SMALL SCALE ASTM E119 TESTING
FOR
TPR^2 CORPORATION
ON
AFES SERIES INTUMESCENT MASTIC
VTEC #100-2514
TESTED: OCTOBER 5, 2006

VTEC Laboratories Inc.

October 5, 2006

Client: TPR^2 Corporation
161 Interstate Lane
Waterbury, CT 06705

Attn: Mr. Richard J. Barone Jr.

Subject: ASTM E119 Fire Endurance Testing on Coated Steel I-Beam

SAMPLE DESCRIPTION:

The sample was identified as follows:

A 12" high steel I-beam coated with AFES Series Intumescent Mastic. The I-beam was mounted on a 14" x 14" x 0.5" steel plate. The coating was applied at a dry thickness of 178 mils. Two thermocouples were inserted into the I-beam.

PROCEDURE:

The furnace used in this test measures 3ft x 3ft x 3ft. The outside construction is steel and the furnace is lined with a ceramic refractory insulation. The furnace dimensions inside the insulation are nominally 27" x 27" x 27". A single burner is centered vertically in the wall opposite the sample. This 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 three Inconel-sheathed chromel-alumel thermocouples. These thermocouples are positioned 6" from the face of the sample. A transition piece was placed on the front of the furnace that had an opening of 12" x 12" were the sample was to be placed. The sample was placed through this opening so that the I-Beam is exposed to the inside of the furnace and support by the ½" plate.

The fire test was run following the ASTM E119 time-temperature curve.

The endpoint for this ASTM E119 Test occurs when all the thermocouples on the sample reach an average of 1,000°F, or when any individual thermocouple on the sample reaches 1,200°F.

RESULTS:

At 1 hour and 5 minutes, the average of all thermocouples exceeded 1000°F. After the average temperature exceeded 1000°F, the furnace was shut off and the test was stopped.

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

Neil Schultz
Executive Director

A-Rahim
Amirudin Rahim
Technical Director

Time (min)	Sample Side (Deg. F) Channel 1	Sample Middle (Deg. F) Channel 2	Furnace Temp. (Deg. F) Channel 3	Furnace Temp. (Deg. F) Channel 4	Furnace Temp. (Deg. F) Channel 5	Avg. of Sample (Deg. F) Channel 6	Avg. of Furnace (Deg. F) Channel 7
0	72	72	77	77	78	72	77
1	77	81	835	839	882	79	848
2	94	118	877	884	907	106	887
3	115	160	937	940	978	137	949
4	139	198	958	966	988	168	975
5	164	220	982	997	1012	191	997
6	193	250	1015	1025	1054	221	1031
7	211	284	1123	1129	1148	247	1130
8	227	314	1188	1209	1200	270	1196
9	248	340	1226	1240	1222	294	1225
10	271	363	1306	1326	1281	317	1300
11	294	383	1356	1366	1327	338	1352
12	317	401	1373	1406	1369	359	1379
13	338	418	1410	1434	1432	377	1424
14	357	432	1390	1415	1415	395	1406
15	375	444	1363	1387	1393	410	1381
16	391	455	1371	1402	1399	423	1391
17	406	464	1396	1422	1415	435	1410
18	418	472	1412	1447	1436	445	1433
19	430	478	1419	1459	1438	454	1439
20	440	484	1451	1487	1497	462	1481
21	450	490	1464	1499	1497	470	1488
22	459	495	1476	1530	1541	477	1513
23	467	501	1478	1511	1574	484	1522
24	476	508	1473	1517	1575	492	1521
25	484	515	1480	1532	1595	500	1536
26	493	522	1494	1542	1584	507	1540
27	502	529	1496	1550	1609	515	1552
28	510	536	1498	1556	1622	523	1558
29	519	543	1478	1550	1631	531	1553
30	527	550	1486	1548	1642	538	1557
31	535	556	1485	1553	1651	545	1562
32	542	562	1492	1558	1642	552	1565
33	550	570	1497	1559	1647	560	1568
34	557	577	1525	1581	1662	567	1588
35	563	583	1539	1607	1679	574	1610
36	575	591	1552	1613	1688	582	1617

Time (min)	Sample Side (Deg. F) Channel 1	Sample Middle (Deg. F) Channel 2	Furnace Temp. (Deg. F) Channel 3	Furnace Temp. (Deg. F) Channel 4	Furnace Temp. (Deg. F) Channel 5	Avg. of Sample (Deg. F) Channel 6	Avg. of Furnace (Deg. F) Channel 7
37	583	599	1567	1633	1697	589	1632
38	592	613	1552	1621	1688	601	1619
39	600	624	1541	1615	1659	612	1607
40	609	638	1556	1616	1647	623	1606
41	619	651	1563	1627	1654	636	1614
42	632	663	1571	1633	1659	648	1622
43	644	676	1573	1635	1649	660	1619
44	659	689	1595	1653	1663	674	1635
45	673	702	1605	1660	1666	688	1643
46	689	717	1611	1658	1665	703	1645
47	705	729	1605	1671	1677	719	1651
48	723	748	1619	1672	1677	736	1656
49	738	764	1632	1681	1681	750	1666
50	753	781	1622	1674	1686	765	1661
51	768	797	1622	1679	1688	781	1663
52	785	813	1639	1684	1692	799	1673
53	801	832	1634	1682	1694	815	1670
54	817	849	1627	1688	1700	832	1672
55	832	866	1642	1688	1704	849	1678
56	847	881	1638	1690	1709	864	1679
57	862	899	1656	1708	1716	880	1693
58	877	917	1654	1705	1722	896	1694
59	892	933	1660	1723	1741	912	1708
60	906	950	1671	1728	1746	927	1715
61	921	966	1678	1731	1755	944	1720
62	938	979	1668	1723	1754	960	1715
63	952	1002	1669	1716	1753	976	1713
64	964	1018	1679	1734	1761	991	1725
65	979	1035	1629	1697	1728	1007	1703