165	138	112	161	112	102	145	108	106
188	165	138	112	161	112	102	145	107	106
189	164	138	112	162	112	103	146	107	106
190	164	138	111	162	112	103	146	106	105
191	163	138	111	161	111	103	146	106	105
192	162	138	110	160	111	103	146	105	105
193	162	137	110	159	111	103	146	105	104
194	162	136	110	159	111	103	146	105	104
195	162	135	110	158	110	103	146	104	104
196	163	134	110	158	110	103	146	104	104
197	164	133	109	158	110	103	146	104	103
198	164	132	109	157	110	103	147	104	103
199	164	131	109	157	110	104	147	104	103
200	164	131	109	156	110	104	147	104	103
201	165	131	109	156	109	104	147	103	103
202	165	132	108	156	109	104	147	103	102
203	164	133	109	157	109	104	147	104	102
204	163	134	108	158	109	104	147	103	102
205	162	135	108	159	109	104	148	103	102
206	161	135	108	159	109	104	148	103	102
207	161	136	108	160	109	104	148	103	102
208	161	136	108	160	109	104	148	103	102
209	161	135	108	160	109	104	148	103	102
210	161	135	108	160	109	104	147	103	102
211	161	135	108	160	109	104	147	102	102
212	161	134	108	160	109	104	147	102	102
213	161	134	108	160	109	104	147	102	102
214	161	133	108	160	109	104	147	102	101
215	162	133	108	160	109	104	146	102	101
216	162	132	108	160	109	104	146	102	102
217	162	132	108	160	109	104	146	101	102
218	162	131	108	159	109	104	146	101	102
219	162	131	108	159	109	104	146	101	102
220	162	131	108	159	109	104	146	101	102
221	162	130	108	159	109	104	145	100	102
222	162	130	109	159	110	104	146	100	102
223	161	129	109	159	110	104	146	100	102
224	161	129	109	159	110	104	145	100	102
225	161	129	109	159	110	104	146	100	103
226	161	128	109	159	110	104	146	100	103
227	161	128	109	159	110	104	146	100	103
228	160	127	109	159	110	104	147	100	103
229	159	127	110	159	111	104	147	100	103

Time (min)	TC #2 (°F)	TC #3 (°F)	TC #4 (°F)	TC #5 (°F)	TC #6 (°F)	TC #7 (°F)	TC #8 (°F)	TC #9 (°F)	TC #10 (°F)
230	158	127	110	158	111	104	147	100	104
231	157	126	110	158	112	104	148	100	104
232	156	126	110	158	112	105	148	100	104
233	154	126	111	158	112	105	148	100	105
234	154	126	111	158	112	105	148	100	105
235	153	125	111	158	113	105	148	100	105
236	153	125	112	158	113	105	148	100	105
237	153	125	112	158	114	105	148	100	106
238	153	125	113	157	114	105	148	100	106
239	153	125	113	158	114	105	148	100	106
240	153	125	113	158	115	105	148	100	107
241	153	125	114	158	115	105	149	100	107
Max Temp	183	145	145	189	168	137	186	113	109
Max Allowec	428	428	427	427	427	427	427	427	426

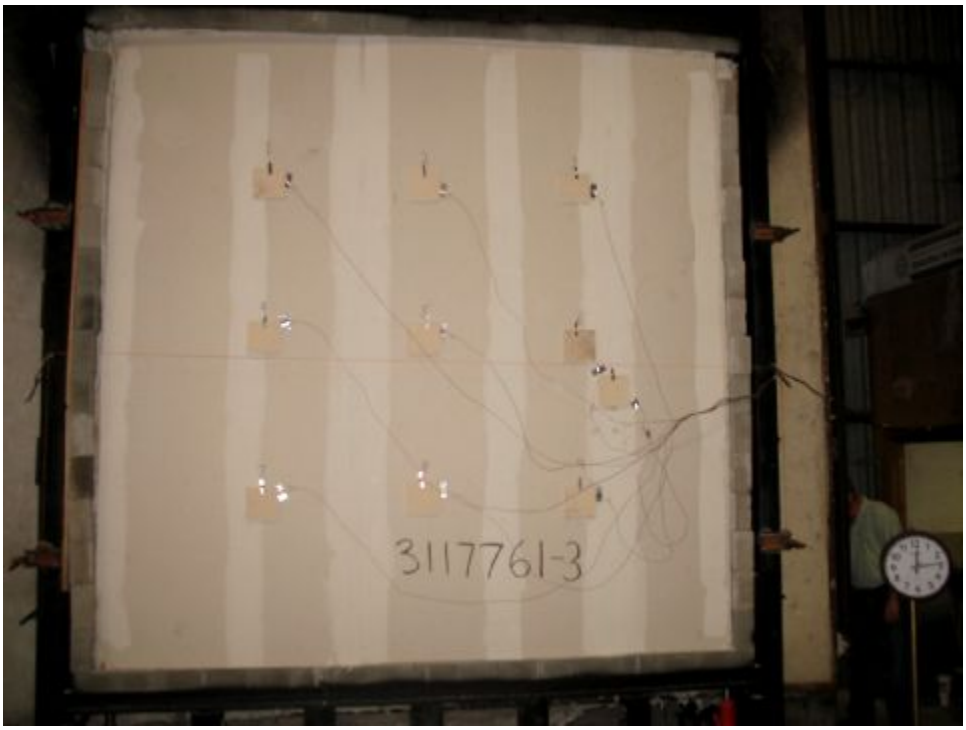
APPENDIX C
Photographs

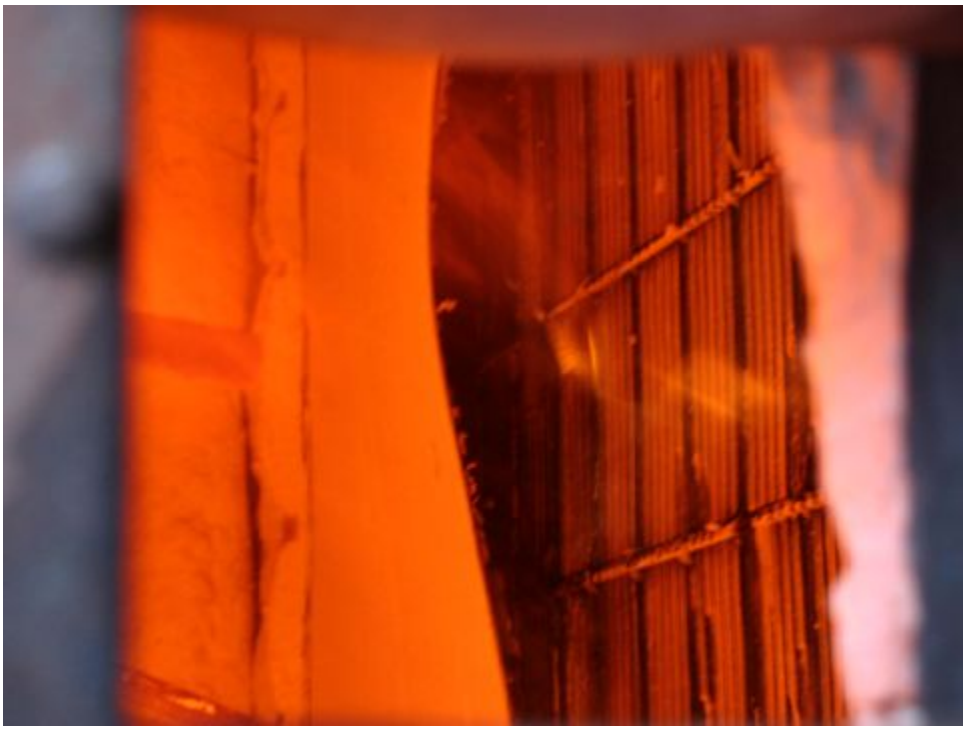

SCHWING P 305

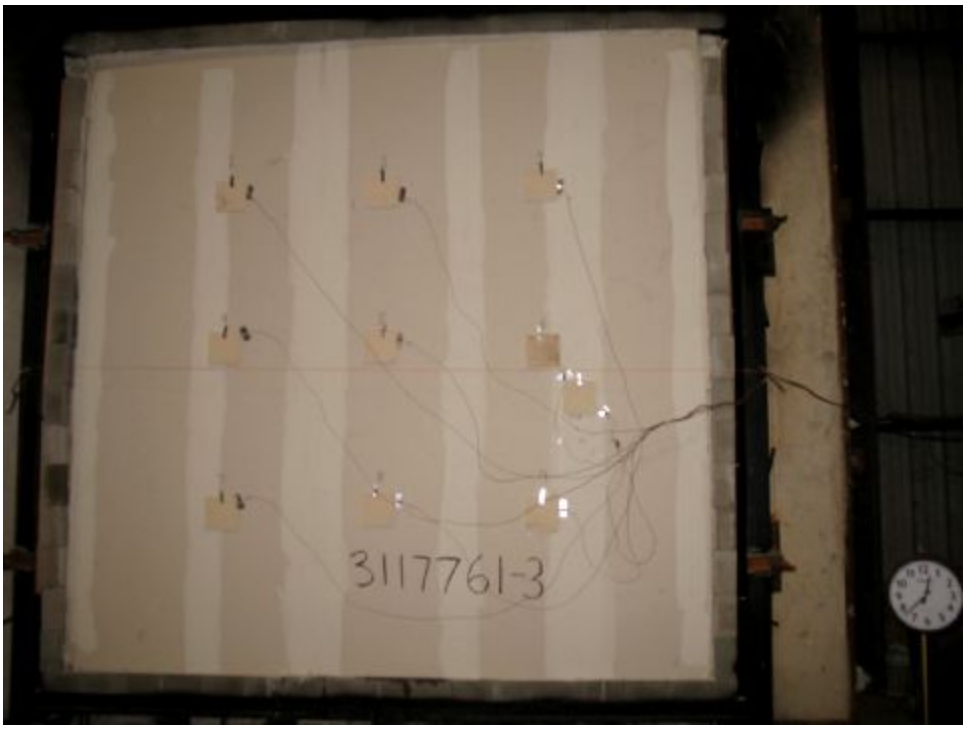

3117761-3

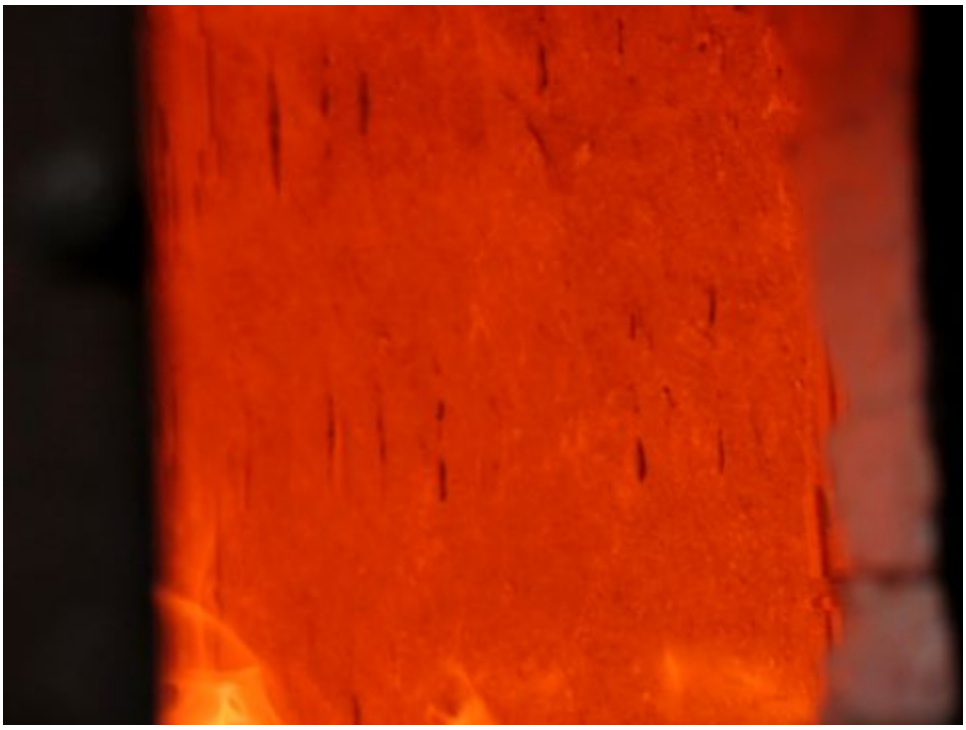


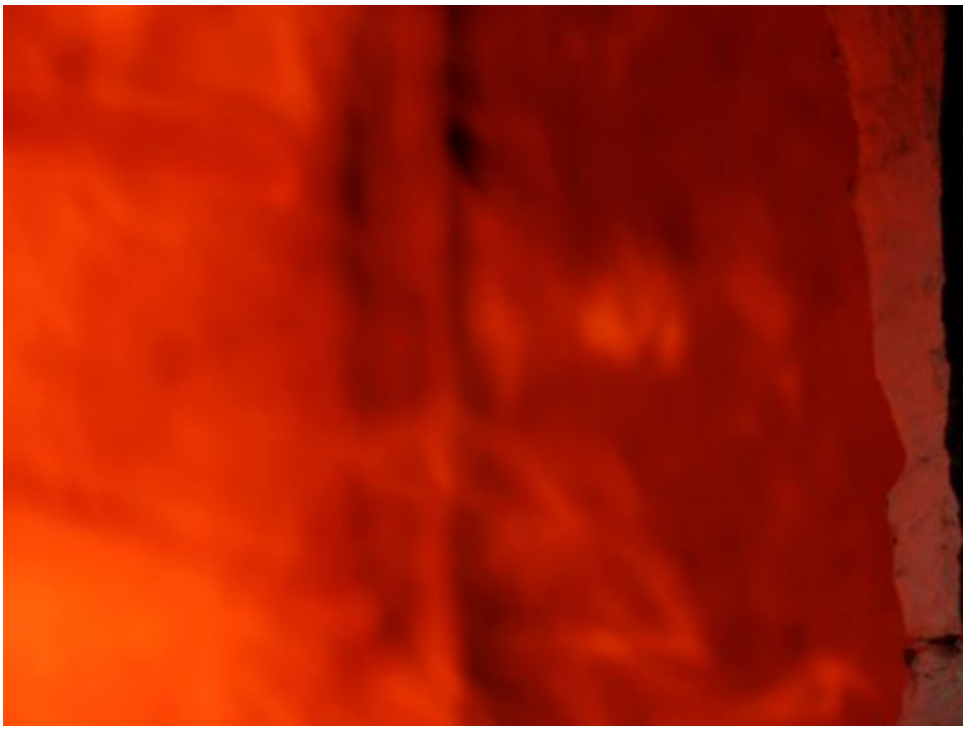

3117761-3

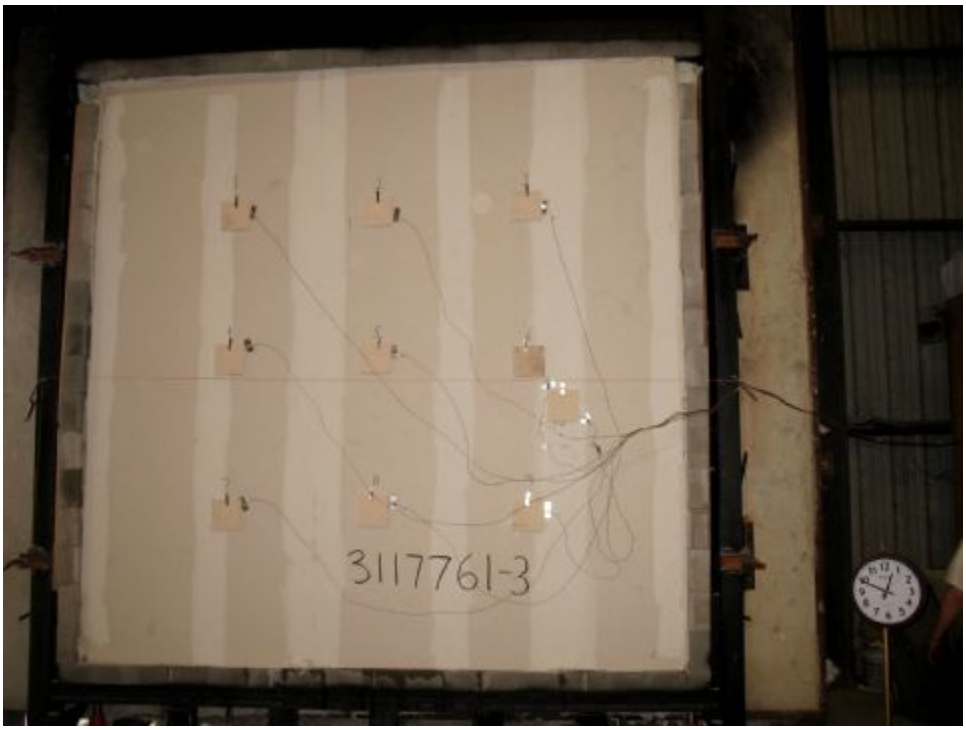

3117761-3




3117761-3

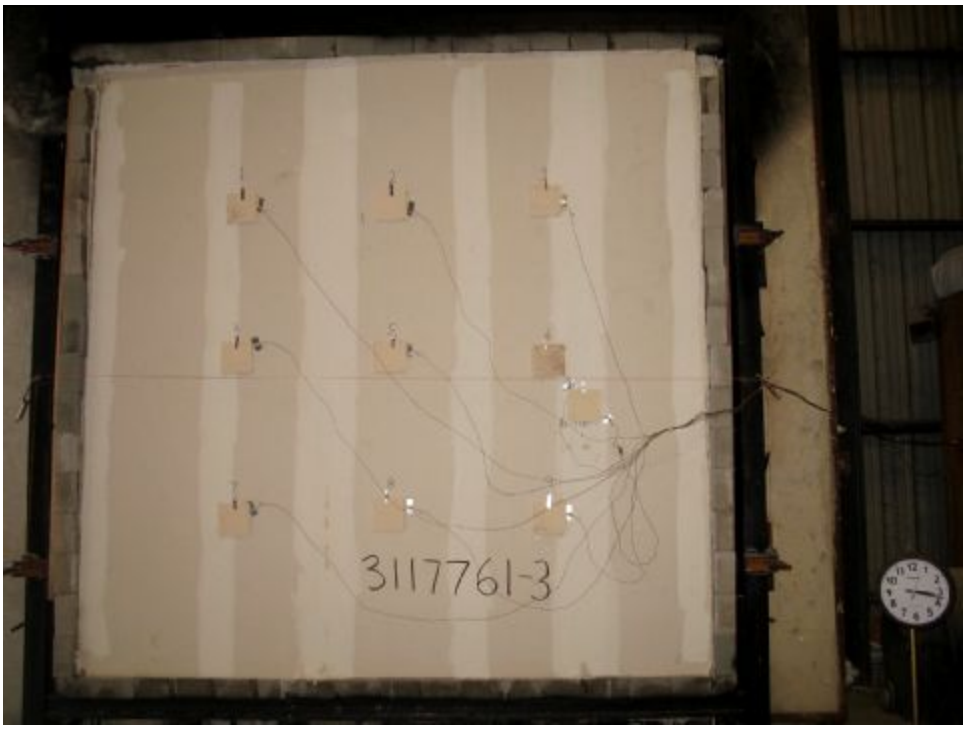





3117761-3

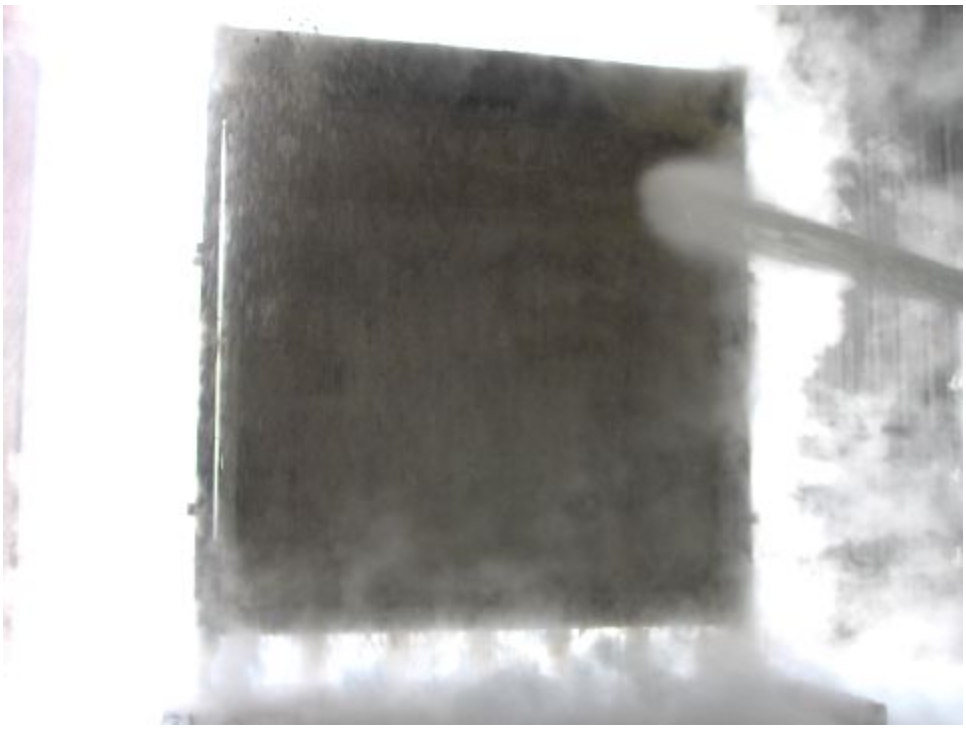

3117761-3


3117761-3


3117761-3


3117761-3


3117761-3



REVISION SUMMARY

DATE	SUMMARY
May 15, 2008	Changed address on cover page
May 15, 2008	Updated dimensions and density in section 3.2