Albi Mfg.

Fire Test Report

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Project: Concrete Block Wall Fire Test

Subject: - Fire resistance testing as prescribed by Underwriters Laboratories, Inc.
Fire Resistance Test Standard UL 263 (ASTM E-119) of Albi Clad TF applied to a concrete block wall section.

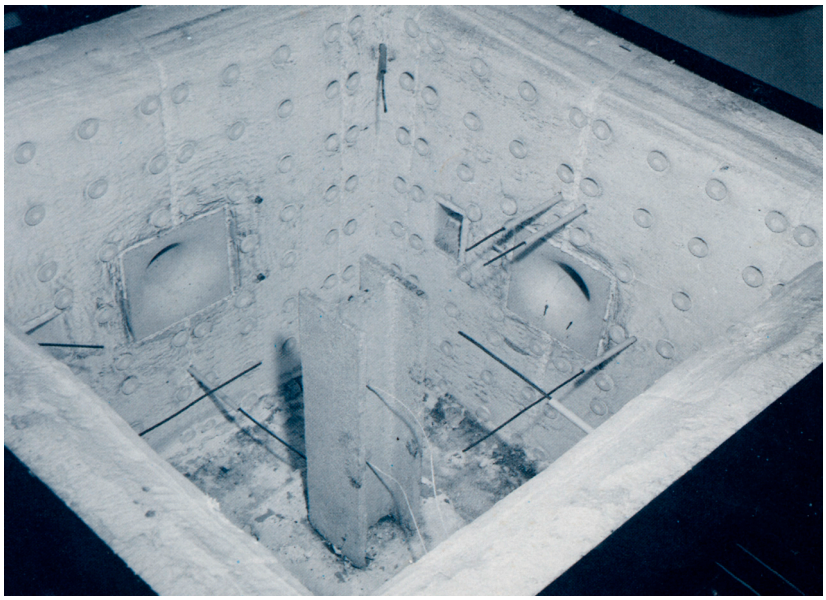
Specimen Preparation:

A 12 x 12 x 4 inch thick concrete block wall section was constructed using concrete block and skim coated with normal weight concrete. The sample was cured prior to the application of the Albi Clad TF. The Intumescent fireproofing, Albi Clad TF was spray applied in one coat to an average dry film thickness of 25 mils (0.025 inches). The Albi Clad TF was allowed to cure for 5 days prior to the fire test.

Furnace Descriptions:

Our large furnace (refer to the two photos below) measures nominally 6 feet x 6 feet x 8 feet with a cover vented out. 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's and is of the flat flame/non-impinging flame design. Furnace conditions are monitored by four inconel sheathed thermocouples and the test can be observed through four portholes located one on each of the furnace walls, providing 360 degree viewing.

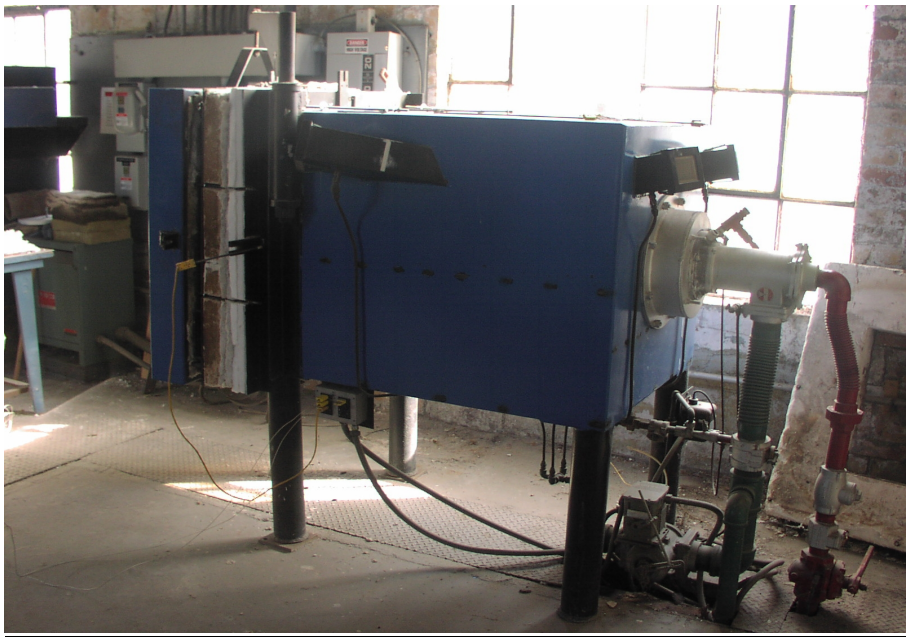
Large Furnace Exterior



Large Furnace Interior

Our Small furnace (refer to the two photos below) measures nominally 3 feet x 3 feet x 4.5 feet with the front panel open for mounting the test samples in a vertical orientation. The outside construction is steel and the furnace is lined with a ceramic refractory insulation. One burner, centered on the end wall, provides uniform heat. This burner is rated for 1.0 million Btu's

Small Furnace



Small Furnace

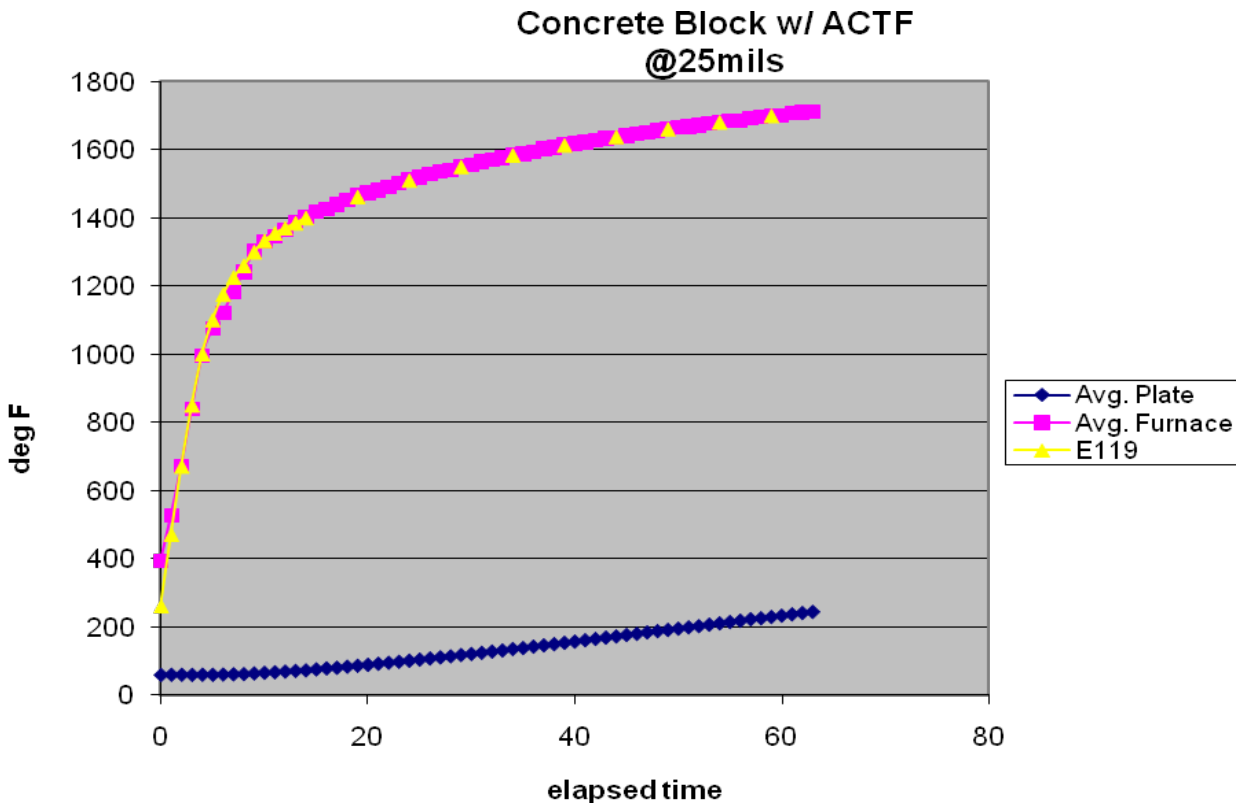
Test Procedure:

The test specimen was placed onto the open end of the small furnace and held in place by a pre-constructed frame. Two thermocouples monitored the furnace temperature and one thermocouple recorded the concrete block temperature place into the concrete block exactly 3 inches from the fire exposed surface of the block wall section. The test was then performed using the UL 263 (ASTM E-119) fire resistance test standard. The test parameters were to keep the back side of the concrete block wall below 325 degree Fahrenheit (250 degrees f plus the ambient air temperature of 75 degrees f) for 60 minutes.

Results:

The concrete block wall test specimen passed the UL 263 (ASTM E-119) Fire Resistance standard for 60 minutes fire resistance. See graph below.

Specimen	Dry Film Thickness	Time/Temperature Result
Block Wall	25 mils (0.025 inches)	60 minutes 232.89 degrees f



FIRE TEST DATA

Date	Time	ASTM E-119	Furnace	elapsed time	Avg. Plate	Avg. Furnace
2/1/2005	9:50:25 AM	409.25	376.18	0	58.99	392.715
2/1/2005	9:51:25 AM	544.58	506.67	1	59.65	525.625
2/1/2005	9:52:25 AM	685.19	656.37	2	59.73	670.78
2/1/2005	9:53:25 AM	846.48	828.03	3	59.42	837.255
2/1/2005	9:54:25 AM	1007	983.32	4	59.75	995.16
2/1/2005	9:55:25 AM	1080.2	1066.8	5	59.65	1073.5
2/1/2005	9:56:25 AM	1128.2	1110.4	6	60.32	1119.3
2/1/2005	9:57:25 AM	1186.7	1178.3	7	61.07	1182.5
2/1/2005	9:58:25 AM	1243.1	1239.2	8	61.62	1241.15
2/1/2005	9:59:25 AM	1303.5	1298.6	9	63.56	1301.05
2/1/2005	10:00:25 AM	1327.9	1330.1	10	65.41	1329
2/1/2005	10:01:25 AM	1344	1345.4	11	66.92	1344.7
2/1/2005	10:02:25 AM	1361.8	1366.9	12	68.94	1364.35
2/1/2005	10:03:25 AM	1384.1	1388.5	13	70.99	1386.3
2/1/2005	10:04:25 AM	1400.6	1402.5	14	72.54	1401.55
2/1/2005	10:05:25 AM	1415.2	1418.9	15	75.46	1417.05
2/1/2005	10:06:25 AM	1424.3	1427.7	16	78.42	1426
2/1/2005	10:07:25 AM	1437.4	1440.6	17	80.25	1439
2/1/2005	10:08:25 AM	1449.6	1453	18	83.33	1451.3
2/1/2005	10:09:25 AM	1463.4	1466.8	19	86.01	1465.1
2/1/2005	10:10:25 AM	1471.6	1474	20	88.76	1472.8

2/1/2005	10:11:25 AM	1480.4	1479.9	21	91.92	1480.15
2/1/2005	10:12:25 AM	1491.1	1491.5	22	94.88	1491.3
2/1/2005	10:13:25 AM	1501.1	1500.9	23	97.75	1501
2/1/2005	10:14:25 AM	1512	1513.8	24	100.91	1512.9
2/1/2005	10:15:25 AM	1517.7	1518.4	25	104.06	1518.05
2/1/2005	10:16:25 AM	1527.5	1527.3	26	107.38	1527.4
2/1/2005	10:17:25 AM	1536.2	1534.2	27	110.53	1535.2
2/1/2005	10:18:25 AM	1541.2	1537.9	28	113.71	1539.55
2/1/2005	10:19:25 AM	1549.9	1551.6	29	117.59	1550.75
2/1/2005	10:20:25 AM	1555.9	1556.1	30	120.73	1556
2/1/2005	10:21:25 AM	1564.7	1565.4	31	123.97	1565.05
2/1/2005	10:22:25 AM	1570.2	1568.9	32	127.67	1569.55
2/1/2005	10:23:25 AM	1576.8	1575.2	33	130.88	1576
2/1/2005	10:24:25 AM	1583.9	1582.3	34	135.06	1583.1
2/1/2005	10:25:25 AM	1587.3	1587.1	35	137.98	1587.2
2/1/2005	10:26:25 AM	1595.2	1590.6	36	142.2	1592.9
2/1/2005	10:27:25 AM	1603.6	1603.3	37	145.88	1603.45
2/1/2005	10:28:25 AM	1608.4	1606.1	38	149.32	1607.25
2/1/2005	10:29:25 AM	1614.9	1613.3	39	153.36	1614.1
2/1/2005	10:30:25 AM	1618.5	1616.9	40	156.87	1617.7
2/1/2005	10:31:25 AM	1622.3	1619.8	41	160.87	1621.05
2/1/2005	10:32:25 AM	1630.3	1625.5	42	164.7	1627.9
2/1/2005	10:33:25 AM	1635	1631.4	43	168.49	1633.2
2/1/2005	10:34:25 AM	1636.7	1634.1	44	172.07	1635.4
2/1/2005	10:35:25 AM	1642.3	1639.3	45	176.27	1640.8
2/1/2005	10:36:25 AM	1647.5	1644.2	46	179.53	1645.85
2/1/2005	10:37:25 AM	1651.6	1649.5	47	183.9	1650.55
2/1/2005	10:38:25 AM	1656.2	1654.9	48	187.61	1655.55
2/1/2005	10:39:25 AM	1662.2	1661.4	49	190.93	1661.8
2/1/2005	10:40:25 AM	1666.2	1663.1	50	194.81	1664.65
2/1/2005	10:41:25 AM	1669	1666.1	51	198.66	1667.55
2/1/2005	10:42:25 AM	1671.4	1670.6	52	202.22	1671
2/1/2005	10:43:25 AM	1678.3	1674.4	53	206.6	1676.35
2/1/2005	10:44:25 AM	1680.9	1678.8	54	210.37	1679.85
2/1/2005	10:45:25 AM	1686	1684.2	55	214.26	1685.1
2/1/2005	10:46:25 AM	1687.2	1684.3	56	218.11	1685.75
2/1/2005	10:47:25 AM	1693.8	1690.7	57	222.46	1692.25
2/1/2005	10:48:25 AM	1698	1694.2	58	225.34	1696.1
2/1/2005	10:49:25 AM	1701.3	1697.7	59	228.99	1699.5
2/1/2005	10:50:25 AM	1702.3	1699.7	60	232.89	1701
2/1/2005	10:51:25 AM	1709.2	1705.1	61	236.8	1707.15
2/1/2005	10:52:25 AM	1711.1	1708.2	62	240.58	1709.65
2/1/2005	10:53:25 AM	1712.4	1708.8	63	243.86	1710.6