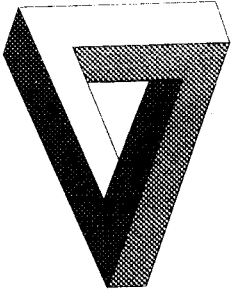


**ASTM E119 FIRE TEST
ON
LOAD BEARING FLOOR ASSEMBLY
FOR
U.S. ARCHITECTURAL PRODUCTS, INC.
VTEC #100-1222
TESTED: SEPTEMBER 7, 2000**



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VTEC Laboratories Inc.

September 7, 2000

Client: U.S. Architectural Products, Inc.
P. O. Box 1914
Fairview, NC 28730

Attention: Mr. Robert W. Cauley

Subject: Two Hour Fire Endurance Testing of Floor Deck.

SPECIMEN DESCRIPTION (by VTEC and Client):

A load bearing floor assembly was submitted to VTEC Laboratories Inc. for fire endurance testing according to ASTM E 119. The floor was constructed by US Architectural Products and delivered to VTEC. The exposed side of the floor had one layer of 5/8" Firecode Type 'C' Gypsum Board and the unexposed side had 20mm Plycem Cement Board over 1-1/2" deep, 22ga. Type 'B' galvanized steel deck. The cavities between the joists were filled in with 4" x 24" x 4 pcf density U.S.G. Therma-Fiber insulation. The unexposed side of the floor was loaded with sand bags at 44 pounds per square foot. The overall size of the floor sample was 6'-6" x 6'-6" x 11 7/8" thick.

CLIENT DESCRIPTION:

- * 8" 18ga. galv. 'C' joists, 1-5/8" flange width
- * 8" 18ga. galv. Track, 1-14" legs
- * 1/2" x 25ga. Double Leg Resilient Furring Channel
- * 3-5/8" 18ga. Stud (Web Stiffeners)
- * 4" thick x 24" width x 4 lbs. pcf density
U.S.G. Therma-Fiber insulation
- * 20mm Plycem Board
- * 5/8" Firecode Type 'C' gypsum board
- * #6 x 1-1/4" drywall screws
- * #8 x 3/4" Pan Head Tek's (low profile head)
- * #8 x 1-1/4" Rock-On S-12 tek's
- * Drywall tape
- * Gypsum joint compound
- * 1-1/2" Galv. 22ga. Type 'B' Galv. Steel Deck

Notice: VTEC Laboratories Inc. will not be liable for any loss or damage resulting from the use of the data in this report, in excess of the invoice. This report pertains to the sample tested only. Such report shall not be interpreted to be a warranty, either expressed or implied as to the suitability or fitness of said sample for such uses or applications, as the party contracting for the report may apply such sample.

PROCEDURE:

The furnace used in this test measured nominally 5ft x 5ft x 7ft. The outside construction is steel and the furnace is lined with a ceramic refractory insulation. Four burners, one centered on each wall provide uniform heat. Each burner is rated for 1.5 million Btu/hr and is of the flat flame or non-impinging flame design. Furnace conditions are monitored by four Inconel-sheathed chromel-alumel thermocouples.

The fire test was performed following the ASTM E119 time-temperature curve. The end point for the test is reached when the average of all thermocouples indicate unexposed specimen temperature of 250°F plus ambient, or when a single thermocouple exceeds 325°F plus ambient.

OBSERVATIONS AND RESULTS:

Ambient Temperature = 78°F

At 30 seconds the paper on the exposed side of the floor assembly was on fire. At 2 minutes 45 seconds the fire self-extinguished. At 15 minutes 5 seconds the seam in the gypsum board began to separate. At 85 minutes 40 seconds a large piece of gypsum board at the seam fell to the floor. At 100 minutes 55 seconds another large piece of gypsum board fell to the floor.

At 2 hour 3 minutes the furnace was voluntarily shut off without reaching any of the end points.


The time/temperature data are contained on the following pages.

<u>TIME (Minutes)</u>	<u>DEFLECTION (Inches)</u>	<u>TIME (Minutes)</u>	<u>DEFLECTION (Inches)</u>
0	0	100	0.375
25	0.125	105	0.500
95	0.250	120	0.500

DISCLAIMER:

This test should be used to measure and describe the properties of materials, products or assemblies in response to heat and flame under controlled laboratory conditions and should not be used to describe or appraise the fire hazards or fire risks of materials, products or assemblies under actual fire conditions. However, results of this test may be used as elements of a fire risk assessment, which takes into account all of the factors which are pertinent to an assessment of fire hazard of a particular end use.


Neil Schultz
Executive Director


Amirudin Rahim
Technical Director

	(On Seam)	(On Seam)	(On Seam)	Unexposed	Unexposed	Unexposed	Unexposed
Time	Sample	Sample	Sample	Sample	Sample	Sample	Sample
Mins	Temp°F	Temp°F	Temp°F	Temp°F	Temp°F	Temp°F	Temp°F
0	73	73	73	73	73	73	73
1	73	73	73	73	73	73	73
2	73	73	73	73	73	73	73
3	73	73	73	73	73	73	73
4	73	73	73	73	73	73	73
5	73	73	73	73	73	73	73
6	73	73	73	73	73	73	73
7	73	73	73	73	73	73	73
8	73	73	73	73	73	73	73
9	73	73	73	73	73	73	73
10	73	73	73	73	73	73	73
11	73	73	73	73	73	73	73
12	73	73	73	73	74	73	73
13	73	73	73	73	73	73	73
14	73	73	73	73	74	73	73
15	73	73	73	73	74	73	73
16	73	73	74	74	74	73	73
17	73	74	74	74	74	73	73
18	73	74	74	75	75	73	73
19	73	74	75	75	75	73	74
20	73	75	75	76	76	73	74
21	73	75	76	76	76	73	74
22	73	76	76	77	76	73	74
23	73	76	76	77	77	73	74
24	73	77	77	78	77	73	75
25	73	77	78	79	78	74	75
26	73	78	78	78	78	74	76
27	74	78	78	79	78	74	76
28	74	79	79	80	78	74	76
29	74	79	79	80	79	74	77
30	74	80	80	80	79	74	77
31	74	81	80	81	80	74	77
32	74	81	81	81	80	74	78
33	74	81	81	82	80	74	78
34	74	82	81	82	80	74	78
35	74	82	82	82	80	74	78
36	74	83	82	82	81	74	78
37	74	83	83	83	81	75	78
38	75	83	83	83	81	75	79
39	75	84	83	83	82	75	79
40	75	84	84	84	82	75	80
41	75	84	84	84	82	75	80
42	75	85	84	84	82	75	80
43	75	85	85	85	82	75	80
44	75	86	85	85	83	75	80
45	75	86	86	85	83	75	80

Time Mins	Unexposed	Unexposed	Furnace Temp°F	Furnace Temp°F	Furnace Temp°F	Furnace Temp°F	Unexposed	
	Sample Temp°F	Sample Temp°F					Sample Avg. °F	Furnace Avg. °F
0	73	73	88	84	83	83	73	84
1	73	73	1124	1085	977	1001	73	1020
2	73	73	1364	1366	1344	1341	73	1353
3	73	73	1290	1304	1288	1302	73	1296
4	73	73	1277	1297	1286	1298	73	1289
5	73	73	1289	1306	1297	1311	73	1300
6	74	73	1292	1317	1307	1316	73	1308
7	73	73	1303	1328	1318	1328	73	1319
8	73	73	1313	1343	1335	1346	73	1334
9	73	73	1328	1351	1340	1355	73	1343
10	73	72	1335	1368	1355	1368	73	1357
11	73	73	1344	1378	1364	1377	73	1366
12	73	73	1355	1391	1381	1394	73	1380
13	73	73	1363	1398	1395	1396	73	1388
14	73	73	1374	1408	1405	1407	73	1399
15	73	73	1383	1418	1413	1419	73	1408
16	74	73	1384	1424	1422	1424	73	1413
17	74	74	1406	1443	1437	1442	74	1432
18	74	74	1422	1459	1454	1462	74	1449
19	75	74	1443	1484	1477	1480	74	1471
20	75	75	1458	1493	1490	1487	74	1483
21	76	75	1461	1498	1501	1501	75	1489
22	76	75	1469	1505	1506	1508	75	1499
23	76	76	1472	1510	1513	1517	76	1502
24	76	77	1475	1512	1514	1522	76	1507
25	77	77	1479	1520	1523	1522	76	1512
26	78	78	1481	1519	1530	1528	77	1514
27	78	78	1483	1530	1531	1534	77	1519
28	79	78	1496	1535	1542	1542	77	1529
29	80	79	1550	1598	1599	1600	78	1584
30	80	79	1509	1549	1561	1563	78	1546
31	80	79	1523	1570	1572	1573	78	1561
32	80	80	1548	1590	1591	1600	79	1582
33	81	80	1553	1599	1602	1604	79	1591
34	81	80	1550	1598	1605	1604	79	1590
35	82	81	1554	1599	1601	1604	80	1589
36	82	81	1578	1626	1629	1631	80	1616
37	82	81	1607	1653	1656	1658	80	1644
38	82	82	1544	1585	1592	1591	80	1578
39	83	82	1557	1601	1610	1613	81	1596
40	83	82	1568	1611	1616	1615	81	1602
41	83	82	1566	1603	1610	1605	81	1598
42	84	82	1644	1687	1693	1691	81	1661
43	84	83	1662	1718	1717	1722	82	1670
44	85	83	1626	1672	1680	1683	82	1665
45	85	83	1630	1664	1674	1676	82	1660

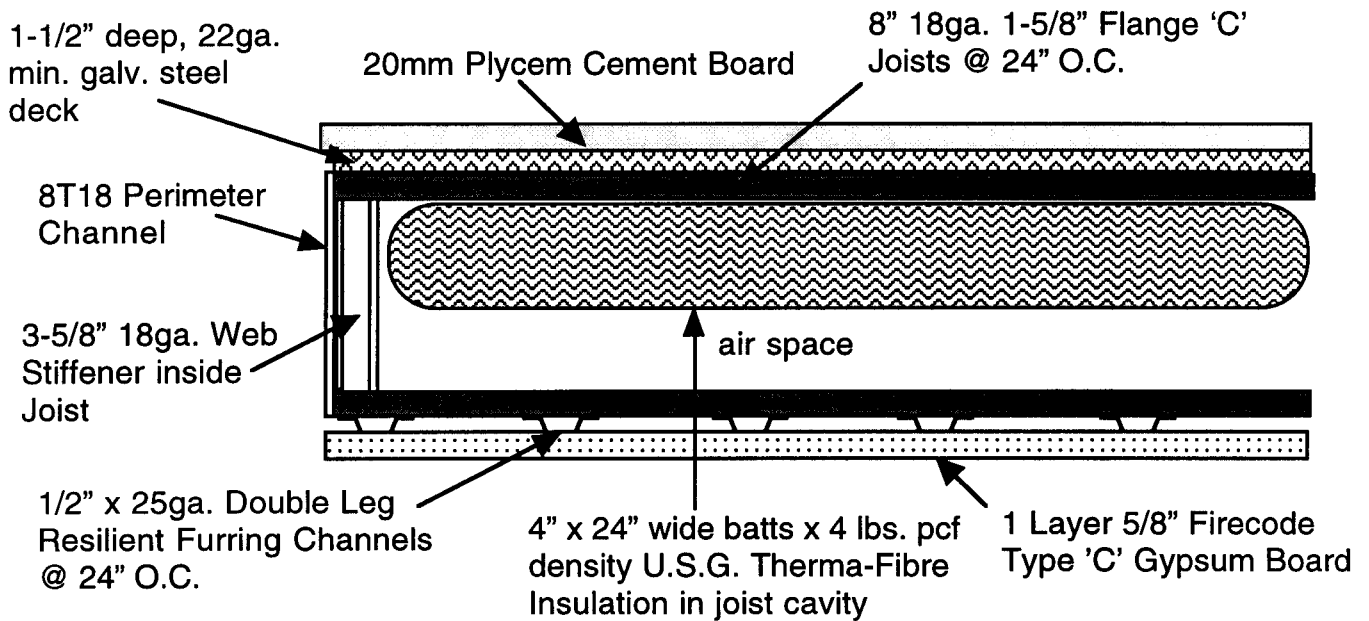
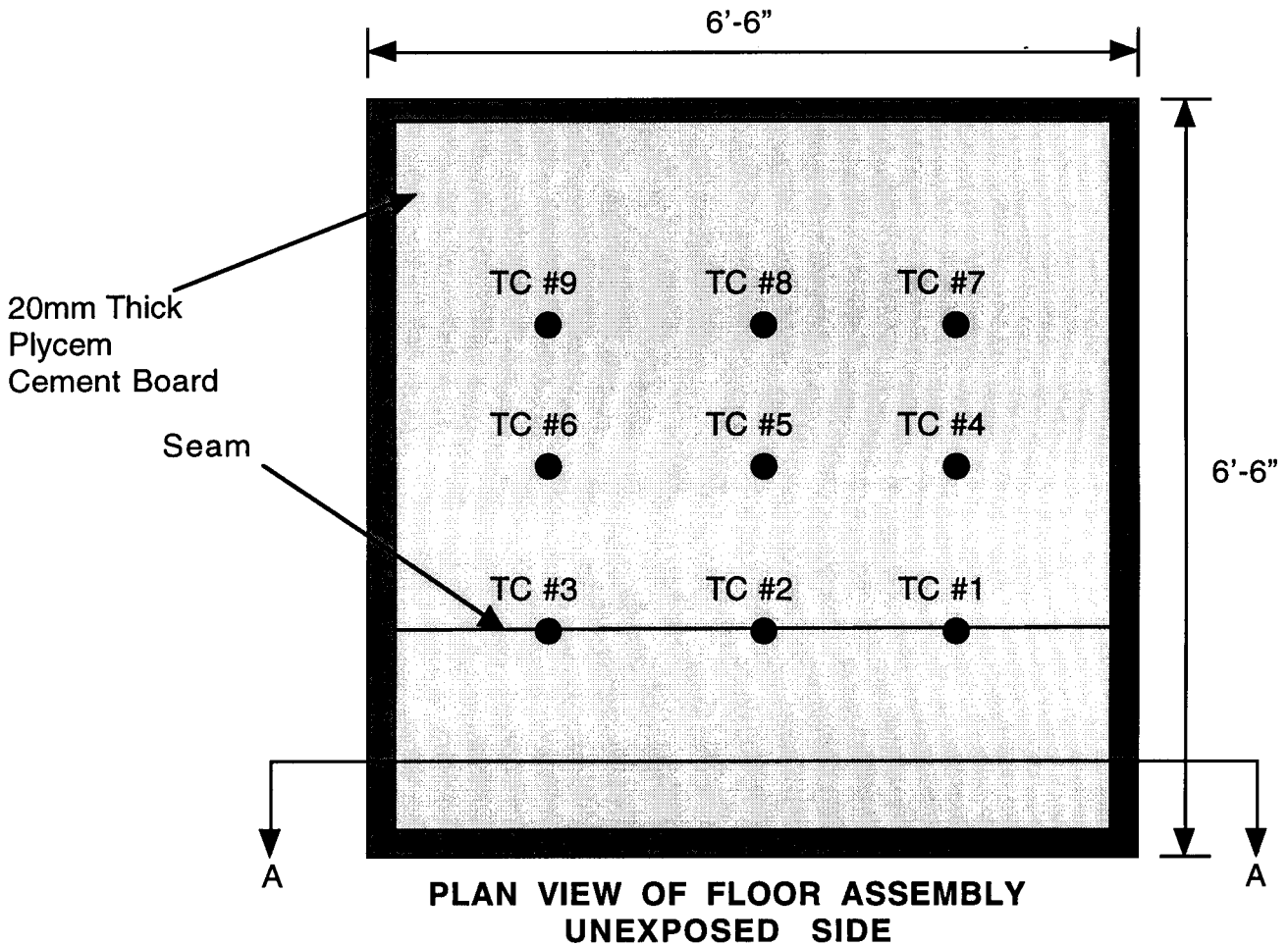
Time Mins	Unexposed	Unexposed	(On Seam)	Unexposed	Unexposed	(On Seam)	Unexposed
	Sample Temp°F	Sample Temp°F	Sample Temp°F	Sample Temp°F	Sample Temp°F	Sample Temp°F	Sample Temp°F
46	75	86	86	85	83	75	80
47	76	86	86	86	83	75	81
48	75	87	86	86	84	75	81
49	75	87	87	86	84	75	81
50	76	87	87	86	84	76	81
51	76	88	88	87	85	76	81
52	76	88	88	87	85	76	82
53	76	88	88	87	85	76	82
54	76	88	89	88	86	76	82
55	76	89	89	88	86	76	82
56	76	89	89	88	86	76	82
57	76	89	90	89	86	76	83
58	76	90	90	89	87	76	83
59	76	90	91	89	87	76	83
60	76	91	91	90	88	76	83
61	77	91	92	90	88	76	83
62	77	91	92	90	88	76	84
63	77	91	92	91	89	76	84
64	77	92	93	91	89	76	84
65	77	92	94	92	90	77	84
66	77	92	94	92	90	77	85
67	77	92	94	92	90	77	85
68	78	93	96	93	91	77	85
69	78	94	96	93	91	77	86
70	78	94	96	93	91	77	86
71	78	94	97	94	92	77	86
72	78	95	97	94	92	77	86
73	78	95	98	95	92	77	87
74	78	96	99	95	93	78	87
75	79	96	100	95	94	78	87
76	79	97	100	96	94	78	87
77	79	97	101	96	94	78	88
78	79	98	101	97	95	78	88
79	79	98	102	97	95	78	88
80	80	99	103	98	96	78	88
81	80	99	103	98	96	78	89
82	80	100	104	99	96	78	89
83	80	100	104	99	97	79	89
84	80	101	105	100	97	79	90
85	81	101	105	100	98	79	90
86	81	102	106	100	98	79	90
87	81	103	106	101	99	79	91
88	81	103	107	101	99	79	91
89	82	104	108	102	100	79	91
90	82	104	108	102	100	79	91
91	82	105	109	103	101	80	92

Time Mins	Unexposed (On Seam)		Furnace Temp°F	Furnace Temp°F	Furnace Temp°F	Furnace Temp°F	Unexposed	
	Sample Temp°F	Sample Temp°F					Sample Avg. °F	Furnace Avg. °F
46	85	83	1626	1667	1670	1672	82	1660
47	85	83	1633	1672	1678	1682	82	1665
48	86	84	1632	1669	1675	1678	83	1662
49	86	83	1632	1677	1678	1688	83	1670
50	86	84	1639	1680	1686	1685	83	1673
51	87	84	1643	1684	1690	1689	83	1678
52	87	85	1646	1686	1693	1694	84	1677
53	87	85	1648	1690	1697	1695	84	1682
54	88	85	1654	1694	1701	1706	84	1688
55	88	85	1664	1702	1703	1710	84	1696
56	89	86	1660	1704	1709	1709	85	1696
57	89	86	1674	1710	1712	1714	85	1704
58	90	87	1674	1715	1715	1726	85	1707
59	90	87	1680	1720	1724	1725	86	1714
60	90	87	1684	1726	1727	1729	86	1716
61	91	87	1690	1724	1730	1730	86	1718
62	92	88	1693	1735	1735	1736	86	1725
63	92	88	1707	1739	1739	1747	87	1731
64	93	89	1702	1739	1736	1742	87	1730
65	93	89	1705	1742	1742	1745	87	1735
66	93	89	1710	1746	1744	1752	88	1738
67	94	90	1716	1749	1748	1752	88	1741
68	94	90	1717	1752	1751	1755	88	1746
69	94	90	1720	1747	1750	1753	89	1744
70	95	90	1718	1752	1749	1756	89	1746
71	95	91	1723	1758	1757	1762	89	1751
72	96	91	1728	1763	1757	1762	90	1756
73	96	92	1733	1766	1764	1769	90	1758
74	97	92	1742	1768	1768	1770	90	1762
75	97	93	1744	1774	1767	1773	91	1765
76	97	93	1746	1773	1773	1775	91	1767
77	98	94	1750	1776	1776	1775	92	1769
78	98	94	1753	1781	1781	1778	92	1772
79	98	94	1751	1776	1784	1758	92	1770
80	99	95	1787	1771	1801	1785	93	1786
81	99	96	1797	1746	1813	1795	93	1786
82	100	96	1805	1764	1827	1811	94	1800
83	100	96	1811	1788	1830	1811	94	1813
84	101	97	1819	1821	1837	1774	94	1811
85	101	98	1798	1812	1819	1783	95	1806
86	101	98	1810	1807	1826	1796	95	1808
87	102	98	1810	1817	1828	1802	96	1813
88	102	99	1799	1806	1821	1792	96	1806
89	103	100	1804	1796	1824	1795	96	1804
90	104	100	1811	1793	1818	1802	97	1805
91	105	100	1804	1812	1815	1803	97	1808

Time	Unexposed	Unexposed	(On Seam)	Unexposed	Unexposed	(On Seam)	Unexposed
Mins	Sample	Sample	Sample	Sample	Sample	Sample	Sample
	Temp°F	Temp°F	Temp°F	Temp°F	Temp°F	Temp°F	Temp°F
92	82	106	110	104	102	80	92
93	83	107	110	104	103	80	92
94	83	108	111	106	104	80	93
95	84	110	112	107	106	80	93
96	84	111	114	109	107	80	93
97	86	113	116	112	109	81	94
98	86	115	118	115	110	81	94
99	87	117	121	118	112	81	95
100	88	120	124	121	114	82	95
101	90	122	128	125	116	82	95
102	91	125	133	129	118	82	96
103	92	128	138	134	120	83	96
104	94	131	142	137	122	83	96
105	96	134	146	142	124	83	98
106	97	137	151	146	126	84	99
107	98	140	154	150	128	84	100
108	100	144	159	155	131	85	102
109	100	147	162	159	133	85	104
110	101	151	166	164	135	86	107
111	101	154	169	168	138	86	110
112	102	158	172	172	140	87	112
113	102	162	176	176	142	87	115
114	102	166	178	181	144	87	118
115	102	169	181	185	146	88	122
116	102	173	183	189	149	88	123
117	102	177	187	191	153	89	127
118	102	181	192	195	157	89	129
119	102	184	195	198	160	90	130
120	102	189	197	202	164	90	132
121	103	193	200	206	169	90	137
122	103	195	203	203	171	90	139

Time Mins	Unexposed (On Seam)		Unexposed				Unexposed	
	Sample Temp°F	Sample Temp°F	Furnace Temp°F	Furnace Temp°F	Furnace Temp°F	Furnace Temp°F	Sample Avg. °F	Furnace Avg. °F
92	105	100	1806	1804	1823	1807	98	1813
93	106	101	1806	1815	1828	1817	99	1817
94	107	102	1818	1807	1837	1819	99	1820
95	107	102	1814	1819	1839	1823	100	1824
96	108	102	1820	1818	1842	1835	101	1830
97	110	103	1819	1820	1846	1829	102	1829
98	110	104	1825	1811	1844	1829	104	1829
99	112	104	1822	1816	1852	1832	105	1830
100	113	106	1823	1821	1851	1832	107	1832
101	115	107	1830	1820	1852	1836	109	1835
102	118	109	1829	1820	1857	1843	111	1836
103	121	110	1820	1823	1849	1834	114	1832
104	124	113	1831	1820	1858	1845	116	1837
105	129	116	1832	1830	1854	1843	119	1840
106	133	120	1836	1829	1865	1851	121	1845
107	138	124	1835	1828	1868	1851	124	1845
108	143	128	1839	1836	1865	1857	127	1849
109	149	132	1841	1838	1867	1858	130	1852
110	154	137	1841	1841	1867	1858	133	1852
111	160	142	1843	1842	1866	1859	136	1853
112	165	146	1843	1849	1865	1860	139	1855
113	169	150	1844	1854	1858	1860	142	1854
114	174	155	1841	1846	1861	1865	145	1852
115	178	159	1822	1805	1834	1826	148	1822
116	181	163	1842	1851	1869	1864	150	1856
117	187	169	1843	1853	1868	1869	154	1858
118	190	173	1845	1849	1871	1871	156	1859
119	194	176	1846	1849	1869	1867	159	1858
120	198	180	1848	1850	1871	1870	164	1860
121	204	183	1850	1852	1867	1868	166	1859
122	206	190	1847	1852	1871	1867	169	1859

US ARCHITECTURAL PRODUCTS FLOOR ASSEMBLY



SECTION A-A

FIGURE 1.0